CITY OF PORTLAND, MAINE
PLANNING BOARD

Sean Dundon, Chair
Brandon Mazer, Vice Chair
David Eaton
David Silk
Austin Smith
Maggie Stanley
Lisa Whited

AGENDA
PORTLAND PLANNING BOARD MEETING

The Portland Planning Board will hold a meeting on Tuesday, November 13, 2018, Council Chambers, 2nd Floor, City Hall, 389 Congress Street. Public comments will be taken for each item on the agenda during the estimated allotted time and written comments should be submitted to planningboard@portlandmaine.gov.

WORKSHOP - 4:30 PM

i. Level III Site Plan; 22 Bramhall Street; Maine Medical Center, Applicant. (4:30 – 5:45 p.m. estimated time) The Board will hold a workshop to consider a proposed building expansion and new entrance off Congress Street. This is the third phase of the expansion as contained in MMC's Institutional Development Plan. The application includes the demolition of the existing Gilman Street garage. The proposed 265,000 sf building addition will reorient the Bramhall medical campus to Congress street, include 64 private patient rooms, and add 19 procedure rooms. The proposed site is within the Maine Medical Center Institutional Overlay Zone. The proposal is subject to review under Portland's Site Plan Ordinance and under delegated review for Maine's Traffic Movement Permit and Site Location of Development standards. This second workshop will focus on the transportation aspects of this application.

ii. Zoning Amendments, Marijuana Zoning, City of Portland, Applicant. (5:45 - 6:45 p.m. estimated time) The Planning Board will hold a workshop to consider zoning text amendments regarding medical and adult use marijuana. The zoning amendments will address proposed uses, locations, dimensional standards and use standards for marijuana manufacturing, cultivation, testing and retail establishments. Zoning districts impacted by the text amendment include the B-2, B-2b, B-2c, B-3, B-3c, B-7, B-4, I-H, I-L, I-Lb, I-M and I-Mb.

PUBLIC HEARING - 7:30 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON OCTOBER 23, 2018

Afternoon Workshop: Dundon, Mazer, Eaton, Smith, Stanley and Whited present. Silk absent and Whited recused for the second item.

Public Hearing: Dundon, Mazer, Eaton, Smith, Stanley and Whited present. Silk absent and Whited recused for the second item.

Evening Workshop: Dundon, Mazer, Eaton, Smith, Stanley and Whited present. Silk absent.

4. REPORT OF DECISIONS AT THE MEETING HELD ON OCTOBER 23, 2018

i. Hotel Inclusionary Zoning, Ordinance Amendments, City of Portland, Applicant. This item was tabled.

5. NEW BUSINESS

i. Zoning Text Amendment to the IR-1 and IR-2 Zones; Island Accessory Dwelling Unit; City of Portland, Applicant. (7:30 – 8:00 p.m. estimated time) The Board will hold a public hearing to consider a zoning text amendment that would remove a conditional use standard of the IR-1 and IR-2 zones requiring, properties with both a principle and accessory dwelling unit (ADU), that one of the dwelling units be owner-occupied. The amendments also include a one year minimum rental period for an ADU, short-term rentals are expressly prohibited, an ADU must have a minimum 300 sf and one parking space. The IR-1 and IR-2 zones can be found on Peaks Island, Cushing Island, Great Diamond Island, Little Diamond Island, House Island and Cliff Island.

ii. Level III Site Plan; 90 Johnson Road; Transport Leasing Corp., Applicant.
THIS ITEM IS BEING TABLED

iii. Level III Subdivision Amendment; 94 Walnut Street; JP Sheridan, LLC., Applicant. (8:45 p.m. estimated time) The Portland Planning Board will hold a public hearing to consider an amended subdivision plan by JP Sheridan LLC. for 94 Walnut Street. The amendment is to add one residential unit to the building for a total of four housing units. The terrace area next to the main entry stoop is proposed as a parking spot for the studio apartment. There are no changes to the building footprint, building elevations or impervious area of the site. The property is in the B-2b zone and is subject to Portland's subdivision and site plan standards.

MEMORANDUM
PLANNING AND URBAN DEVELOPMENT DEPARTMENT
PLANNING DIVISION

To: Sean Dundon, Chair, and Members of the Portland Planning Board
From: Nell Donaldson, Senior Planner, and Caitlin Cameron, Urban Designer
Date: November 9, 2018
Re: MMC Congress Street Hospital Building
Project #: 000331-2018 **CBL:** 53-D-7
Meeting Date: November 13, 2018

I. INTRODUCTION

Maine Medical Center (MMC) appears before the Planning Board for a second workshop on the third and final phase of the short-term expansion proposed in their 2017 Institutional Development Plan. This phase involves the demolition of the existing 360,000 SF Gilman Street employee parking garage and replacement with a 285,000 hospital building. As proposed, the hospital building would house 64 private patient rooms, 19 procedure rooms, and connections to both the Congress Street corridor and the interior of the Bramhall campus. The proposal is subject to the standards of the Maine Medical Center Institutional Overlay Zone (MMC IOZ) and qualifies for Level III site plan review under the city's land use code. The application is also subject to the state's Site Location of Development Act, for which the city has delegated review authority. Advertisement of this workshop appeared in the *Portland Press Herald* on November 2 and 3, 2018. In addition, 254 notices were sent to property owners within 500 feet and the interested citizens list.

The Planning Board met on October 23, 2018 to review the preliminary plans for MMC's proposed Congress Street hospital building, focusing primarily on the urban design and construction management aspects of the review. In the intervening time, staff has reviewed revised submittals from MMC, providing comments with respect to all IOZ and site plan standards. Because this second workshop will concentrate on transportation and utility-related elements of the plans, only those IOZ and site plan standards are explored in detail here. The final Planning Board hearing report will include a complete analysis against all aspects of the site plan and Institutional Overlay Zone ordinances, as well as the standards of the Site Location of Development Act.

Applicant: Maine Medical Center
Consultants: Will Conway, Sebago Technics; Jeff Keilman, Perkins & Will; Randy Dunton, Gorrill-Palmer; Turner Construction

II. REQUIRED REVIEWS

Waiver Requests	*Applicable Standards*
Sidewalk material – to allow concrete sidewalks on Congress and Gilman Streets	*Technical Manual Section 1.8* – The City sidewalk materials policy shall be consulted to determine the appropriate type of sidewalk construction.
Provision of sidewalk – to allow a portion of the Gilman Street frontage without a sidewalk	*Section 14-526(a)2.c.(i)* - All developments shall provide sidewalks along all frontages....installed to city specifications, with waiver provisions under *14-506(b).*
Driveway width – to allow a driveway approximately 30' in width	*Technical Manual Section 1.7.2.4* – Maximum widths shall not exceed 24' for two way access to commercial sites.

Review	*Applicable Statute*
Institutional Overlay Zone	*Section 14-282*
Site Plan	*Section 14-526*
Site Location of Development	*Technical Manual Section 14*

III. PROJECT DATA

Existing Zoning	Institutional Overlay Zone
Existing Use	Structured parking
Proposed Use	Hospital building – 19 procedure rooms, 64 inpatient rooms
Parcel Size	12.5 acres (contiguous Bramhall campus)

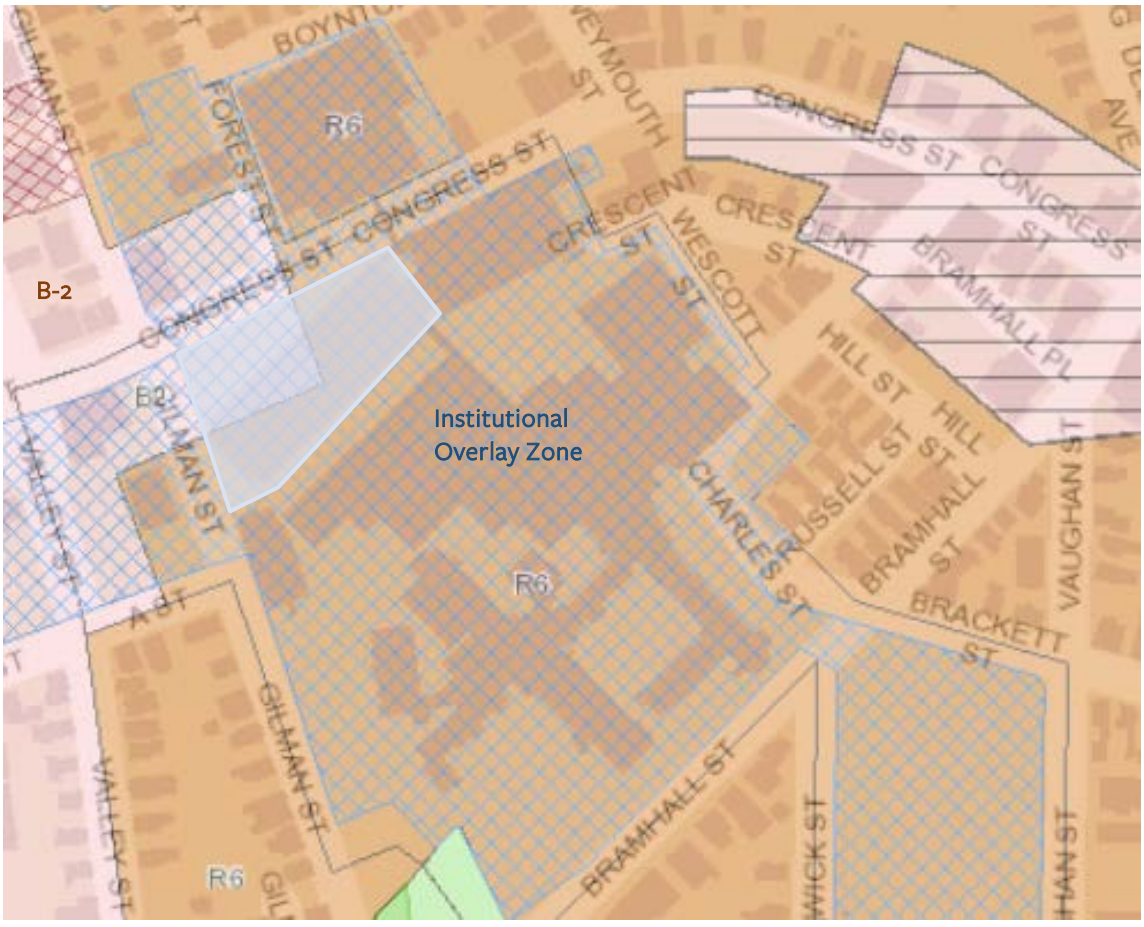
	Existing	*Proposed*	*Net Change*
Building Footprint	36,000 SF	50,000 SF	14,000 SF
Building Floor Area	360,000 SF	285,000 SF	-75,000 SF
Impervious Surface Area	398,575SF	412,862SF	14,287SF
Parking Spaces	3,279 (for entire campus, including employee garage)	3,279	0
Bicycle Parking Spaces	193 (campus-wide)	193	0

IV. CONTEXT

Maine Medical Center's Institutional Development Plan (IDP), approved by the Planning Board in the fall of 2017, laid the groundwork for a major hospital expansion over the next decade. The short- and long-term expansion plans proposed in the IDP were designed to respond to an emergent clinical need for private beds, to retire aging facilities which no longer meet the needs of patients and visitors, to reorganize the campus to address evolving best practice in health care design, and to centralize parking for employees and visitors. As of the fall of 2018, the hospital has received site plan approval for two of the three projects that comprise the hospital's short-term development plan – the vertical expansions of the East Tower and Visitor Garage and the construction of the Employee Garage at 190 St. John Street. The third project, a new 285,000 SF hospital building with a major entrance on Congress Street, is under consideration here.

The site of the proposed Congress Street hospital building lies on the northwest corner of MMC's Bramhall campus, at the intersection of Congress and Gilman Streets *(Figure 1)*. The bulk of the Bramhall campus sits up gradient behind the site. The Maine Sleep Institute lies to the west across Gilman Street, commercial properties face the site from the north across Congress Street, and MMC's Visitor Garage lies to the east. The site is currently occupied by MMC's Gilman Garage.

The site lies within the MMC Institutional Overlay Zone (IOZ), a zoning designation adopted into the land use code by the City Council in November of 2017 *(Figure 2)*. The IOZ establishes use and dimensional standards which govern proposed development by MMC within the zone, as well as a series of general development standards. Development within the IOZ which meets the criteria for site plan review is also subject to the site plan standards of the land use code.



Figures 1 & 2: Project site land use context (above) and zoning context (below)

V. PROPOSED DEVELOPMENT

The site plan application includes the demolition of the existing 360,000 SF Gilman Garage, which has stood on the site since the mid-1970s and is nearing the end of its useful life. Following demolition, significant site work is proposed, including substantial regrading, utility work, and the installation of an underground stormwater detention and treatment facility.

The new 285,000 SF building which is proposed to replace the Gilman Garage would contain circulation space and pre-operative/recovery rooms on the first floor, a second floor containing 19 procedure rooms, and inpatient rooms on the third and fourth floors. A landscaped roof garden is proposed with access from the 3rd floor. Connections to the upper campus would be provided through a vertical tower at the southeast corner of the building , with access from the fifth, sixth, and seventh floors of this tower.

The building has been designed to function as a major point of entry to the hospital, giving the campus a new face on Congress Street and a new way of engaging with the neighborhoods that surround it. The building's most active areas, including circulation and lobby spaces, are oriented towards Congress Street, where significant amounts of glass are proposed. The building would lie between 20 and 30 feet from the right-of-way line on Congress Street and directly adjacent to the right-of-way line on Gilman Street.

The site plan includes an arrival area tucked partly below the second floor at the easterly end of the building. This turnaround would provide access for vehicles, pedestrians, and bicyclists destined for the main building entrance as well as vehicles entering the visitor garage. The turnaround is proposed in hardscape, with shade-tolerant plantings in the center. This area would be held by a significant retaining wall at the Congress Street property line, one-story above a separate plaza space with plantings and low seating walls at the northwesterly corner of the site. A broad stairway is proposed to join these two exterior spaces.

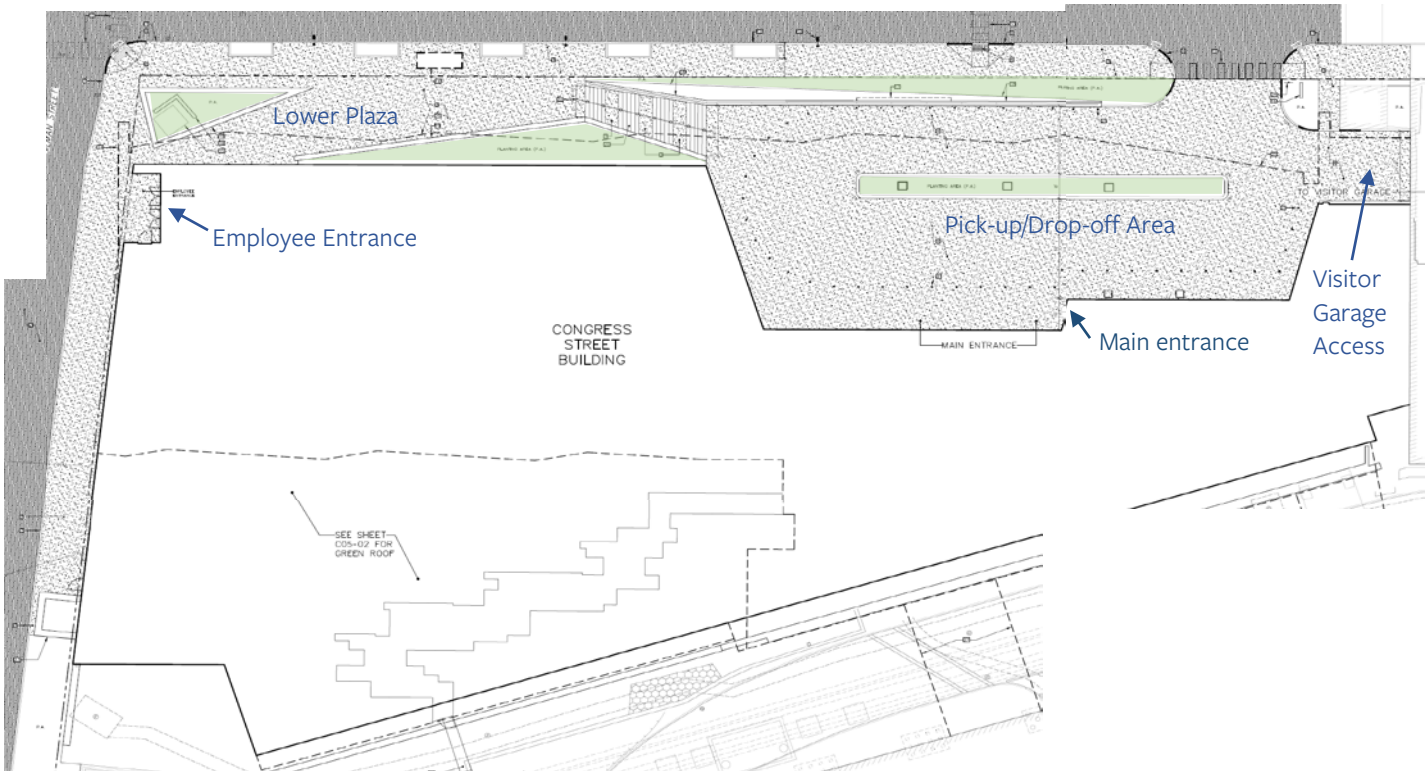


Figure 3: Preliminary site plan

Figures 4 and 5: View from Forest Street looking south across Congress Street, existing (above) and proposed (below)

VI. PRELIMINARY ZONING & SITE PLAN REVIEW – TRANSPORTATION

Staff has conducted a preliminary review of the site plan application with respect to the transportation-related standards of the Institutional Overlay Zone and land use code. Preliminary staff comments are summarized below.

A. Impact on Surrounding Street Systems

The proposed Congress Street medical building, although not designed to increase the number of patient beds at MMC, is anticipated to add 200 employees to the MMC campus by 2023 and 324 employees by 2026. Altogether, this increase in employees is estimated to generate over 100 AM, PM, and Saturday peak hour trips. As a result, a Traffic Movement Permit (TMP) is required.

It should be noted that previous MMC site plans reviewed by the city, including the 2013 Bean 2 addition, the East Tower and Visitor Garage expansion approved in early 2018, and the Employee Garage approved in mid-2018, have not individually met the trip generation thresholds for Traffic Movement Permits. As a result, TMPs were not required for those projects. However, as required under TMP regulations, the current TMP application does include some analysis of previously approved expansions by MMC, including the Bean 2 addition, in order to assess total change in trip generation on the campus over the past ten years. Tom Errico, the city's consulting traffic engineer, has reviewed this analysis and writes,

> *Traffic Movement Permit regulations require Applicants to document incremental changes to a site over the prior 10 years to determine factors that have influenced traffic generation from the site. In my professional opinion, the Applicant has not provided documentation that adequately addresses historical changes at MMC.*

In conversation, Mr. Errico has requested additional documentation on operational shifts on the campus which may have affected employee and patient volumes over the past ten years.

The trip generation estimated in the TMP application is based on a projected employment number for 2026, approximately five years following initial occupancy of the new medical building. These trips have been assigned to the roadway network based on both existing employee travel data and observations of the existing transportation system. The traffic study has taken projected shifts in routing into account; the demolition of the existing employee garage and the construction of the new employee garage on St. John Street will affect employee trips within the immediate study area, for example, shifting traffic away from Gilman Street and towards St. John, and the addition of an entrance on Congress Street will shift some traffic currently destined for the Bramhall entrance. Lastly, MMC has calculated trip generation associated with the proposed shuttle service from the Employee Garage on St. John Street to both the new north entrance and the existing Bramhall entrance. Mr. Errico has reviewed the trip generation analysis and trip distribution and writes,

> *I generally find the methods used in the development of the base traffic volumes to be reasonable and acceptable. It should be noted that the volume timeframe for the analyses was the peak hour of the roadway system, which does not correspond to employee peaking in the morning (employees arrive before the peak hour). The Applicant should provide documentation noting traffic volumes on roadways during both the peak hour of the system and peak hour of traffic generation from MMC.*

As is customary, the traffic analysis includes a discussion of impacts to roadway capacity, including level of service (LOS) and queue analyses at 11 nearby intersections stretching from Park Street/St. John Street east to Bramhall Street/Congress Street and south to Valley Street/Commercial Street. The level of service analysis, which assumes some imminent changes in the roadway network, such as the elimination of the Congress Street/Valley Street signal, generally shows acceptable levels of service, with some marginal negative

impacts, for example to overall level of service at the Congress Street/St. John Street intersection at the PM peak hour. Other intersections, such as Park Street/St. John Street, are anticipated to improve in LOS in the post-development condition. Queue lengths are anticipated to increase on many intersection approaches. Mr. Errico has reviewed the level of service analysis and writes,

> *The Park Avenue/St. John Street intersection has improving levels of service and delay following project build-out. The Applicant should specifically note any traffic signal equipment modifications that are needed to accomplish the noted optimization.*
>
> *The Commercial Street/Valley Street intersection has improving levels of service and delay following project build-out. The Applicant should specifically note any traffic signal equipment modifications that are needed to accomplish the noted optimization.*
>
> *The Congress Street/St. John Street intersection was modeled assuming existing roadway conditions. The Applicant shall also conduct an analysis assuming the Dunkin Donuts improvements on St. John Street are implemented (converting St. John Street from four lanes to three lanes).*
>
> *The Applicant shall recommend pedestrian and vehicle improvements at the Congress Street/Valley Street intersection during post-traffic signal conditions.*
>
> *I continue to review traffic model output for vehicle queuing and will provide comments in the future.*

The traffic analysis also includes a general discussion of sight lines from the proposed pick-up/drop off area, noting that they appear to meet city and MaineDOT standards. Mr. Errico writes,

> *The Applicant shall provide specific sight distance measurements at the Congress Street/Drop-Off driveway according to Site Plan information.*

The traffic analysis provides an examination of existing crash data within the study area for the most recent three-year period. This data shows that there are seven high crash locations within the area studied, including four intersections and three street segments. The traffic study includes an analysis of crash patterns observed at these locations, including pedestrian and bicycle collisions, and in some cases recommends modifications to roadway design, signal timing, or signs to mitigate safety concerns. Mr. Errico has reviewed the analysis and writes,

> *The Park Avenue/Valley Street intersection is a High Crash Location. The Applicant shall provide specific recommendations with implication of such changes for review and consideration.*
>
> *The Congress Street/Gilman Street intersection is a High Crash Location. The Applicant suggests that the future removal of the traffic signal at Congress Street/Valley Street may mitigate crashes. I continue to review this, but a monitoring requirement post signal conditions may be suggested.*
>
> *The St. John Street/A Street is a High Crash Location. The Applicant suggests that traffic volume reductions may mitigate crashes. The new employee parking garage*

will increase traffic volumes in the area and may negatively impact conditions. I continue to review this, but a monitoring requirement after the employee parking garage is open may be suggested.

Park Avenue/St. John Street is a High Crash Location. The Dunkin Donuts project on St. John Street will likely be implementing improvements to the northbound St. John Street approach. The D[unkin] D[onuts] scope of this work is not expected to mitigate all crash patterns. The Applicant shall specifically recommend strategies for mitigating all crash patterns that are correctable by improvements.

Valley Street between and A Street and C Street is a High Crash Location. The Applicant noted at the TMP Scoping Meeting that traffic volumes will be declining on Valley Street in this area and thus may reduce collisions. The Applicant shall document specific before/after traffic volumes changes on Valley Street as part of assessing mitigation of crash rates.

The Congress Street/St. John Street intersection is not a High Crash Location but experienced 25 crashes over the reported three-year period. The Applicant shall conduct a safety review of the intersection.

In his review, Mr. Errico has paid particular attention to the safety analysis for the segment of Congress Street between Gilman Street and Weymouth Street, where the applicant has suggested implementation of a center turn lane as mitigation to address a pattern of rear end collisions *(Figure 6)*. Mr. Errico writes,

Congress Street is a High Crash Location between Forest Street and Weymouth Street. To assess potential mitigation strategies, I conducted a review of police reports. The Applicant has suggested the provision of a three-lane roadway with a center left-turn lane. There were 10 crashes reported over the most recent three-year period with a Critical Rate Factor of 1.45. [Mr. Errico's analysis of the collisions in this location is included in Attachment 2].

Based upon my review of the data, at most 50% of the crashes could be mitigated with the introduction of a center turn lane. I would note again that some of the rear end collisions may not have been related to a left-turn movement, but to congested dense slow-moving vehicle conditions. The center turn lane would not mitigate those crashes.

City staff is concerned about changing the roadway context of Congress Street (particularly in comparison with nearby intown Congress Street conditions) and how it has the potential for dangerous increased vehicle speeds. I would note that the Applicant's traffic simulation model of Congress Street in this area depicts a roadway with little to no vehicle delay suggesting limited turning vehicle conflict opportunities. Lastly, it is my professional opinion that this section of Congress Street will change contextually when the project is completed, functioning more like an urban street (similar to intown Congress Street), due to changes to the building activity, enhanced streetscape, increased pedestrian/bicycle activity, slower vehicle speeds, thus creating a Complete Street serving all users. In my professional opinion this change to a Complete Street would result in safe conditions for all users.

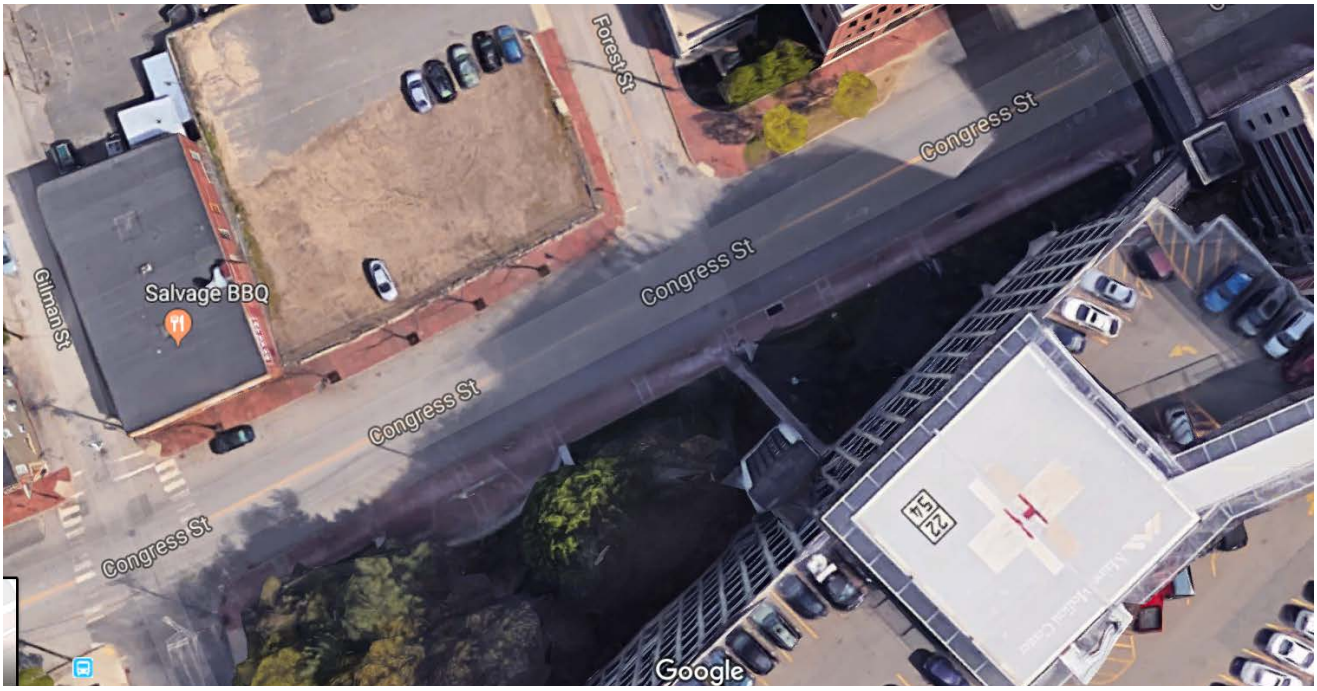


Figure 6: Congress Street from the intersection of Gilman Street east along the proposed hospital building frontage.

Department of Public Works staff has echoed this position regarding the recommendation of a center turn lane on this segment of Congress Street. Jeremiah Bartlett, the city's Transportation Systems Engineer, writes,

> *I concur with [Mr. Errico's] comments. In particular, I share concerns with the non-urban nature of a three-lane cross section fronting MMC and implications for vehicle speed…*

Given these findings, a center turn lane is not recommended for this stretch of Congress Street at this time.

B. Access and Circulation

In the revised submittal, the applicant has provided a site plan, as well as a diagram for the pick-up/drop off area that shows proposed circulation patterns *(Plan 46)*. The site plan remains largely unchanged from the time of the October 23 Planning Board workshop, where the Congress Street and Gilman Street streetscapes were considered. However, MMC and staff have engaged in numerous discussions in the intervening time about the Congress Street and Gilman Street right-of-way design, with the aim of providing safe and reasonable access to the entire site, as well as safe access within the right-of-way for the traveling public at large.

In previous review comments and in subsequent meetings with the applicant, staff has outlined a preferred section for the 66' Congress Street right-of-way that includes the retention of an 11' sidewalk on the north side, an 8' north side parking lane, two 12' travel lanes, a 2-3' buffer, a 6-7' climbing bicycle lane, and a 13-15' sidewalk on the south side of the street along the hospital frontage. The concept behind this section is to retain existing parking on the north side of Congress Street, provide ample travel lanes to support emergency service vehicles, allow a buffered climbing bicycle lane on the south side of the street, and provide generous sidewalks, consistent with other portions of Congress Street, in front of the hospital, with room for street trees, street lights, and a METRO shelter and landing area.

In response to these comments, MMC has produced two concepts, one of which shows a cross-section with a center turn lane, two travel lanes, and eastbound and westbound bicycle lanes *(Plan 45)*, and one of which shows an approximation of the cross-section recommended by city staff *(Plan 46)*. Staff has reviewed these sections and continues to provide guidance to the applicant regarding the preferred street section as outlined above, including comments from the Department of Public Works and Fire Prevention. Final details regarding the location of the south side curbline and associated sidewalk width will be finalized prior to public hearing.

Vehicle Access

Vehicles are proposed to access the site via a pick-up/drop-off loop located partially underneath the proposed building *(Figure 7)*. This turnaround is proposed with access from Congress Street through a two-way driveway with a center island, approximately 30' in width. Given the width proposed, a waiver will be required.

The pick-up/drop-off area has been designed based on observations of MMC's existing Bramhall entrance. As proposed, the pick-up/drop-off would operate as a one-way loop, with storage capacity for up to 11 vehicles. The loop would provide direct access to the Visitor Garage to the east, as well as back to Congress Street. Exiting visitors could access the loop directly from the Visitor Garage and from there exit to Congress Street. A valet is proposed to operate out of this area.

Bicycle Access

As noted above, staff has requested the provision of a climbing bicycle lane in the eastbound direction on Congress Street, and shared lane markings within the travel lane in the westbound direction. This section of Congress Street has been slated for bicycle infrastructure in prior long-range planning work on the part of the city, and would provide direct access to the hospital from existing bicycle infrastructure, particularly from the west. From the bicycle network, bicycles would enter the pick-up/drop-off loop integrated with vehicular traffic. Covered bicycle parking is proposed in the ground floor of the adjacent Visitor Garage. Staff has requested that the applicant clarify how visitors would identify the location of this proposed parking.

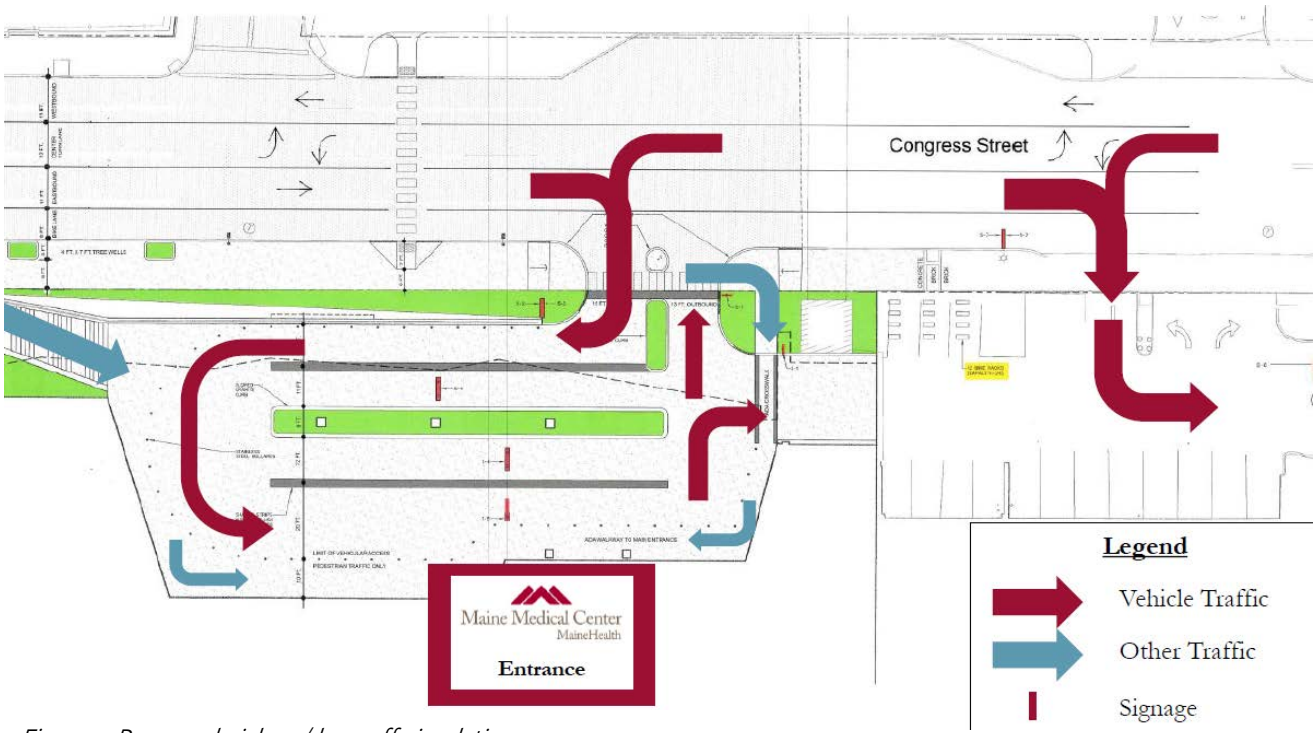


Figure 7: Proposed pick-up/drop-off circulation

Pedestrian Access

As previously discussed, the preliminary plans include new concrete sidewalks on Congress Street and Gilman Street, which converge at an open plaza space at the northwest corner of the site. This plaza, which would lie adjacent to the employee shuttle bus pickup/drop off, is proposed in concrete as well, with granite seating walls rimming the two proposed planting areas. The plaza leads to a wide stair in granite, which provides direct pedestrian access to the main entrance via the turnaround above.

As noted above, staff has previously requested modifications to both the Gilman Street and Congress Street sidewalks to allow safe pedestrian access. In his preliminary comments, Mr. Errico wrote,

> *General sidewalk width given future pedestrian demand on Congress Street seems inadequate. Congress Street cross-section width should specifically be detailed. How will bikes, parking, bus, vehicles be accommodated?*
>
> *The flared curb ramp near the main entrance vehicle driveway is not acceptable partly because it creates a narrow pedestrian accessible route. Also, the crosswalk location should be evaluated.*
>
> *The provision of the City's preferred two-ramp configuration at the Gilman Street corner should be investigated.*
>
> *The Gilman Street non-tangent curb alignment is not acceptable. A straight curb is suggested. Gilman Street width dimensions shall be provided.*

In addition, staff has raised some questions regarding ADA accessibility in the sidewalk design. In his preliminary comments, Bruce Hyman, the city's Transportation Program Manager, wrote,

> *I don't believe, based on the grading plan submitted, (C40-01/02) that the curb ramps serving the mid-block crosswalk meet ADA in terms of cross-slope (2% max. cross-slope).... Please document the ADA analysis.*
>
> *I need to further assess curb ramp design- for instance, there is not sufficient landing area for the curb ramp serving the mid-block crossing along the retaining wall - a 5' deep (measured perpendicular to the street) ramp landing area is required where a ramp meets vertical obstructions (not the usual 4')*

As noted above, the applicant has proposed concrete sidewalks, although both the Congress Street and Gilman Street sidewalks are designated as brick in the City's sidewalk material policy. In their most recent submittal, MMC has provided a Pedestrian Network Plan, required under the Institutional Development Plan, to clarify the need for a sidewalk material waiver, as well as a formal waiver request. Staff support the use of concrete sidewalk material in front of the new building on Congress Street and Gilman Street, given that the concrete sidewalks would provide continuity to the private plaza design. The applicant has proposed a mid-block transition from concrete to red brick with granite bands. Staff prefer that this transition occur at the curb line for the Visitor Garage, which would extend the concrete further than the new building but would create a more seamless transition.

The applicant's site plan shows the Gilman Street sidewalk terminating short of the southerly end of the proposed hospital building and approximately 100' north of the A Street intersection. In the revised submittal, the applicant has formally requested a sidewalk waiver on this stretch of Gilman, on the grounds that an alternative walking route exists in the sidewalk on the west side of Gilman Street and that the

construction of a sidewalk on the east side would result in the loss of significant site features in the form of existing landscape along the face of MMC's Central Utility Plant. In staff's analysis, these waiver criteria are not met. Staff has requested that the applicant extend this sidewalk to the south in order to provide continuous access to A Street.

In addition, staff has requested that the applicant address the presence of a proposed mechanical areaway within this sidewalk area, as well as a large electrical structure to the south of the area. This utility infrastructure must be below grade or flush so as not to preclude pedestrian access, and may require license agreements. Similarly, areas of sidewalk which are proposed to lie on private property along this frontage will require a public pedestrian easement.

Within the proposed pick-up/drop-off area, pedestrians would access the front door via bollard-protected routes against the building face. The ADA-accessible route is proposed from the sidewalk at the northeast corner of the site. Staff has raised questions about the access from the Forest Street approach, which involves crossing the driveway mouth as well as the Visitor Garage entryway. Staff suggest legibility and wayfinding to the building entrance might be enhanced with a pavement material change (color, material type, etc.) to further delineate the pedestrian areas from the vehicular paths. Currently, bollards and planting areas are used to demarcate these zones.

For the sidewalk and plaza design, there is conflicting information on the site plan compared with the renderings which show seams and accent banding, but this level of detail does not appear in the plans. Staff has requested clarification on the design detail, including material, scale, color, pattern, seams, placement. Some level of detail, whether with seams, color changes, or patterns, should be incorporated to bring visual interest and scale to this space.

Shuttle Access

The site plan application includes details regarding the proposed shuttle operations between the Employee Garage on St. John Street and the new medical building. Employee access to the medical building is proposed via card reader through doors at the northwest corner of the building. The Congress Street shuttle route would drop off and pick up employees at this door, operating on a counterclockwise loop via Valley Street, A Street, Gilman Street, Congress Street, and St. John Street. Shuttles are proposed to operate on 15 minute headways during peak hours. A shuttle would also provide access from the Employee Garage to the Bramhall entrance with a route via Danforth, Vaughan, and the Western Promenade.

C. *Public Transit Access*

The site is located on several METRO routes, including METRO Route 1 with cross-peninsula service to Munjoy Hill, Route 9 with service to Deering and North Deering, and the METRO Breez from the north, as well as the ShuttleBus Zoom from the south. There are existing transit stops on Congress at Gilman Street and Weymouth Street. Early in the site plan review for the Congress Street hospital building, METRO identified consolidation of these existing stops as a priority for this stretch of Congress Street. Bus stop consolidation presents an opportunity for MMC, as it could allow transit access directly from the hospital's new front door. This concept clearly aligns with MMC's transportation demand management goals.

Per the site plan standards, a transit facility is required for a project of this size if the development is proposed along a public transit route and the nearest existing transit shelter and/or pullout is further than ¼ mile from the site. In this case, there are no transit shelters or pullouts within ¼ mile, and as a result, a transit facility is required.

However, the placement of a bus shelter along the site frontage is complicated by the existing grades on Congress Street. Staff continues to work with MMC to engineer an ADA-compliant bus shelter and landing

area on the south side of Congress along the hospital frontage, as well as a companion stop on the north side of the street, with a crosswalk in between. Further design work to integrate a bus shelter on the south side of Congress Street in front of the proposed building is anticipated prior to Planning Board hearing.

D. Parking

The hospital building is proposed with no on-site parking for employees. Instead, off-site parking would be provided at the Employee Garage on St. John Street, with shuttle and pedestrian access between this new facility and the employee entrance on Gilman Street. With regard to visitors, parking is proposed at the adjacent Visitor Garage. Access to this parking is proposed directly from the pick-up/drop-off loop. It should be noted that valet parking is also proposed from within the turnaround area.

On-street parking currently exists on the north side of Congress Street directly across from the proposed hospital building. The city's preferred section for Congress Street retains this on-street parking.

Twelve bicycle racks are proposed within the ground floor of the adjacent Visitor Garage, with access from the pick-up/drop-off turnaround. In the final submittal, staff has requested that the applicant document how employees and visitors to the hospital will locate this parking, which may not be readily visible from the front door.

E. Snow Storage

The submittal states that the applicant will contract with a property management company to remove snow from the site. A snow melting system is proposed within the pick-up/drop-off area.

F. Transportation Demand Management

MMC's most current Transportation Demand Management plan has been informed by MMC's newly-hired TDM coordinator, and includes a summary of current employee commuting behavior, an analysis of baseline employee parking demand, and a description of existing TDM measures employed by MMC. In the short term, the plan targets a reduction in MMC's parking demand/employee ratio of 2% (or approximately 50 spaces, assuming no change in the number of employees) and in the long term, the plan targets a 5% reduction (or 114 spaces, assuming no change in the number of employees). The plan lays out a series of strategies designed to achieve those targets, including full subsidies for transit users, implementation of a guaranteed ride home program, a reassessment of parking pricing in the mid-term, enhanced data collection, and improved education and incentives. Additionally, MMC has pledged in their TDM plan to participate in regional partnerships to improve employee travel choice. This TDM plan has been reviewed by staff over the course of several previous site plan reviews, and no comments are currently outstanding.

G. *Street-Related Design Considerations*

As in the preliminary plans reviewed in late October, the streetscape design includes five street trees in raised tree wells along the Congress Street curb line. Staff has requested street trees be added to Gilman Street. The plans show four street lights on the Congress Street frontage; none are proposed for Gilman Street. The applicant should update and coordinate the drawings to reflect street trees on Gilman Street, the correct location and symbols for the Downtown Street light fixtures, and street tree wells that meet the *Technical Manual* standards.

The applicant has provided cut sheets and photometric plans to better explain the building, landscape, and site lighting. Staff are satisfied that the lighting levels meet the site plan standards and address concerns over safety and CPTED. If street lights are not to be provided on Gilman, lighting in the public realm is provided by building lights. Similarly, the private plaza will have lights within the planter edges providing visibility and a sense of liveliness at night. There are high levels of light at the building entrance/atrium to indicate the entrance and provide street presence given the building is set back from the street.

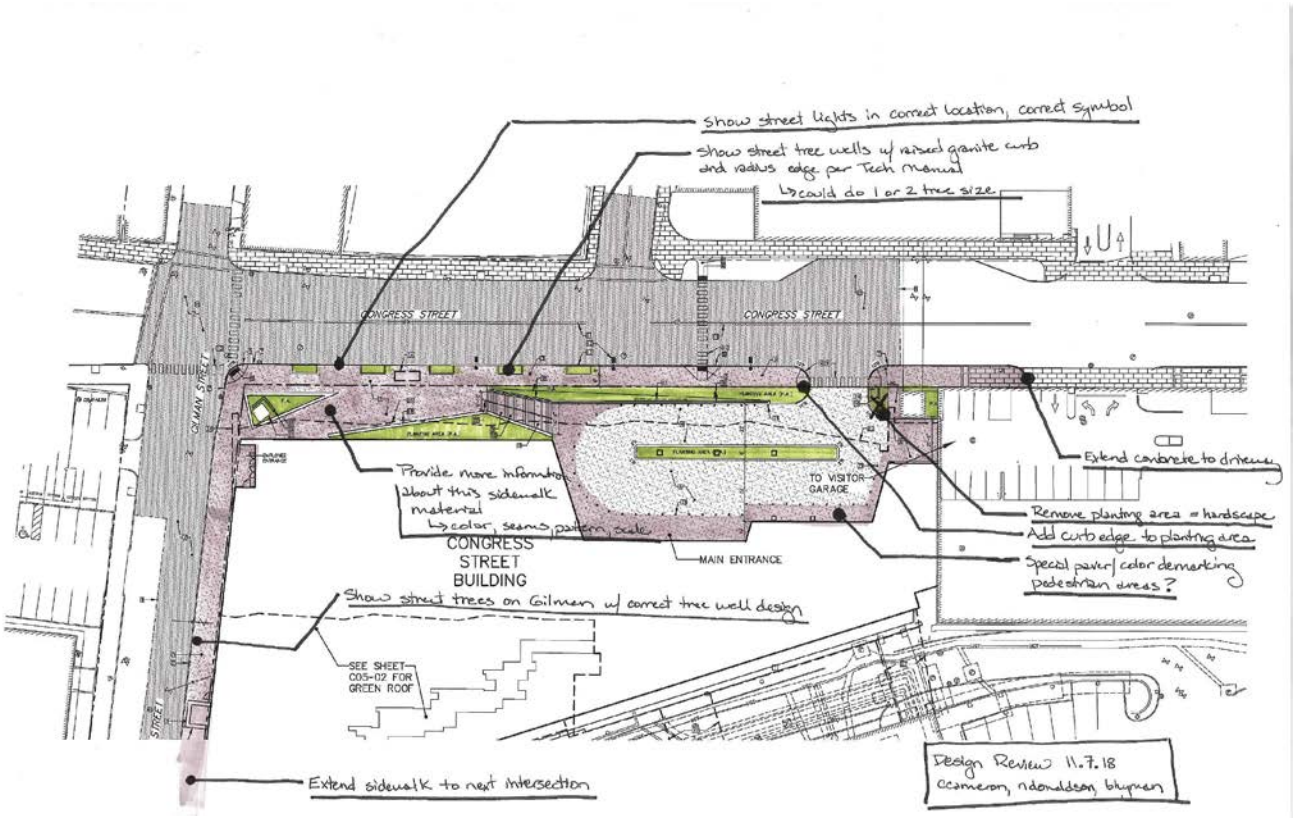


Figure 8: Staff streetscape review comments

In general, staff support the landscape approach with a few revisions *(Figure 8)*. Regarding circulation into the site, staff has requested an edge treatment between the planting area and the sidewalk to prevent pedestrians from walking on the planting area and into the vehicular driveway. Similarly, the planted area at the sidewalk next to the pedestrian entrance is not viable and should be changed to hardscape. The applicant has not incorporate dtrees into the planting areas as suggested at the October 23 workshop; it appears the viability of street trees is limited in these locations given conflicts with the building overhang and the utility box. In response to public comment, however, the City Arborist has suggested the applicant revise the plant and tree selection:

> *We would like to see when possible a higher degree of 'native' plant types in our city landscapes. The use of 'native' plants and we know that this is a general term, should fit well into the overall MMC goal. Tree and landscape values could be a theme for MMC and future project that consider landscape greenery and how it relates to human health and well being.*
>
> ***Street trees -*** *knowing that the project frontage will have a bus stop and bring in a tall vehicle close to the curb, a more upright cultivar of Honeylocust like the 'Streetkeeper' might be a good selection. 'Princeton' or 'Accolade' Elm could work as well. The web links below offer some comparison values on the attributes that can help select what works best for this site. (Open to other suggestions also).*

Staff request the site and landscape plans to be updated to reflect these comments, revisions to the street tree well design, and street trees on Gilman Street. The street tree wells could be sized for either one or two trees.

VII. PRELIMINARY ZONING & SITE PLAN REVIEW – STORMWATER MANAGEMENT & UTILITIES

Staff has also conducted a review of the stormwater management plans. It should be noted that the stormwater system for the medical building is subject to a condition of approval from the site plan review for MMC's East Tower vertical expansion. Over the course of this previous review, there was substantial discussion regarding the potential for hospital connection to separated storm drains in Gilman Street, as opposed to the existing combined system in Congress Street, which drains to the city's most active CSO. Given existing grades and a complicated network of existing utilities, connection to the separated system was not deemed feasible. As a result, the East Tower was approved subject to a condition which requires that the stormwater system for this Congress Street building "add detention capacity in lieu of stormwater separation in order to reduce the burden of the existing and proposed development on the City's infrastructure."

In keeping with this condition, the Congress Street hospital building stormwater management plan addresses treatment standards, but also focuses on reducing the rate of runoff to the Congress Street combined sewer. The applicant's design includes a subsurface sand filter below the proposed turnaround area, which has been sized to detain and treat not only roof runoff from the proposed Congress Street building, but also the rooftop runoff from the existing Visitor Garage, which currently drains undetained to the combined sewer in Congress Street. During storm events, the subsurface sand filter would hold stormwater runoff prior to discharge to the combined sewer in Congress Street. In addition, the applicant has proposed a green roof treatment on the 2nd floor roof at the building's rear.

Mike Geuthle, the city's consulting civil engineer, has reviewed the plans and writes,

> *Level III Site Plan applications with the City of Portland must submit a stormwater plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules. This includes conformance with the Basic, General, and Flooding Standards…*
>
> *The applicant has provided information indicating that greater than 50% of the project's impervious surfaces, and greater than 50% of the total developed area, are conveyed to a Subsurface Sand Filter. The applicant has removed pretreatment credits that were included in the initial submission calculations, including the HIL unit credit. The applicant shall clarify the following and provide responses:*
>
> *i. The applicant will be required to inspect, maintain, and report on the filter in accordance with the Chapter 32 stormwater requirements. The applicant has provided inspection, maintenance, and housekeeping information in Section 23 of the application. The applicant has indicated that a stormwater maintenance agreement will be provided for the proposed stormwater treatment units upon project approval.*
>
> *ii. The MaineDEP Stormwater BMP manual indicates that, "The surface area of the filter must be no less than the sum of 5% of the impervious area and 2% of the landscaped area draining to the system.".*
>
> *1. The applicant has asked for a waiver of this principle to allow additional surface flows to be conveyed to the treatment system, as requested by the City.*
>
> *2. The revised calculations indicate that the proposed sand filter surface area is approximately 80% of the minimum required surface area. The applicant shall provide an understanding of how providing less than the minimum surface area is anticipated to impact TSS, nutrient loading, temperature, and other stormwater loading criteria.*
>
> *The applicant has provided information for pre-development and post-development flow rates to the combined sewer system for a 1-inch, 24-hour rain event. This storm event has been mentioned in previous discussions with the applicant and City Department of Public Works (DPW). The applicant has requested written confirmation from City DPW to ensure that all involved parties agree with evaluating this storm event for the CSO location. This confirmation will be provided as it becomes available.*

The applicant has asked for a written or e-mail confirmation from the Department of Public Works that proposed connections to existing drainage and sewer systems are being completed in accordance with City of Portland Code of Ordinances section 14-526 (b) 3.a, subsection iii and iv. The applicant has indicated that this confirmation will be provided as it becomes available.

Additional information has been provided on Sheet C30-01, C11-01, C40-01, and C30-04 to indicate site grading and pipe information. The following shall be clarified:

i. SD-2 References two different pipes. Please clarify.
ii. SD-3 is a 12-inch pipe that accepts flow from a 15" pipe and conveys flow to a 15" pipe. Please revise or indicate the need for this size change.
iii. Several of the slopes indicated in the "STORM DRAIN PIPE DATA" table do not match the slopes calculated from the invert and length data indicated in the "STORM DRAIN STRUCTURE DATA" table. Please revise.
iv. A 1% cross-slope is shown for the sidewalk locations of Congress Street, whereas the technical manual indicates a 2% cross-slope. Please indicate why a 1% cross-slope is being proposed or revise.

Isolator row detail on C30-04 indicates a 12" maximum inlet pipe. Please confirm with manufacturer if this inlet is large enough facilitate maintenance/cleaning access to the isolator row.

Additional spot grades have been provided to confirm grading at curb and drainage locations. Locations and details of granite headstone curb and gutterline "dishpan" grading at catch basins should be provided on construction documents for clarity.

With respect to other utilities, the applicant has proposed 6" domestic and 8" fire service from an existing main in Congress Street, as well as 6" domestic and 6" fire service from a main in Gilman Street. Sewer service would be provided from existing 12" main in Gilman Street as well as an existing 12" main in Congress Street. Electrical service is proposed to run underground from existing above ground service on Gilman Street both the north and the south of the site. All utility poles along the Gilman and Congress frontages of the site would be removed. It appears that significant electrical manhole is proposed within the right-of-way on Gilman Street. Staff has requested additional clarification on this utility infrastructure.

Mr. Geuthle has reviewed the plans and writes,

Electrical and Communications manholes, pull boxes, and duct banks are proposed. Details were provided for utility manholes. Utility duct bank details were not observed on the proposed details. Please provide information or details on duct bank size and material; and approximate duct bank elevations in locations where utility crossings are proposed.
A transformer is scheduled to be removed on the Demolition Plan under item U-4. Please confirm if the transformer is to be relocated, as well as the location of any new transformer. Above-ground utility infrastructure shall be sited and screened in accordance with City standards.

Sewer manhole, steps, frame and cover details, as well as pipe slopes, have been included on Sheet C11-01 and C30-03. Pipe design and slopes and in accordance with the City of Portland Technical Manual.

The applicant has indicated that capacity to serve letters from utilities will be provided as they become available. This may be considered a condition of approval for the project. The Capacity to Serve process will require a level of coordination between the applicant and utility

companies and typically includes compliance with applicable utility standards and details. Central Maine Power and Consolidated Communications should review the plan and verify the depiction of changes to primary electrical and communication lines, respectively. Modifications to utility layout and design from the capacity to serve process shall be confirmed by the City prior to construction.

VIII. PUBLIC COMMENT

One written public comment was received by the Planning Division (*Attachment PC1*). This comment suggested additional trees and use of native trees, and raised questions regarding the city's recommendation for honey locust trees and snow ban parking. In response, the City Arborist has asked the applicant to incorporate more native plants and suggested some native plant and street tree options (vertical honeylocust or elms). In addition, members of the public have engaged staff to ask questions regarding MMC's plan for assessing and managing both construction and traffic impacts.

At the October 23 workshop, there was one public comment from the same member of the public, which focused on the loss of existing trees and whether shade will be provided by this design, requested native species be used where possible, and suggested more trees in the planting areas, as well as irrigation.

The applicant hosted a neighborhood meeting on Wednesday, October 17 *(Attachment MM)*. This meeting included discussion about the St. John employee garage as well as the Congress Street medical building. There were six attendees. Discussion covered design, construction impacts, and anticipated traffic impacts. Questions and comments included concerns about blank facades, explanation of future expansion phases, property surveys, loss of existing trees, and new tree selection.

IX. NEXT STEPS

1. MMC to address staff and Board comments on all topics
2. Planning Board hearing

X. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Traffic Engineer review (memo from Thomas Errico, 10/10/18)
2. Traffic Engineer review (memo from Thomas Errico, 11/8/18)
3. Transportation Program Manager review (memo from Bruce Hyman, 10/10/18)
4. Transportation Systems Engineer review (memo from Jeremiah Bartlett, 11/8/18)
5. City Arborist review (memo from Jeff Tarling, 11/1/18)
6. Fire Prevention Bureau review (memo from Mike Thompson, 10/31/18)
7. Surveyor Review (memo from Bill Scott, 10/31/18)
8. Civil Engineer Review (memo from Mike Geuthle, 11/8/18)
9. Urban Designer review (notes from Caitlin Cameron, 11/7/18)

PUBLIC COMMENT

PC1. Karen Snyder 10/24/18

APPLICANT'S SUBMITTALS

A. Project Description
B. Completed Application Checklist
C. Right, Title, & Interest
D. Evidence of State and Federal Approvals
E. Zoning Assessment
F. Existing and/or Proposed Easements

G. Waiver Requests
H. Financial Capacity
I. Technical Capability
J. Transportation Analysis
K. Access and Circulation
L. Loading and Servicing
M. Sidewalks
N. Public Transit
O. Off-Street Parking
P. Bicycle Parking
Q. Snow Storage
R. TDM Plan
S. Preservation of Significant Natural Features
T. Landscaping and Landscape Preservation
U. Site Landscaping
V. Parking Lot Landscaping
W. Street Trees
X. Water Quality
Y. Consistency with City Master Plans
Z. Public Safety and Fire Prevention
AA. Adequacy of Public Utilities
BB. Massing, Ventilation, and Wind Impact
CC. Shadows
DD. Snow and Ice Loading
EE. View Corridors
FF. Historic Resources
GG. Exterior Lighting
HH. Noise and Vibration
II. Signage and Wayfinding
JJ. Zoning-Related Design Standards
KK. Construction Management Plan
LL. Neighborhood Meeting Minutes 10/17/18
MM. MMC Planning Board Workshop Presentation 10/25/18
NN. Pedestrian Network Plan
OO. Response to Comments 10/30/18

PLANS

Plan 1. Boundary Survey
Plan 2. Boundary Survey
Plan 3. Demolition Plan
Plan 4. Site Plan
Plan 5. Site Plan, Green Roof
Plan 6. Utility Plan
Plan 7. Utility Plan, Main Entrance
Plan 8. Plan and Profile, Utility Corridor
Plan 9. Grading Plan, Upper Congress
Plan 10. Grading Plan, Lower Congress
Plan 11. Grading Plan, Gilman
Plan 12. Level B Foundation Drainage Plan
Plan 13. Level B Foundation Drainage Plan

Plan 14. Level 1 Foundation Drainage Plan
Plan 15. Details
Plan 16. Details, Stormwater System
Plan 17. Details, Stair Section
Plan 18. Wall Details
Plan 19. Erosion Control Plan
Plan 20. Landscape Plan, Upper Congress
Plan 21. Landscape Plan, Lower Congress
Plan 22. Pre-Development Campus Watershed Plan
Plan 23. Post-Development Campus Watershed Plan
Plan 24. Post-Development Watershed Plan
Plan 25. Exterior Elevation, North
Plan 26. Exterior Elevation, West
Plan 27. Exterior Elevation, South
Plan 28. Building Section
Plan 29. Level B Plan
Plan 30. Level 1 Plan
Plan 31. Level 2
Plan 32. Level 3
Plan 33. Level 4
Plan 34. Level 5 Plan
Plan 35. Level 6 Plan
Plan 36. Level 7 Plan
Plan 37. Rendering
Plan 38. Rendering
Plan 39. Rendering
Plan 40. Rendering
Plan 41. Rendering
Plan 42. Rendering
Plan 43. Rendering
Plan 44. Pick-up/Drop-off Diagram
Plan 45. Congress Street Section
Plan 46. Congress Street Section

Att. 1

Portland Maine | Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

MMC Office Building Initial Traffic Review Comments

Tom Errico <thomas.errico@tylin.com> Wed, Oct 10, 2018 at 1:15 PM
To: Helen Donaldson <HCD@portlandmaine.gov>
Cc: Bruce Hyman <bhyman@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>

Hi Nell – the following are initial traffic comments for the project for discussion purposes at tomorrow's meeting

- A Traffic Movement Permit Scoping meeting is scheduled for October 23, 2018 and accordingly no comments are provided regarding off-site traffic impacts at this time.
- The Gilman Street non-tangent curb alignment is not acceptable. A straight curb is suggested. Gilman Street width dimensions shall be provided.
- The flared curb ramp near the main entrance vehicle driveway is not acceptable partly because it creates a narrow pedestrian accessible route. Also, the crosswalk location should be evaluated.
- The provision of the City's preferred two ramp configuration at the Gilman Street corner should be investigated.
- Bus stop location and accessibility should be evaluated.
- Shuttle pick up and drop off operations at the employee entrance on Gilman Street should be detailed.
- Vehicle drop-off/pick-up operations/management at the vehicle loop should be provided.
- Pick-up/Drop-off loop interaction with parking garage entrance is a concern and an analysis should be provided.
- General sidewalk width given future pedestrian demand on Congress Street seems inadequate.
- Congress Street cross-section width should specifically be detailed. How will bikes, parking, bus, vehicles be accommodated
- Pedestrian movements across the parking garage entrance to the Main Entrance is a concern.
- A sidewalk on Gilman Street to A Street should be explored or a waiver analysis should be provided.
- I have briefly reviewed the Construction Management Plan and noted the following:
    - Local truck routings should be clearly documented from each construction entrance.
    - Roadway widths shall be detailed.
    - Is a temporary protected sidewalk on Congress Street feasible (if not for the entire project – but during certain phases).
    - How will METRO service be accommodated.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
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"One Vision, One Company"

Att. 2

Portland Maine | Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

MMC - Initial Traffic Movement Permit Comments

Tom Errico <thomas.errico@tylin.com> Thu, Nov 8, 2018 at 1:25 PM
To: Helen Donaldson <HCD@portlandmaine.gov>
Cc: Bruce Hyman <bhyman@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Keith Gray <kgray@portlandmaine.gov>

Hi Nell – I have reviewed Traffic Impact Study (Section 7 of the TMP) prepared by Gorrill Palmer transmitted on November 1, 2018. My initial comments are noted below.

- I generally find the methods used in the development of the base traffic volumes to be reasonable and acceptable. It should be noted that the volume timeframe for the analyses was the peak hour of the roadway system, which does not correspond to employee peaking in the morning (employees arrive before the peak hour). The Applicant should provide documentation noting traffic volumes on roadways during both the peak hour of the system and peak hour of traffic generation from MMC.

- The Trip Generation estimate was based upon ITE methods and I find the estimate to be reasonable and meets MaineDOT TMP requirements.

- The Trip Assignment of trips was based upon both localized turning movement volumes and MMC employee information. I find the methods used to be reasonable.

- The Park Avenue/Valley Street intersection is a High Crash Location. The Applicant shall provide specific recommendations with implication of such changes for review and consideration.

- The Congress Street/Gilman Street intersection is a High Crash Location. The Applicant suggests that the future removal of the traffic signal at Congress Street/Valley Street may mitigate crashes. I continue to review this, but a monitoring requirement post signal conditions may be suggested.

- The St. John Street/A Street is a High Crash Location. The Applicant suggests that traffic volume reductions may mitigate crashes. The new employee parking garage will increase traffic volumes in the area and may negatively impact conditions. I continue to review this, but a monitoring requirement after the employee parking garage is open may be suggested.

- Park Avenue/St. John Street is a High Crash Location. The Dunkin Donuts project on St. John Street will likely be implementing improvements to the northbound St. John Street approach. The DD scope of this work is not expected to mitigate all crash patterns. The Applicant shall specifically recommend strategies for mitigating all crash patterns that are correctable by improvements.

- Valley Street between and A Street and C Street is a High Crash Location. The Applicant noted at the TMP Scoping Meeting that traffic volumes will be declining on Valley Street in this area and thus may reduce collisions. The Applicant shall document specific before/after traffic volumes changes on Valley Street as part of assessing mitigation of crash rates.

- The Congress Street/St. John Street intersection is not a High Crash Location but experienced 25 crashes over the reported three-year period. The Applicant shall conduct a safety review of the intersection.

- Congress Street is a High Crash Location between Forest Street and Weymouth Street. To assess potential mitigation strategies, I conducted a review of police reports. The Applicant has suggested the provision of a three-lane roadway with a center left-turn lane. There were 10 crashes reported over the most recent three-year period with a Critical Rate Factor of 1.45. The following summarizes each reported collision.

    - January 10, 2015 at 8:40pm – Vehicle struck bicyclist in slushy roadway conditions. (Crash not likely to be mitigated with center turn lane)
    - May 11, 2015 at 4:35pm – A vehicle pulled over for an ambulance and was struck when re-entering travel lane. (Crash not likely to be mitigated with center turn lane)
    - June 1, 2015 at 4:55pm – Rear End Collision eastbound. During a congested time period a motorist applied vehicle brakes, but mechanical problems prevented an immediate stop. Not related to a turning movement (Center turn lane not likely to mitigate this crash)
    - August 12, 2015 at 3:02pm – Rear End Collision westbound. Drive Inattention. (Crash may be mitigated with center turn lane)
    - January 7, 2016 at 4:28pm - Rear End Collision eastbound. Drive Inattention during congested traffic period. (Unknown if related to a turn movement. Given time of day it may be related to congested traffic conditions. Crash may be mitigated with center turn lane)
    - September 27, 2016 at 10:36am – Westbound vehicle collided with parked vehicles near Weymouth Street. Drive error was likely contributing factor. (crash not likely to be mitigated with center turn lane)
    - January 4, 2017 at 1:50pm - Rear End Collision eastbound. Drive Inattention. (Unknown if related to a turn movement. Crash may be mitigated with center turn lane)
    - April 19, 2017 at 8:01am - Rear End Collision eastbound. Drive Inattention. (Unknown if related to a turn movement. Crash may be mitigated with center turn lane)
    - June 20, 2017 at 8:00am - Rear End Collision with right-turning vehicle. Drive Inattention. (Crash not likely to be mitigated with center turn lane)
    - September 25, 2017 at 8:20pm – Turning Collison Failed to yield right of way. (Crash not likely to be mitigated with center turn lane)

    Based upon my review of the data, at most 50% of the crashes could be mitigated with the introduction of a center turn lane. I would note again that some of the rear end collisions may not have been related to a left-turn movement, but to congested dense slow-moving vehicle conditions. The center turn lane would not mitigate those crashes. City staff is concerned about changing the roadway context of Congress Street (particularly in comparison with nearby intown Congress Street conditions) and how it has the potential for dangerous increased vehicle speeds. I would note that the Applicant's traffic simulation model of Congress Street in this area depicts a roadway with little to no vehicle delay suggesting limited turning vehicle conflict opportunities. Lastly, it is my professional opinion that this section of Congress Street will change contextually when the project is completed, functioning more like an urban street (similar to intown Congress Street), due to changes to the building activity, enhanced streetscape, increased pedestrian/bicycle activity, slower vehicle speeds, thus creating a Complete Street serving all users. In my professional opinion this change to a Complete Street would result in safe conditions for all users.

- Traffic Movement Permit regulations requires Applicants to document incremental changes to a site over the prior 10 years to determine factors that have influenced traffic generation from the site. In my professional opinion, the Applicant has not provided documentation that adequately addresses historical changes at MMC.

- The Applicant shall provide specific sight distance measurements at the Congress Street/Drop-Off driveway according to Site Plan information.

- The Park Avenue/St. John Street intersection has improving levels of service and delay following project build-out. The Applicant should specifically note any traffic signal equipment modifications that are needed to accomplish the

noted optimization.

- The Commercial Street/Valley Street intersection has improving levels of service and delay following project build-out. The Applicant should specifically note any traffic signal equipment modifications that are needed to accomplish the noted optimization.

- I continue to review traffic model output for vehicle queuing and will provide comments in the future.

- The Congress Street/St. John Street intersection was modeled assuming existing roadway conditions. The Applicant shall also conduct an analysis assuming the Dunkin Donuts improvements on St. John Street are implemented (converting St. John Street from four lanes to three lanes).

- The Applicant shall recommend pedestrian and vehicle improvements at the Congress Street/Valley Street intersection during post-traffic signal conditions.

If you have any questions, please contact me.

Best regards,

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"One Vision, One Company"

Att. 3

Portland Maine | Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

MMC Ph III Medical Office Bldg: PL331-2018

Helen Donaldson <hcd@portlandmaine.gov> Wed, Oct 10, 2018 at 4:55 PM
To: Helen Donaldson <hcd@portlandmaine.gov>

Hi Nell,

My preliminary comments regarding site access, sidewalk, street, streetscape and public realm are as follows:

In general - the plans as presented do not show enough context to readily assess them. The scale and extent of the area shown should be revised. The shading/hatching patterns should be modified so the plan is legible when shown in its entirety on a computer screen - it currently is not legible.

Grading Plans

- I don't believe, based on the grading plan submitted, (C40-01/02) that the curb ramps serving the mid-block crosswalk meet ADA in terms of cross-slope (2% max. cross-slope) nor that the area shown for the bus stop has a bus landing area that meets ADA. Please document the ADA analysis.
- The grading plan for Gilman St appears incomplete/not shown in its entirety. Please show the entire site.
-

Site Plan

The site plans do not show enough context of the entirety of the street configuration in the vicinity of the site - I'd request that the applicant resubmit and provide 1"=20' plans instead of the 1"=10' site plan (and 1"=5' grading plans - requires 2 sheets)

- The site plan key identifies #14 as "Bus Stop" but the elevations show a bus shelter - there is not sufficient bus landing area (5'x8' minimum") provided if a bus shelter is intended (or unless the landing area includes a portion interior to the shelter as the landing area - which is not preferred)
- No bus stop or shelter location is shown on the north side of Congress St as has been discussed with the applicant - a paired bus stop is desired
- The tree wells do not meet city design standard - they 1) do not use radius curb and 2) do not show a section of raised granite tree well along the Congress St curb line and 3) are not of standard size.
- The proposed street layout is not shown on the plans - locations of on-street parking, travel lanes, climbing bike lane, etc
- required signs (bus stop, etc) are not shown on the plans
- curb ramp modifications on the opposite side of Gilman and Congress Streets are to be shown to achieve ADA-compliance
- The sidewalks are shown on both Congress and Gilman Streets as broom finish concrete - I do not currently support this without further documentation of the need to stray from our Sidewalk Material Policy
- I need to further assess curb ramp design- for instance, there is not sufficient landing area for the curb ramp serving the mid-block crossing along the retaining wall - a 5' deep (measured perpendicular to the street) ramp landing area is required where a ramp meets vertical obstructions (not the usual 4')

Design Details

I did not find details available for the proposed materials within the public ROW: lighting, sidewalk, curb ramps, detectable warning panels, tree wells, bus shelter (if proposed), etc

--
Bruce Hyman
Transportation Program Manager
Transportation Division

Department of Planning & Urban Development

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http://www.portlandmaine.gov/1363/Transportation-Division
Yes! Transportation's Good Here ....

--
Nell Donaldson
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Att. 4

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

MMC - Initial Traffic Movement Permit Comments

Jeremiah Bartlett <jbartlett@portlandmaine.gov> Thu, Nov 8, 2018 at 1:46 PM
To: "Thomas.Errico@tylin.com" <thomas.errico@tylin.com>
Cc: "Donaldson, Helen" <HCD@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>, Keith Gray <kgray@portlandmaine.gov>

Hi Nell,

I concur with Tom's comments. In particular, I share concerns with the non-urban nature of a three-lane cross section fronting MMC and implications for vehicle speed, as well as a need to evaluate and recommend future pedestrian accommodations with an unsignalized Congress at Valley.

Thank you,
Jeremiah

Jeremiah J. Bartlett, PE, PTOE, IMSA II
Transportation Systems Engineer
Department of Public Works
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(207) 874-8891

[Quoted text hidden]

2 attachments

T·Y·LIN INTERNATIONAL **image001.gif**
2K

T·Y·LIN INTERNATIONAL **image001.gif**
2K

Att. 5

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

MMC Expansion Project - Trees & Landscape

Jeff Tarling <jst@portlandmaine.gov> Thu, Nov 1, 2018 at 8:53 AM
To: Will Conway <wconway@sebagotechnics.com>
Cc: Helen Donaldson <hcd@portlandmaine.gov>, Matt Coleman <mcoleman@portlandmaine.gov>, Caitlin Cameron <ccameron@portlandmaine.gov>

Hi Will -

Wanted to see if we could meet up or we can discuss via email the tree and landscape plan for the Maine Medical Center project. We would like to see when possible a higher degree of 'native' plant types in our city landscapes. The use of 'native' plants and we know that this is a general term, should fit well into the overall MMC goal. Tree and landscape values could be an theme for MMC and future project that consider landscape greenery and how it relates to human health and well being.

The web links below are interesting background information:

http://lhhl.illinois.edu

http://www.naturewithin.info/New/ISA_prcdngs.Ecosystem_Social_Capital_Wolf.pdf

http://www.naturewithin.info/UF/PsychBens-FS1.pdf

Street trees - knowing that the project frontage will have a bus stop and bring in a tall vehicle close to the curb, a more upright cultivar of Honeylocust like the 'Streetkeeper' might be a good selection. 'Princeton' or 'Accolade' Elm could work as well. The web links below offer some comparison values on the attributes that can help select what works best for this site. (Open to other suggestions also)

http://www.jfschmidt.com/introductions/streetkeeper

http://www.mortonarb.org/trees-plants/tree-plant-descriptions/accolade%E2%84%A2-elm

http://www.mortonarb.org/trees-plants/tree-plant-descriptions/princeton-elm
http://www.jfschmidt.com/introductions/streetkeeper
http://www.streetkeeper.net

New England Native Plant suggestions -

There could be options in this phase to consider woody and herbaceous plant options....

https://extension.umaine.edu/gardening/manual/plants-for-the-maine-landscape

https://wildseedproject.net/comprehensive-plant-list/

Thanks,

Jeff

Jeff Tarling
City Arborist - City of Portland Maine
Parks, Recreation & Facilities Department
Forestry & Horticulture
212 Canco Road
Portland, ME. 04103
(207) 808-5446
jst@portlandmaine.gov

Att. 6

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

MMC

Robert Thompson <rmt@portlandmaine.gov> Wed, Oct 31, 2018 at 8:30 AM
To: Helen Donaldson <hcd@portlandmaine.gov>

Hi Nel,

Here's the standard for Fire Department access.

1.) Largest Fire Deparmtnet Vehicle must be able to navigate through the parking lot to access building.
2.) Fire Department access shall have an unobstructed vertical clearance of not less than 13 ft. 6 in.
3.) Vertical clearance shall be permitted to be reduced, provided such reduction does not impair access by fire apparatus, and approved signs are installed and maintained indicating the established vertical clearance when approved.

Because the drop off area is, for the most part, under the structure, I'd approve the 12 ft. clearance if signage indicating the clearance at the entrance of the drop off area is provided with a sign indicating passenger vehicles only.

Also, considering the location of the sprinkler room and fire pump room, the fire department connections shall not be located where fire department hose may block, or impede, egress. If the fire department connections are in the drop off area the required height will be 13 ft. 6 in. If the connections are on the Gilman Street side, near the fire pump room, they would have to be away from the exit stairs at the exit discharge.

Hope this helps.

Thanks,
Mike

--
Robert M. Thompson
Division Fire Chief
Portland Fire Department
(207) 874-8400
rmt@portlandmaine.gov

Att. 7

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

MMC Congress Street building site plan review

William Scott <wgs@portlandmaine.gov> Wed, Oct 31, 2018 at 12:55 PM
To: Helen Donaldson <hcd@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>

HI Nell. Here are my review comments:

1. A note should be added to Sheet 2 of the EC plan that defines the elevation datum for this project. It was listed as NAVD88 on the 2009 version of these plans.

2. A note should also be added to Sheet 2 of the EC plan and to both of the Utility Plan sheets that warns people that this elevation datum (NAVD88) is not the same as "City Datum" (NGVD29). A conversion formula should also be noted.

3. A note should be added to the EC plan that refers the reader to the Utility Plan sheets for sewer and drain pipe invert elevations, sizes and materials.

4. State Plane coordinate pairs should be labeled for at least two of the property corners on the EC plan.

Please feel free to pass these along to Sebago Tech. Thanks.
[Quoted text hidden]

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	Helen Donaldson, Sr. Planner	**DATE:**	11/8/2018
FROM:	Michael Guethle, PE; Ryan Wingard, PE	**PROJECT NO.:**	13982C
SUBJECT:	Gilman St. - 22; MMC Parking Building (PL-000331-2018)		

Wright-Pierce has reviewed the Level III Site Plan Application information provided for the Congress Street Patient Care Building proposed at 22 Gilman Street. The project will include redeveloping an existing parking garage into 64 modern patient rooms and 19 procedure rooms.

Documents Reviewed by Wright-Pierce:

- Level III Site Plan application, dated (most recent) October 31, 2018.
- Engineering Permitting Plans, dated (most recent) October 30, 2018.
- Construction Management Plan, dated September 25, 2018.

Comments:

1) Level III Site Plan applications with the City of Portland must submit a stormwater plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules. This includes conformance with the Basic, General, and Flooding Standards (Ref: Technical Manual, Section 5. II. Applicability in Portland. C. a.; and Ref: City of Portland Code of Ordinances Sec. 14-526. Site Plan Standards, (b). 3. b.)
    a. Basic Standard: Plans and application material should be provided to address erosion and sedimentation requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with MaineDEP Chapter 500, Appendix A, B, and C. The applicant has provided information that the project will be subject to the Basic Standard. The applicant has provided:
        i. Erosion and Sedimentation Control Details and Notes (C30-07). This item has been resubmitted with additional details including temporary slope stabilization, construction entrances, perimeter erosion controls,

dewatering, and other standard erosion and sedimentation details. This item has been reviewed and accepted.

ii. Location of Erosion and Sedimentation Control best practices have been indicated on Sheet C04-01. This item has been reviewed and accepted.

b. General Standard: The applicant has provided information regarding the size and scope of the project indicating the project is subject to the Redevelopment Standard within the City of Portland. It is understood the City's redevelopment standard is more stringent than the Chapter 500 requirements for redevelopment. The City requirements indicate that greater than 50% of the proposed impervious surfaces must receive stormwater quality treatment pursuant to the MaineDEP Chapter 500 requirements. The applicant has provided information indicating that greater than 50% of the project's impervious surfaces, and greater than 50% of the total developed area, are conveyed to a Subsurface Sand Filter. The applicant has removed pretreatment credits that were included in the initial submission calculations, including the HIL unit credit. The applicant shall clarify the following and provide responses:

i. The applicant will be required to inspect, maintain, and report on the filter in accordance with the Chapter 32 stormwater requirements. The applicant has provided inspection, maintenance, and housekeeping information in Section 23 of the application. The applicant has indicated that a stormwater maintenance agreement will be provided for the proposed stormwater treatment units upon project approval.

ii. The MaineDEP Stormwater BMP manual indicates that, "The surface area of the filter must be no less than the sum of 5% of the impervious area and 2% of the landscaped area draining to the system.".

1. The applicant has asked for a waiver of this principle to allow additional surface flows to be conveyed to the treatment system, as requested by the City.

2. The revised calculations indicate that the proposed sand filter surface area is approximately 80% of the minimum required surface area. The applicant shall provide an understanding of how providing less than the minimum surface area is anticipated to impact TSS, nutrient loading, temperature, and other stormwater loading criteria.

c. Flooding Standard: The applicant has provided information indicating the project is required to meet the Flooding Standard of Chapter 500. The applicant has submitted the following:
   - Subcatchment Plans for Pre- and Post-Development
   - Hydrology computations of these conditions
   - Summary of Pre- and Post-Development Flow Rates

   i. HydroCAD outputs for the 2-year, 10-year, and 25-year, 24-hour storm events have been provided. Applicant has provided additional pipe and structure detail to confirm that plan and design information matches model information. The model indicates the post-development flow rates for the proposed project do not exceed flow rates for the pre-development condition, and therefore meets the flooding standard.

2) Discharge to Combined Sewer Overflow (CSO) Locations
   a. The applicant has provided information for pre-development and post-development flow rates to the combined sewer system for a 1-inch, 24-hour rain event. This storm event has been mentioned in previous discussions with the applicant and City Department of Public Works (DPW). The applicant has requested written confirmation from City DPW to ensure that all involved parties agree with evaluating this storm event for the CSO location. This confirmation will be provided as it becomes available.

b. Table 2, generated from HydroCAD reports, has been updated by the applicant to compare pre-development and post-development flow rates in a 1-inch rain event. These modifications indicate that the post-development conditions result in a reduction in flows and flow rates when compared to the pre-development condition.

3) Connection to Existing System:
   a. The applicant has asked for a written or e-mail confirmation from the Department of Public Works that proposed connections to existing drainage and sewer systems are being completed in accordance with City of Portland Code of Ordinances section 14-526 (b) 3.a, subsection iii and iv. The applicant has indicated that this confirmation will be provided as it becomes available.

4) Proposed Drainage Design
   a. Additional information has been provided on Sheet C30-01, C11-01, C40-01, and C30-04 to indicate site grading and pipe information. The following shall be clarified:
      i. SD-2 References two different pipes. Please clarify.
      ii. SD-3 is a 12-inch pipe that accepts flow from a 15" pipe and conveys flow to a 15" pipe. Please revise or indicate the need for this size change.
      iii. Several of the slopes indicated in the "STORM DRAIN PIPE DATA" table do not match the slopes calculated from the invert and length data indicated in the "STORM DRAIN STRUCTURE DATA" table. Please revise.
      iv. A 1% cross-slope is shown for the sidewalk locations of Congress Street, whereas the technical manual indicates a 2% cross-slope. Please indicate why a 1% cross-slope is being proposed or revise.
   b. Isolator row detail on C30-04 indicates a 12" maximum inlet pipe. Please confirm with manufacturer if this inlet is large enough facilitate maintenance/cleaning access to the isolator row.

c. An updated catch basin detail with a 3’ sump has been submitted. No further action necessary.
d. Additional spot grades have been provided to confirm grading at curb and drainage locations. Locations and details of granite headstone curb and gutterline “dishpan” grading at catch basins should be provided on construction documents for clarity.

5) Soils: The applicant has provided information from an NRCS Web Soil Survey indicating the proposed soils. No further action necessary.

6) Additional Utility Infrastructure:
   a. Electrical and Communications Infrastructure
      i. Electrical and Communications manholes, pull boxes, and duct banks are proposed. Details were provided for utility manholes. Utility duct bank details were not observed on the proposed details. Please provide information or details on duct bank size and material; and approximate duct bank elevations in locations where utility crossings are proposed.
      ii. A transformer is scheduled to be removed on the Demolition Plan under item U-4. Please confirm if the transformer is to be relocated, as well as the location of any new transformer. Above-ground utility infrastructure shall be sited and screened in accordance with City standards.
   b. Sewer Infrastructure
      i. Sewer manhole, steps, frame and cover details, as well as pipe slopes, have been included on Sheet C11-01 and C30-03. Pipe design and slopes and in accordance with the City of Portland Technical Manual.
   c. The applicant has indicated that capacity to serve letters from utilities will be provided as they become available. This may be considered a condition of approval for the project.
      i. The Capacity to Serve process will require a level of coordination between the applicant and utility companies and typically includes compliance with

applicable utility standards and details. Central Maine Power and Consolidated Communications should review the plan and verify the depiction of changes to primary electrical and communication lines, respectively.

ii. Modifications to utility layout and design from the capacity to serve process shall be confirmed by the City prior to construction.

show street lights in correct location, correct symbol

show street tree wells w/ raised granite curb and radius edge per Tech manual

↳ could do 1 or 2 tree size

CONGRESS STREET

CONGRESS STREET

GILMAN STREET

P.A.

PLANTING AREA (P.A.)

EMPLOYEE ENTRANCE

Provide more information about this sidewalk material

↳ color, seams, pattern, scale

CONGRESS STREET BUILDING

MAIN ENTRANCE

TO VISITOR GARAGE

Extend concrete to driveway

Remove planting area = hardscape

Add curb edge to planting area

Special paver/ color demarking pedestrian areas?

Show street trees on Gilman w/ correct tree well design

SEE SHEET C05-02 FOR GREEN ROOF

STREET

Extend sidewalk to next intersection

Design Review 11.7.18

ccameron, ndonaldson, blyman

Memorandum

Maine Medical Center

To:	Members of the City of Portland Planning Board
From:	Jeff Sanders, Chief Operating Officer, MMC
Date:	September 25, 2018
Re:	Site Plan Application: Congress St Patient Care Building

Maine Medical Center is pleased to submit this Level III Site Plan Application for the Congress St Patient Care building. This is the last of three site plan applications related to MMC's Short-Term Development plan outlined in the Institutional Development Plan approved by the Planning Board on September 26, 2017.

INTRODUCTION

This is the third and final site plan submission in MMC's short-term expansion and modernization plan. It completes the project's overall mission of improving the experience of patients, staff and visitors to the hospital; developing MMC's presence on the urban edge of the campus and providing convenient, safe and predictable parking for staff and the community.

The site plan includes the removal of the Gilman Street garage, MMC's staff parking facility that has reached the end of its useful life. MMC will expand into that space with a building featuring 64 modern, private patient rooms and 19 procedure rooms. Re-orienting the campus toward Congress Street will help ongoing efforts to revitalize this important gateway to the city, furthering the goals of the community and the city of Portland's Comprehensive Plan.

MMC has worked closely with city staff, neighbors, and local businesses to make improvements in accessing the Bramhall campus while reducing traffic and parking challenges on neighboring streets. Work has been undertaken to design the Congress Street entrance in order to allow easy and convenient access to MMC while minimizing impact on existing pedestrian, bicycle, transit and vehicular traffic.

This 265,000-square-foot addition allows MMC to internally reorganize cardiac services within the hospital campus, which means timely, efficient access for patients and care teams and reduction of time and effort spent traveling through the hospital corridors. The 19 procedure rooms will align with industry best practices, providing adequate space to treat patients, ultimately improving the experience at MMC.

PROJECT PURPOSE AND NEED

The entire MMC campus has grown in both size and complexity since it was built as Maine General Hospital in 1874. The growth has brought changes in both programmatic and infrastructure needs as it continues to serve patients and their families throughout the entire State of Maine and Northern New England. During the master facility planning process, MMC identified four key categories of need:

- Clinical
- Building
- Campus Reorganization
- Parking

The Congress St Patient Care building represents a significant step towards modernizing the facilities at Maine Medical Center. Over 50% of MMC's Bramhall campus is over 40 years old and 25% is 30 years old. The oldest part of campus, the East Wing of the Maine General Building, was built in 1874. The patient acuity at MMC is the highest in the State of Maine. MMC had an average Case Mix Index of 1.99 in 2017 while the average in the state was 1.23. Patient acuity and Case Mix Index are representations of how sick patients are at the hospital. Patients at MMC require advanced equipment, skilled care teams, and, most of all, private rooms to better facilitate their care and recovery.

The majority of MMC inpatient services are currently compressed into semi-private inpatient rooms. This creates a daily capacity challenge at MMC to manage the growing demand. The challenge is exacerbated by the need to close up to 60 beds per day due to patient condition, gender cohorting, maintenance, or staffing. The primary objective of the Congress St Patient Care building is to increase the number of private rooms and procedure rooms to better enable patient care.

Less than half of MMC's inpatient rooms are private today. MMC's private room ratio will be almost 80% once the expansion of the East Tower and construction of the Congress building is complete. The license bed count of 637 will remain the same. Significantly increasing the number of private rooms at MMC will improve the operational efficiency and patient and care giver experience.

CONSTRUCTION MANAGEMENT APPROACH

Turner Construction is the construction manager for this project. Turner's success working in and around highly complex environments will directly contribute to the success and safety of this project.

The purpose of the construction management plan (CMP) submitted with this application is to provide the details of the second phase of construction for MMC's Master Facility Phase IIB. The CMP outlines Turner Construction's plan for controlling impacts from noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding neighborhoods and buildings.

Maintaining normal campus operations, mitigating impacts to surrounding residences and businesses and maintaining public safety are high priorities during the construction phase. The CMP will be presented to the appropriate City and Neighborhood representatives. The City of Portland Planning Board will approve the final plan. It has been the goal of these programs to define the construction plan before construction begins. Turner's experience on projects with similar logistic constraints has proven that pre-planning and constant communication are necessary for a smooth efficiently run, incident free project.

It is Turner Construction's full intent to follow the guidelines set by the CMP.

Turner Construction and its subcontractors shall schedule and conduct operations in a manner that will control the disturbance to the public in areas adjacent to the work and to occupants of buildings in the vicinity.

DESIGN APPROACH

The campus transformation of Maine Medical Center (MMC) draws its inspiration from its site, programmatic needs and most importantly, the desire to create a sense of place. Specifically, the Hospital will reflect its location within Portland and of Maine. Within this framework, the Hospital aims to preserve the historic character of the existing campus yet provide the opportunity for new identities to develop that represent the modern delivery of healthcare and the future of MMC.

MMC followed the Design Guidelines set in MMC's Institutional Development Plan (Pgs. 116-118). Other key design drivers and interventions envisioned for the MMC project balance the clinical needs of the hospital with the campus' place within the City of Portland. Included is a primary effort to improve the built environment of MMC's campus relationship with its urban context. This is achieved by focusing the new entrance towards Congress St to create an improved presence on the urban edge of the campus. This design improves the visitor and patient experience from arrival to the City all the way to entering the MMC buildings themselves. Providing a new entry on Congress St connects a campus entry directly to the existing and expanded visitor parking garage, simplifying the drop-off and parking sequence. This move creates a clear arrival sequence from drop-off, to parking, to movement through the MMC campus.

The inclusion of a new entry coupled with clear primary circulation along the ground level connects major interior programmatic functions with the site, further reinforcing the wayfinding and activating the building interior and exterior. Engaging Congress St with a sensitivity to human scale and experience will be the focus of the transition between exterior to interior including transitions from urban to natural environments. This approach extends to vertical connections, both physical and visual, to mitigate the large grade changes that exist on campus and with the surrounding sites. These interventions will provide a positive patient and visitor experience as well as enhance the neighborhood.

The creation of healing environments is an essential element to the design within the IOZ boundary. This will be achieved through the incorporation of access to and views of nature and natural daylight, which are proven to improve positive patient outcomes within a healthcare environment. Proper location and use of glass and transparency provides connections to the exterior to improve patient, visitor and staff experience but also to further reinforce wayfinding, and activate and energize the streetscape.

CONCLUSION

We are excited about this project and the enhancements it will provide our patients, visitors and care teams. This project will improve MMC's ability to meet the needs of patients in our community by de-coupling semi-private rooms and providing adequate parking for patients and families. We look forward to reviewing the Site Plan Application for the Congress St patient care building with you.

Portland, Maine — Yes. Life's good here.

Planning & Urban Development Department

Bramhall St. - 22, MMC Congress Street Building

LEVEL II and LEVEL III APPLICATION SUBMISSION CHECKLIST

Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes to the left

General Application Documents

#	Checklist	Items to be Provided
00	Yes ✓ NA Plan	PROJECT DESCRIPTION • Cover Letter with detailed project description
01	Yes ✓ NA Plan	COMPLETED CHECKLIST – LEVEL III APPLICATION
02	Yes ✓ NA Plan	RIGHT, TITLE AND INTEREST • Deeds, leases, or purchase and sales agreements
03	Yes ✓ NA Plan	EVIDENCE OF STATE OR FEDERAL APPROVALS, if applicable • Permits or letters of non-jurisdiction, if applicable
04	Yes ✓ NA Plan	ZONING ASSESSMENT • Table listing required and proposed uses and dimensional standards Zoning Assessment Table
05	Yes ✓ NA Plan	EXISTING &/OR PROPOSED EASEMENTS OR COVENANTS, if applicable • Evidence of existing easements and any proposed easements
06	Yes ✓ NA Plan	WAIVER REQUESTS • Written request for waiver describing request and reason. Waiver Table
07	Yes ✓ NA Plan	FINANCIAL CAPABILITY • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
08	Yes ✓ NA Plan	TECHNICAL CAPABILITY • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

LEVEL II AND LEVEL III SITE PLAN STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable.
Please submit each document as a separate PDF file.

TRANSPORTATION

	Check list	Assess/Provide/Document:
09	Yes ✓ NA Plan	**Transportation Analysis- Traffic Impact (14-526 (a) 1)** • Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts • Traffic Impact Study (Technical Manual, Section 1) if applicable
10	Yes ✓ NA Plan	**Access and Circulation (14-526 (a) 2 a)** • Access and internal circulation, addressing ADA access • Access and egress impacts on traffic flows • Description and use of drive-up features, if applicable
11	Yes ✓ NA Plan	**Loading and Servicing (14-526 (a) 2 b)** • Loading and servicing needs, route and travel way geometrics for deliveries • Turning templates for delivery vehicles, if applicable
12	Yes ✓ NA Plan	**Sidewalks (14-526 (a) 2 c)** • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
13	Yes ✓ NA Plan	**Public Transit (14-526 (a) 3), if applicable** • Existing available transit services • Proposed site plan design details, such as easement, pad base, and shelter
14	Yes ✓ NA Plan	**Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c)** • Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements • Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
15	Yes ✓ NA Plan	**Bicycle Parking (14-526 (a) 4 b)** • Address bicycle parking requirements and identify locations on-site • Construction details for bike racks (Technical Manual, Section 1)
16	Yes ✓ NA Plan	**Snow Storage (14-526 (a) 4 d)** • Management plan for snow removal and locate snow storage areas on plan
17	Yes ✓ NA Plan	**Traffic Demand Management (TDM) (14-526 (a) 5), if applicable** • Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES

Check list	Assess/Provide/Document:
18 Yes ✓ NA Plan	**Preservation of Significant Natural Features (14-526 (b) 1), if applicable** • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
19 Yes ✓ NA Plan	**Landscaping and Landscape Preservation (14-526 (b) 2 a)** • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
20 Yes ✓ NA Plan	**Site Landscaping (14-526 (b) 2 b)** • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
21 Yes ✓ NA Plan	**Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable** • Landscaped islands within parking areas (Technical Manual, Section 4)
22 Yes ✓ NA Plan	**Street Trees (14-526 (b) 2 b iii)** • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable

ENVIRONMENTAL AND STORMWATER

Check list	Assess/Provide/Document:
23 Yes ✓ NA Plan	**Water Quality, Stormwater Management and Erosion Control (14-526 (b) 3 a)** • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY

Check list	Assess/Provide/Document:
24 Yes ✓ NA Plan	**Consistency with City Master Plans (14-526 (c) 1)** • Identify consistency with master plans • Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
25 Yes ✓ NA Plan	**Public Safety and Fire Prevention (14-526 (c))** • Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) • Emergency vehicle access • Address consistency with public safety standards (Technical Manual, Section 3) • Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
26 Yes ✓ NA Plan	**Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual,** Sections 2 & 9) • Electrical services, including providing underground services • Identify existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections are required, if there is a main within 200 feet • Proposed solid waste management facilities on-site and management for the site • Written evidence of the ability to serve from utility companies, as applicable

SITE DESIGN

Check list	Assess/Provide/Document:
27 Yes ✓ NA Plan	**Massing, Ventilations and Wind Impact (14-526 (d) 1)** • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable • Bulk, location or height impacts on adjoining structures • Identify and locate HVAC equipment and venting away from public spaces and residential properties • Identify screening and manufacturing specifications for noise, if applicable
28 Yes ✓ NA Plan	**Shadows (14-526 (d) 2), if applicable** • Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
29 Yes ✓ NA Plan	**Snow and Ice Loading (14-526 (d) 3)** • Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
30 Yes ✓ NA Plan	**View Corridors (14-526 (d) 4), if applicable** • Protection of designated view corridors (Portland Design Manual, Appendix 1)

31	Yes ✓ NA Plan	**Historic Resources (14-526 (d) 5), if applicable** • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
32	Yes ✓ NA Plan	**Exterior Lighting (14-526 (d) 6)** • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
33	Yes ✓ NA Plan	**Noise and Vibration (14-526 (d) 7)** • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
34	Yes ✓ NA Plan	**Signage and Wayfinding (14-526 (d) 8), if applicable** • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
35	Yes ✓ NA Plan	**Zone Related Design Standards (14-526 (d) 5)** • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
36	**Construction Management Plan**	
	Check list	
	Yes ✓ NA Plan	Construction Management Plan • Construction Management Document and Plan

Level II and Level III Site Plan Checklist

Please upload the following drawings with the listed details into e-Plan as separate pdfs.

☑ **RECENT BOUNDARY SURVEY** (stamped by Maine Licensed Surveyor)

Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

☑ **Existing Conditions**

- Approximate location of structures on abutting property
- Topography
- Locate water courses
- Delineate wetlands
- Zone lines

☑ Proposed Site Plan

- Ground floor area, and grade elevations for all buildings

☑ **Access, Circulation, and Parking**

- Streets and intersections adjacent to site , any proposed geometric modifications
- Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- Location and dimensions of proposed loading areas
- Existing and proposed transit infrastructure with dimensions/ engineering specifications
- Location of vehicle and bicycle parking with dimensions and engineering specifications

☑ **Site Considerations**

- Identify snow storage areas
- Location of fire hydrants
- Location of solid waste management facilities

☑ **UTILITY PLAN** including:

- Existing utilities on site and within public streets
- Location, sizing, and directional flows of all existing and proposed utilities
- Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- Electric utility infrastructure

☑ **GRADING and DRAINAGE PLAN** including:

- Existing grades and drainage
- Proposed grades
- Proposed stormwater management meeting Technical Manual (Section 5) standards
- Location and proposed alteration of a water course
- Preservation or alteration of wetlands

☑ **EROSION CONTROL**

- Must be in compliance with Technical Manual, Section 5

☑ **LANDSCAPE PLAN** including:

- Existing vegetation to be preserved and preservation measures
- Proposed landscaping and buffers
- Planting schedule

☐ **RECORDING PLAT**, if applicable N/A

- IF SUBDIVISION: Must be in compliance with requirements of Section 14-496 (b)

☑ **ARCHITECTURAL PLANS & RENDERINGS** including:

- Exterior building elevations, color renderings, illustrations of all sides
- Location and dimensions of all existing & proposed HVAC & mechanical equipment, all proposed screening
- Provide context drawings, if applicable (Design Manual, page 1)
- Floor plans

Att. C

WRITTEN SUBMISSION 02 – RIGHT, TITLE AND INTEREST
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE PROPERTY DEEDS ARE ATTACHED.

Know all Men by these Presents, That

I William H. Bailey of Portland in the State of Maine

in consideration of the sum of Two Hundred and fifty Dollars paid by

The Maine General Hospital, a Corporation established by law at Portland

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital

heirs and assigns forever,

Bailey to Maine General Hospital

U. S. I. R. 50 Cents W. H. B. June 6. 1870.

a certain lot of land situated on the northwestern slope of Bramhall's Hill in Portland, the same being lot numbered nine, on a plan made by Howe and Ogood September 1863 recorded in the Cumberland Registry of Deeds in Plan Book number two page 36. The said plan is of a tract of land extending from the rear of the State Arsenal lot to Congress street. The lot hereby conveyed is about forty feet in breadth and about sixty feet in length on the Southwest side of an unopened street laid down on said plan; the same conveyed to me by Moody F. Walker Oct. 14. 1863. Subject to the location of Ash street over any part of said lot, subject also to a mortgage for $37.50 given to Moody F. Walker which mortgage with all unpaid interest thereon, the present grantee is to assume and discharge.

To Have and to Hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital

~~heirs~~ and assigns, to their use and behoof forever. And I do covenant with the said Grantee

~~heirs~~ and assigns, that I am lawfully seized in fee of the Premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee

to hold as aforesaid; and that I will and my heirs, shall and will warrant and defend the same to the said Grantee

~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Grantor and Elvira W. my wife ~~of the said~~ in testimony of her relinquishment of her right of dower in the above described premises, have hereunto set our hands and seals this sixth day of June in the year of our Lord one thousand eight hundred and seventy.

~~Signed, Sealed and Delivered~~ in presence of

P. Barnes to W. H. B. — William H. Bailey Seal

Joseph S. Bailey to E. W. B. — Elvira W. Bailey Seal

State of Maine
Cumberland, ss. June 6th 1870. Personally appeared the above-named William H. Bailey and acknowledged the above instrument to be his free act and deed. Before me,

P. Barnes Justice of the Peace.

Received June 6. 1870, at 12 o'clock 54 m., P. M., and recorded according to the original.

Attest, Eben Leach Register.

Know all Men by these Presents, That

I, Hugh Carney of Portland in the State of Maine

in consideration of the sum of Five Hundred Dollars paid by The Maine General Hospital, a Corporation established by law at Portland aforesaid the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital ~~heirs and assigns forever,~~

Carney to Maine General Hospital

U. S. I. R. 50 Cents H. C. June 6. 70

a certain parcel of land situated on the North-western slope of Bramhall's hill in Portland, bounded on the East by the State Arsenal lot and on the North by land of the City; the same conveyed to me by Moody F. Walker Oct. 14. 1863, in two lots about forty feet in width by about sixty feet in length, which are numbered two and four on a plan of the same and adjoining lands made by Howe and Osgood Sept. 1863, which is recorded, under date of January 20, 1864 in Plan Book number two page 36 of the Cumberland Registry of Deeds. Subject to the location of Ash street over any part of said lots.

To Have and to Hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital ~~heirs and~~ assigns, to their use and behoof forever. And I do covenant with the said Grantee ~~heirs and~~ assigns, that I am lawfully seized in fee of the Premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I will and my heirs, shall and will warrant and defend the same to the said Grantee ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Grantor and Bridgett D. my wife ~~of the said~~ in testimony of her relinquishment of her right of dower in the above described premises, have hereunto set our hands and seals this sixth day of June in the year of our Lord one thousand eight hundred and seventy.

Signed, Sealed and Delivered in presence of

P. Barnes to H. C. — Hugh his X mark Carney Seal.

Witnessed by Edward N. Bates — Bridget Carney Seal.

State of Maine
Cumberland, ss. June 6th 1870. Personally appeared the above-named Hugh Carney and acknowledged the above instrument to be his free act and deed. Before me,

P. Barnes Justice of the Peace.

Received June 6 1870, at 12 o'clock 54 m., P. M., and recorded according to the original.

Attest, Eben Leach Register.

State of Maine Cumberland ss Portland May 19th 1870.
Then personally appeared the abovenamed Sarah M. Bridges and acknowledged the foregoing instrument to be her free act and deed.
Before me, George R. Davis, Justice of the Peace

Received May 19 1870 at 5h 20 m P.M. and recorded according to the original
Attest. Ebem Leach Register

Agreement of Joseph S Bailey with Maine Hospital

Agreement made the 27th day of April 1870 by Joseph S Bailey of Portland for the conveyance of certain land to the Maine General Hospital

For a valuable consideration the said Bailey agrees to convey by deed of warranty to the Maine General Hospital, upon the conditions hereinafter named, a certain parcel of land situated on the slope of Bramhall's Hill in Portland, being the western part of a parcel of about two acres extending from the General ground to Congress street, formerly owned by Mr. F. Walker and others, described, as divided into lots on a plan made by Rowe and Osgood in 863, through which two acre parcel a street called Oak street has recently been laid out, and being all of said two acre parcel, except the ten lots nearest the General and except the part of the street adjoining the ten lots. The conveyance hereby agreed to be made is to include the fee of the land covered by the new street west of the ten lots, but subject to the location of the street.

This agreement is to be in force for the term of forty days from and after this date.

The conditions upon which the conveyance is to be made, are, that the Hospital shall within the said forty days pay to the said Bailey, or to his written order, the sum of two thousand dollars, upon which payment the deed is to be made and delivered, and shall therefore make and deliver to the said Bailey or to his written appointment, into two several negotiable promissory notes, one for two thousand dollars payable in two years from the date of the deed, and one for one thousand dollars payable in three years from the same date, both with interest half yearly at the rate of seven and one half per annum, with liberty to pay not less than one thousand dollars on said notes at any time before maturity, together with a mortgage of the premises to secure the same, and shall assume and pay according to its tenor a mortgage now subsisting

on a part of said premises for one thousand dollars given by said Bailey in 1866 in six years, subject to which mortgage this agreement is made, interest accrued on said mortgage to the date of this conveyance to be paid by said Bailey.

In witness whereof, the said Bailey has hereunto set his hand and seal the day and year first above written.

U. S. Inter. Revenue 5 cts. J. S. B. Apl. 27. 1870.	Witness P. Barnes	Joseph S. Bailey Seal

State of Maine Cumberland St. On this 21st day of May 1870 personally appeared Joseph S. Bailey and acknowledged the foregoing instrument by him subscribed to be his free act and deed.

Before me P. Barnes Justice of the Peace.

Received May 21, 1870 at 4h 10m P.M. and recorded according to the original

Attest: Eben Leach Register

U. S. I. R. $2.00 H. S. L. May 21 1870.	Know all men by these presents that I Horatio T. Libby of Portland in the County of Cumberland and State of Maine in consideration of Six Thousand Dollars paid by John Lindsey of Scandish in the County of Cumberland and State of Maine,	Libby to Lindsey

the receipt whereof is hereby acknowledged, do hereby give grant, bargain, sell and convey unto the said John Lindsey a certain lot of land and the buildings thereon situated on the Southwesterly side of Chestnut Street in said Portland and bounded beginning at the Northerly corner of land of Benjamin Tukey formerly Leonard Crosse's land and running thence Northwesterly on said street thirty five feet; thence Southwesterly at right angles with said street sixtynine feet to a stake or stones; thence Southeasterly on a line parallel with said street thirtyfive feet to a stake or stones; thence at right angles with the last line by Mrs. A. Hay's land and said Tukey's land sixtynine feet to the bound begun at containing about two thousand and four hundred feet, being a part of the land conveyed to me by Miriam Libby sale by deed dated January 18th 1854 and recorded in Cumberland Registry of Deeds Book 252 Page 27. Subject to a mortgage to the City of Portland on which is now due about two thousand dollars.

To have and to hold the above granted premises

Portland May 7th 1874.

This mortgage having been paid and fully satisfied, is hereby cancelled and discharged.

Witness

J. Wm. Lindsey

their hands and seals this twentieth day of October A.D. 1870.

Richard D. Rice {President of Maine Central Railroad Company

Countersigned by Joshua Nye, Treas. of Maine Central R.R. Co.

William L. Putnam Seal
Artemas Libbey Seal.
James T. Patten. Seal.

Cumberland ss. Oct. 20, 1870. Then personally appeared Richard D. Rice, President of the Maine Central Railroad Company and acknowledged the foregoing instrument to be the free act and deed of said Corporation, before me,

Josiah H. Drummond Justice of the Peace.

Received Nov. 2, 1870 at 2h. 30m. P.M. and recorded according to the original.

Attest: Eben Leach Registr

City of Portland to Me. Gen. Hospital

Whereas the City Council of this City of Portland, upon the petition of the Maine General Hospital, praying that the City would grant to the Corporation certain lands for the purpose of enlarging the building site of the Hospital, and rendering the same more commodious and useful for the objects thereof, by concurrent orders of the two Branches, passed by the same respectively, on the 13d and 14th days of May 1870 and approved by the Mayor on the 31st day of the same month, ordered, that the prayer of the petition be granted, and that a deed in furtherance thereof be executed and delivered for the conveyance prayed for.

Now, know all men by these presents that the City of Portland, in pursuance of the foregoing order, and in consideration of Ten Dollars paid by the Grantee hereinafter named, the receipt whereof is hereby acknowledged, doth hereby give, grant, bargain, sell and convey to the Maine General Hospital, a Corporation established by law at Portland aforesaid, a certain parcel of land, belonging to the City, situated on the slope of Bramhall's Hill, bounded on

the Northeast by a line, as now fenced, in continuation of the Northeast side line of the Maine State Arsenal lot, and on the Southwest by lands of Joseph S. Bailey and others, and extending Westward, between those lines, from the Arsenal lot to Congress street.

Also another parcel of land belonging to the City, situated on the Southwest side of the Arsenal lot and of the lands of Bailey and others, having a front on a line in continuation of the Northwest side line of Arsenal street as far as to the Northeast side line of a contemplated street, and extending Westwardly from Arsenal street between the contemplated street on the South and the Arsenal lot and Bailey land on the North to Congress street.

The said contemplated street is laid down and designated by the name of Gilman street on a Plan made by J. F. Chappell, Engineer, May 21, 1870, to which Plan, verified as required by the Order of the City Council, by the signature of the City Treasurer, reference is made for more exact ascertainment of the position and courses of said street.

This conveyance is made upon the condition that the lands hereby granted and conveyed shall be held for the purposes of the Hospital, as a part of its building site and grounds; and that whenever the same shall cease to be so used, they shall revert to the City.

Also upon the further condition, that if the Hospital shall acquire a title to the lands of Bailey and others above mentioned, and the contemplated street shall at any time, thereafter be laid out and opened across the same, as described in said Plan, no damages or compensation shall be claimed by the Hospital therefor.

To have and to hold the premises, with the privileges and appurtenances thereof, to the said Maine General Hospital, to its use and behoof forever, subject to the conditions aforesaid.

In witness whereof, these presents are subscribed and sealed, in behalf of the City, by Henry H. Hersey, City Treasurer, duly authorized by the Order aforesaid, this fourth day of June in the year of our Lord

one thousand eight hundred and seventy.

Signed, sealed, and delivered in presence of Benj. Kingsbury Jr. } Henry W. Hersey City Treasurer.

State of Maine.

Cumberland ss. On this sixth day of August 1870, personally appeared Henry W. Hersey and acknowledged the foregoing instrument by him subscribed to be the deed of the City of Portland.

Before me,

Benj. Kingsbury Jr. Justice of the Peace.

Received Nov 14, 1870 at 1 h. P.M. and recorded according to the original.

Attest: Elsen Sacich Register

P. & O. R. R. Co to Davis et al

U. S. I. R. $800.00 P. & O. R. R. Co By S. J. A. Dwt Nov. 1, 1870

Discharge Book 702 Page 65

Know all men by these presents, that the Portland and Ogdensburg Railroad Company, a Corporation established by the Legislature of the State of Maine, and authorized and empowered by the Legislature of New Hampshire to construct and extend its Railroad across said State of New Hampshire, subject to the laws thereof relating to Railroads, and having its principal office for the transaction of business at Portland in the County of Cumberland and State of Maine, for the purpose of effecting the several trusts and securities hereinafter set forth, created and declared, designed to enable and provide for the more speedy construction and equipment of the Railroad of said Company, and in consideration of One Dollar paid by the Grantees and Trustees hereinafter named, doth hereby give, grant, bargain, sell and convey to Woodbury Davis, Samuel E. Spring, and Weston F. Milliken, all of Portland aforesaid, Gentlemen, their survivors and successors as hereinafter designated, all that part of the Railroad of said Company extending and to be extended from the terminus in Portland, in the State of Maine to Bartlett in the State of New Hampshire, located and to be located within said limits, called the Portland and Ogdensburg Railroad, including all the rights of way and lands taken and

Know all Men by these Presents, That

I Phinehas Barnes of Portland, in the County of Cumberland, State of Maine

in consideration of Four Thousand and Seventy one 37/100 Dollars paid by

The Maine General Hospital, a Corporation established by the Laws of said State

the receipt whereof I do hereby acknowledge, do hereby remise, release, bargain, sell and convey, and forever quit claim unto the said Maine General Hospital, its successors

~~heirs~~ and assigns forever, all my right, title and interest in and to Twenty several lots of land

Barnes to Maine G. Hospital

U. S. I. R.
F. 4. 50.
P. B.
July 12/71.

situated on the Northwestern slope of Bramhall's Hill in said Portland described and numbered on a plan of a tract of about ten acres, extending from the Maine State Arsenal Grounds, to Congress Street which plan was made in September 1863, by Hare and Osgood, and is recorded in the Cumberland Registry of Deeds, in Plan Book, number two, page thirty six - the lots hereby conveyed being numbered one, three, five, seven, eight, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, twenty one, twenty two, twenty three, and twenty four 1. 3. 5. 7. 8. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22, 23 & 24. together with all my right title, and interest in and to the land adjoining any of said lots, embraced within the location of Ash Street, as laid out by the City the last year: The design of this Deed being to discharge bonds mentioned in Deeds to said Barnes from Moody H. Walker & wife dated 6. June 1870. recorded in said Registry, Book 377. page 302 & from Joseph L. Bailey dated 6 June 1870. recorded in said Registry Book 377. page 301, the Mortgage obligations of said Barnes mentioned in said Deeds, having been discharged, by said Hospital.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to them the said Corporation, its successors

~~heirs~~ and assigns forever. And I do covenant with the said Corporation, its successors

~~heirs~~ and assigns, that I will warrant and forever defend the premises to them the said Corporation its successors

~~heirs~~ and assigns forever, against the lawful claims and demands of all persons, claiming by, through, or under me.

In Witness Whereof, I the said Phinehas Barnes, and Ann B. Butler wife of the said Barnes, in testimony of her relinquishment of her right of Dower in the above described Premises

have hereunto set ~~my~~ hand and seal this Eighth day of July

in the year of our Lord one thousand eight hundred and seventy one.

Signed, Sealed and Delivered in presence of
Wilfred Barnes to P. B.
Wilfred Barnes to A. B. B.

P. Barnes Seal
Ann B. Barnes. Seal

State of Maine

Cumberland, ss. 8th July 1871 Personally appeared the above-named Phinehas Barnes

and acknowledged the above instrument to be His free act and deed. Before me,

James T. McCobb. Justice of the Peace.

Received July 11 1871, at 11 o'clock A. M., and recorded according to the original.

Attest. Thos Lucas Register.

with interest, and all cost and expenses, including all sums paid by said Grantee or assigns for insurance of the premises and for taxes, paying the surplus, if any, to the said Grantors, or their assigns; and such sale shall forever bar the said Grantors, and all persons claiming under them from all right and interest in the premises at law or in equity. It being mutually agreed that the said Grantee or assigns may purchase at said sale, and that no other purchaser shall be answerable for the application of the purchase money.

In witness whereof, we the said Grantors, Emily F. Bailey and Benjamin H. Bailey have hereunto set our hands and seals this thirteenth day of January in the year of our Lord eighteen hundred and seventy one.

Signed, sealed and delivered in presence of
Benj. Kingsbury Jr.

Emily F. Bailey. Seal
Benj H. Bailey. Seal

State of Maine.
Cumberland ss Portland January 13. 1871. Then personally appeared the abovenamed Benjamin H. Bailey and Emily F. Bailey and acknowledged the foregoing instrument to be their deed.

Before me,
Benj. Kingsbury Jr. Justice of the Peace.

Received Jan 14 1871 at 12 h 29 m P. M. and recorded according to the original.
Attest: Eben Leach Register

State of Maine
to
Maine General Hospital

State of Maine.

Resolves in favor of the Maine General Hospital.

Resolved, That all the right, title and interest of this State in and to the lot of land, not including the buildings thereon, situated on Bramhall Hill, in the city of Portland and County of Cumberland, being the present site of the State Arsenal, is hereby granted to the Maine General Hospital, a corporation established by act of the Legislature, passed February twenty-fourth, one thousand eight hundred and sixtyeight, to have and to hold to

said corporation for the purpose of erecting and maintaining thereon its hospital buildings; and when such land ceases to be so used it shall revert to the State. But this grant shall not take effect until it is shown to the satisfaction of the Governor that said Corporation has raised by responsible private subscriptions or donations the sum of Twenty Thousand Dollars; nor until the Governor has certified on a copy of this resolve certified by the Secretary of State, that the aforesaid condition precedent has been complied with; but when that is done, this grant shall take effect, and the recording of such certified copy, with the Governor's certificate thereon, in the Registry of Deeds in the County of Cumberland shall be sufficient record evidence thereof.

Resolved That when said Corporation has raised, received into its treasury and actually expended towards the construction of its hospital buildings on said lot, the sum of Thirty thousand dollars and this fact is shown to the satisfaction of the Governor he may draw his warrant on the Treasurer of State for the sum of Ten thousand dollars in favor of said Corporation and payable to its Treasurer; and when said Corporation has so raised, received into its Treasury and expended in the construction of its hospital buildings the sum of Ten thousand dollars more or Fifty thousand dollars in all including the Ten thousand from the State, and this fact is shown to the satisfaction of the Governor he shall draw his warrant on the Treasurer of State for the sum of Ten thousand dollars more in favor of said Corporation and payable to its Treasurer; and the sum of Twenty thousand dollars is hereby appropriated to carry into effect the purposes of this Resolve to be paid from any money in the Treasury not otherwise appropriated.

In the House of Representatives March 18 1870.

Read and passed finally.

Reuben Foster Speaker

In Senate March 18" 1870

Read and passed finally.

Wm. H. Boloter President

March 19th 1870. Approved. Joshua L. Chamberlain Governor

State of Maine

Office of Secretary of State,

Augusta, Dec. 15. 1870

I hereby certify that the forgoing is a true copy of the original as deposited in this Office.

Franklin Mc. Donn.

Secretary of State

I, Joshua L. Chamberlain Governor of Maine in compliance with the terms of the Resolve of which the foregoing is a copy certified by the Secretary of State, hereby certify that it has been shown to my satisfaction that the Maine General Hospital the corporation within named has raised by responsible private subscriptions and donations the sum of twenty thousand dollars.

In witness whereof I have hereunto set my hand this sixteenth day of December A. D. 1870

In presence of
F. L. Chamberlain
Charlotte M. Packard

Joshua L. Chamberlain
Governor of Maine

Received Jan. 16 1871 at 2 h. 44 m. P. M. and recorded according to the original.

Attest: Eben Leady Register

U. S. I. R. Fifty cts. N. H. M. Jan. 13. 1871

Know all men by these presents, that I, Wm. H. Moreland of Stoneham, Mass. in consideration of Four Hundred Fifty Dollars to me paid by Seth Moreland of Harrison, County of Cumberland, State of Maine, the receipt whereof is hereby acknowledged, do hereby sell, remise, release, and forever quitclaim unto the said Seth Moreland, all my right, title and interest in and to a certain farm or parcel of real estate described as follows, to wit, the same deeded to me by the said Seth Moreland by his deed, said deed dated Jany. fourth 1869, said deed recorded Book 364 Page 288. being the same farm Seth Moreland now lives on in Harrison all taxes excepted.

Moreland to Moreland

To have and to hold the above released premises, with all the privileges and appurtenances to the same belonging, to the said Seth, his heirs and assigns to their use and behoof forever. And I the said

Know all Men by these Presents, That

I Bartholomew Wren of Portland in the county of Cumberland State of Maine

in consideration of five hundred dollars paid by

The Maine General Hospital a corporation doing its business in said Portland

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital its successors its and their heirs and assigns forever, a certain lot of land on the easterly side of (what is or lately was) Ash Street in said Portland being sixty five feet in length & running back from the line of said Ash Street & forty feet in width being the same lot indicated as number six (No 6) on a certain plan of land surveyed for Moody F. Walker September 23, 1863 by Howe & Osgood Civil Engineers which plan is placed on file in the office of the Registry of Deeds for Cumberland county for the purpose of reference in the matter of conveyances that have been or may be made by said Moody F. Walker of the lots of land specified in said plan. The same property conveyed to me by said Moody F. Walker by deed dated the 16th October 1863 recorded in said Registry Book 323 page 199

Wren
To
Maine Gen Hospital

U.S.I.R.
$0.50
B.W.
Sept. 15
1871

To Have and to Hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, to the said Corporation its successors its & their heirs and assigns, to their use and behoof forever. And I do covenant with the said Corporation its successors its & their heirs and assigns, that I am lawfully seized in fee of the Premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Corporation to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee its successors its & their heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Bartholomew Wren and Margaret wife of the said Bartholomew Wren in testimony of her relinquishment of her right of dower in the above described premises, have hereunto set our hands and seals this twenty eighth day of August in the year of our Lord one thousand eight hundred and seventy one

Signed, Sealed and Delivered
in presence of

James T. McCobb — Bartholomew Wren — Seal
Witness — Margaret her mark Wren — Seal
Michael White

Cumberland, ss. 15 September 1871 Personally appeared the above-named Bartholomew Wren and acknowledged the above instrument to be his free act and deed. Before me,

James T. McCobb Justice of the Peace

Received Sept. 18 1871 at 4 o'clock 17m. P.M. and recorded according to the original.

Attest, Register.

Know all Men by these Presents, That

The City of Portland, a corporation in the County of Cumberland, State of Maine

in consideration of One Dollar & other considerations paid by The Maine General Hospital, a corporation in said State & County & City,

the receipt whereof We do hereby acknowledge, do hereby remise, release, bargain, sell, and convey, and forever QUIT-CLAIM unto the said Maine General Hospital, its successors

~~heirs~~ and assigns forever, all our right, title, and interest in and to a lot of land, on the slope of "Bramhalls Hill", in said city, being the land which lies between the land owned by said Hospital & Gilman Street & Arsenal Street extended westerly & southerly, bounded: Beginning at the southwest corner of a lot of land conveyed to said Hospital by said city in 1870, thence southwesterly on the northerly line of Arsenal Street produced 130 feet, more or less, to Gilman Street, thence northerly by east line of Gilman Street 653 feet, more or less, to Bailey's land, thence southeasterly by Bailey's land 71 feet, more or less, to land of said Hospital, thence by said Hospital land 544 feet, more or less to point of beginning: Provided, That The Powder House now on said lot be allowed to remain, without expense to the city until such time as the city shall provide some other house for powder, or remove this one from the lot

Portland
To
M. General
Hospital

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to the said Grantees, their successors & assigns, their heirs & assigns forever. ~~And~~ ~~do covenant with the said~~

~~heirs and assigns, that~~ ~~will warrant and~~ ~~defend the premises to~~ ~~the said~~

~~heirs and assigns forever, against the lawful claims and demands of all persons, claiming by, through, or under~~

In Witness Whereof, We the said Grantors, by Henry W. Hersey City Treasurer, authorized thereto by vote of the City Council of said City, approved the 2 March instant have hereunto set our hand and seal this sixth day of March in the year of our Lord one thousand eight hundred and seventy-five

Signed, Sealed, and Delivered in presence of

3 printed words erased & 4 interlined before execution

S. B. Beckett

City of Portland
by H. W. Hersey, Treas.

State of Maine

Cumberland, ss. March 1874. Personally appeared the above-named Henry W. Hersey and acknowledged the above instrument to be his free act and deed, & the free act & deed of said city.

Before me S. B. Beckett, Justice of the Peace.

Received March 19 1875, at 9 o'clock, 45 m. A. M., and recorded according to the original.

Attest, Henry C. Houston Register.

Know all Men by these Presents, That

Book 1250
Page 470

I, Margaret E. L. Sherman, of Norwalk, in the County of Fairfield and State of Connecticut,

in consideration of one dollar and other valuable consideration, paid by Maine General Hospital, a corporation organized and existing under the laws of the State of Maine, and located at Portland, in the County of Cumberland and State of Maine the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon, situated on the northwesterly side of Arsenal Street in said Portland, bounded and described as follows: Beginning at a point on said northwesterly side of Arsenal Street where the northeasterly side line of land of said Maine General Hospital, formerly known as the Arsenal Lot, adjoins the lot hereby conveyed; thence running northeasterly by said Arsenal Street forty (40) feet to a point; and from these two points extending northwesterly, adjoining said land of Maine General Hospital and keeping a width of forty (40) feet, one hundred (100) feet more or less to Ellsworth Street.

Meaning and intending hereby to convey the same premises conveyed to William H. Bigelow by John B. Brown by deed dated March 30, 1863, recorded in Cumberland Registry of Deeds, Book 317, page 321, my title to the same having been acquired as devisee under the will of said William H. Bigelow, extract from which is recorded in said Registry of Deeds, Book 627, page 231, in which will I am designated as Margaret Eva Lena Taylor, and by deed of Joshua L. Taylor to me dated January 11, 1897, recorded in said Registry of Deeds, Book 640, page 282.

Said premises are conveyed subject to a mortgage to Portland Savings Bank upon which there is due the principal sum of $1,650, which the grantee hereby assumes and agrees to pay as a part of the consideration hereof.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital, its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said grantee, its successors heirs and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; except said mortgage; that I have good right to sell and convey the same to the said grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons. except as aforesaid.

In Witness Whereof, I, the said Margaret E. L. Sherman, and I, John C. Sherman, husband of the said Margaret E. L. Sherman joining in this deed as grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises,

have hereunto set our hand s and seal s this third day of December in the year of our Lord one thousand nine hundred and twenty-six.

Signed, Sealed and Delivered in presence of

John F. Dana to M.E.L.S. — Margaret E. L. Sherman Seal.

Geo. Davis, C. G. Hanson } as to J.C.S. — John C. Sherman Seal.

State of Maine, CUMBERLAND, ss. December 3, 1926. Personally appeared the above named Margaret E. L. Sherman and acknowledged the above instrument to be her free act and deed.

Before me, John F. Dana, *Justice of the Peace.*

Received December 4, 1926, at 9 o'clock - m. A. M., and recorded according to the original.

Book 1282
Page 323

Know all Men by these Presents, That

I, Emma W. Hill of Portland in the county of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations, paid by Maine General Hospital, a corporation existing by law, with an established place of business in said Portland, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon, situated in said Portland, and bounded and described as follows: Beginning at the intersection of the northerly side line of Arsenal street and the westerly side line of a passageway extending from Arsenal street to Ellsworth street; thence north 20° west sixty-one and five tenths (61.5) feet by the westerly side line of said passageway to a point; thence south 70° west about thirty-four and three tenths (34.3) feet to land formerly of Nathan Moses; thence southerly by said Moses land sixty-seven (67) feet to a point on the northerly side of Arsenal street; thence north 60° 58' east by the northerly side line of Arsenal street thirty-four (34) feet, more or less, to the point of beginning.

Together with the rights of the grantor in a twelve (12) foot passageway.

Meaning and intending to hereby convey the same premises conveyed to Everett L. Hill by Milcah M. Gwynn, by deed dated February 2, 1920, recorded in Cumberland Registry of Deeds, Book 1042, page 256, and the same conveyed to this grantor by said Everett L. Hill by deed dated October 15, 1924, recorded in Cumberland Registry of Deeds, Book 1168, page 351.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital, its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said Emma W. Hill and Everett L. Hill, husband of the said Emma W. Hill, joining in this deed as grantor, and relinquishing and conveying his rights by descent and all other rights in the above described premises have hereunto set our hand s and seals this sixteenth day of December in the year of our Lord one thousand nine hundred and twenty-seven.

Signed, Sealed and Delivered in presence of

John B. Kehoe to both

Emma W. Hill Seal.

Everett L. Hill Seal.

State of Maine, CUMBERLAND, ss. December 16, 1927. Personally appeared the above named Emma W. Hill and acknowledged the above instrument to be her free act and deed.

Before me, John B. Kehoe, *Justice of the Peace.*

Received December 16, 1927, at 11 o'clock 10 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

Book 1285
Page 450

I, Harriet L. Stevens of Portland in the County of Cumberland and State of Maine,

in consideration of one ($1.00) dollar and other valuable considerations, paid by Maine General Hospital, a corporation organized and existing under the laws of said State of Maine, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital,its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon,situated in said Portland, bounded and described as follows: Beginning on the westerly side of a twelve (12) foot passageway leading from Arsenal Street to Ellsworth Street at a point sixty-one and five-tenths (61.5) feet distant from the intersection of the northerly side line of Arsenal Street with the westerly side line of said passage-way; thence south seventy (70°) degrees west,thirty-four and three-tenths (34.3) feet,more or less, to land formerly of Nathan Moses;thence northerly by said Moses land thirty-three (33) feet, more or less, to the southerly side line of Ellsworth Street;thence easterly along the southerly side line of Ellsworth Street thirty-four (34) feet, more or less, to its intersection with the westerly side line of said passageway;thence southerly along the westerly side line of said passageway thirty-eight and five-tenths (38.5) feet, more or less, to the point of beginning.

The above described premises are in the northerly portion of the premises conveyed to Shailer G. Cushing by Seth C. Gordon by his warranty deed dated September 21, 1907, and recorded in Cumberland County Registry of Deeds,Book 814,page 37.

Being the same premises conveyed to me under the name of Hattie L. Stevens by Perley W. Stevens by warranty deed dated December 24, 1912, and recorded in said Registry of Deeds, Book 906,page 161.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital,its successors ~~heirs~~ and assigns, to their use and behoof forever. And I do covenant with the said Grantee,its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all encumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee,its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Wherenf, I, the said Harriet L. Stevens, and I, Perley W. Stevens,husband of the said Harriet L. Stevens,joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises

have hereunto set our hand s and seals this nineteenth day of February in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

R. E. Snow to both

Harriet L. Stevens Seal.

Perley W. Stevens Seal.

State of Maine, CUMBERLAND, ss. February 19, 1928. Personally appeared the above named Harriet L. Stevens and acknowledged the above instrument to be her free act and deed.

Before me, Reuben E. Snow, *Justice of the Peace.*

Received March 20, 1928, at 2 o'clock30 m. P. M., and recorded according to the original.

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Know all Men by these Presents, That

I, Eunice M. Chase (formerly Eunice Margaret Graham) of Portland, in the County of Cumberland and State of Maine,

in consideration of One dollar ($1.00) and other valuable considerations, paid by Maine General Hospital,a corporation organized and existing under the laws of said State of Maine, and located at said Portland,
the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said

Maine General Hospital,its successors and assigns forever, a certain lot or parcel of land with the buildings thereon,situated on the westerly side of a thirty foot passage way leading Northerly from Ellsworth Street,in the City of Portland, State of Maine, and now known as Charles Street,and bounded and described as follows,namely;

Beginning in the westerly side line of said Charles Street at the northeasterly corner of land now or formerly of Charles A. Donnell,thence northerly, by said Charles Street,thirty feet,thence westerly,on a line parallel with the northerly line of said Donnell's land seventy-four and two-tenths (74 2/10) feet to the Arsenal Lot,so called, now owned by said Maine General Hospital;thence southerly by said Arsenal Lot,thirty feet to said Donnell's land;thence easterly by said Donnell's land seventy-four and two tenths (74 2/10) feet to the point of beginning.

Being the same premises conveyed to me under the name of Eunice Margaret Graham Chase by William Graham by warranty deed dated July 1,1919,recorded in Cumberland Registry of Deeds,Book 1042,page 471.

Also a certain other lot or parcel of land with the buildings thereon situated in said Portland on the westerly side of Charles Street, and bounded and described as follows,to wit:

Beginning on the westerly side line of said Charles Street at a point distant seventy-three (73) feet northerly from the northeasterly corner of land now or formerly of Wiggins;thence northerly by said Charles Street forty-seven (47) feet to a stake; and from these two points extending back westerly,at right angles with said Charles Street and keeping said width of forty-seven (47) feet,about seventy-four and two-tenths (74.2) feet to the "Arsenal Lot" so called, now owned by said Maine General Hospital; and being the same premises conveyed to Mary Rich Graham,deceased,by Charles A. Donnell,by his deed dated July 1, 1895, recorded in the Cumberland Registry of Deeds,Book 604,page 124.

My title to said premises was acquired as an heir-at-law of said Mary Rich Graham, and by warranty deed from William Graham and Paul G. Graham to me under the name of Eunice Margaret Graham,dated August 2,1912,recorded in said Registry of Deeds,Book 898,page 83.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital,its successors ~~heirs and assigns~~, to its and their use and behoof forever. And I do covenant with the said grantee, its successors ~~heirs and assigns~~, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee,its successors ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Eunice M. Chase,and I, Harold B. Chase,husband of the said Eunice M. Chase joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises have hereunto set our hands and seals this twentieth day of April in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

Eunice M. Chase Seal

John F. Dana to both

Harold B. Chase Seal

State of Maine, Cumberland, ss. April 20, 1928. Personally appeared the above named Eunice M. Chase and acknowledged the above instrument to be her free act and deed.

Before me, John F. Dana, *Justice of the Peace.*

Received April 20, 1928, at 10 o'clock 50m. A. M., and recorded according to the original.

Know all Men by these Presents, That

I, Elizabeth Naylor, of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable consideration, paid by Maine General Hospital, a corporation organized and existing under the laws of said State of Maine, and located at said Portland, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital,its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon,situated in said Portland, on the northerly side of Ellsworth Street and westerly side of Charles Street,bounded and described as follows: Beginning at the corner formed by the intersection of the westerly side of Charles Street and the northerly side of Ellsworth Street, and running westerly by said Ellsworth Street to land conveyed by William R. Naylor to Samuel W. Joy by deed dated November 8,1905, and recorded in Cumberland County Registry of Deeds,Book 776,page 200;thence northerly by said Joy land to land now or formerly of Levi J. Jones;thence easterly by said Jones land to said Charles Street;thence southerly by said Charles Street to the point of beginning.

Being the same premises conveyed to William R. Naylor by John B. Brown by deed dated February 20,1872, recorded in Cumberland County Registry of Deeds,Book 393, page 105, excepting therefrom the portion thereof conveyed by William R. Naylor to Samuel W. Joy by deed aforesaid. My title to said premises having been acquired as devisee under the will of William R. Naylor, extract from which is recorded in said Registry of Deeds,Book 783,page 307.

Also hereby conveying any right,title and interest I may have in said Ellsworth Street.

Taxes for the year 1928 are to be prorated between the grantor and grantee.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital,its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee,its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee,its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Elizabeth Naylor, being unmarried,

have hereunto set my hand and seal this 3rd day of July in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

Nathan W. Thompson

Elizabeth Naylor Seal

State of Maine, CUMBERLAND, ss. July 3, 1928. Personally appeared the above named Elizabeth Naylor and acknowledged the above instrument to be her free act and deed.

Before me, Nathan W. Thompson, *Justice of the Peace.*

Received July 7, 1928, at 10 o'clock 45 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

I, Samuel W. Joy, of Portland, in the County of Cumberland and State of Maine, Book 1206 Page 352

in consideration of one dollar and other valuable considerations, paid by Maine General Hospital, a corporation organized and existing under the laws of said State of Maine, and located at said Portland, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon, situated on the northerly side of Ellsworth Street in said Portland, being numbered forty-three (43) on said Street, and bounded and described as follows: Beginning at a point thirty-two (32) feet westerly from the intersection of the northerly side line of said Ellsworth Street with the westerly side line of Charles Street; thence westerly by said Ellsworth Street forty-four (44) feet to the Arsenal lot, so called, now owned by the Maine General Hospital; thence northerly by said Arsenal or Hospital lot eighty-seven (87) feet to land now or formerly of Levi J. Jones; thence easterly thirty (30) feet to land now or formerly of William R. Naylor; thence southerly by said Naylor land eighty-seven (87) feet more or less to the first bound.

Being the same premises conveyed to me by William R. Naylor by deed dated November 3, 1905, recorded in Cumberland County Registry of Deeds, Book 776, page 200.

Also hereby conveying any right, title and interest I may have in and to said Ellsworth Street.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital, its successors heirs and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors heirs and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Samuel W. Joy, having no wife,

have hereunto set my hand and seal this seventh day of July in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

John F. Dana

Saml W. Joy Seal

State of Maine, CUMBERLAND, ss. July 7, 1928. Personally appeared the above named Samuel W. Joy and acknowledged the above instrument to be his free act and deed.

Before me, John F. Dana, *Justice of the Peace.*

Received July 7, 1928, at 10 o'clock 46 m. A. M., and recorded according to the original.

IN WITNESS WHEREOF, the said Lessor has hereunto set his hand and seal on the day and year first above written.

Signed, Sealed and Delivered in Presence of

It is further understood that no liquor, beer, or cigarette advertising shall be displayed on any structure that might be erected.

JOHN DONNELLY & SONS ------

WEST SCARBORO M.E.CHURCH ------

By A. W. Hodgman, Treas.

State of Maine. County of Cumberland,ss. March 31, 1939.

Personally appeared the above named Lessor and acknowledged the above instrument to be his free act and deed.

Before me, F. H. Tewksbury Justice of the Peace

Received March 31, 1939, at 3h 40m P. M., and recorded according to the original

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Canal Nat'l.Bk. of Port. Tr. & to Maine General Hospital Deed

KNOW ALL MEN BY THESE PRESENTS, That

WHEREAS, The Canal National Bank of Portland as Trustee having filed its Bill of Complaint against Vaughan Hall, Incorporated and Harry M. Verrill, Conservator of Casco Mercantile Trust Company dated May 20, 1938, praying for foreclosure of a certain mortgage indenture on property described in said Bill of Complaint, said mortgage indenture being dated as of the fifteenth day of September, 1925, and recorded in the office of the Registry of Deeds for Cumberland County in Book 1219 at Page 41, the Supreme Judicial Court within and for the County of Cumberland in proceedings numbered 5830 on the docket of said Court entered its decree of foreclosure and order of sale therein decreeing and ordering the sale of the property described in said mortgage and hereinafter described, and

WHEREAS, it was, among other things, ordered, adjudged and decreed by said decree of foreclosure that said sale should be made by and under the direction of Raymond J. Callahan who was thereby appointed Special Master for that purpose and who was thereby directed to make and conduct said sale and to execute a deed of conveyance of the property sold to the purchaser thereof upon an order of Court confirming such sale and upon payment or settlement of the purchase price as therein provided, and that such sale be made in the County Court House in the City of Portland, Maine, on a day and at an hour as fixed by said decree of said Supreme Judicial Court and that notice of the time, place and terms of said sale describing briefly the property to be sold and referring to said decree should be published at least once a week for three successive weeks prior to said sale in a newspaper of general circulation published in Portland, Maine, and that upon confirmation of the sale by the Court and upon payment by any purchaser of the purchase price of the property purchased by him in accordance with the decrees of said Court the Special Master should execute a deed conveying, assigning and transferring to such purchaser the property sold to him, and

WHEREAS, the Supreme Judicial Court, pursuant to said decree, duly fixed the time for said sale as February 15, 1939, at ten o'clock in the forenoon and on said date the Special Master, pursuant to the provisions of said decree dated January 17, 1939, and pursuant to order of Court dated February 15, 1939, adjourned said sale from time to time in accordance with orders and decrees of said Court until March 28, 1939, at the time and place ordered by said decree of Court dated January 17, 1939, and orders and decrees subsequent thereto and said Special Master made due advertisement of said sale in the manner described in said decree dated January 17, 1939, and posted all of said notices as required by the orders of Court made subsequent thereto and the Special Master did at the time and place and in the manner and subject to the conditions of said decree and orders of Court subsequent thereto fairly strike off and sell said property to Maine General Hospital, a corporation duly organized and existing under the laws of the State of Maine and having a usual place of business at Portland, in the County of Cumberland and State of Maine, and

WHEREAS, The Canal National Bank of Portland thereafter duly presented to the Court for confirmation the bid so received by said Special Master and the said Special Master duly made a report of said sale to said Court, and a decree of confirmation and a certain decree amending said decree of foreclosure and sale were made and entered therein on the thirty-first day of March, 1939, confirming said bid, report and sale, and making said sale subject to taxes levied against said premises or any part thereof which are or may be chargeable upon said property and directing the Special Master, upon payment of the purchase price in the manner prescribed by said decree of confirmation, to execute and deliver to said purchaser a deed or other instrument conveying, assigning and transferring to said purchaser said property so sold as aforesaid, and

WHEREAS, said Supreme Judicial Court, in accordance with said decree of confirmation, by a decree made and entered herein on the thirty-first day of March, 1939, approved the form of this deed as required by said decree of confirmation dated March 31, 1939, and

WHEREAS, said sale has been conducted and made in all respects in accordance with law and with the provisions of said decrees and order of sale;

NOW, THEREFORE, I, the said Raymond J. Callahan, in my capacity as Special Master and in consideration of these presents and of one dollar and other valuable considerations paid by Maine General Hospital, receipt whereof is hereby acknowledged, do hereby remise, release, bargain, sell and convey and quitclaim unto the said Maine General Hospital, a corporation organized and existing under the laws of the State of Maine, its successors or assigns, all the right, title and interest which said Vaughan Hall, Incorporated and/or Harry M. Verrill, Conservator of Casco Mercantile Trust Company, and all persons claiming under it or him has or have in and to the following described real estate situated in Portland, in the County of Cumberland and State of Maine, and all future rents and profits thereof arising

therefrom, subject, however, to the equity of redemption as provided in the Statutes of the State of Maine and subject also to the terms and conditions set forth in the decree of the Supreme Judicial Court dated January 17, 1939, and certain decrees dated March 31, 1939, and to any other decree which may be hereafter made which relates to the property hereby conveyed, together with the rights and privileges pertaining to said property subject to the conditions described in the decrees of the Supreme Judicial Court dated January 17, 1939, and March 31, 1939, and any unpaid taxes, but subject, however, at all times to the exceptions and provisions particularly described and set forth in the various decrees of said Supreme Judicial Court heretofore made and any that may be hereafter made during the period of redemption:

A certain lot or parcel of land with the buildings thereon situated in said Portland, and bounded and described as follows:- Beginning on the westerly side of Vaughan Street at the southeasterly corner of land now or formerly of the Portland Water District; thence southerly on Vaughan Street sixty (60) feet, more or less, to land now or formerly of John W.Deering; thence westerly by said Deering land one hundred and forty (140) feet, more or less, to land now or formerly of Portland School for Medical Instruction; thence northerly by land of said Portland School for Medical Instruction sixty (60) feet, more or less, to said land of said Portland Water District; thence easterly by said land of said Portland Water District one hundred and forty (140) feet, more or less, to the point of beginning; said lot containing eighty-four hundred (8400) square feet, more or less. Being the same premises conveyed to Vaughan Hall, Incorporated, by Ralph N. Bryant by his warranty deed dated December 19, 1913, and recorded in Cumberland County Registry of Deeds, in Book 927, Page 26.

For title to the above described promises reference is also hereby made to a certain mortgage indenture dated September 15, 1925, securing the First Mortgage Sinking Fund 5 1/2% Gold Bonds of Vaughan Hall Incorporated, said mortgage indenture being by and between said Vaughan Hall, Incorporated and The Canal National Bank of Portland, said mortgage indenture being recorded in Cumberland County Registry of Deeds in Book 1219, Page 41.

TO HAVE AND TO HOLD and possess and enjoy said property and every part and parcel thereof free from all claims, rights, interests whatsoever in or to the same by or of the said Vaughan Hall, Incorporated, its successors and assigns, or of Harry M. Verrill as Conservator of Casco Mercantile Trust Company and by or of the creditors of the Receiver appointed by the Supreme Judicial Court in the equity proceedings hereinbefore referred to, or by or of the stockholders of said Vaughan Hall, Incorporated, and by or of all persons claiming by, through or under them or any of them, including the said Receiver of said Vaughan Hall, Incorporated, and by or of all the parties to said cause hereinbefore described, but subject, however, to any and all taxes levied against said premises or any part thereof which are or may be chargeable upon said property or premises or any portion thereof prior to the

U.S.I.R. $31.50 R.J.C. 3/31/39

lien of the mortgage foreclosed in said proceedings and subject to the right of redemption of said property granted by the Statutes of the State of Maine and subject to the terms and conditions of all decrees of said Supreme Judicial Court made and entered in the cause herein referred to and to any other decree which may be hereinafter entered by said Court which relates or pertains to the property herein conveyed.

IN WITNESS WHEREOF, Raymond J. Callahan, as Special Master, has hereunto set his hand and seal this thirty-first day of March, 1939.

Signed, Sealed and Delivered in Presence of

Porter Thompson — Raymond J. Callahan Seal

Special Master

State of Maine. Cumberland,ss. — March 31, 1939.

Personally appeared Raymond J. Callahan and acknowledged the foregoing instrument to be his free act and deed and his free act and deed in his said capacity.

Before me, Porter Thompson Justice of the Peace

APPROVED:

Guy H. Sturgis

Justice Supreme Judicial Court

Received March 31, 1939, at 4h -m P. M., and recorded according to the original

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Casco Mer. Tr. Co.,Cons. of to Maine General Hospital Deed

WHEREAS, Harry M. Verrill of Portland, in the County of Cumberland and State of Maine, was appointed Permanent Conservator of Casco Mercantile Trust Company, a banking corporation organized and existing under the laws of the State of Maine and located at said Portland, by decree of the Supreme Judicial Court in Equity in and for the County of Cumberland and State of Maine, dated April 14, 1933, in an action in equity commenced by Sanger N. Annis against Casco Mercantile Trust Company in said Court by Bill in Equity dated March 18, 1933, and

WHEREAS, upon petition of Harry M. Verrill, Conservator as aforesaid, dated March 29, 1939, a decree issued out of said Court authorizing said Conservator to sell to Maine General Hospital, a corporation organized and existing under the laws of the State of Maine and located at said Portland, all the right, title and interest of said Casco Mercantile Trust Company in and to the following described real estate, which said decree is dated March 31, 1939, and

WHEREAS, said Conservator has sold, pursuant to the terms of said decree, to said Maine General Hospital all the right, title and interest of said Casco Mercantile Trust Company in and to the real estate hereinafter described.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS, That I, the said Harry M. Verrill, by virtue of the power and authority in me vested as aforesaid, and in my capacity as Conservator of Casco Mercantile Trust Company, and in consideration of one dollar and other valuable consideration, paid by Maine General Hospital, receipt whereof is hereby acknowledged, do hereby remise, release, bargain, sell, convey and quitclaim unto the said Maine General Hospital, its successors and assigns, all the

Know all Men by these Presents, That

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Book 2127
Page 269

I, John T. Lennon of Portland in the County of Cumberland and State of Maine

in consideration of one dollar and other valuable considerations paid by Maine Medical Center, a corporation organized and existing under the Laws of the State of Maine and located at said Portland

the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and assigns forever, certain lots or parcels of land with the buildings thereon situated in said Portland and bounded and described as follows:

First:

Beginning on the northerly side of Bramhall Street at the southwesterly corner of land now or formerly of Thomas H. Pratt, running thence westerly by said Bramhall Street fifty (50) feet to land now or formerly of Sophia M. Knight, and from these two points extending northerly towards Arsenal Street, holding to said width of fifty feet, and adjoining said Pratt premises on one side and said Knight premises on the other for a distance of sixty (60) feet to land now or formerly of Edward T. Burrowes. The said lot is the southerly portion of the premises conveyed to Albert B. Cole, Frank H. Cole and Warren W. Cole by Nettie E. Pierce by deed dated September 26, 1911 and recorded in the Registry of Deeds for said County of Cumberland in Book 882, Page 188. Said premises are numbered thirty (30) on said Bramhall Street.

Second:

A certain lot of land with the buildings thereon on the southerly side of Arsenal Street in said Portland bounded and described as follows:

Commencing at a point on the Westerly line of land of Maude E. Pratt at a point sixty (60) feet northerly from the northerly side of Bramhall Street, thence westerly on a line parallel with and sixty (60) feet from said Bramhall Street, fifty (50) feet, more or less, to land of Sophia M. Knight; thence northerly from these two points keeping a width of fifty (50) feet and bounded on the West by land of said Knight and on the East by land of said Pratt and George H. Fletcher, forty-nine (49) feet, more or less, to said Arsenal Street.

Being the same property conveyed to me by Harriet B. Foster by her warranty deed dated February 24, 1945 and recorded in the Cumberland County Registy of Deeds in Book 1771 Page 131.

Also conveying all my right, title and interest in and to Arsenal Street, recently abandoned by the City of Portland.

U.S.T.R. $16.50 J.T.L. 5/5/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors heirs and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors and assigns heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said John T. Lennon and Ann C. Lennon wife of the said John T. Lennon joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises,

have hereunto set our hand and seal this fifth day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

John J. Devine to both

John T. Lennon Seal
Ann C. Lennon Seal

State of Maine, CUMBERLAND, ss. May 5, 1953. Personally appeared the above named John T. Lennon and acknowledged the foregoing instrument to be his free act and deed.

Before me, John J. Devine, Justice of the Peace

Received May 5, 1953, at 2 o'clock 30 m. P. M., and recorded according to the original.

Know all Men by these Presents, That

I, Donald D. McPhee of Portland in the County of Cumberland and State of Maine,

in consideration of one dollar ($1) and other valuable considerations paid by Maine Medical Center, a corporation duly organized and existing under the laws of the State of Maine and located at Portland in said County and State the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated in said Portland and being the premises conveyed to me by Hope K. Fletcher by deed dated November 22, 1946 and recorded in Cumberland County Registry of Deeds in Book 1848, Page 160, in which deed said premises are described as follows:

Beginning at the Northeast corner of Sophia T. Jones lot, so-called, on Arsenal Street; thence Northeasterly on Arsenal Street fifty (50) feet to land of one Raymond; thence Southeasterly by line of Raymond forty-eight (48) feet, more or less, to land of one Haskell; thence Southwesterly along line of said Haskell land thirteen (13) feet and two (2) inches to a point; thence Northwesterly parallel to land of said Raymond three (3) feet to a point; thence Southwesterly along the line of said Haskell land thirty-six (36) feet, more or less, to land of said Jones; thence Northwesterly forty-six (46) feet, more or less to point of beginning.

Also conveying all my interest in and to said Arsenal Street, recently abandoned by the City of Portland.

U.S.I.R. $14.30 D.D.McP. 5/9/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors heirs and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances: that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Donald D. McPhee and I, Lorraine J. McPhee wife of the said Donald D. McPhee joining in this deed as Grantor, and relinquishing and conveying my rights by descent and all other rights in the above described premises, have hereunto set our hand s and seal s this 9th day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana to both

Donald D. McPhee Seal
Lorraine J. McPhee Seal

State of Maine, Cumberland, ss. May 9, 1953. Personally appeared the above named Donald D. McPhee and acknowledged the above instrument to be his free act and deed.

Before me, Edward F. Dana, Justice of the Peace

Received May 9, 1953, at 9 o'clock 37 m. A.M., and recorded according to the original.

Know all Men by these Presents, That

Book 2127
Page 443

I, Hazel B. Therio of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar and other valuable considerations paid by Maine Medical Center, a corporation duly organized and existing under the Laws of the State of Maine and located at said Portland
the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated on the Westerly side of Bramhall Street in said Portland, being more particularly described in deed from Hazel E. Skillings to the Grantor, dated September 18, 1945 and recorded in Cumberland County Registry of Deeds in Book 1790, Page 500, in which deed said premises are described as follows:

A certain lot or parcel of land, with the buildings thereon situated in said City of Portland, on the Northwesterly side of Bramhall Street, bounded and described as follows: Beginning at the most easterly corner of land now or formerly of Sophia P. Jones; thence Northeasterly on said Bramhall Street fifty (50) feet to land now or formerly of one Raymond; thence Northwesterly by said Raymond land fifty-nine (59) feet; thence Southwesterly thirteen (13) feet two (2) inches, more or less, to a fence; thence Northwesterly by the line of the division fence three (3) feet two (2) inches; thence Southwesterly by said fence thirty-six (36) feet five (5) inches, more or less, to said Jones land; thence Southeasterly by said Jones land sixty-two (62) feet two (2) inches to the point begun at.

Also, all my right, title and interest in and to Arsenal Street recently abandoned by the City of Portland.

U.S.I.R. $9.90 H.B.T. 5/16/53

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors and Assigns ~~heirs and assigns~~, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Hazel B. Therio, being unmarried, have hereunto set my hand and seal this 16th day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana — Hazel B. Therio — Seal

State of Maine, CUMBERLAND, ss. May 16, 1953 Personally appeared the above named Hazel B. Therio and acknowledged the above instrument to be her free act and deed.

Before me, Edward F. Dana Justice of the Peace

Received May 16 19 53, at 10 o'clock 35 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

We, Albert N. Tardif and M. Louise Tardif, both of Portland, County of Cumberland, State of Maine

in consideration of one dollar ($1.00) and other valuable considerations paid by Maine Medical Center, a Corporation established by law at said Portland

the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated on the northerly side of Bramhall Street in said Portland which was conveyed to the grantors by Wilhelmina M. Mantine, by deed dated September 16, 1935 and recorded in Cumberland County Registry of Deeds in Book 1478, Page 294 and therein described as follows: Beginning on the northerly side of Bramhall Street at the easterly corner of land formerly of James Miller; thence northeasterly by Bramhall Street twenty-one and seven twentieths (21 7/20) feet to a stake; thence northwesterly about one hundred eleven (111) feet to a point in the southerly side of Arsenal Street; thence southwesterly by Arsenal Street twenty-two and three quarters (22 3/4) feet to said Miller's land; thence southeasterly by said Miller's land one hundred eleven and four tenths (111 4/10) feet to the point of beginning.

Also all our right title and interest in and to Arsenal Street recently abandoned by the City of Portland.

U.S.I.R. $16.50
A.N.T.Et 6/11/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and

their use and behoof forever. And we do covenant with the said Grantee, its successors and Assigns,

~~heirs and assigns~~, that we are lawfully seized in fee of the premises; that they are free of all incumbrances:

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its successors and Assigns

~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, We the said Albert N. Tardif and M. Louise Tardif, the said Grantors, being Husband and Wife each joining in this deed as Grantors, and each relinquishing and conveying our respective rights by descent and all other rights in the above described premises,

have hereunto set our hand s and seal s this 11th day of June in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana	Albert N. Tardif	Seal
to both	M. Louise Tardif	Seal

State of Maine, CUMBERLAND, ss. June 11, 1953 Personally appeared the above named Albert N. Tardif and M. Louise Tardif and acknowledged the above instrument to be their free act and deed.

Before me, Edward F. Dana Justice of the Peace

Received June 12 1953, at 11 o'clock 5 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

Book 2133
Page 311

We, Fred A. Patterson and Ella H. Whidden both of Derry in the County of Rockingham and State of New Hampshire, Ruby E. McKenzie of Raymond in said County and State and Alzo F. Patterson of Portland in the County of Cumberland and State of Maine

in consideration of One dollar ($1.00) and other valuable considerations paid by Maine Medical Center, a Corporation organized and existing under the laws of Maine and located at said Portland,
the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its Successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon, situated in said Portland on the northerly side of Bramhall Street and bounded and described as follows:

Beginning on the northerly side of Bramhall Street at the southwesterly corner of land formerly of Frederick A. Carle; thence running westerly by said Bramhall Street twenty-five (25) feet to a stake or point, and from these two points extending northerly adjoining said Carle land, keeping a width of twenty-five (25) feet, to Arsenal Street, being the premises conveyed to Daniel W. Patterson by Maria M. Jose by deed dated September 12, 1921 and recorded in Cumberland County Registry of Deeds in Book 1085, Page 228.

The said Daniel W. Patterson died intestate on September 3, 1952 leaving no widow and as his sole heirs-at-law, the Grantors herein.

The Grantee as part of the consideration hereof assumes and agrees to pay the taxes for the taxable year of 1953.

Also conveying all our right, title and interest in and to Arsenal Street recently abandoned by the City of Portland, Maine.

U.S.I.R. $13.20 A.F.P.Et 5/20/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its Successors and Assigns to its and their use and behoof forever. And we do covenant with the said Grantee, its Successors and Assigns, ~~heirs and assigns~~, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid.

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its Successors and Assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, We the said Fred A.Patterson and Chrystine I.Patterson,wife of the said Fred A.Patterson;Ella H.Whidden and Charles F.Whidden,husband of the said Ella H.Whidden;Ruby E.McKenzie and Elmer W.McKenzie,husband of the said Ruby E.McKenzie,and Alzo F.Patterson and Bessie E.Patterson,wife of the said Alzo F.Patterson joining in this deed as Grantors,and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this twentieth day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

R.E. Jensen	Alzo F.Patterson Seal
R.E. Jensen	Bessie E. Patterson Seal
Carmela Chase	Fred A. Patterson Seal
Carmela Chase	Chrystine I. Patterson Seal
Arthur K. Smith	Ella H. Whidden Seal
Arthur K. Smith	Charles F. Whidden Seal
P. J. Campbell	Ruby E. MacKenzie Seal
P. J. Campbell	Elmer MacKenzie Seal

State of Maine. CUMBERLAND, ss. May 20, 1953 Personally appeared the above named Alzo F. Patterson and acknowledged the above instrument to be his free act and deed.

Before me, Raymond E. Jensen Justice of the Peace

Received June 12 1953, at 11 o'clock 5 m. A.M., and recorded according to the original.

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Book 2133
Page 317

Know all Men by these Presents, That

We, Leola J. Noyes and William H. Noyes, Jr., both of Portland, County of Cumberland, State of Maine,

in consideration of one dollar ($1.00) and other valuable considerations paid by Maine Medical Center, a Corporation established by law in said Portland

the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated in said Portland between Bramhall and Arsenal Streets adjoining land formerly belonging to Sophia P. Jones and conveyed to us by Maud L. Pillsbury by deed dated October 2, 1951, recorded in Cumberland County Registry of Deeds in Book 2060, Page 419, and therein bounded and described as follows: Beginning on the northerly side of Bramhall Street at the southwesterly corner of said Jones land; thence running westerly by said Bramhall Street twenty-five (25) feet to a stake and from these two points extending northerly adjoining said Jones land keeping a width of twenty-five (25) feet, a distance of sixty-eight feet and two inches (68' 2"), which distances are marked by stakes and which stakes are twenty-six (26) feet distant from the southerly boundary line of Arsenal Street.

U.S.I.R.
$11.00
L.J.N.Et
6/12/53

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and their use and behoof forever. And we do covenant with the said Grantee, its successors and Assigns, ~~heirs and assigns~~, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its successors and Assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, We, the said Leola J. Noyes and William H. Noyes, Jr., the said grantors, both being unmarried

our hand s and seals this 12th day of June have hereunto set in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana — Leola J. Noyes — Seal

to both — William H. Noyes, Jr. — Seal

State of Maine, CUMBERLAND, ss. June 12, 1953 Personally appeared the above named Leola J. Noyes and William H. Noyes, Jr. and acknowledged the above instrument to be their free act and deed.

Before me, Edward F. Dana Justice of the Peace

Received June 12 19 53, at 1 o'clock 44 m. P. M., and recorded according to the original.

Know all Men by these Presents, That

Maine Medical Center a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

in consideration of One Dollar and other valuable considerations paid by Maine General Hospital, a corporation organized and existing under the laws of the State of Maine and located at said Portland

the receipt whereof it does hereby acknowledge, does hereby, give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors and assigns forever, a certain lot or parcel of land with the buildings thereon, situated in said City of Portland, between Bramhall and Arsenal Streets, adjoining land formerly owned by John W. Yeaton, and bounded and described as follows:

Beginning in the northerly line of Bramhall Street at the southeasterly corner of said Yeaton land; thence running easterly by Bramhall Street forty (40) feet and from these two points extending northerly, adjoining said Yeaton land, and keeping said width of forty (40) feet to Arsenal Street, being the same premises described in deed of J. B. Brown to Leon M. Bowdoin in 1867 by deed recorded in Cumberland County Registry of Deeds, Book 351, Page 340.

Being the same premises conveyed to this Grantor by Frederick W. McCarthy by deed dated June 30, 1953 and recorded in said Registry of Deeds in Book 2140, Page 92.

U.S.I.R.
$33.55
M.M.C.
8/18/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital, its successors and assigns, to its and their use and behoof forever. And the said Grantor Corporation does hereby covenant with the said Grantee, its successors and assigns,

~~heirs and assigns~~, that it is lawfully seized in fee of the premises; that they are free of all incumbrances:

that it has ~~have~~ good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors ~~heirs~~ shall and will warrant and defend the same to the said Grantee, its successors and assigns

~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Wherof, the said Maine Medical Center has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Phillips M. Payson, its President, thereunto duly authorized,

~~hand and seal~~ this 18th day of August ~~have hereunto set~~ in the year ~~of our Lord~~ one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana

MAINE MEDICAL CENTER
CORPORATE SEAL
By Phillips M. Payson
President.

State of Maine, County of CUMBERLAND, ss. August 18, 1953.

Then Personally appeared the above named Phillips M. Payson, President of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said corporation.

Before me, Edward F. Dana, Justice of the Peace.

Received August 19, 1953, at 1 o'clock 40 m. P. M., and recorded according to the original.

Know all Men by these Presents, That

I, Henry H. Grant of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable consideration paid by Maine Medical Center, a corporation organized and existing under the laws of the State of Maine and located at said Portland,

the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its Successors and assigns forever, a certain lot or parcel of land with the buildings thereon situated between Bramhall and Arsenal Streets in said Portland, adjoining land now or formerly belonging to Sophia P. Jones, and more particularly bounded and described as follows:

Beginning on the northerly side line of said Bramhall Street, at the southwesterly corner of said Jones' land; thence westerly by said Bramhall Street, twenty-five (25) feet to a stake and from these two points extending northerly adjoining said Jones land, keeping the width of twenty-five (25) feet, to Arsenal Street.

Excepting and reserving however, a certain lot or parcel of land with the buildings thereon out of the aforesaid property, a conveyance by Westprom Realty Company to Maud L. and Janice M. Pillsbury by deed dated January 23, 1946 and recorded in Cumberland County Registry of Deeds in Book 1803, Page 444, to which reference may be had.

Meaning and intending to convey a parcel of land at the rear of 26 Bramhall Street, which parcel of land is approximately 26'x25' and contains a garage thereon.

Being the same premises conveyed to me by Westprom Realty Company by their warranty deed dated April 11, 1951 and recorded in said Registry of Deeds in Book 2040, Page 192.

U.S.I.R. $3.30
H.H.G.
9/4/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its Successors and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its Successors and assigns, ~~heirs and assigns~~, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its Successors and assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Henry H. Grant and I, Gladys H. Grant, wife of the said Henry H. Grant joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises, have hereunto set our hands and seals this 4th day of September in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

H. Edwin Gee

Henry H. Grant Seal
Gladys H. Grant Seal

State of Maine, CUMBERLAND, ss. September 4, 1953. Personally appeared the above named Henry H. Grant and acknowledged the above instrument to be his free act and deed.

Before me, H. Edwin Gee, Notary Public, Notarial Seal, My Commission Expires June 29, 1956

Received September 9, 1953, at 9 o'clock 50 m. A. M., and recorded according to the original. p

Know all Men by these Presents, That

I, James S. Bell of Portland, County of Cumberland and State of Maine, Executor under the Will of Ethel B. Bell, deceased, late of Portland.

having on the 24th day of November A. D. 19 53, obtained License from the Honorable Nathaniel M. Haskell Judge of Probate, within and for the County of Cumberland and State of Maine, to sell and convey at private sale the Real Estate hereinafter described of the said Ethel B. Bell for the sum of

Eleven thousand seven hundred fifty ($11750.00) dollars

the same being an advantageous offer therefor, and having agreeably to the order and decree of said Court, given due notice upon the petition for license to make such sale, and having given the bond required by law, by virtue of the power and authority with which I am as aforesaid vested, and in consideration of the aforesaid sum of Eleven thousand seven hundred fifty ($11750.00) dollars, to me paid by Maine Medical Center, a corporation duly organized and existing by law with an office and place of business at Portland, said County and State.
the receipt whereof I do hereby acknowledge, have given, granted, and sold, and by these Presents do Give, Grant, Sell and Convey to the said Maine Medical Center, its Successors ~~Heirs~~ and Assigns forever, the following described Real Estate, viz.:

A certain lot or parcel of land with the buildings thereon, situated on Arsenal and Brackett Streets in said Portland, bounded and described as follows:

Beginning at the southwesterly side of said Brackett Street at the northwesterly corner of a lot of land conveyed by Mary J. Raymond to George E. Raymond by deed dated November 3, 1897, and recorded in the Cumberland County Registry of Deeds in Book 657, Page 411; thence southwesterly by said last named lot forty seven (47) feet; thence northwesterly and at right angles with the last described course to said Arsenal Street; thence northeasterly by said Arsenal Street to said Brackett Street; thence southeasterly by said Brackett Street to the point of beginning.

Excepting and reserving from the southeasterly portion of said above described premises so much thereof, as was described and conveyed in a certain deed from Ella C. Gardner to Gemma A. Applebee et al., said deed being dated November 27, 1935 and recorded in the Cumberland County Registry of Deeds, Book 1485, Page 206, and subject also to such easements and rights as were therein granted to said Gemma A. Applebee et al; by said deed above referred to.

Being the same premises conveyed to Kathryn Ireland by deed of Mary Dyer dated August twenty eighth, A. D. 1950 recorded in said Registry of Deeds for the County of Cumberland in Book 2014, Page 62.

Being the same premises conveyed to Sarah Friedman by deed of Kathryn Ireland which deed is recorded in the Cumberland County Registry of Deeds in Book 2051, Page 193.

Being the same premises conveyed to Ethel B. Bell by Sarah Friedman which deed is recorded in said Registry of Deeds.

U.S.I.R. $13.20 E.B.B. Est. 11/25/53

To Have and to Hold the same, with all the privileges and appurtenances to the same belonging, in manner as aforesaid, to the said Maine Medical Center, its Successors ~~Heirs~~ and Assigns forever.

And I the said James S. Bell in my said capacity do Covenant to and with the said Maine Medical Center, its Successors Heirs and Assigns, that I have in all things observed the rules and directions of law relative to the selling of said Estate, and have good right and lawful authority to sell and convey the same in manner aforesaid.

In Witness Whereof, I hereunto set my hand and seal in my said capacity, this 25th day of November in the year of our Lord one thousand nine hundred and fifty three

Signed, Sealed and Delivered in presence of

Morris Greenberg

Estate of Ethel B Bell
James S. Bell Executor Seal

State of Maine, Cumberland, ss. November 25, 1953. Personally appeared the above named James S. Bell and acknowledged the ~~above~~ foregoing instrument to be his free act and deed, in said capacity.

Before me, Morris Greenberg Justice of the Peace

Received November 25 19 53, at 4 o'clock 56m., P. M., and recorded according to the original. e/

(102)

Know All Men by these Presents,

That MAINE GENERAL HOSPITAL ~~Company~~

a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

Maine General Hospital to Maine Medical Center

War

in consideration of One Dollar ($1.00) and other valuable considerations (being less than $100)

paid by MAINE MEDICAL CENTER; a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

the receipt whereof it does hereby acknowledge, does hereby ~~give~~, grant, bargain, sell and convey, unto the said Maine Medical Center

its successors ~~heirs~~ and assigns forever,

a certain lot or parcel of land being a portion of Arsenal Street discontinued by the City of Portland and a small portion of land of the Grantor adjoining said discontinued land in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a point in the center line of discontinued Arsenal Street at its easterly extremity; thence northwesterly by said easterly extremity of discontinued Arsenal Street thirty (30) feet to land of the Grantor; thence southwesterly by land of the Grantor, being the northerly sideline of the former location of Arsenal Street and at right angles to the last described course about thirty (30) feet to the easterly face of the new Maine Medical Center building; thence northwesterly at about right angles to the last described course and by the easterly face of said new building about five (5) feet to a corner of said building; thence southwesterly by the northerly face of said new building and by a line between said new building and the old building, said old building being known as the pavilion and again by the northerly face of said new building about forty-five (45) feet to a corner of said new building; thence southeasterly by the face of said new building at about right angles to the last described course about five (5) feet to the former location of the northerly sideline of said Arsenal Street; thence southwesterly by other land of the Grantor being the northerly sideline of the former location of Arsenal Street and at about right angles to the last described course and ten (10) feet to a point; thence southeasterly at right angles to the last described course thirty (30) feet to the center line of the former location of said Arsenal Street; thence northeasterly by said center line and passing through said aforementioned new building about eighty-five (85) feet to the point of beginning.

22 **To have and to hold** the aforegranted and bargained premises with all the privileges and appurtenances thereof to the said Maine Medical Center, its successors ~~heirs~~ and assigns, to its and their use and behoof forever.

And the said Grantor Corporation does hereby COVENANT with the said Grantee, its successors ~~heirs~~ and assigns, that it is lawfully seized in fee of the premises, that they are free of all incumbrances;

that it has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors, shall and will WARRANT AND DEFEND the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said Maine General Hospital ~~Company~~ has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Phillips M. Payson, its Treasurer, thereunto duly authorized, this 9th day of July in the year one thousand nine hundred and fifty-six.

Signed, Sealed and Delivered in presence of

Edmund L. Dana

MAINE GENERAL HOSPITAL

~~Company~~

By Phillips M. Payson

Treasurer.

Corporate Seal

State of Maine.

County of Cumberland **ss.** July 9, 19 56

Then personally appeared the above named

Phillips M. Payson, Treasurer of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation. 23

Before me,

Edward Hanson Justice of the Peace.

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE JUL 10 1956
Received at 1 H 5 M, and recorded in
BOOK 2301 PAGE 21 Robert N. Carter Register

Know All Men by These Presents,

That M. S. Hancock, Inc.

M S Hancock Inc to Gordon --- War

a Corporation organized and existing under the laws of the State of Maine and located at Casco in the County of Cumberland and State of Maine in consideration of one dollar and other valuable consideration

paid by Benjamin H. Gordon of New Britain in the County of Hartford and State of Connecticut the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey unto the said Benjamin H. Gordon, his heirs and assigns forever, [redacted]

Three certain lots or parcels of land situate in said Casco and on the southerly shore of Coffee Pond, so-known, the lots herein conveyed being Lot #13, Lot #14 and Lot #15 and delineated on a certain plan entitled "Coffee Pond Pines, Part II" as recorded in the Cumberland County Registry of Deeds, Plan Book 44, Page 40, together with a right of user in common with others who may have been or who may hereafter be granted a similar right in and to the road or right of way leading to said lots from Route #11, so-known, said road being delineated on said plan.

It shall be a condition of this conveyance and the Grantee, for himself and his heirs, administrators, executors or assigns, agrees that no dwelling shall be erected or constructed on any of said lots unless the same shall equal or exceed the sum of $1500.00 to build exclusive, however, of any necessary outbuildings or garages.

(24)

Know all Men by these Presents,

161

That the CITY OF PORTLAND, a body politic and corporate, located in the County of Cumberland and State of Maine,

Portland City of

to

Maine General Hospital

Q C

in consideration of One ($1.00) Dollar and other valuable considerations, the total of which is less than One hundred ($100.00) Dollars

paid by Maine General Hospital, a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine,

the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said

Maine General Hospital, its successors and assigns forever,

A certain lot or parcel of land situated in said Portland and bounded and described as follows:

Beginning at the point of intersection of the Northwesterly side line of Ellsworth Street extended in a Southwesterly direction and the Southwesterly side line of Charles Street; thence Southwesterly along a continuation of the Northwesterly side line of Ellsworth Street extended, a distance of thirty-eight (38) feet, more or less, to a point; thence in a Southeasterly direction parallel to and fifty (50) feet measured perpendicularly Southwesterly of the Northeasterly side line of Charles Street Extension, so-called, a distance of one hundred fifty-five (155) feet, more or less, to the Northerly terminus of Brackett Street as established and renamed by the City Council of the City of Portland; thence Northeasterly along the line terminating said Brackett Street a distance of thirty-eight (38) feet, more or less, to the point of intersection formed by the above-mentioned line and the Southwesterly side line of Charles Street Extension, so-called; thence Northerly along the Southwesterly side line of Charles Street extension, so-called, a distance of one hundred fifty-five (155) feet, more or less, to the point of beginning.

Being the same premises conveyed to the Grantor by warranty deed of the Grantee dated April 9, 1954, recorded in Cumberland County Registry of Deeds in Book 2173, Page 412.

162

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to it the said

Maine General Hospital, its successors

~~Heirs~~ and Assigns forever.

And the said Grantor Corporation does ~~covenant~~ with the said

Maine General Hospital, its successors

~~Heirs~~ and Assigns, that it will Warrant and ~~Forever~~ Defend the said premises to it the said Grantee, its successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In Witness Whereof, the said CITY OF PORTLAND

has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Edwin T. Simmons, Acting City Treasurer ~~xxxxx~~ thereunto duly authorized, this Fifteenth day of August in the year one thousand nine hundred and fifty-six.

Signed, Sealed and Delivered in presence of

M. Jane King

CITY OF PORTLAND

By Edwin T. Simmons
Acting City Treasurer

(CORPORATE SEAL)

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE AUG 21 1956
Received at 1 H — M and recorded in
BOOK 2308 PAGE 161

State of Maine. Cumberland ss. August 15, 1956.

Personally appeared the above named Edwin T. Simmons, Acting City Treasurer of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me

Justice of the Peace

Know all Men by these Presents, That

223

Doak & to Maine General Hospital -- War

We, Albert E. Doak and Amelia Doak, both of Portland, County of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations paid by MAINE GENERAL HOSPITAL, a corporation organized and existing under the laws of the State of Maine, and having its principal place of business at said Portland,

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said MAINE GENERAL HOSPITAL, its successors and assigns, forever,

A certain lot or parcel of land with the buildings thereon, situated on the westerly side of Charles Street in said Portland, bounded and described as follows: Beginning at a fence post standing on the westerly side line of Charles Street and distant northerly seventy-three and eighty-four hundredths (73.84) feet from the northwesterly corner of Ellsworth and Charles Streets; thence northerly by said Charles Street forty (40) feet to land now or formerly of Frank Abbott; thence westerly by said Abbott's land seventy-four and fifty-six hundredths (74.56) feet to land of the said grantee; thence by land of said grantee southerly forty (40) feet to land now or formerly of W. R. Naylor; thence easterly by said Naylor's land seventy-four and forty-two hundredths (74.42) feet to the point of beginning.

Being the same premises conveyed to these grantors by Henry T. Orlando by deed dated May 29, 1951, and recorded in Cumberland County Registry of Deeds in Book 2044, Page 288.

The grantee corporation herein assumes and agrees to pay the 1957 real estate taxes as part consideration for this transfer.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said MAINE GENERAL HOSPITAL, its successors

and assigns, to its and their use and behoof forever. And we do covenant with the said Grantee, its successors and assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs and assigns shall and will warrant and defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we, the said Albert E. Doak and Amelia Doak, husband and wife,

joining in this deed as Grantors, and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this third day of May in the year of our Lord one thousand nine hundred and fifty-seven.

Signed, Sealed and Delivered in presence of

Edward B. Terry
to both

Albert E Doak
Amelia Doak

State of Maine, Cumberland ss. May 3, 1957.

Personally appeared the above named Albert E. Doak

and acknowledged the foregoing instrument to be his free act and deed.

Before me, Edward B. Terry
NOTARY PUBLIC.

STATE OF MAINE, CUMBERLAND COUNTY, SS. REGISTRY OF DEEDS

Received MAY 3 1957 at 2 o'clock 35 m. P. M., and recorded in BOOK 2349 PAGE 229 Attest: Martha W. S. Bailey Register

$6.05

Book 2619
Page 499

Grant
&
to
Maine
Medical
Center
--
War

Know All Men by These Presents,

499

That We, Henry H. Grant and Gladys H. Grant, both of Portland in the County of Cumberland and State of Maine,

in consideration of one ($1.00) dollar and other valuable considerations

paid by Maine Medical Center, a corporation duly organized and existing under the laws of the State of Maine and located at said Portland,

the receipt whereof we **do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said** Maine Medical Center, its successors

and assigns forever, a certain lot or parcel of land with the buildings thereon, situated in Portland in the County of Cumberland and State of Maine, on the northwesterly side of Bramhall Street, bounded and described as follows:

Commencing at the southwesterly corner of land, now or formerly, of James Miller and Charlotte Johnson on Bramhall Street; thence northwesterly by land of said James Miller and Charlotte Johnson, sixty (60) feet to land formerly of William J. Knowlton; thence southwesterly along said Knowlton land, parallel with said street, fifty-five (55) feet to a corner of land formerly of William J. Knowlton; thence parallel with first mentioned line sixty (60) feet, more or less, to said street; thence northeasterly by said street fifty-five (55) feet to the place of beginning.

Being the same premises conveyed to us by Russell Fanning by deed recorded in Cumberland County Registry of Deeds in Book 1833, Page 415, and are conveyed subject to the conditions contained in said deed.

The Grantee herein, as part of the consideration hereof, assumes and agrees to pay taxes for the taxable year 1961.

500

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said

Maine Medical Center, its successors

~~heirs~~ and assigns, to its and their use and behoof forever.

And we do covenant with the said Grantee, its successors ~~heirs~~ and assigns, that we are lawfully seized in fee of the premises, that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs shall and will Warrant and Defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, We the said Henry H. Grant

and Gladys H. Grant, being husband and

wife ~~xxxxxxxxxx~~

joining in this deed as Grantor s, and relinquishing and conveying all right by descent and all other rights in the above described premises, have hereunto set our hand s and seals this thirty-first day of July in the year of our Lord one thousand nine hundred and sixty-one.

Signed, Sealed and Delivered
in presence of

Gualtiero G. Wall — Henry H. Grant

R. E. Jensen — Gladys H. Grant

State of Maine, Cumberland, ss. July 31, 1961.

Personally appeared the above named Henry H. Grant

and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Raymond E. Jensen
Justice of the Peace
~~Notary Public~~

AUG 4 1961
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 10 H 28 M A M, and recorded in
BOOK 2619 PAGE 499 Edward R. Thompson Register

Know All Men by These Presents,

That Sewall M. Hobson, 2nd, of Portland, County of Cumberland and State of Maine

in consideration of one dollar and other valuable consideration

paid by Maine Medical Center, a corporation duly organized and existing under the laws of the State of Maine with its principal office in said Portland

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and assigns forever, a certain lot or parcel of land with the buildings thereon, situated on the northwesterly side of Bramhall Street in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at the intersection of the northwesterly side line of Bramhall Street with the easterly side line of Western Promenade; thence northeasterly by Bramhall Street One Hundred Four and one-tenth (104.1) feet to the southerly corner of land conveyed by John W. Yeaton to William J. Knowlton, by deed dated April 4, 1885, and recorded in Cumberland County Registry of Deeds, in Book 517, Page 186; thence northwesterly at right angles with Bramhall Street and by said Knowlton land Sixty (60) feet to the southeasterly side line of land conveyed by John W. Yeaton to William J. Knowlton by deed dated June 6, 1882, and recorded in said Registry of Deeds, in Book 488, Page 204; thence southwesterly by said Knowlton land Forty-one and seven tenths (41.7) feet to the easterly side line of Western Promenade at a point Seventy-seven and five tenths (77.5) feet southerly thereon from the southeasterly side line of Arsenal Street; thence southerly by Western Promenade Eighty-six and seventy-eight hundredths (86.78) feet to the point of beginning.

For Grantors title reference is made to the will of Annie H. Dana, and abstract of which is recorded in said Registry of Deeds, in Book 2423, Page 273, and to a certain deed from Saint Germain Foundation et als. dated February 1, 1960, and recorded in said Registry of Deeds in Book 2526, Page 80.

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors

~~heirs~~ and assigns, to it and their use and behoof forever.

And I do covenant with the said Grantee, its ~~heirs~~ successors and assigns, that I am lawfully seized in fee of the premises, that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and any heirs shall and will Warrant and Defend the same to the said Grantee, its ~~heirs~~ successors and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof. We the said Sewall M. Hobson, 2nd

and Anne S. Hobson

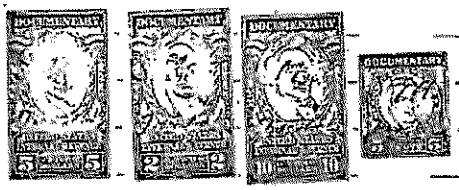
wife of the said Sewall M. Hobson, 2nd

joining in this deed as Grantor, and relinquishing and conveying her right by descent and all other rights in the above described premises, have hereunto set our hands and seals this Tenth day of July in the year of our Lord one thousand nine hundred and sixty-two.

Signed, Sealed and Delivered
in presence of

Gerald S Cope
to both

Sewall M. Hobson, 2nd
Anne S Hobson



State of Maine. Cumberland ss. July 10th 1962.

Personally appeared the above named Sewall M. Hobson, 2nd

and acknowledged the foregoing instrument to be his free act and deed.

Before me, Gerald S Cope
Justice of the Peace
~~Notary Public~~

JUL 10 1962
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 11 H 51 M A. M, and recorded in
BOOK 2686 PAGE 369 Sewall M Hobson Register

Book 2901
Page 326

326 (106)

Know all Men by these Presents,

That I, VINCENT C. NEWTON of Portland in the County of Cumberland and State of Maine

Newton to Maine General Hospita

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE GENERAL HOSPITAL, a corporation organized and existing under the laws of Maine and located at Portland in the County of Cumberland and State of Maine,

War

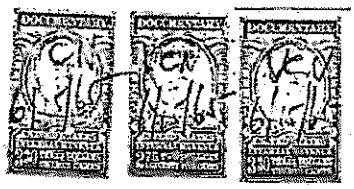
the receipt whereof I do hereby acknowledge, do hereby

give, grant, bargain, sell and convey, unto the said Maine General Hospital,

its successors ~~heirs~~ and assigns forever,

a certain lot or parcel of land with the buildings thereon situated on the westerly side of Charles Street in said Portland, bounded and described as follows:

Beginning on the westerly side line of said Charles Street at the northeasterly corner of land formerly of John M. Jones, now of Maine General Hospital; thence running northerly by said street thirty-eight (38) feet to land formerly occupied by one Graham, now owned by Maine General Hospital; and from these two points extending back westerly at right angles from said street keeping the width of thirty-eight (38) feet and bounded southerly by said Jones land and northerly by said Graham land about seventy-four and two tenths (74.2) feet to the Arsenal Lot, so-called, now of Maine General Hospital; being the same premises conveyed to me by Charles H. Abbott et al by deed dated February 10, 1944, recorded in Cumberland County Registry of Deeds in Book 1737, Page 278.



To Have and to Hold the aforegranted and bargained premises with all the privileges and appurtenances thereof to the said Maine General Hospital, its successors and assigns, to its and their use and behoof forever.

And I do COVENANT with the said Grantee, its successors and assigns, that I am lawfully seized in fee of the premises that they are free of all encumbrances:

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will WARRANT and DEFEND the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Vincent C. Newton, being unmarried

have hereunto set my hand and seal this 15th day of June in the year of our Lord one thousand nine hundred and sixty-five.

Signed, Sealed and Delivered in presence of

Edward J. McGoldrick

Vincent C. Newton

State of Maine, Cumberland } ss. June 15, 1965.

Personally appeared the above named Vincent C. Newton and acknowledged the above instrument to be his free act and deed.

Before me, Edward J. McGoldrick
Notary Public

MY COMMISSION EXPIRES OCTOBER 8, 1972

STATE OF MAINE
CUMBERLAND, ss. REGISTRY OF DEEDS
Received at 1 H. 26 M. P. M. on JUN 15 1965 and recorded in Book 2901 Page 326 Attest
Register

Book 2951
Page 927

(1984)
EXECUTOR'S AND TRUSTEE'S DEED
[WHEN THE WILL AUTHORIZES A SALE]

927

Know all Men by these Presents,

That I, HELEN M. GRIFFIN

of Portland in the county of Cumberland

sole acting executor of the last will and testament

of Mary Davis late of Portland

deceased, testate, by virtue of the authority to me given by

the said Mary Davis in her last will and

testament, in my capacity of executor as afore-

said, and in consideration of One Dollar ($1.00) and other

valuable considerations

to me paid by MAINE MEDICAL CENTER, a corporation organized under the laws of Maine and situated in Portland

the receipt whereof is hereby ac-

knowledged, do hereby sell and convey unto the said Maine Medical Center, its successors and assigns, the following described real estate, which was the property of the said Mary Davis.

A certain lot or parcel of land with the buildings thereon situated in Portland on the northerly side of Brackett Street, bounded and described as follows:

Beginning at the intersection of the northerly side of Brackett Street with the westerly side of Russell Street; thence running northeasterly by Russell Street thirty-seven (37) feet, more or less, to land formerly owned by Hobart W. Richardson; thence running northwesterly by said Richardson land seventy-four (74) feet, more or less, to land formerly owned or occupied by W. S. Dunn; thence southwesterly by the line of said Dunn's land forty-one (41) feet, more or less, to a lane; thence southeasterly by said lane forty-one (41) feet, more or less, to Brackett Street; thence easterly by Brackett Street thirty-seven (37) feet, more or less, to the point of beginning.

Being the same premises conveyed to Mary Davis by Harry E. Davis by deed dated March 18, 1915, recorded in Cumberland County Registry of Deeds in Book 945, Page 109.

Reference is made to Will of said Mary Davis, abstract of which is recorded in said Registry of Deeds in Book 3025, Page 28.

Davis
Est

to

Maine
Medical
Center

Exec

928

To have and to hold the above-granted premises unto the said Maine Medical Center, its successors ~~and~~ assigns forever. And I the said Helen M. Griffin, in my said capacity, do hereby covenant to and with the said Maine Medical Center, its successors ~~and~~ assigns, that I am the lawful executor of the last will and testament of the said Mary Davis ; that I have power under said will to sell as aforesaid; and that in making this conveyance, I have in all respects, acted in pursuance of the authority granted in and by the said last will and testament.

In Witness Wherent, I the said Helen M. Griffin in my said capacity of executor as aforesaid have hereunto set my hand and seal . this 31st day of March in the year of our Lord one thousand nine hundred and sixty-six.

Signed, Sealed and Delivered in presence of

Helen M Griffin

State of Maine, Cumberland ss. March 31 1966.

Then personally appeared the above named Helen M. Griffin and acknowledged the above instrument to be her free act and deed in her said capacity.

Before me,

Justice of the Peace.

MAR 31 1966
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 3 H 55 M, and recorded in
BOOK 2957 PAGE 927 Register

2081

722

Know all Men by these Presents,

J B Brown & Sons to Maine Medical Center

Q C

That J. B. BROWN & SONS, a corporation organized and existing under the laws of the State of Maine, and located at Portland in the County of Cumberland and State of Maine in consideration of one dollar and other valuable considerations, being less than $100.00 paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine, and located at said Portland, the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said MAINE MEDICAL CENTER, its successors and assigns forever,

All its right, title and interest in a strip of land, in the City of Portland, County of Cumberland and State of Maine, said strip being that portion of Charles Street lying between Brackett Street and Ellsworth Street bounded as follows: Beginning at a point on the southeasterly line of Ellsworth Street distant southwesterly One Hundred Sixty-three and seven tenths (163.7) feet from a point in said street line Fifty-seven (57) feet at right angles from a stone monument on three feet offset at the northwest corner of Ellsworth and Wescott Streets; thence running southeasterly making an included angle with the northwesterly direction of Ellsworth Street of One Hundred and One degrees and Twenty minutes (101° 20') a distance of One Hundred and Sixteen (116) feet, more or less, to the northerly line of Brackett Street near Arsenal Street. Said strip is Thirteen (13) feet wide and lies on the southerly side of the above described line.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to the said MAINE MEDICAL CENTER, its successors ~~heirs~~ and assigns forever.

In Witness Whereof, the said J. B. BROWN & SONS has caused this instrument to be sealed with its corporate seal and signed in its corporate name by , its thereunto duly authorized, this 4th day of May in the year of our Lord one thousand nine hundred and sixty-six.

Signed, Sealed and Delivered in presence of

Ruth M. Dunn
to Lyman A. Cousens

J. B. BROWN & SONS

By Lyman A. Cousens Jr. Treas.
Philip G. Clifford Director
(Corporate Seal)

May 4 1966

State of Maine, Cumberland ss. 19 66.

Personally appeared the above named Lyman A. Cousens Jr. & Philip G. Clifford of said Grantor Corporation, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said corporation.

Before me, Nellie H. Foster NOTARY PUBLIC. ~~JUSTICE OF THE PEACE.~~

STATE OF MAINE, CUMBERLAND COUNTY, SS. REGISTRY OF DEEDS

Received MAY 4 1966 at 3 o'clock 17 m. P. M., and recorded in BOOK 2955 PAGE 722 Attest: Samuel R. Thompson Register.

Know all Men by these Presents, That

We, FRANK S. NEUTS and DELLA J. NEUTS, both of Portland, in the County of Cumberland and State of Maine

in consideration of one dollar and other valuable consideration s paid by JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, both of said Portland

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said

JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, as joint tenants and not as tenants in common, their heirs and assigns forever.

A certain lot or parcel of land, with the buildings thereon, situated on Charles Street, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning on the westerly side of Charles Street at the northerly corner of land formerly owned by C. B. Saunders; thence westerly by said Saunders northerly line seventy-five (75) feet, more or less, to land of the Maine General Hospital; thence northerly by line of said Hospital land thirty-six (36) feet to a point; thence easterly on a line parallel with Saunders northerly line seventy-five (75) feet, more or less, to the westerly side line of Charles Street; thence southerly by said Charles Street thirty-six (36) feet to the point begun at.

Being the same premises conveyed to us by Maine General Hospital by deed dated January 30, 1962 and recorded in Cumberland County Registry of Deeds in Book 2657, Page 19.

This conveyance is made subject, however, to the common passageway established by agreement between Maine General Hospital and Clarence D. Read, et al, dated October 29, 1954 and recorded in said Registry of Deeds in Book 2203, Page 413.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, as joint tenants and not as tenants in common, their

heirs and assigns, to them and their use and behoof forever. And we do covenant with the said Grantees, their heirs and assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances, except as aforesaid, that we have good right to sell and convey the same to the said Grantees to hold as aforesaid: and that we and our heirs and assigns shall and will warrant and defend the same to the said Grantees, their heirs and assigns forever, against the lawful claims and demands of all persons, except as aforesaid.

In Witness Whereof, we, the said FRANK S. NEUTS and DELLA J. NEUTS, being husband and wife,

joining in this deed as Grantors, and relinquishing and conveying our respective rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this second day of March in the year of our Lord one thousand nine hundred and sixty-seven.

Signed, Sealed and Delivered in presence of

Frank S. Neuts

Della J. Neuts

State of Maine, Cumberland, ss. March 2, 1967.

Personally appeared the above named Frank S. Neuts and Della J. Neuts and acknowledged the foregoing instrument to be their free act and deed.

Before me, [signature] Notary Public. Justice of the Peace.

STATE OF MAINE, CUMBERLAND COUNTY, SS. REGISTRY OF DEEDS

Received MAR 3 1967 at 11 o'clock A. m. and recorded in BOOK 2988 PAGE 139 Attest: [signature] Register.

22AB

KNOW ALL MEN BY THESE PRESENTS

THAT OLD COLONY TRUST COMPANY a Corporation located in Boston, County of Suffolk and Commonwealth of Massachusetts, sole surviving Trustee under a Trust Agreement created by ALICE A. BURKITT late of Portland and dated March 30, 1961 by virtue of the authority to it given by said Trust Agreement in its capacity of Trustee as aforesaid, and in consideration of One Dollar ($1.00) and other valuable considerations to it paid by MAINE MEDICAL CENTER of Portland, Maine, the receipt whereof is hereby acknowledged, does hereby sell and convey unto the said Maine Medical Center its successors and assigns forever, the following described real estate, which was the property of Alice A. Burkitt late of Portland, situated in said Portland, Maine and bounded as follows:

a certain lot or parcel of land with the buildings thereon, situated in said Portland, bounded and described as follows: Beginning at a point on the easterly side of Western Promenade, which point is eighty-five (85) feet from the intersection of the northeasterly side line of said Promenade with the northwesterly side line of Bramhall Street; thence northerly by the line of said Promenade seventy-seven and five tenths (77.5) feet, more or less, to Arsenal Street; thence northeasterly by said Arsenal Street seventy-four and one tenths (74.1) feet, more or less, to land now or formerly of William J. Miller et al; thence southeasterly at right angles to Arsenal Street by said Miller land fifty-five and five tenths (55.5) feet, more or less, to land formerly of Hiram Knowlton; thence southwesterly parallel with said Arsenal Street one hundred and twenty-seven (127) feet, more or less, to the Western Promenade and point of beginning, containing fifty-six hundred (5600) square feet more or less.

Also another parcel of land adjoining the above described lot, and bounded and described as follows: Commencing at a point on the northwesterly side of Bramhall Street, which point is the northeasterly corner of land of Frederick C. Hussey et al, and ninety-eight and two tenths (98.2) feet, more or less, from the intersection of said northwesterly side line of Bramhall Street with the easterly side line of the Western Promenade; thence northeasterly on said Bramhall Street thirty-three and five tenths (33.5) feet to a point and land formerly of Hiram Knowlton, and from these two points extending northwesterly keeping a width of thirty-three and five

tenths (33.5) feet a distance of sixty (60) feet to the first parcel herein conveyed, containing two thousand and ten (2010) square feet.

Meaning and intending to convey and hereby conveying the real estate acquired by Alice A. Burkitt by Warranty Deed of Good Will Home Association dated December 11, 1930 recorded in the Cumberland County Registry of Deeds Book 1361, page 373; said real estate having been devised to the Grantor as Trustee by the Will of Alice A. Burkitt duly probated in the Cumberland County Probate Court.

TO HAVE AND TO HOLD the above-granted premises unto the said Maine Medical Center its successors and assigns forever, And the said Old Colony Trust Company in its said capacity does hereby covenant to and with the said Maine Medical Center its successors and assigns that it is the sole surviving Trustee under said Trust Agreement; that it has power under said Trust Agreement to sell as aforesaid; and that in making this conveyance it has in all respects acted in pursuance of the authority granted in and by said Trust Agreement.

IN WITNESS WHEREOF, the said Old Colony Trust Company in its said capacity as Trustee as aforesaid has caused this instrument to be signed in its corporate name and sealed with its corporate seal by S. Vincent its ~~Trust Officer~~ Vice President thereunto duly authorized this 4th day of February 1969.

Witness:

OLD COLONY TRUST COMPANY

By _____
Its ~~Trust Officer~~ Vice President

COMMONWEALTH OF MASSACHUSETTS
SUFFOLK, SS. February 4, 1969.

Then personally appeared the above-named S. Vincent who made oath that the foregoing instrument was his free act and deed and the free act and deed of the Grantor corporation in its said capacity as Trustee as aforesaid.

Before me,

_____
Notary Public

Mary F. Archoska
NOTARY PUBLIC
My commission expires May 28, 1971

CERTIFICATE OF TRUSTEE

I, JAMES R. KINGSBURY of Newton Massachusetts, Trust Officer of Old Colony Trust Company of Boston, Massachusetts, hereby certify that Old Colony Trust Company became a Co-Trustee of a certain Revocable Inter Vivos Trust created by ALICE A. BURKITT with said Old Colony Trust Company and NORMAN A. BURKITT as Co-Trustees under a Trust Agreement dated March 30, 1961;

That Norman A. Burkitt is deceased and the Old Colony Trust Company is now acting as sole surviving Trustee;

That said Trust is no longer revocable inasmuch as the Settlor who reserved the power of revocation has since died;

That among the powers given to the Trustees is the following:

> "The Trustees, in addition to and not in limitation of all common law and statutory authority, shall have power, as to any real or personal property in the trust fund or any part thereof, to mortgage, to lease with or without option to purchase and although for a term extending beyond the termination of the trust, to sell in whole or in part at public or at private sale without approval of any court and without liability upon any person dealing with the Trustees to see to the application of any money or other property delivered to them; . . ."

Dated at Boston, Massachusetts, this 4TH day of February 1969.

James R. Kingsbury

COMMONWEALTH OF MASSACHUSETTS
SUFFOLK, SS.

February 4, 1969.

Personally appeared the above named James R. Kingsbury and made oath to the truth of the foregoing certificate by him subscribed.

Before me,

Mary F. Archoska
Notary Public

Mary F. Archoska
NOTARY PUBLIC
My commission expires May 28, 1971

FEB 17 1969
REGISTRY OF DEEDS, SUFFOLK COUNTY, MASS.
Received at 11 & 35 Min. and recorded in
BOOK 3673 PAGE 269 Edward R. Finn Register

No. 181

Know All Men by these Presents,

That I, CLARA G. READ, of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations

paid by MAINE MEDICAL CENTER, a Maine corporation having a place of business in said Portland, in said County and State,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center,

its Successors ~~Heirs~~ and Assigns forever,

the following described property:

A certain lot or parcel of land, with the buildings thereon, situated on the southwesterly side of Charles Street in said Portland, bounded and described as follows:

Beginning on said southwesterly side of Charles Street at a point thirty (30) feet northwesterly by said Street from the northeasterly corner of land formerly of Charles A. Donnell; thence northwesterly by said Street thirty (30) feet; thence southwesterly parallel with the line of said Donnell land seventy-four and two-tenths (74.2) feet to land formerly known as the Arsenal property; thence southeasterly by said Arsenal lot thirty (30) feet; thence northeasterly parallel with said Donnell land seventy-four and two-tenths (74.2) feet to the point of beginning.

Being the same premises conveyed to this Grantor and Clarence D. Read, as joint tenants, by Grace R. Loomis by deed dated September 1, 1948 and recorded in Cumberland County Registry of Deeds in Book 1926, Page 336. The said Clarence D. Read having deceased and his estate is of record in the Registry of Probate for Cumberland County, Maine.

The Grantor herein shall have the right to occupy the premises hereby conveyed until September 15, 1969.

STATE OF MAINE
REAL ESTATE TRANSFER TAX
Bureau of Taxation
13.75

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Maine Medical Center, its Successors

~~Heirs~~ and Assigns, to them and their use and behoof forever.

And I do **covenant** with the said Grantee, its/ Successors ~~Heirs~~ and Assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will **Warrant and Defend** the same to the said Grantee, its Successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Clara G. Read, being a widow,

~~xxxx~~ ~~xxxxxxxxxxxxxxxxxx~~

~~xxxxxxxxxxxxxxxxx

21?

No. 144

Know All Men by these Presents.

That We, WILLIAM C. GOKEY and SUZANNE E. GOKEY, both of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of Maine and located at Portland, County of Cumberland and State of Maine

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center,

its successors ~~Heirs~~ and Assigns forever,

the following described property:

A certain lot or parcel of land with the buildings thereon situated on the southeasterly side of Ellsworth Street in said Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at the northeasterly corner of a lot of land on Bramhall's Hill which John B. Brown sold to one Tuttle; thence northeasterly on said Ellsworth Street forty (40) feet; thence southeasterly about seventy-four (74) feet to land formerly of Davis; thence southwesterly by said Davis's land to land formerly of said Tuttle forty (40) feet; thence northwesterly to said Ellsworth Street, the bounds begun at, seventy-four (74) feet.

Being the same premises conveyed to William C. Gokey and Suzanne E. Gokey by Thelma A. Barter, by deed dated June 19, 1968, recorded in Cumberland County Registry of Deeds in Book 3045, Page 187.

This conveyance is made subject to taxes for the year 1969 which the Grantee assumes and agrees to pay.

D 2 0 1 3 8 STATE OF MAINE REAL ESTATE TRANSFER TAX 18.15

To have and to hold the aforegranted and bargained premises, 245
with all privileges and appurtenances thereof to the said
Maine Medical Center, its successors

~~Heirs~~ and Assigns, to its and their use and behoof
forever.

And we do covenant with the said Grantee, its successors ~~Heirs~~
and Assigns, that we are lawfully seized in fee of the premises;
that they are free of all incumbrances;
that we have good right to sell and convey the same to the said
Grantee to hold as aforesaid; and that we and our Heirs, shall
and will Warrant and Defend the same to the said Grantee,
its successors
~~Heirs~~ and Assigns forever, against the lawful claims and demands
of all persons.

In Witness Whereof, we the said William C. Gokey
and Suzanne E. Gokey, being husband and wife

~~and~~ ~~wife of the said~~

~~joining in this deed as Grantor, and relinquishing and conveying~~
~~rights by descent and all other rights in the above~~
~~described premises~~, have hereunto set our hands and seals this
11th day of August in the year of our Lord
one thousand nine hundred and sixty-nine.

Signed, Sealed and Delivered
in presence of

Edward F. Jones

William C. Gokey
Suzanne E. Gokey

State of Maine,
Cumberland } ss.

August 11, 1969

Personally appeared the above named
William C. Gokey
and acknowledged the above instrument to be his free act and
deed.

Before me, Edward F. Jones
Justice of the Peace

AUG 11 1969
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 2 H 24 P M, and recorded in
BOOK 3097 PAGE 244 Edward R. Thompson Register

(106)

396

Know all Men by these Presents,

That JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, both of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of Maine, and located at Portland, County of Cumberland and State of Maine

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center, its successors ~~heirs~~ and assigns forever,

a certain lot or parcel of land, with the buildings thereon, situated on Charles Street, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning on the westerly side of Charles Street at the northerly corner of land formerly owned by C. B. Saunders; thence westerly by said Saunders northerly line seventy-five (75) feet, more or less, to land of the Maine General Hospital; thence northerly by line of said Hospital land thirty-six (36) feet to a point; thence easterly on a line parallel with Saunders northerly line seventy-five (75) feet, more or less, to the westerly side line of Charles Street; thence southerly by said Charles Street thirty-six (36) feet to the point begun at.

Being the same premises conveyed to us by Frank S. Neuts, by deed dated March 2, 1967, recorded in Cumberland County Registry of Deeds in Book 2988, Page 139.

This conveyance is made subject, however, to the common passageway established by agreement between Maine General Hospital and Clarence D. Read et al, dated October 29, 1954, recorded in said Registry of Deeds in Book 2203, Page 413.

STATE OF MAINE
REAL ESTATE TRANSFER TAX
Bureau of Taxation
$ 1.95

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof to the said Maine Medical Center, its successors and assigns, to its and their use and behoof forever.

And we do COVENANT with the said Grantee, its successors and assigns, that we are lawfully seized in fee of the premises that they are free of all encumbrances; except as aforesaid; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs shall and will WARRANT and DEFEND the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons, except as aforesaid.

In Witness Whereof, we the said John P. Constantine and Charlene M. Constantine, being husband and wife,

were

have hereunto set our hands and seals this 7th day of November in the year of our Lord one thousand nine hundred and sixty-nine.

Signed, Sealed and Delivered in presence of

Edward J. Young

John P. Constantine

Charlene M. Constantine

State of Maine, Cumberland, ss. 19 69.

Personally appeared the above named John P. Constantine and acknowledged the above instrument to be his free act and deed.

Before me, Edward J. Young
Justice of the Peace.

NOV 7 1969

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 11 H 18 M. and recorded in BOOK 3108 PAGE 396
Register

Book 3183
Page 576

No. 106

14804

Know All Men by these Presents,

That I, AGNES E. TWEEDIE, formerly AGNES E. BROWN, of Portland, County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable consideration

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine and having its principal place of business at Portland, County of Cumberland and State of Maine

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said MAINE MEDICAL CENTER,

its successors and Assigns forever,

the following described property: A certain lot or parcel of land, with the buildings thereon, situated in the City of Portland, County of Cumberland and State of Maine, on the corner of Brackett and Russell Streets and bounded as follows: Southwesterly by said Brackett Street; northwesterly by said Russell Street; northeasterly by land formerly of J. K. Emery and southeasterly by land now or formerly of Annie F. Chapman; containing about twenty-one hundred and fifty-one (2151) square feet.

Being the same premises conveyed to the Grantor herein and her late husband, Kenneth C. Brown, by deed dated January 22, 1962 and recorded in the Cumberland County Registry of Deeds, Book 2655, Page 344.

This conveyance is made subject to taxes for 1971 which the Grantee assumes and agrees to pay.

03136

STATE OF MAINE
REAL ESTATE TRANSFER TAX
AUG-27 Department of Taxation
$16.50

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said

MAINE MEDICAL CENTER, its successors

~~Heirs~~ and Assigns, to its and their use and behoof forever.

And I do **covenant** with the said Grantee, its successors ~~Heirs~~ and Assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will **Warrant and Defend** the same to the said Grantee, its successors

~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons, except as aforesaid

In Witness Whereof, I the said

AGNES E. TWEEDIE, being a widow

~~and~~ ~~wife of the said~~

~~joining in this deed as Grantor, and relinquishing and conveying rights by descent and all other rights in the above described premises,~~ have hereunto set my hand and seal this day of in the year of our Lord one thousand nine hundred and seventy-one.

Signed, Sealed and Delivered in presence of

[signature] — Agnes E. Tweedie

State of Maine, Cumberland } ss.

July 30 1971

Personally appeared the above named AGNES E. TWEEDIE

and acknowledged the above instrument to be her free act and deed.

Before me,

[signature]

~~Justice of the Peace~~

My commission [illegible]

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE AUG 2, 1971
Received at 2 H 41 M P M, and recorded in
BOOK 3183 PAGE 576 [signature] Register

234 **Know all Men by these Presents, That** 16674 Book 3187 Page 234

I, MARGUERITE M. BROOKS of Portland, County of Cumberland and State of Maine

in consideration of one dollar and other valuable consideration

paid by MAINE MEDICAL CENTER, a corporation organized under the laws of the State of Maine with a place of business at Portland, County of Cumberland and State of Maine,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said MAINE MEDICAL CENTER, its successors and assigns forever.

A certain lot or parcel of land with the buildings thereon, situated on the southeasterly side of Ellsworth Street, in the City of Portland, County of Cumberland and State of Maine, and at present numbered forty-four (44) on said street; said lot of land being bounded and described as follows:

Beginning at the northeasterly corner of Ellsworth Street and a lane running from said Ellsworth Street to the junction of Brackett and Arsenal Streets; thence northeasterly by said Ellsworth Street, twenty-six (26) feet, more or less, to land now or formerly of Neal P. Thompson; thence southeasterly by said Thompson land, seventy-four (74) feet, more or less, to land now or formerly owned by John Russell; thence southwesterly by said Russell land, forty (40) feet, more or less, to said lane; thence northwesterly by said lane, seventy-five (75) feet, more or less, to the point begun at.

Being the same premises conveyed to me by Walter E. Mangum et al by deed dated October 15, 1957 and recorded in Cumberland County Registry of Deeds in Book 2379, Page 181.

This conveyance is made subject to taxes for 1971 which the Grantee assumes and agrees to pay.

STATE OF MAINE
REAL ESTATE TRANSFER TAX
AUG 23 '71
Bureau of Taxation
30.80

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said MAINE MEDICAL CENTER, its successors

~~heirs~~ and assigns, to their use and behoof forever. And I do covenant with the said Grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances except as aforesaid, that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs and assigns shall and will warrant and defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons, except as aforesaid.

In Witness Whereof, I, the said MARGUERITE M. BROOKS, being single,

~~joining in this deed as Grantor and relinquishing and conveying rights by descent and all other rights in the above described premises~~, have hereunto set my hand and seal this 23rd day of August in the year of our Lord one thousand nine hundred and seventy-one.

Signed, Sealed and Delivered in presence of

Charles R. Cartwicker

Marguerite M. Brooks

State of Maine, Cumberland ss. August 23, 1971.

Personally appeared the above named MARGUERITE M. BROOKS

and acknowledged the foregoing instrument to be her free act and deed.

Before me, Charles R. Cartwicker ~~Notary Public~~ Justice of the Peace.

STATE OF MAINE, CUMBERLAND COUNTY, SS. *REGISTRY OF DEEDS*

Received AUG 23 1971 *at* 1 ~~o'clock~~ 40 *m.* ~~P.~~ *M., and recorded in BOOK* 3187 *PAGE* 234 *Attest:* [signature] *Register.*

17330

710

Book 3188
Page 710

Know all Men by these Presents, That

PORTLAND WATER DISTRICT, a quasi-municipal corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

in consideration of one dollar and other valuable considerations paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine and located at said Portland in said County and State

the receipt whereof it does hereby acknowledge, do es hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said MAINE MEDICAL CENTER, its successors and assigns forever,

A certain lot or parcel of land situated in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at the intersection of the westerly side line of Vaughan Street with the southwesterly side line of Brackett Street; thence northwesterly by Brackett Street, two hundred forty-two and seventy-two hundredths (242.72) feet, more or less, to Bramhall Street; thence southwesterly by Bramhall Street, eighty-one and five hundredths (81.05) feet, more or less, to Chadwick Street; thence southerly by Chadwick Street, three hundred fifty-seven and forty-five hundredths (357.45) feet, more or less, to land of Chadwick Realty Corp.; thence by land of said Chadwick Realty Corp. and land of Maine General Hospital, two hundred eighty-eight and sixty-five hundredths (288.65) feet, more or less, to Vaughan Street; thence northerly by Vaughan Street, three hundred fifty-three and sixty-two hundredths (353.62) feet, more or less, to Brackett Street and the point of beginning. Containing 2.52 acres, more or less, and being known as the Bramhall Reservoir Lot.

A portion of the above-described premises, known as the J. & W. Warren Lot, was conveyed to the Portland Water Company by the following warranty deeds all dated May 1, 1869: deed of George Warren et al of a 1/3rd interest, recorded in Cumberland County Registry of Deeds, Book 368, Page 421; deed of John G. Warren of a 1/3rd interest, recorded in said Registry of Deeds, Book 368, Page 424; deed of Caroline Chadbourne et al of a 1/9th interest, recorded in said Registry of Deeds, Book 368, Page 423; and deed of Benjamin F. Chadbourne et al of a 2/9ths interest, recorded in said Registry of Deeds, Book 368, Page 425; and the remaining portion of said premises, known as the Payson Lot, was conveyed to said Portland Water Company by Henry M. Payson by warranty deed dated July 17, 1885, and recorded in said Registry of Deeds, Book 531, Page 32; all of said premises having been conveyed to said Portland Water District by Portland Water Company by quit-claim deed dated August 10, 1908, and recorded in said Registry of Deeds, Book 827, Page 147.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to the said

MAINE MEDICAL CENTER, its successors

~~heirs~~ and assigns forever. And it do es covenant with the said Grantee, its successors ~~heirs~~ and assigns, that it will warrant and forever defend the premises to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In Witness Whereof, the said PORTLAND WATER DISTRICT has caused this instrument to be sealed with its corporate seal and signed in its corporate name by William D. Monie, its Treasurer, thereunto duly authorized,

~~In witness whereof I have hereunto set my hand and seal~~ this first day of September in the year of our Lord one thousand nine hundred and seventy-one.

Signed, Sealed and Delivered in presence of

PORTLAND WATER DISTRICT

By William D. Monie
Its Treasurer

State of Maine, Cumberland ss. September 1, 1971.

Personally appeared the above named William D. Monie, Treasurer of said Grantor Corporation, as aforesaid

and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said corporation.

Before me, Robert B. Williamson
~~Notary Public~~ Justice of the Peace.

STATE OF MAINE, CUMBERLAND COUNTY, SS. REGISTRY OF DEEDS

Received SEP 1 1971 at 12 o'clock 06 m. P M., and recorded in BOOK 3188 PAGE 710 Attest: Margaret E. Fuller Register.

17050

Know All Men by These Presents,

209

That the CITY OF PORTLAND, a body politic and corporate,

~~[illegible]~~ located at Portland

in the County of Cumberland and State of Maine

in consideration of Thirteen Thousand Five Hundred ($13,500.00) Dollars

paid by the MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine, whose address is 22 Bramhall Street, Portland, Maine

the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey and Forever Quit-Claim unto the said

Maine Medical Center, its successors

and assigns forever,

a certain lot or parcel of land in the City of Portland, County of Cumberland and State of Maine, being bounded and described as follows:

Beginning at a point marking the intersection of the westerly terminus of the northerly side line of Bramhall Street and the Northerly terminus of the easterly side line of Western Promenade; thence on a course of South 61° 00' 30" West along a prolongation of the northerly side line of said Bramhall Street, a distance of eighty-six and eight hundredths (86.08) feet to a point; thence North 50° 49' 20" West, a distance of one hundred fifty-one and thirty-nine hundredths (151.39) feet to a point which point is on the southeasterly side line of Arsenal Street as it was formerly laid out; thence North 62° 24' 00" East fifty (50) feet to a point; thence North 27° 36' 00" West, a distance of forty (40) feet to a point on the northwesterly side line of Arsenal Street, as it was formerly laid out; thence North 62° 24' 00" East, a distance of two hundred seventy-two (272) feet, more or less, to a point which point is two hundred forty-eight (248) feet from the starting point hereof when measured on a course of North 16° 58' 00" East from said starting point; thence South 16° 58' 00" West, a distance of two hundred forty-eight (248) feet to said starting point.

Being a portion of the premises conveyed to the Grantor by deed of Sarah Little dated July 11, 1856, recorded in Cumberland County Registry of Deeds in Book 274, Page 6.

By acceptance of this deed, the Grantee covenants and agrees for itself, its successors and assigns:

(1) That the Grantee shall secure Planning Board review and approval of the site plan for its proposed development prior to beginning construction of any building and landscaping of the land herein conveyed.

(2) That the Grantee shall submit to the Planning Board for review and approval a grading plan within three months from the date hereof; that it will initiate actual grading work within six months from the date hereof; and that it will complete such grading work within three months from the date of completion of the proposed building.

(3) That the Grantee shall provide and forever maintain access for fire equipment satisfactory to the Fire Chief of the City of Portland to the proposed building and the remainder of the Medical Center Building Complex.

(4) That in the event of failure of the Grantee to complete or substantially complete the construction of the proposed building, landscaping, and grading in accordance with the approved site plan within three (3) years from the date hereof, the Grantee shall be required at the election of the Grantor, to reconvey to the Grantor all or such portion of the premises herein conveyed as the Grantor shall require for an amount which bears the same per square foot price as was paid for the premises herein conveyed.

(5) That if within a period of eight (8) years from the date hereof, the Grantee shall decide to sell any portion of the premises herein conveyed without selling all of its premises, it shall notify the Grantor in writing by registered mail directed to the City Manager of the City of Portland of its desire to sell such portion and thereupon the Grantor shall have the exclusive option for a period of sixty (60) days from the receipt of such notice to buy such portion for an amount which bears the same per square foot price as was paid for the premises herein conveyed.

(6) That the Grantee shall simultaneously with delivery of this deed to it, deliver to the Grantor at no cost to it a deed covering a parcel of land located at the intersection of the easterly side line of Gilman Street and the northwesterly side line of Arsenal Street for the purpose of providing a turn-around area serving Gilman Street.

(7) That the Grantee shall construct or cause to be constructed at no cost to the Grantor said turn-around area in accordance with specifications to be approved by the Director of Public Works of the City of Portland.

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to it the said Maine Medical Center its successors and Assigns forever. And the said Grantor Corporation does covenant with the said Maine Medical Center, its successors and Assigns, that it will Warrant and Forever Defend the premises to it the said Grantee, its successors and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In Witness Whereof, the said CITY OF PORTLAND has caused this instrument to be sealed with its corporate seal and signed in its corporate name by JOHN G. DePALMA, its Director of Finance thereunto duly authorized, this 4th day of August in the year one thousand nine hundred and seventy-two.

Signed, Sealed and Delivered in presence of

CITY OF PORTLAND

By John G. DePalma
Director of Finance

(CORPORATE SEAL)

State of Maine. CUMBERLAND ss. August 4 1972.

Personally appeared the above named JOHN G. DePALMA, Director of Finance of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me,

Notary Public

AUG 4 1972

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 3 H 05 M Pm. and recorded in
BOOK 3278 PAGE 209 Register

23119

KNOW ALL MEN BY THESE PRESENTS that STATE OF MAINE, a body corporate and politic existing by law, in consideration of One Dollar ($1.00) and other valuable considerations paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine with its principal place of business in the City of Portland, County of Cumberland and State of Maine, the receipt whereof it does hereby acknowledge, does hereby RELEASE, GRANT and TRANSFER unto the said MAINE MEDICAL CENTER, its successors and assigns, all and any rights and interests in the former site of the State Arsenal situated on Bramhalls Hill, so-called, in the City of Portland, County of Cumberland and State of Maine, being all and the same premises described by Chapter 180 of the Resolves of the State of Maine, 1870, and Chapter 107 of the Resolves of the State of Maine, 1951, including any right of entry, reversion or other interest of the State of Maine in said premises reserved in the State of Maine by either of said Resolves and State of Maine does hereby waive as to said Maine Medical Center its successors and assigns any such rights which may now exist or which may in the future exist in State of Maine by virtue of said Resolves.

TO HAVE AND TO HOLD the aforegranted premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors and assigns, and State of Maine does hereby covenant with said Maine Medical Center, its successors and assigns that State of Maine lawfully holds rights in said premises by virtue of said Resolves; that said rights are not encumbered; that it has good right to grant the same to Maine Medical Center as aforesaid; and that State of Maine, its successors and assigns, shall and will warrant and defend the same to Maine Medical Center, its successors and assigns forever against the lawful claims and demands of all persons; provided, nevertheless, that any and all liability of State of Maine for any damage or loss to Maine Medical Center, its successors and assigns, by virtue of any breach of the foregoing covenants and warranties shall be and hereby is limited forever to the total amount of One Dollar ($1.00).

IN WITNESS WHEREOF, Kenneth M. Curtis, Governor of the State of Maine, and Edmund C. Darey, Chairman of the Executive Council of the State of Maine, acting for and with the advice and consent of the said Executive Council given this date, have caused this instrument to be executed and sealed on behalf of the State of Maine this 6th day of September, 1972.

Witness:

Peter M. Dambrog

Thea L. Stewart

STATE OF MAINE

By Kenneth M. Curtis
Its Governor

By Edmund C. Darey
Its Chairman - Executive Council

STATE OF MAINE
KENNEBEC, ss.

September 6, 1972

Personally appeared the above-named Kenneth M. Curtis, Governor of the State of Maine, and Edmund C. Darey, Chairman of the Executive Council of the State of Maine and acknowledged the foregoing to be their free act and deed in said capacity and the free act and deed of said State of Maine.

Before me,

Peter M. Dambrog
~~Notary Public~~
Justice of the Peace

Approved as to form:

Leon V. Walker Jr.
Assistant Attorney General

STATE OF MAINE

CUMBERLAND, ss. REGISTRY OF DEEDS

Received at 11 H 16 M A M on OCT 12 1972 and recorded in Book 3310 Page 115 Attest W. Keith Murphy Register

116

23120

KNOW ALL MEN BY THESE PRESENTS, that CITY OF PORTLAND, a body corporate and politic existing by law, situated at Portland, County of Cumberland and State of Maine, in consideration of One Dollar ($1.00) and other valuable considerations paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine with its principal place of business in the City of Portland, County of Cumberland and State of Maine, the receipt whereof it does hereby acknowledge, does hereby RELEASE, GRANT and TRANSFER unto the said MAINE MEDICAL CENTER, its successors and assigns, all its rights and interests in the land situated on Bramhall's Hill, so-called, in the City of Portland, County of Cumberland and State of Maine which land was conveyed by City of Portland to Maine General Hospital by deed dated June 4, 1870, which deed is duly recorded in the Cumberland County Registry of Deeds, Book 381, Pages 260, 261 and 262, to which deed reference is made for a particular description of said land, including any right of entry, possibility of reverter, reversionary or other interest of the City of Portland in said land reserved to said City in said deed and City of Portland does hereby waive as to said Maine Medical Center, its successors and assigns, said right of entry and any such other rights which may now exist or which may in the future exist in the City of Portland by virtue of said deed.

TO HAVE AND TO HOLD the aforegranted premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors and assigns, and City of Portland does hereby covenant with said Maine Medical Center, its successors and assigns that City of Portland lawfully holds rights in said land by virtue of said deed of June 4, 1870; that said rights are not encumbered; that it has good right to grant the same to Maine Medical Center as aforesaid; that City of Portland, its successors and assigns, shall and will warrant and defend the same to Maine Medical Center, its successors and assigns forever against the lawful claims and demands of all persons; provided, nevertheless, that any and all liability of City of Portland for any damage or loss to Maine Medical Center, its successors and assigns, by virtue of any breach of the foregoing covenants and warranties shall be and hereby is limited forever to the total amount of One Dollar ($1.00).

IN WITNESS WHEREOF, City of Portland has caused this deed to be sealed and executed by John G. DePalma, its Director of Finance, hereunto duly authorized, this 14th day of September, 1972.

Witness:

CITY OF PORTLAND

By _____
Its Director of Finance

STATE OF MAINE
CUMBERLAND, ss.

September 14, 1972

Personally appeared the above-named John G. DePalma, Director of Finance of said City of Portland and acknowledged the foregoing to be his free act and deed in said capacity and the free act and deed of said City of Portland.

Before me,

_____
~~Justice of the Peace~~ Notary Public

OCT 12 1972
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 11 H/7 M/4M, and recorded in
BOOK 3310 PAGE 116 _____ Register

Book 3995
Page 53

53

No. 106
6367

Know All Men by these Presents.

That We, LEROY E. APPLEBEE and ROBERTA M. APPLEBEE, both of Portland, in the County of Cumberland and State of Maine,

in consideration of One Dollar ($1) and other valuable considerations,

paid by MAINE MEDICAL CENTER, a Maine corporation with a place of business in Portland, in the County of Cumberland and State of Maine,

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said MAINE MEDICAL CENTER, its successors

~~Heirs~~ and Assigns forever,

~~the following described property:~~

See attached Exhibit A.

54

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors

~~Heirs~~ and Assigns, to it and their use and behoof forever.

And we do **covenant** with the said Grantee, its/ ~~Heirs~~ Successors and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our Heirs, shall and will **Warrant and Defend** the same to the said Grantee, its successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, We, the said LEROY E. APPLEBEE

and ROBERTA M. APPLEBEE, ~~wife~~ husband and wife,

joining in this deed as Grantors, and relinquishing and conveying our/ mutual rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 7th day of April in the year of our Lord one thousand nine hundred and seventy-seven.

Signed, Sealed and Delivered in presence of

LEROY E. APPLEBEE

ROBERTA M. APPLEBEE

State of Maine,
Cumberland, } ss. April 7 1977

Personally appeared the above named LEORY E. APPLEBEE and ROBERTA M. APPLEBEE and acknowledged the above instrument to be their free act and deed.

Before me,

Justice of the Peace

EXHIBIT A

A certain lot or parcel of land with the buildings thereon, situated on Bramhall Street in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a stone monument on the westerly corner of Brackett and Bramhall Streets; thence North 57° 20' West, 70.7 feet by the westerly sideline of Brackett Street; thence South 61° 07' West, 42.3 feet by the northerly sideline of a garage on the lot under description; thence South 27° 57' East, 62-1/2 feet to a point on the northerly sideline of Bramhall Street; thence North 61° 51' East, 77.5 feet by the northerly sideline of Bramhall Street to the stone monument aforesaid and point of beginning, together with the right to have the eaves of said garage which project over land of Ella C. Gardner remain as now constructed as long as said garage is maintained in its present position.

Being the same premises conveyed to Leroy E. Applebee and Roberta M. Applebee by Edna M. Sharp by deed dated September 27, 1972, and recorded in Cumberland County Registry of Deeds in Book 3303, Page 200.

APR 7 1977
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 10 H 22 M M. and recorded in
BOOK 3995 PAGE 53. Margaret L. Fisher Register

WARRANTY DEED

319

15732

Know all Men by these Presents,

That JAMES H. SULLIVAN, Jr. of 26 Charles Street, Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a Maine corporation with a place of business in Portland, in the County of Cumberland and State of Maine

whose mailing address is 22 Dramhall Street, Portland, Maine

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors

heirs and assigns forever,

A certain lot or parcel of land, with the buildings thereon, situated on the southwesterly side of Charles Street and the southeasterly side of Congress Street, in Portland, Maine, bounded and described as follows: Beginning at a point on the southwesterly side of said Charles Street at the northerly corner of land conveyed by Edward E. Proctor to Lulu M. Stickney by warranty deed dated May 16, 1890 and recorded in the Cumberland County Registry of Deeds in Book 567, Page 348; thence running southwesterly by said Stickney land a distance of seventy-five (75) feet, more or less, to land of the Maine General Hospital; thence running northwesterly by said Hospital land to the southeasterly side of Congress Street; thence running northeasterly by the southeasterly side of Congress Street seventy-five (75) feet, more or less, to land conveyed by Henry A. Sargent to Lucinda B. Proctor by warranty deed dated August 14, 1896, and recorded in said Registry of Deeds in Book 639, Page 284; thence running southeasterly by said Proctor land and by the southwesterly side line of said Charles Street to said Stickney land and the point of beginning.

Being the same premises conveyed to James H. Sullivan, Jr. by deed dated August 23, 1976 and recorded in said Registry of Deeds in Book 3936, Page 282.

320

To have and to hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors ~~heirs~~ and assigns, to it and its ~~their~~ use and behoof forever.

And I do covenant with the said Grantee, its/ successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises, that they are free of all encumbrances

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will warrant and defend the same to the said Grantee, its/ successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said James H. Sullivan, Jr. being unmarried

~~[illegible]~~

~~[illegible]~~

~~[illegible]~~ relinquishing and conveying all rights by descent and all other rights in the above described premises, have hereunto set my hand and seal this 25th day of the month of May, A.D. 19 83.

Signed, Sealed and Delivered in presence of

[signature] James H. Sullivan, Jr.

State of Maine, County of Cumberland ss. 25 May, 19 83.

Then personally appeared the above named James H. Sullivan, Jr.

and acknowledged the foregoing instrument to be his free act and deed.

Before me,

[signature]

My commission expires Sept. 20, 1986

Justice of the Peace
Notary Public
Attorney at Law

MAY 26 1983

REGISTRY OF DEEDS CUMBERLAND COUNTY, MAINE
Received at 12:01 P.M., and recorded in
BOOK 6177 PAGE 319

James J. Walsh Register

024397 BK0309PG0005

Book 8309
Page 5

QUITCLAIM DEED
With Covenant

Know all Men by these Presents,

That we, JOHN J. HAMMETT and ELIZABETH B. HAMMETT, both of Portland, County of Cumberland, Maine

in consideration of One Dollar ($1.00) and other valuable consideration

paid by MMC REALTY CORP., a Maine corporation with a place of business at 22 Bramhall Street, in the County of Cumberland, Maine

whose mailing address is 22 Bramhall Street, Portland, Maine 04102

the receipt whereof we do hereby acknowledge, do hereby remise, release, bargain, sell and convey, and forever quitclaim unto the said MMC Realty Corp., its successors and assigns forever,

A certain lot or parcel of land, with the buildings thereon, situated on the northwesterly corner of Bramhall and Brackett Streets, in said Portland, and bounded and described as follows:

Beginning at the northwesterly corner of Brackett and Bramhall Streets; thence westerly on Brackett Street seventy-five (75) feet ten (10) inches, more or less, to land conveyed by William H. Chapman to Charles E. Graham by deed of April 29, 1920 and recorded in the Cumberland County Registry of Deeds in Book 1050, Page 213; thence northerly by land now or formerly of said Graham sixty-one (61) feet six (6) inches, more or less, to land conveyed by Alden J. Blethen to James K. Emery by deed dated April 30, 1880 and recorded in said Registry of Deeds in Book 467, Page 152; thence easterly by land now or formerly of said Emery sixty-six (66) feet six (6) inches to Bramhall Street; thence southerly by said Bramhall Street thirty (30) feet three (3) inches, more or less, to the point of beginning.

Being the same premises conveyed to the Grantors herein by Sumner J. Goffin by deed dated February 4, 1950 and recorded in said Registry of Deeds in Book 1985, Page 483.

MAINE REAL ESTATE TRANSFER TAX PAID

BK0309PG0006

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to the said MMC Realty Corp., its successors

~~heirs~~ and assigns forever.

And we do covenant with the said Grantee, its/ successors ~~heirs~~ and assigns, that we shall and will warrant and defend the premises to the said Grantee, its/ successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons claiming by, through, or under us.

In Witness Whereof, we, the said John J. Hammett and Elizabeth B. Hammett

~~husband/wife of the said~~

~~having made the Grantee and acknowledging all right by the entered above the above described premises~~ have hereunto set our hands and seals this 31st day of the month of May, A.D. 19 88.

Signed, Sealed and Delivered in presence of

Lee D. Urban

Lee D. Urban

John J. Hammett

John J. Hammett

Elizabeth B. Hammett, By John J. Hammett as her Attorney in Fact pursuant to Power of Attorney dated August 16, 1984 and recorded herewith in the Cumberland County Registry of Deeds

State of Maine, County of Cumberland ss. May 31, 1988.

Then personally appeared the above named John J. Hammett

and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Lee D. Urban

Notary Public
Attorney at Law

Printed Name Lee D. Urban

RECEIVED
RECORDED REGISTRY OF DEEDS
1988 JUN -1 AM 8:31
CUMBERLAND COUNTY
James J. Walsh

BK8855PG0081

036413 WARRANTY DEED

MAINE REAL ESTATE TAX PAID

KNOW ALL MEN BY THESE PRESENTS, that GILMAN STREET LAND COMPANY, a Maine corporation, and GILMAN STREET ASSOCIATES, a Maine limited partnership, for consideration paid, grant to MMC REALTY CORP., a Maine Corporation with a principal place of business in Portland, County of Cumberland, State of Maine, whose mailing address is 22 Bramhall Street, Portland, Maine 04103, with WARRANTY COVENANTS a certain lot or parcel of land, with the improvements thereon, located at 52 Gilman Street, in the City of Portland, County of Cumberland, State of Maine, all as more particularly described in Schedule A attached hereto and incorporated herein.

IN WITNESS WHEREOF, the said GILMAN STREET LAND COMPANY has caused this instrument to be sealed with its corporate seal and signed in its corporate names by William H. Webster, its President, hereunto duly authorized, this 4th day of August, 1989, and the said GILMAN STREET ASSOCIATES has caused this instrument to be signed and sealed by William H. Webster, President of its General Partner MORSE, PAYSON & NOYES PROPERTIES, hereunto duly authorized, this 4th day of August, 1989.

WITNESS:

Robert B. Patterson, Jr.

GILMAN STREET LAND COMPANY

By: _____
William H. Webster
Its President

GILMAN STREET ASSOCIATES

By: MORSE, PAYSON & NOYES PROPERTIES,
Its General Partner

Robert B. Patterson, Jr.

By: _____
William H. Webster
Its President

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

August 4, 1989

Then personally appeared before me the above named William H. Webster, President of Gilman Street Land Company, and President of Morse, Payson & Noyes Properties, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporations and partnership.

Before me,

Robert B. Patterson Jr.
~~Notary Public~~/Attorney at-Law

Robert B. Patterson, Jr.
Printed Name

~~My Commission Expires~~ _____

SCHEDULE A TO WARRANTY DEED

PARCEL ONE

A certain lot or parcel of land with the buildings thereon known as 52 Gilman Street, in Portland, County of Cumberland and State of Maine bounded and described as follows:

Beginning at a point on said street distant one hundred six and fifty-five one hundredths (106.55) feet northerly from the intersection of the westerly side of Gilman Street with the northerly side of A Street, and running thence northerly on said Gilman Street, thirty-seven and one half (37-1/2) feet to a point; thence westerly with an included angle of 91° 11' seventy and forty-two one hundredths (70.42) feet to a point; thence southerly and parallel to said Gilman Street, thirty-seven and one half (37-1/2) feet to land formerly of S. H. Jose, now of Gilman Street Land Company; thence easterly with an included angle of 91° 11' seventy and forty-two one hundredths (70.42) feet to the point of beginning.

PARCEL TWO

A certain lot or parcel of land with the buildings thereon, situated in said Portland, bounded and described as follows:

Beginning at a point in the Westerly side line of Gilman Street distant sixty-six (66) feet and one (1) inch South from the Southerly side line of Congress Street; thence running South by the side line of Gilman Street twenty-four (24) feet and eight (8) inches, more or less, to the Northerly line of land formerly of Winfield L. Smith, now of Gilman Street Land Company; thence by said line formerly of Smith and through the center of the partition wall between the house on said former Smith lot and the house on the lot herein described and by said line extended seventy and forty-two hundredths (70.42) feet and to land formerly of the City of Portland; thence North by said City of Portland land twenty-three (23) feet and eight (8) inches, more or less, to land conveyed by William B. Jordan to Willis B. Moulton et als, by deed dated May 14, 1897, and recorded in Cumberland County Registry of Deeds, Book 648, Page 450; thence in an easterly direction by said Moulton land seventy (70) feet and eight (8) inches to said Gilman Street and the point of beginning.

PARCEL THREE

A certain lot or parcel of land with the buildings thereon, situated on the westerly side of Gilman Street in said Portland and bounded as follows:

Beginning at a point on said westerly side of Gilman Street sixty-nine and five hundredths (69.05) feet northerly

from the northwesterly corner of Gilman and A Streets, and running thence northerly on Gilman Street thirty-seven and one-half (37-1/2) feet; thence westerly with an included angle of ninety-one degrees eleven minutes (91° 11') seventy and forty-two hundredths (70.42) feet to a stake; thence southerly with an included angle of eighty degrees forty-nine minutes (80° 49') thirty-seven and one half (37-1/2) feet; thence easterly with an included angle of ninety-one degrees eleven minutes (91° 11') seventy and forty-two hundredths (70.42) feet to the starting point. Being the southerly half of the lot conveyed to Samuel H. Jose by Charles F. Jose by deed dated December 6, 1886, and recorded in Cumberland County Registry of Deeds in Book 530, Page 255, to which reference is made. The premises herein conveyed are designated as No. 50 on said Gilman Street.

PARCEL FOUR

A certain lot or parcel of land with the buildings thereon situated on the westerly side of Gilman Street in Portland, County of Cumberland and State of Maine, the house being the southerly house in a block of two houses built on this and the adjoining lot, bounded and described as follows:

Beginning on the westerly sideline of Gilman Street ninety and seventy-eight hundredths (90.78) feet from the southerly line of Congress Street; thence southerly on line of Gilman Street fifty (50) feet to land formerly of Charles F. Jose, now of Gilman Street Land Company; thence westerly by said land formerly of Jose, seventy and forty-two hundredths (70.42) feet to land formerly of City of Portland; thence northerly by said City of Portland land fifty (50) feet; thence easterly seventy and forty-two hundredths (70.42) feet passing through the center of the division wall between said two houses to the point of beginning; containing 2520 square feet.

Meaning and intending to convey and hereby conveying the same premises which were conveyed to Gilman Street Land Company by John A. Godsoe, John E. Knowles, John T. Libby, Marvin C. Adams, Thomas A. Martin, Jr., and Vincent N. Oliviero, Trustees, by Trustees Deed dated December 28, 1984 and recorded in the Cumberland County Registry of Deeds in Book 6653, Page 290.

Subject to partition wall rights and obligations as set forth in deed from Virginia R. Buckley to Helen M. Sawyer dated May 4, 1948 and recorded in Cumberland County Registry of Deeds in Book 1912, Page 424 and in deed from Judith P. Johnson to Edgar J. Murphy and Louise M. Murphy dated August 31, 1948 and recorded in Cumberland County Registry of Deeds in Book 1926, Page 311.

RECEIVED
RECORDED REGISTRY OF DEEDS
1989 AUG -4 PM 4:02
CUMBERLAND COUNTY

056000

MAINE REAL ESTATE TAX PAID

KNOW ALL MEN BY THESE PRESENTS, That CASCO AERIE, NO. 565, FRATERNAL ORDER OF EAGLES, a/k/a CASCO AERIE FRATERNAL ORDER OF EAGLES #565, a/k/a FRATERNAL ORDER OF EAGLES CASCO AERIE NO. 565, a Maine corporation with a mailing address of 265 Valley Street, Portland, Maine 04112, and having a place of business at Portland, in the County of Cumberland and State of Maine, in consideration of $1.00 and other valuable consideration paid by MMC REALTY CORP., a Maine corporation, whose mailing address is 22 Bramhall Street, Portland, Maine 04102, the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey unto the said MMC REALTY CORP., its successors and assigns forever, certain lots or parcels of land in the City of Portland, County of Cumberland, State of Maine, with any buildings thereon, bounded and described as follows:

261-269 Valley Street

A certain lot or parcel of land with the buildings thereon, situated in Portland and described as follows:

Beginning at a point on the North side of A Street, Portland, Maine, said point being the intersection of said North side line of A Street with the East side line of B Street, the name of which was changed to Valley Street in 1939; thence Northerly and making an included angle of Eighty-two (82) degrees Fifty-nine (59) minutes with the East direction of said North side line of A Street a distance of Two hundred eighty-five (285) feet, more or less, to a point in the South side line of Congress Street, said point being thirty-five (35) feet East along said South side line of Congress Street from its intersection with the East side line of Valley Street as now laid out and accepted; thence East along said South line of Congress Street and making an included angle of Ninety-four (94) degrees 49', a distance of forty-five (45) feet, more or less, to a point in the division line between the lot of land of the Grantor under description and land now or formerly of one Charles F. Jones; thence South along the said division line between land of the Grantor and land now or formerly of Charles F. Jones and land now or formerly of Charles C. Plummer, Ellsworth W. Stuart, Charles F. Jose, Maris M. and Charles F. Jose, Trustees, and Charles F. Jose a distance of 281.17 feet, more or less, to a point in the North side line of A Street; thence West and making an included angle of 89 degrees 57' and along the North side line of A Street a distance of Eighty (80) feet more or less to the point of beginning, containing 17,570 square feet, more or less.

Excepting therefrom a portion bounded and described as follows, to wit:

Beginning at a point on the East side line of said Valley Street One Hundred Fifty (150) feet South from the intersection of said East side line of Valley Street with the South side line of Congress Street, thence North by said East line of Valley Street One Hundred Fifty (150) feet to the South side line of Congress Street; thence East along said South side line of Congress Street making an included angle of 94 degrees 49', a distance of Forty-five (45) feet more or less, to a point in the division line between the lot of land under description and land now or formerly of one Charles F. Jones; thence South along the said division line between the land under description and the land of said Charles F. Jones and others One Hundred Fifty (150) feet, to a point; thence West 63.48 feet, to the point of beginning.

42 - 46 Gilman Street

A certain lot or parcel of land with the buildings thereon situated on the northwesterly corner of Gilman and A Streets in the City of Portland, County of Cumberland, State of Maine, and bounded and described as follows:

Beginning at the intersection of the westerly side of said Gilman Street with the northerly side of said A Street, and running thence northerly on said Gilman Street, sixty-nine and five one-hundredths (69.05) feet to land formerly of S.H. Jose; thence westerly by said S. H. Jose land, seventy and forty-two one-hundredths (70.42) feet to a stake; thence southerly and parallel with said Gilman Street seventy and forty-seven one-hundredths (70.47) feet to A Street; thence easterly by said A Street, seventy and forty-one one-hundredths (70.41) feet to the place of beginning.

268 - 270 Valley Street

A certain lot or parcel of land with the buildings thereon situated on the westerly side of Valley Street, formerly called B Street, in said Portland, bounded and described as follows:

Beginning at a point on said westerly side line of Valley Street at a point distance one hundred thirty six (136) feet northerly from the intersection of the westerly side of Valley Street and the northerly side of A Street; thence running southerly by said westerly side of Valley Street seventy-one (71) feet to a point; thence running westerly sixty (60) feet to land now or formerly of George W. Billings and Catherine A. Reed, at a point which is distant sixty-five (65) feet northerly from the northerly side line of A Street; thence running northerly by said Billings and Reed land sixty-four and seventy-six hundredths (64.76) feet to land formerly of William G. Davis and continuing northerly by said Davis land six and forty-three hundredths (6.43) feet; thence easterly approximately fifty-seven (57) feet to the point of beginning.

Being the same premises conveyed to the within grantors by the following deeds: Deed from Mid-Central Fish Company of Maine dated January 15, 1963 and recorded in Cumberland County Registry of Deeds in Book 2727, Page 347; Deed from Sebastiano Pennisi, et al dated June 25, 1963 and recorded in Cumberland County Registry of Deeds in Book 2759, Page 254; and Deed from Eugene S. Martin dated March 28, 1980 and recorded in Cumberland County Registry of Deeds in Book 4582, Page 291.

Subject to the following:

1. Taking of Valley Street as referenced in the deed from the City of Portland to the Unity Company dated October 20, 1937 and recorded in Cumberland County Registry of Deeds in Book 1527, Page 318 (261-269 Valley Street).

To have and to hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said MMC REALTY CORP., its successors and assigns, to them and their use and behoof forever.

AND the said Grantor Corporation does hereby covenant with the said Grantee, its sucessors and assigns, that it is lawfully seized in fee of the premises, that they are free of all encumbrances except as aforesaid, that it has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors, shall and will warrant and defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, the said CASCO AERIE, NO. 565, FRATERNAL ORDER OF EAGLES has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Robert James, Richard Brichetto, Hilbert Welch, Reginald Conohan and Fred Darling,

its Trustees thereunto duly authorized, this 21ST day of November, A.D. 1990.

CASCO AERIE, NO. 565,
FRATERNAL ORDER OF EAGLES

Witness

By: Robert James
Robert James
Its Trustee

Witness

By: Richard Brichetto
Richard Brichetto
Its Trustee

Witness

By: Hilbert Welch
Hilbert Welch
Its Trustee

Witness

By: Reginald Conohan
Reginald Conohan
Its Trustee

Witness

By: Fred Darling
Fred Darling
Its Trustee

STATE OF MAINE
COUNTY OF CUMBERLAND

November 21, 1990

Then personally appeared the above named Robert James, Richard Brichetto, ~~Hilbert Welch,~~ Reginald Conohan and ~~Fred Darling,~~ Trustees of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be their free act and deed in their said capacity, and the free act and deed of said Corporation.

Before me,

Attorney at Law
Notary Public
SHERRIE LYNN FONTAINE
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES NOVEMBER 13 1996

Printed Name

SEAL

RECEIVED
RECORDED REGISTRY OF DEEDS
90 NOV 21 PM 3:54
CUMBERLAND COUNTY

17527

17527 9722 45

DEED OF SALE BY PERSONAL REPRESENTATIVE
(Testate)
Maine Statutory Short Form

Book 9722
Page 45

Know all Men by these Presents,

That Thomas F. Kane, Jr.

of Scarborough, County of Cumberland, State of Maine,

duly appointed and acting personal representative of the estate of Edna Faye Kane,

deceased (testate), as shown by the probate records of the County of Cumberland, Maine,

(and having given notice to each person succeeding to an interest in the real property described below at least ten (10) days prior to the sale) ~~(and not having given notice to each person succeeding to an interest in the real property described below at least ten (10) days prior to the sale, such notice not being required under the terms of the decedent's will)~~, by the power conferred by the Probate Code, and every other power, for consideration paid, grants to Maine Medical Center* of Portland,

*a nonprofit corporation organized and existing under the laws of the State of Maine

County of Cumberland, State of Maine,

whose mailing address is 22 Bramhall Street, Portland, ME 04102,

the real property in Portland, County of Cumberland,

State of Maine, described as follows:

A certain lot or parcel of land with the buildings thereon, situated in said Portland on the southeasterly side of Ellsworth Street, bounded and described as follows: -viz;-Beginning on the said southeasterly side of Ellsworth Street at land now or formerly of S.F. Haggett; thence southeasterly by said Haggett's land seventy-five (75) feet, more or less, to land now or formerly of J.T. Walton; thence southwesterly by said Walton's land and land now or formerly of N. Waterhouse eighty (80) feet, more or less, to land now or formerly of N.P. Thompson; thence northwesterly by said Thompson's land seventy-five (75) feet, more or less, to said Ellsworth Street; thence northeasterly by said Ellsworth Street to point begun at. Containing five thousand eight hundred forty (5,840) square feet, more or less. Said lot is numbered 34-36 and 38 as shown upon valuation plan of the City of Portland.

Being the same premises conveyed to Edna F. Kane by May Porter by her Warranty Deed, dated April 3, 1940 and recorded in Cumberland County Registry of Deeds in Book 1603, Page 134.

MAINE REAL ESTATE TAX PAID

Instr 47527 Bk 9722 Pg 46

Witness my hand and seal this 20th day of

September , 19 91 .

Signed, Sealed and Delivered
in presence of

Samuel J. Shatz

Personal Representative of the Estate of Edna Faye Kane

Thomas F. Kane, Jr.

Thomas F. Kane, Jr.

State of Maine, County of Cumberland **ss.** September 20 , 19 91 .

Then personally appeared the above named Thomas F. Kane, Jr.

in his said capacity and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Samuel J. Shatz

Samuel J. Shatz
~~Justice of the Peace~~
~~Notary Public~~
Attorney at Law

Recorded
Cumberland County
Registry of Deeds
09/20/91 03:59:12PM
Robert P. Titcomb
Register

54881

WARRANTY DEED
(Maine Statutory Short Form)

KNOW ALL BY THESE PRESENTS, that I, William H. Leschey, Jr., whose mailing address is 930 Congress Street, Portland, ME 04102, for consideration paid, GRANT to MMC Realty Corp., a Maine corporation with an established place of business at and mailing address of 22 Bramhall Street, Portland, Maine 04102, with WARRANTY covenants, the land in Portland, County of Cumberland, State of Maine, which is more particularly described as follows:

A certain lot or parcel of land, with any buildings or improvements that may be thereon, situated on the southerly side of Congress Street, bounded and described as follows: BEGINNING on the southerly sideline of Congress Street at its intersection with the westerly sideline of Gilman Street; thence southerly by the westerly sideline of Gilman Street, sixty-six feet, one inch (66' 1") to the northeasterly corner of land now or formerly of Helen M. Sawyer; thence westerly by said Sawyer land seventy feet, eight inches (70' 8") to the easterly sideline of land now or formerly of Schwartz Bros. Inc.; thence northerly by said Schwartz Bros. Inc. land, sixty-two feet, one inch (62' 1") to the southerly sideline of Congress Street; thence easterly by the southerly sideline of Congress Street, seventy feet, eight inches (70' 8") to the point of beginning.

Being the same premises conveyed to the Grantor herein by deed of Edythe D. Field, dated May 11, 1987, and recorded in the Cumberland County Registry of Deeds in Book 7784, Page 182.

MAINE REAL ESTATE TAX PAID

WITNESS my hand and seal this 1st day of September, 1994.

SIGNED, SEALED AND DELIVERED
in the presence of:

William H. Leschey, Jr.

STATE OF MAINE
COUNTY OF CUMBERLAND, ss September 1, 1994

Then personally appeared the above-named William H. Leschey, Jr. and acknowledged the foregoing instrument to be his free act and deed.

Before me,

~~Notary Public~~ Attorney at Law
Printed Name: CHRISTOPHER J.W. COCCOSHALL

RECEIVED
RECORDED REGISTRY OF DEEDS
94 SEP -1 PM 3:05
CUMBERLAND COUNTY
John B O'Brien

REL/4078/AAO/DE

WRITTEN SUBMISSION 03 – EVIDENCE OF STATE OR FEDERAL APPROVALS
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE PROJECT WILL REQUIRE A DEP SITE LOCATION OF DEVELOPMENT PERMIT, WHICH WILL BE REVIEWED BY THE CITY UNDER ITS DELEGATED REVIEW AUTHORITY. THE PROJECT WILL ALSO REQUIRE APPROVAL FROM THE FEDERAL AVIATION ADMINISTRATION, WHICH WILL BE REVIEWED CONCURRENTLY WITH THE SITE PLAN APPLICATION. THE APPLICANT WILL PROVIDE EVIDENCE OF FAA APPROVAL UPON RECEIPT.

November 1, 2018

Maine Medical Center
MaineHealth

Nell Donaldson, Senior Planner
City of Portland Planning Division
389 Congress Street
Portland, ME 04101

Re: MMC Congress Building| 22 Bramhall St| Level III Site Plan
Zoning Assessment

Dear Nell:

Thank you for coordinating the review of the Maine Medical Center Congress Building project located at 22 Bramhall with frontage on Congress St.. This letter provides an Assessment of Zoning Compliance for MMC's Site Plan Application for the Congress St. hospital building.

The proposed project is in alignment with the approved Maine Medical Center IDP and IOZ Regulatory Framework. The Congress St. Building is listed as a near-term project in the IDP. This project begins to address the key institutional needs identified in MMC's IDP. As outlined in the approved IDP, the goals of this project are to address MMC's multi-factorial clinical and building needs.

Compliance with the IOZ Regulatory Framework specified in the City of Portland Land Use Code (Chapter 14) and the MMC IDP is described in the following sections.

Applicability

The proposed development is within the boundaries of the MMC Institutional Overlay Zone (IOZ) specified in the IDP; therefore, the IOZ standards apply to this project.

Updates and Amendments

The proposed building is consistent with the MMC IDP approved by the Portland City Council in October 2017. No updates or amendments are proposed to the IDP as a part of this project.

Uses

Hospital is listed as a use permitted by right within the IOZ.

Dimensional Requirements

The proposed building will consist of 265,000 square feet of hospital space across six floors including a mechanical floor that is partially below grade at the Eastern edge of the building plus two partial floors required to connect the building to the rest of MMC's campus. As discussed in the IDP, MMC used a multi-part methodology to determine the appropriate height profile for potential future development within the IOZ boundary, including project definition, urban design analysis, slope analysis and visioning.

- **Building Height.** The maximum height identified in the IOZ Regulatory Framework for the location of the proposed building is 200'.

- The average building height for the proposed building is 64', considering the average proposed ground elevation of +70' at the building edge and the average roof elevation at the is 134'.

- **Building Setbacks.** A minimum of 0' is specified along the Western edge of the project area as shown in Map 4.2 of the IOZ.

    - The proposed building is located 0' from the right-of-way and has continuity with the Congress Street Build-to-Zone.

- **Congress Street Build-to-Zone.** The proposed building is located within the Congress Street Build-to-Zone as indicated on Map 4.2 in the IOZ. The Congress Street Build-to-Zone requires a minimum of 70% of the façade facing Congress Street to be located within the Congress Street Build-to-Zone which extends between 0' to 40' from the right-of-way boundary.

    - 99% of the façade facing Congress Street is within the Congress Street Build-to-Zone.

- **Transition Zone.** As identified on Map 4.1 in the IOZ, there are no transition zones associated with the project area.

Design

The IOZ regulatory framework specified that new buildings shall adhere to the design guidelines set forth in Chapter 5 of the IDP and the site plan standards of the City of Portland. Compliance with the design guidelines was detailed for the City in a memo from Perkins + Will to Al Green at MMC dated September 14, 2018 and submitted to the City as "35 Zone Related Design Standards (Design Narrative)"./ submission dated

Signs

Signage for the proposed building is outlined in the unified campus-wide Signage Master Plan submitted to the City. The Signage Plan demonstrates that signs are designed in proportion and character with building facades and adjacent street typology, and coordinated with the building and landscaping design, and will be constructed of appropriate permanent, high quality materials and finishes.

Transportation

The MMC Transportation Demand Management (TDM) Plan is discussed in the approved IDP (IDP page 74). As outlined in the IDP, MMC has considered its transportation needs holistically, factoring into its future development alternative means of transportation (IDP page 25). The City approved MMC's TDM Plan along with the Site Plan application for the St John Garage on September 11, 2018. That plan was submitted along with the Site Plan application for the Congress Building.

A parking demand analysis was conducted as part of the Transportation Plan in the IDP to determine parking needs based on supply and demand, and trip reduction efforts outlined in the TDM Plan. The analysis revealed an existing staff parking shortage of 150 to 200 spaces, with the MMC parking system typically operating at or above capacity during weekday daytime hours (IDP page 65). Approximately 500 to 600 additional staff parking spaces are required to meet projected demand based on expected staff growth. The City approved MMC's St. John St Garage site plan application on September 11, 2018 which takes steps towards addressing MMC's parking challenges.

Environment

The proposed development incorporates features that are designed to integrate with the surrounding context, including open space and pedestrian networks and infrastructure.

Mitigation Measures

MMC will mitigate site plan impacts to off-premise infrastructure in a manner proportionate to those impacts.

Neighborhood Integration and Neighborhood Engagement

In addition to the required neighborhood meeting as required by the Level III Site Plan process, MMC does the following in terms of neighborhood integration and neighborhood engagement:

- Monthly and as needed meetings with representatives of each of the neighborhood associations abutting the Bramhall Campus and Libbytown where MMC provides lunch;
- Targeted outreach to local businesses and residents;
- Open meetings where businesses and residents are invited to ask questions about the project and provide feedback;
- Provide mitigation measures (such as parking) to anyone directly impacted by temporary street parking closures or traffic detours;
- A webpage where all project information is available; and
- A project alert notification system where people can be updated via email or text of project updates.

Construction Management

A Construction Management Plan (CMP) that conforms to all IOZ requirements was provided to the City in its initial Site Plan application packet of materials on October 1, 2018. The CMP includes a construction schedule, and strategies for managing communication, noise, air quality, traffic, and parking impacts associated with the construction.

Other Requirements

- **Helipad.** This standard does not apply to the proposed project.
- **Snow Ban Parking.** In accordance with the IOZ Regulatory Framework, MMC will make parking available to neighbors within the parking garage for a set timeframe during designated snow ban parking events.
- **Healthy Communities.** This standard does not apply to the proposed project.

WRITTEN SUBMISSION 05 – EXISTING &/OR PROPOSED EASEMENTS OR COVENANTS
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

A. UNDERGROUND ANCHOR SYSTEM EASEMENT RESERVED BY MMC IN CONVEYANCE TO CRESCENT HEIGHTS LLC IN DEED BOOK 26288 PAGE 49.
B. UTILITY/DRAINAGE EASEMENT FOR A DRAIN/SEWER PIPE FROM THE PROPERTY NOW OF CRESCENT HEIGHTS, LLC. FORMERLY AS DESCRIBED IN DEED BOOK 1938 PAGE 248 AND 1946 PAGE 370.
C. UTILITY EASEMENT: TO NET&T NEAR THE NORTHERLY CORNER OF THE PARKING GARAGE ON CONGRESS ST. PER DEED BOOK 8573 PAGE 121.
D. CERTIFICATE OF VARIANCE APPROVAL GRANTING RELIEF FROM SECTION 14-137(7) MAXIMUM STRUCTURE HEIGHT OF 45 FEET, DATED JUNE 25, 1996, AND RECORDED IN DEED BOOK 12629 PAGE 295.
E. SITE LOCATION OF DEVELOPMENT DEPARTMENT ORDER BY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR MAINE MEDICAL CENTER, PER DEED BOOK 13919 PAGE 114.
F. UTILITY EASEMENT: MMC TO NET&T 6' X 8' NEAR GILMAN AND CONGRESS PER DEED BOOK 13027 PAGE 207.
G. AMENDMENT TO CITY CODE SEC. 14-49 (ZONING MAP AMENDMENT) RE: CONDITIONAL REZONING FOR PROPERTY IN VICINITY OF WESTERN PROMENADE/MAINE MEDICAL CENTER. DATED MAY 24, 2005 AND RECORDED IN DEED BOOK 22671 PAGE 60.

WRITTEN SUBMISSION 06 – WAIVER REQUESTS
BRAMHALL ST. -22; MMC CONGRESS STREET BUILDING

1. WAIVER REQUESTS INCLUDE :
   A) REDUCTION IN DRIVE AISLE FROM 24 FEET TO 21' – 9" ON THE RAMP BETWEEN THE NEW DROP OFF PLAZA AND THE ENTRANCE TO THE VISITOR GARAGE. THIS REQUEST IS BASED ON EXISTING FOUNDATIONS AND GRADE BEAMS AT THE VISITOR GARAGE.
   B) SIDEWALK MATERIAL CHANGE FROM BRICK PAVERS TO BROOM FINISH CONCRETE WITH SAW CUT SCORE JOINTS. THIS REQUEST IS BASED ON THE SLIPPERY NATURE OF BRICK PAVERS, SMOOTHNESS OF THE WALKING SURFACE, AND AVOIDING A MATERIAL CHANGE FROM THE PUBLIC RIGHT OF WAY SIDEWALK TO THE IMMEDIATELY ADJACENT PLAZA AREA.
   C) STAFF HAS SUGGESTED ADDING A SIDEWALK ON THE EAST SIDE OF GILMAN STREET FROM THE EMPLOYEE ENTRANCE TO THE CORNER OF GILMAN STREET AND A STREET, TO FACILITATE PEDESTRIAN ACCESS TO THE ST. JOHN STREET GARAGE. MMC SUPPORTS THIS CONNECTIVITY, HOWEVER, REQUESTS A WAIVER TO CONSTRUCT THIS SECTION OF SIDEWALK.
   PER LAND USE CODE SECTION 14- 506, THE PLANNING BOARD CAN GRANT SUCH A WAIVER IF TWO OR MORE OF THE SIX CONDITIONS EXIST AS SET FORTH IN SECTION 14-506. WE BELIEVE THAT WE MEET THE FOLLOWING TWO CONDITIONS :

- A SAFE ALTERNATIVE WALKING ROUTE IS REASONABLY AND SAFELY AVAILABLE, FOR EXAMPLE, BY WAY OF A SIDEWALK ON THE OTHER SIDE OF THE STREET THAT IS LIGHTLY TRAVELLED.

  As depicted on the attached photo, there is a lightly travelled sidewalk, in good condition, on the west side of Gilman Street. Employees can easily access this sidewalk via a crosswalk in close proximity to the staff entrance.

- STRICT ADHERENCE TO THE SIDEWALK REQUIREMENT WOULD RESULT IN THE LOSS OF SIGNIFICANT SITE FEATURES RELATED TO LANDSCAPING OR TOPOGRAPHY THAT ARE DEEMED TO BE OF A GREATER PUBLIC VALUE.

  As depicted on the second photo, construction of the sidewalk along the front of the Central Utility Plant would require the removal of existing fir trees in that location. These trees were very important to the Planning Board and the residents of Gilman Street when Site Plan Approval was granted for the Central Utility Plant. MMC feels that these tress are of greater public value than a sidewalk in this location.

safe alternative
walking route

fir trees that would have to be removed to add a sidewalk

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION

CONGRESS ST PATIENT TOWER

EVIDENCE OF FINANCIAL & TECHINICAL CAPACITY

The health care landscape has been in a state of change, particularly since the signing of the Affordable Care Act (ACA). Given the recent changes in the executive and legislative branches of the federal government and continued references to "repealing" the ACA, it is nearly impossible to anticipate the scope of future changes. Maine Medical Center's strategic financial plan assumes continued market basket increases at or near 3% annually. Additionally, the strategic financial plan assumes the following:

- Little or no increase in Medicare or Medicaid payments
- Stable payer mix
- No expansion to the Medicaid program
- Achievement of operational efficiencies based on analyses of national benchmark data
- Stable utilization of hospital services
- Continuation of provider-based billing at existing locations
- Stable levels of bad debt and charity care

Minor changes in the law or regulatory environment impacting these assumptions will likely not jeopardize the overall strategic financial plan. Substantive changes, however, will need to be monitored closely to ensure support of the project.

MMC is fully licensed and accredited, and has been providing services of this scale and scope for years.

Through multiple building projects throughout the history of the organization, MMC has demonstrated its ability to develop new and renovated facilities that meet all licensure and accreditation requirements.

The proposed project's program, and design, developed by a team of health care architects and engineers, and hospital physicians and staff, are in conformance with Guidelines for Design and Construction of Health Care Facilities, 2006 Edition, Facilities Guidelines Institute, (American Institute of Architects, Washington, DC, 2006) as required by the State of Maine Department of Health and Human Services' Division of Licensing and Regulatory Services. In addition, the guidelines for Design and Construction of Health Care Facilities, 2014 Edition, Facilities Guidelines Institute, (American Institute of Architects, Washington, DC, 2014) were also used in the proposed project's design.

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION

CONGRESS ST PATIENT TOWER

EVIDENCE OF FINANCIAL & TECHINICAL CAPACITY

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Att. J

Relationships.
Responsiveness.
Results.

Traffic Movement Permit Application
Bramhall Street - 22: MMC Congress Street Building
Portland, Maine

PREPARED FOR:
Maine Medical Center
22 Bramhall Street
Portland, ME 04102

September 2018

SUBMITTED BY:
Gorrill Palmer
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

September 25, 2018

Ms. Nell Donaldson
City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, Maine 04101

RE: Application for Traffic Movement Permit
Maine Medical Center Expansion
Portland, Maine

Dear Ms. Donaldson,

Gorrill Palmer (GP) has been retained by Maine Medical Center to prepare this Traffic Movement Permit Application for the proposed Maine Medical Center expansion project located at the site of the existing Gilman Garage in the southeast corner of the Gilman Street / Congress Street intersection in Portland, Maine.

We have attached the following information in support of this application:

- Sections 1-7
- Signed application form
- Notice of intent to file
- List of abutters
- $1,500 application fee

Section 7 (Traffic Impact Study) of the application is also being submitted under separate cover. Please contact our office with any questions regarding this application.

Sincerely,
Gorrill Palmer

Randy Dunton, PE, PTOE
Project Manager

Copy: Alexander Green, Maine Medical Center
Randy Ilian, MaineDOT Region 1 Traffic Engineer

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 12/99
ID#_____

Total Fees:_____
Date Received: _____

****

PERMIT APPLICATION – TRAFFIC
TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A. §704-A

Please type or print:

This application is for (check all that apply): Traffic 100-200 PCE's ☐
Traffic 200 + PCE's ☒

Name of Applicant: Maine Medical Center; Attn: Alexander Green

Address: 22 Bramhall Street, Portland, Maine 04102 Telephone: (207) 662-3689

Name of local contact or agent: **Randy Dunton – Gorrill Palmer**

Address: **707 Sable Oaks Drive, South Portland, ME 04106** Telephone: **(207) 772-2515**

Name and type of development: The Maine Medical Center Expansion includes razing the existing employee parking garage and constructing additional hospital space including new operating rooms and patient rooms, although the total number of beds will remain the same.

Location of development including road, street, or nearest route number: **The site is located at the existing Gilman Street garage and the block bounded by Valley Street, Congress Street, Gilman Street, and A Street.**

City/~~Town~~/~~Plantation~~: **Portland** County: **Cumberland** Tax Maps: **53 & 67** Lots: D007 and H001, H002, H005, H008, and H009.

Do you want a consolidated review with DEP pursuant to 23 M.R.S.A. § 704-A (7)? **No**

Was this development started prior to obtaining a traffic permit? **No**

Is the project located in an area designated as a growth area (as defined in M.R.S.A. title 30-A, chapter 187)?
Yes_____ No _____

Is this project located within a compact area of an urban compact municipality? Yes X No_____

Is this development or any portion of the site currently subject to state or municipal enforcement action?

None Known

Existing DEP or MDOT permit number (if applicable): N/A

Name(s) DOT staff person(s) contacted concerning this application Delegated Review is to the City

Name(s) of DOT staff person(s) present at the scoping meeting for 200+ applicants:_____

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 12/99
ID#_____

Total Fees:_____
Date Received: _____

CERTIFICATION

This person responsible for preparing this application and/or attaching pertinent site and traffic information hereto, by signing below, certifies that the applicant for traffic approval is complete and accurate to the best of his/her knowledge.

Signature: Randall E. Dunton Re/Cert/Lic No.: _____

Name (print): **Randall E. Dunton** Engineer: **Maine PE # 8686**

Date: Sept 24, 2018 Other: _____

If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

_____ 9/25/2018

Signature of applicant Date

Form C 7/97

NOTICE OF INTENT TO FILE

Please take notice that:

Maine Medical Center
22 Bramhall Street
Portland, ME 04102

is intending to file a MaineDOT Traffic Permit application with the City of Portland (Delegated Review Authority) pursuant to the provisions of 23 M.R.S.A. §704 – A on or about September 25, 2018.

This application is for:

The Congress Street building expansion of Maine Medical Center on Bramhall Street in Portland, Maine. The proposed development is to include razing the existing employee parking garage and constructing additional hospital space including new operating rooms and patient rooms, although the total number of beds will remain the same. A new patient drop-off on Congress Street is also proposed. The project is forecast to generate 68 and 66 AM and PM weekday peak hour trip ends respectively. The project is expected to open in 2023.

At the following location:

The site is located in the southeast corner of the Gilman Street / Congress Street intersection at the site of the existing Gilman Garage.

A request for a public hearing must be received by the City, in writing no later than 20 days after the application is found by the department to be complete and is accepted for processing. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Transportation's office in Scarborough (Region 1) during normal working hours. A copy of the application may also be seen at the municipal offices in Portland, Maine.

Written public comments may be sent to the following address: Attention Nell Donaldson, Planning Division, 389 Congress Street, Portland, Maine 04101.

Randall Dunton, P.E., PTOE
Gorrill-Palmer Consulting Engineers, Inc.

ABUTTERS LIST
MMC EXPANSION
PORTLAND, ME
JN 2866.01

CBL	UNITS	PROP_LOC	OWNR_NAME1	OWNR_NAME2	MAIL_ADDR1	OWNR_CITY	WNR_STA	ZIPCODE	ProjectDesc
053 A013001	2	29 BOYNTON ST	HOLLOWAY MICAH L &	HANNAH MONACO JTS	29 BOYNTON ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 A014001	3	27 BOYNTON ST	KONGO MATTHEW &	ROSE DIJIERI JTS	27 BOYNTON ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 A015001	3	23 BOYNTON ST	EMPIRE REALTY LLC		17 BOYNTON ST # 1	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 A017001	3	21 BOYNTON ST	MICHAUD STEPHEN J II &	TAMMY J BEAULIEU JTS	21 BOYNTON ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 A018001	3	17 BOYNTON ST	EMPIRE REALTY LLC		17 BOYNTON ST # 1	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 A019001	1	15 BOYNTON ST	MACCONNELL DOUGLAS F &	REBECCA MACCONNELL JTS	340 SOUTH LEMON AVE # 7427	WALNUT	CA	91789	2017002 MMC Master Facility Plan Phase IIE
053 A020001	1	11 BOYNTON ST	KURAN BARBARA LYNN		11 BOYNTON ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 A021001	2	9 BOYNTON ST	MARCISSO SAMUEL M JR		16 RUBY MAE LN	SCARBOROUGH	ME	04074	2017002 MMC Master Facility Plan Phase IIE
053 A022001	0	232 PARK AVE	HARRIS RICHARD S JR &	PEGGY HARRIS	103 LOUDEN RD	SACO	ME	04072	2017002 MMC Master Facility Plan Phase IIE
053 E003001	44	25 CRESCENT ST	CRESCENT HEIGHTS LLC		PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
053 E008001	6	19 CRESCENT ST	19 CRESCENT STREET LLC		26B BRACKETT ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 H001001	10	9 WESCOTT ST	FISK KENNETT H		43 SPINNAKER LN	FALMOUTH	MA	02540	2017002 MMC Master Facility Plan Phase IIE
053 H002001	0	25 ELLSWORTH ST	BEH REDEVELOPMENT LLC		PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
053 H003001	4	23 ELLSWORTH ST	MCCAIN MARK &	KATRINA SCHOLTZ JTS	812-6 CONGRESS ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 H004001	2	19 ELLSWORTH ST	RAINBOW PARACHUTE LLC		19 ELLSWORTH ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053 H005001	2	2 CRESCENT ST	BOURRET ANDREW P &	EMILY M BOURRET JTS	21 TAINE MOUNTAIN RD	UNIONVILLE	CT	06085	2017002 MMC Master Facility Plan Phase IIE
053 I007001	3	14 BOYNTON ST	MCKEOWN RYAN L		1226 SUNNYMEADE DR	NASHVILLE	TN	37215	2017002 MMC Master Facility Plan Phase IIE
053 I016001	5	879 CONGRESS ST	KONTOS GREGORY C &	CAROL A KONTOS	PO BOX 1785	WINDHAM	ME	04062	2017002 MMC Master Facility Plan Phase IIE
053 I017001	0	873 CONGRESS ST	KONTOS GREGORY C	C/O GCK GROUP	PO BOX 1785	WINDHAM	ME	04062	2017002 MMC Master Facility Plan Phase IIE
053 I019001	7	8 WEYMOUTH ST	GRANTWEY APARTMENTS LIMITE	LIABILITY COMPANY	103 LOUDEN RD	SACO	ME	04072	2017002 MMC Master Facility Plan Phase IIE
053 I020001	9	871 CONGRESS ST	LASH LLC		PO BOX 4182	PORTLAND	ME	04101	2017002 MMC Master Facility Plan Phase IIE
053 I021001	1	867 CONGRESS ST	PORT CITY BAPTIST CHRUCH		867 CONGRESS ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
054 B001001	3	12 ELLSWORTH ST	12 ELLSWORTH STREET LLC		PO BOX 7225	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
054 B002001	5	19 HILL ST	19 HILL STREET LLC		PO BOX 7225	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
054 B004001	8	17 HILL ST	17 HILL STREET LLC		PO BOX 7225	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
054 C001001	2	20 HILL ST	BEH REDEVELOPMENT LLC		PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
054 C005001	3	32 ELLSWORTH ST	BEH REDEVELOPMENT LLC		PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
054 C007001	2	7 RUSSELL ST	FERRELL RANDY D		7 RUSSELL ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
054 C008001	2	9 RUSSELL ST	WILHOITE ROBERT W ETALS JTS		9 RUSSELL ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
054 C009001	4	11 RUSSELL ST	STEINS KARL M &	RHIANNE STEINS JTS	2333 CAMINO DEL RIO SOUTH STE	SAN DIEGO	CA	92108	2017002 MMC Master Facility Plan Phase IIE
054 C012001	2	15 RUSSELL ST	SHIR MOHAMMAD NASIR		41 OCEAN HOUSE RD	CAPE ELIZABETH	ME	04107	2017002 MMC Master Facility Plan Phase IIE
054 D006001	0	331 BRACKETT ST	BEH REDEVELOPMENT LLC		PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
054 D007001	8	325 BRACKETT ST	BEH REDEVELOPMENT LLC		PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
063 A001001	1	31 BRAMHALL ST	PETERS ANNE GINDER		31 BRAMHALL ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063 A002001	1	25 BRAMHALL ST	CARREN JOY M ETAL &	GARY LAMSON	PO BOX 9715-327	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE
063 A003001	8	23 BRAMHALL ST	PALMER DEVELOPMENT	GROUP LLC	83 SOUTH FREEPORT RD	FREEPORT	ME	04032	2017002 MMC Master Facility Plan Phase IIE
063 A004001	10	19 BRAMHALL ST	NEW EARTH ASSOCIATES LLC		PO BOX 9715-327	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE
063 A005001	10	15 BRAMHALL ST	WEST COMPANY		104 GRANT ST	PORTLAND	ME	04101	2017002 MMC Master Facility Plan Phase IIE
063 A006001	1	7 BRAMHALL ST	7 BRAMHALL STREET LLC		335 BRIGHTON AVE	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E001001	4	12 A ST	CUMMINGS THOMAS L HEIRS		12 A ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E014001	4	36 GILMAN ST	LAMBERT STUART C		36 GILMAN ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E015001	4	34 GILMAN ST	AWLARI IWANI M &	LIA BOULIS KODI JTS	34 GILMAN ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E016001	4	28 GILMAN ST	SABBATH NICHOLAS M		28 GILMAN ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E017001	3	24 GILMAN ST	SNYDER KAREN L		72 WATERVILLE ST # 3	PORTLAND	ME	04103	2017002 MMC Master Facility Plan Phase IIE
064 E018001	5	20 GILMAN ST	SS MINNOW LLC &	PUTTERS LLC	22 BARLEY LN	SCARBOROUGH	ME	04074	2017002 MMC Master Facility Plan Phase IIE
064 E019001	6	16 GILMAN ST	SEA OTTER 16G LIMITED	LIABILITY COMPANY	39 COVESIDE LN	YARMOUTH	ME	04096	2017002 MMC Master Facility Plan Phase IIE
064 E020001	8	12 GILMAN ST	12 GILMAN STREET LLC		295 BROWN ST STE 1	WESTBROOK	ME	04092	2017002 MMC Master Facility Plan Phase IIE
064 E021001	4	10 GILMAN ST	10 GILMAN STREET LLC		40 WOODFIELD DR	SCARBOROUGH	ME	04074	2017002 MMC Master Facility Plan Phase IIE
064 E022001	1	10 A ST	STICKNEY BRIAN J		10 A ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E023001	3	4 GILMAN ST	HOCHSTEDLER ANNA F &	MOISES T SABINA JTS	4 GILMAN ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E025001	1	8 A ST	MACKENZIE JENNIFER A &	GARRY J BOWCOTT	8 A ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E028001	1	4 GILMAN PL	FOX STEPHEN H		4 GILMAN PL	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064 E029001	3	3 GILMAN PL	FOX STEPHEN H		4 GILMAN PL	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
065 D014001	1	931 CONGRESS ST	CR VENTURES LLC		302 CHANDLER'S WHARF	PORTLAND	ME	04101	2017002 MMC Master Facility Plan Phase IIE
065 D016001	1	925 CONGRESS ST	WORAMALEE SAENGTONG		921 CONGRESS ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
065 D017001	2	921 CONGRESS ST	WORAMALEE SAENGTONG		921 CONGRESS ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
065 E017001	1	24 FOREST ST	CAREY MEGHAN		24 FOREST ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
065 E019001	0	22 FOREST ST	EAST END DEVELOPMENT LLC		PO BOX 10291	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE
065 E021001	0	18 FOREST ST	EAST END DEVELOPMENT LLC		PO BOX 10291	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE
065 E023001	0	14 FOREST ST	EAST END CORP		ONE CANAL PLAZA	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
065 E025001	12	12 FOREST ST	EAST END CORP		PO BOX 10291	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE
065 E028001	1	919 CONGRESS ST	EAST END CORP		PO BOX 10291	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE
065 E030001	0	909 CONGRESS ST	EAST END HOLDINGS LLC		PO BOX 10291	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE

ABUTTERS LIST
MMC EXPANSION
PORTLAND, ME
JN 2866.01

065	G002001	3	942 CONGRESS ST	TPA ASSOCIATES		940 CONGRESS ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
065	G003001	0	VALLEY ST	TPA ASSOCIATES		940 CONGRESS ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
065	G004001	3	274 VALLEY ST	JORDAN ROBERT K TRUSTEE		1050 ISLAND AVE	LONG ISLAND	ME	04050	2017002 MMC Master Facility Plan Phase IIE
054	E001001	9	59 BRAMHALL ST	BJB REALTY LLC		PO BOX 6842	PORTLAND	ME	04103	2017002 MMC Master Facility Plan Phase IIE
054	E010001	4	315 BRACKETT ST	315 BRACKETT STREET LLC		55 D ST	SOUTH PORTLAND	ME	04106	2017002 MMC Master Facility Plan Phase IIE
054	E011001	5	311 BRACKETT ST	JOBI PROPERTIES LLC		16 CHARLOTTE DR	FALMOUTH	ME	04105	2017002 MMC Master Facility Plan Phase IIE
054	F033001	7	249 VAUGHAN ST	PARKER VAUGHAN STREET LLC		249 VAUGHAN ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
054	F034001	5	303 BRACKETT ST	303 BRACKETT LLC		PO BOX 2301	SOUTH PORTLAND	ME	04116	2017002 MMC Master Facility Plan Phase IIE
063	A015001	1	146 CHADWICK ST	ISERBYT SAMUEL T		146 CHADWICK ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	A016001	5	140 CHADWICK ST	NEWFANGLED CAPITAL LLC		140 CHADWICK ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	A018001	1	132 CHADWICK ST	BOYD MARJORIE ANN		132 CHADWICK ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	B001001	36	135 CHADWICK ST	BOWDOIN REALTY LLC		131 CHADWICK ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	B009001	1	212 VAUGHAN ST	BLANK CHERYL L		212 VAUGHAN ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	B010001	2	208 VAUGHAN ST	210 VAUGHAN STREET LLC		81 COUSINS RD	BUXTON	ME	04093	2017002 MMC Master Facility Plan Phase IIE
063	C001001	1	304 BRACKETT ST	HENNIGAR CHRISTOPHER G		405 WESTERN AVE	SOUTH PORTLAND	ME	04106	2017002 MMC Master Facility Plan Phase IIE
063	C004001	1	233 VAUGHAN ST	VAUGHAN STREET REALTY	ASSOCIATES	233 VAUGHAN ST	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	C006001	1	217 VAUGHAN ST UNIT 1	SMITH LORI L		217 VAUGHAN ST # 1	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	C006002	1	217 VAUGHAN ST UNIT 2	WHORF STEVEN C &		DHL EXPRESS ASIA PACIFIC REGI	819458 SINGAPORE			2017002 MMC Master Facility Plan Phase IIE
063	C006003	1	217 VAUGHAN ST UNIT 3	TEDESCO THEODORE M &	MARILYN M TEDESCO	217 VAUGHAN ST # 3	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	C006004	1	217 VAUGHAN ST UNIT 4	MAIN CHARLES D &	JUDITH Z MAIN JTS	36 LONGFELLOW W AVE	BRUNSWICK	ME	04011	2017002 MMC Master Facility Plan Phase IIE
063	C006005	1	217 VAUGHAN ST UNIT 5	GALLO JORDAN L &	JACLYN R GALLO JTS	217 VAUGHAN ST # 5	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	C006006	1	217 VAUGHAN ST UNIT 6	BIBERSTEIN KATHRYN L		43 BYRAM AVE	FREEPORT	ME	04032	2017002 MMC Master Facility Plan Phase IIE

UPON REVIEW OF ABOVE ABUTTERS LIST PROVIDED BY MMC WITH CITY'S TAX MAPS; WE HAVE ADDED THE FOLLOWING ABUTTERS:

								2017002 MMC Master Facility Plan Phase IIE
053	E005	25 CRESCENT ST	CRESCENT HEIGHTS LLC	PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
053	E013	868 CONGRESS ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053	E014	25 CRESCENT ST	CRESCENT HEIGHTS LLC	PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
053	E015	25 CRESCENT ST	CRESCENT HEIGHTS LLC	PO BOX 4790	PORTLAND	ME	04112	2017002 MMC Master Facility Plan Phase IIE
053	H006	9 WESCOTT ST	KENNETT FISK	43 SPINNAKER LANE	FALMOUTH	MA	02540	2017002 MMC Master Facility Plan Phase IIE
053	I001	887 CONGRESS ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053	I002	887 CONGRESS ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053	I003	887 CONGRESS ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053	I007	14 BOYNTON ST	MCKEOWN RYAN	1226 SUNNYMEADOW DRIVE	NASHVILLE	TN	37215	2017002 MMC Master Facility Plan Phase IIE
053	I012	887 CONGRESS ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
053	X001	19 FOREST ST	MMC / CAT-WALK					2017002 MMC Master Facility Plan Phase IIE
054	C006	34 ELLSWORTH ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
054	C010	40 ELLSWORTH ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
054	D005	46 BRAMHALL ST	YENTSCH CARLTON	PO BOX 254	W. BOOTHBAY HBR	ME	04575-025	2017002 MMC Master Facility Plan Phase IIE
054	E009	47 BRAMHALL ST	MMC					2017002 MMC Master Facility Plan Phase IIE
054	I001	308 BRACKETT ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	A007	7 BRAMHALL ST	7 BRAMHALL STREET LLC	160 ANN MARY BROWN DRIVE	WARWICK	RI	02888	2017002 MMC Master Facility Plan Phase IIE
063	A008	265 WESTERN PROMENAD	COPE SAMUEL & SARA	265 WEST PROMENADE	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	A017	132 CHADWICK ST	MARGERY ANN BOYD	132 CHADWICK STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	B008	214 VAUGHAN ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	C005	229 VAUGHAN ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
063	C007	217 VAUGHAN ST	BIBERSTEIN KATHRYN	43 BYRAM AVENUE	FREEPORT	ME	04032	2017002 MMC Master Facility Plan Phase IIE
063	C008	217 VAUGHAN ST	BIBERSTEIN KATHRYN	43 BYRAM AVENUE	FREEPORT	ME	04032	2017002 MMC Master Facility Plan Phase IIE
064	B002	264 VALLEY ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE
064	D011	254 VALLEY ST	STICKNEY ADAM	254 VALLEY STREET	PORTLAND	ME	04101	2017002 MMC Master Facility Plan Phase IIE
064	E024	51 VALLEY ST	CITY OF PORTLAND - LAND BANK	389 CONGRESS STREET	PORTLAND	ME	04101	2017002 MMC Master Facility Plan Phase IIE
065	C001	939 CONGRESS ST	THE INN AT ST. JOHN	939 CONGRESS STREET	PORTLAND	ME	04101	2017002 MMC Master Facility Plan Phase IIE
065	C002	947 CONGRESS ST	LI RI TENG & WEI YI WANG	PO BOX 495	MOODY	ME	04054-049	2017002 MMC Master Facility Plan Phase IIE
065	C009	937 CONGRESS ST	MARDIGAN STEPHEN	460 BAXTER BOULEVARD	PORTLAND	ME	04101	2017002 MMC Master Facility Plan Phase IIE
065	E029	909 CONGRESS ST	EAST END HOLDINGS LLC	PO BOX 10291	PORTLAND	ME	04104	2017002 MMC Master Facility Plan Phase IIE
065	G005	0 VALLEY ST	MMC	22 BRAMHALL STREET	PORTLAND	ME	04102	2017002 MMC Master Facility Plan Phase IIE

- ALL PROPERTIES OWNED BY MAINE MEDICAL CENTER - DO NOT SEND ABUTTERS NOTICES - INCLUDED FOR INFORMATION PURPOSES ONLY

Section 1
Site and Traffic Information

1.A. Site Description and Site Plan

The proposed project is located at the site of the existing Gilman Garage for Maine Medical Center employees on Congress Street and the southeast corner of the Gilman Street / Congress Street intersection. The site is identified on City Tax Map 53, Lot D007, and City Tax Map 65 Lots H001, H002, H005, H008, and H009. A proposed site plan is included in the site plan application submitted under separate cover.

1.B. Existing and Proposed Site Uses

The existing site is the Gilman parking garage for the employees of Maine Medical Center. The proposed project consists of razing the existing employee garage and constructing additional hospital space, including new private universal patient rooms, procedure rooms, a new hospital entrance, and a new drop off area with a connection to the visitor garage. Although the expansion will include new patient rooms, the project will optimize the current bed capacity, and is not proposed to add any beds. Vehicular access to the hospital expansion will be expanded to include a new entrance on Congress Street and a new patient drop-off area with a direct connection to the visitor garage. Employees who park in the existing employee parking garage will park in the larger proposed employee parking garage on St. John Street with approximately 2,400 spaces. It should be noted that of the approximately 2,400 spaces, 50 are will be reserved for the Eagles and approximately 200 are reserved for the tenants of 222 St. John Street. There will be many shuttles that run throughout the day to transport employees to and from the parking garage from Maine Medical Center. The project is proposed to increase the number of employees by 200 between 2016 and 2023.

1.C. Site Vicinity and Boundaries

The entire site is bordered by Congress Street to the north, Wescott Street to the east, the Bramhall Street to the south, and Gilman Street to the west. A site location map showing the development area is included in Attachment 1A.

1.D. Proposed Uses in the Vicinity of the Proposed Development

Approved projects that are not yet opened as well as projects for which applications have been filed are required to be included in the predevelopment volumes for this project. Based on conversations with City Staff, the traffic from these projects that is forecast to impact the Maine Medical Center Expansion study area is discussed in Section 7 (Traffic Impact Study).

1.E. Trip Generation

The trip generation for the proposed expansion was calculated using the Institute of Transportation Engineers' (ITE) publication, *Trip Generation*, Seventh Edition, Land Use Code (LUC) 610 – Hospital. The Tenth Edition is available, but has not yet been accepted by the MaineDOT. The expansion is proposed to be a total of 265,000 sf and it is anticipated to add 200 employees (including employees, students, and physicians). As approved at the October 13, 2017 Pre-Scoping meeting with the City, the trip generation for the expansion is based on the number of employees, students, and physicians. The following is a summary of the trip generation for the expansion that will need to be permitted:

- AM Peak Hour Adjacent Street: 68 trip ends
- PM Peak Hour Adjacent Street: 66 trip ends
- AM Peak Hour of Generator: 78 trip ends
- PM Peak Hour of Generator: 94 trip ends
- Saturday Peak Hour of Generator: 106 trip ends

A trip end is defined as a trip into or out of the site; thus, a round trip is equal to two trip ends. Since the forecast traffic exceeds 99 trip ends during a peak hour, a Traffic Movement Permit is required. The City of Portland has delegated review authority, so the application can be administered by the City. A copy of the trip generation calculations are included as an attachment to this section.

1.F. Trip Distribution

Based on ITE's *Trip Generation*, the following trip distribution is anticipated:

- AM Peak Hour Adjacent Street: 54 in / 14 out
- PM Peak Hour Adjacent Street: 23 in / 43 out

- AM Peak Hour of Generator: 51 in / 27 out
- PM Peak Hour of Generator: 38 in / 56 out
- Saturday Peak Hour of Generator: 58 in / 48 out

1.G. Trip Composition and Assignment

GP has assumed that all trips are primary in nature and made for the sole purpose of going to and from the site. The trips will also be comprised of both employees and patients/visitors. The portion of the trip generation that is forecast to be due to patients/visitors has been based on information provided by MMC Staff in an email dated August 8, 2018. Based on MMC's information, an additional 15,500 patient trips are anticipated annually by 2023. Based on discussions with MMC, the distribution of the patient/visitors has been based on the following assumptions:

- Patient trips are split evenly throughout the year
- 90% of patient trips occur Monday through Friday
- Patient trips are evenly split through the week
- 20% of daily trips occur during the peak hours
- 80% entering during the AM peak hour
- 80% exiting during the PM peak hour

Based on these assumptions, the following trip composition is forecast for the peak hours of the adjacent street:

- AM Peak Hour Adjacent Street (assumed 7:30AM – 8:30AM):
  - Patients/Visitors: 10 trip ends (8 in / 2 out)
  - Employees: 58 trip ends (46 in / 12 out)
- PM Peak Hour Adjacent Street (assumed 4:15PM – 5:15PM):
  - Patients/Visitors: 10 trip ends (2 in / 8 out)
  - Employees: 56 trip ends (21 in / 35 out)

The trip assignment for the employees has been based on the VHB Travelshed (attached) for employees, previously reviewed by the City. The patient/visitor trip assignment has been based on the proposed driveway locations, information from MMC in an email dated August 8, 2018, and the existing traffic patterns. The trip assignment is discussed in more detail in Section 7 of this application.

1.H. Attachments

Attachment 1A – Site Location Map, Trip Assignment Diagram, VHB Travelshed
Attachment 1B – Trip Generation Calculations

Attachment 1A

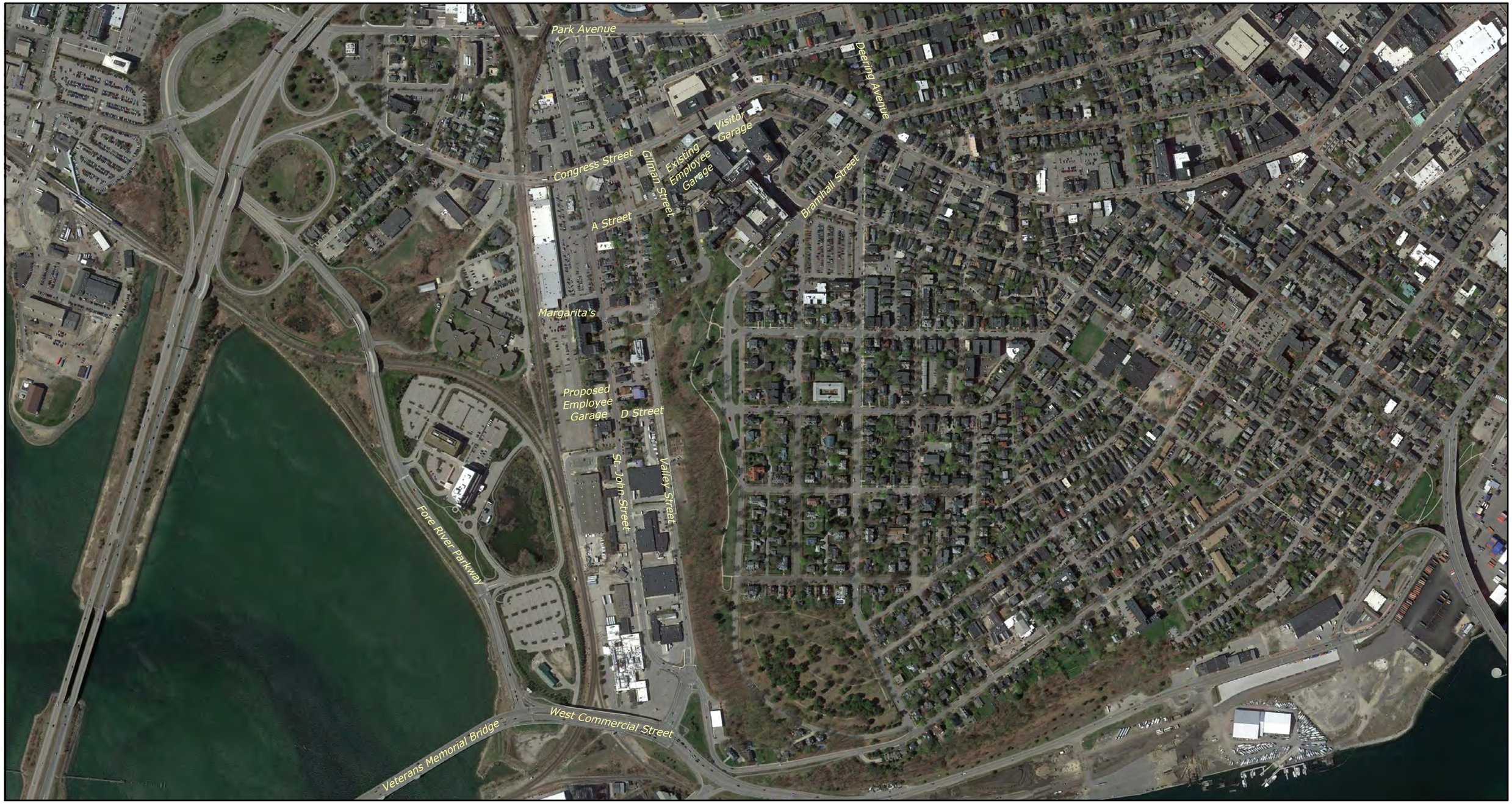
Site Location Map

Trip Assignment Diagram

VHB Travelshed

Location Map

Figure No. 1



Bramhall St. - 22; MMC Congress Street Building
PORTLAND, MAINE

Design:	EAL	Scale:	NONE
Draft:		Date:	SEP 2018
Checked:	RED	File Name:	28866.01 - TIS Figures

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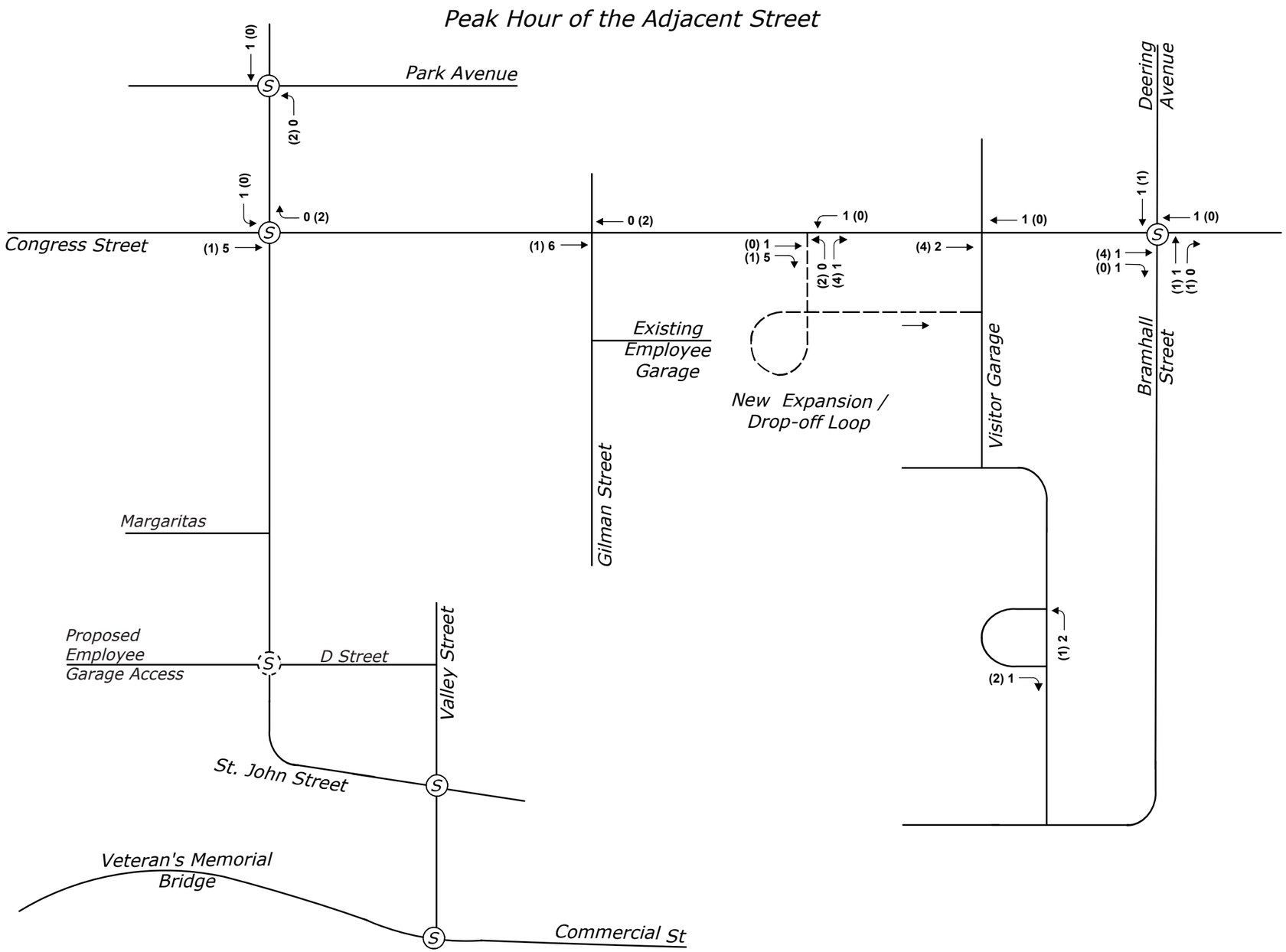
207.772.2515

Phase 3 Patient/Visitor Assignment

Figure No. 6



Bramhall St. - 22; MMC Congress Street Building
PORTLAND, MAINE

Design: EAL Scale: NONE
Draft: Date: SEP 2018
Checked: RED File Name: 28866.01 - TIS Figures

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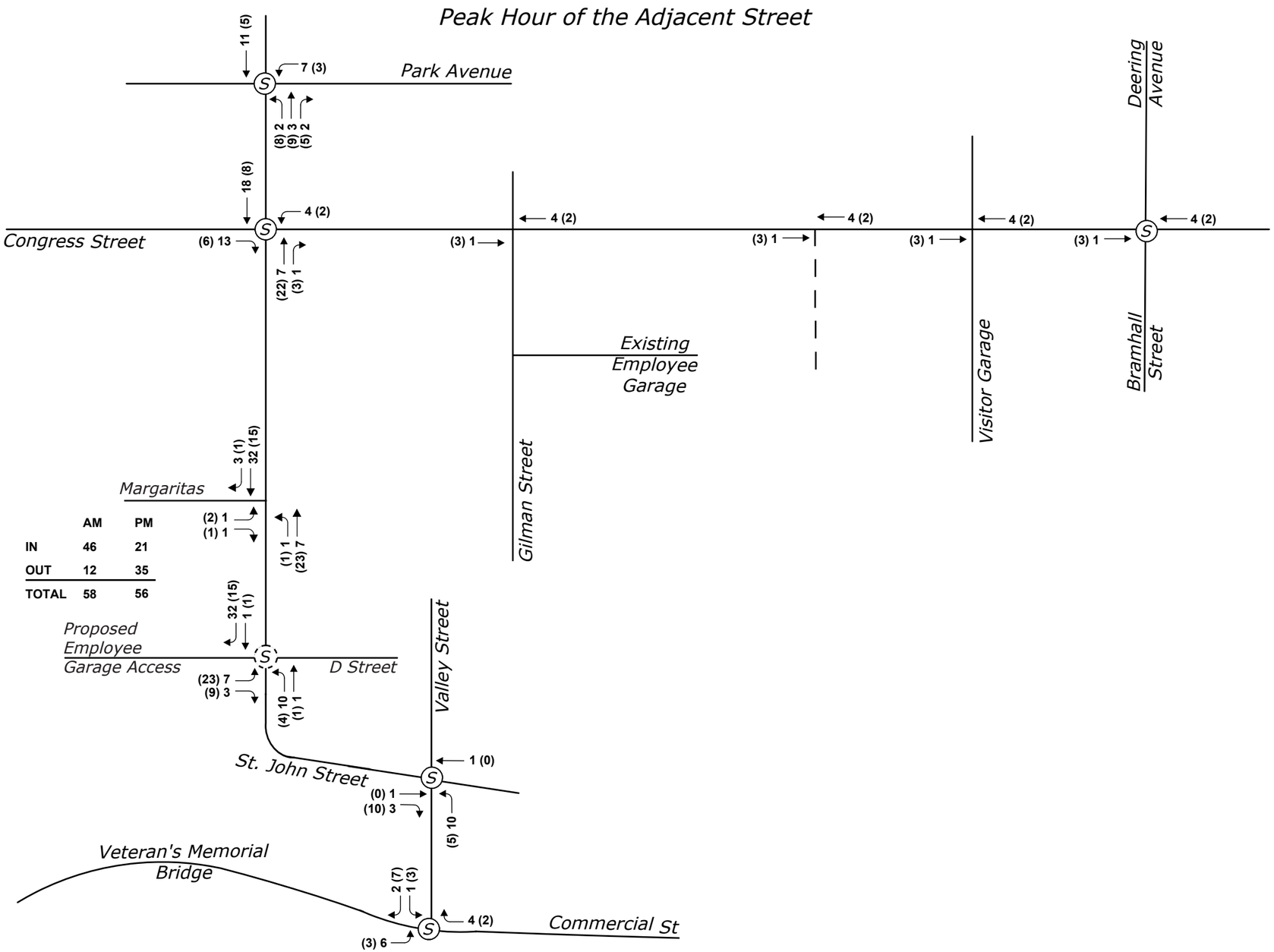
Phase 3 Employee Trip Assignment

Figure No. 7



Bramhall St. - 22; MMC Congress Street Building
PORTLAND, MAINE

Design: EAL Scale: NONE
Draft: Date: SEP 2018
Checked: RED File Name: 28866.01 - TIS Figures

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LEGEND

Bramhall Employees	1 mile	Travelshed
<1 mile	3 miles	295 North
1-3 miles	5 miles	35 - 302 - 117 North
3-5 miles	10 miles	95 North
5-10 miles	20 miles	95 South
10-20 miles	30 miles	Ferries
20-30 miles	40 miles	Peninsular Surface Streets
30-40 miles	50 miles	Rt 25 - Brighton Ave
40-50 miles		South Portland Surface Streets
>50 miles		Maine Medical Center

Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

Bramhall Employee Address Locations and Travelsheds
Maine Medical Center

vhb

0 2.5 5 Miles

Attachment 1B

Trip Generation Calculations

JN: 2866.01
Project Description: Maine Medical Center Phase 3
Project Location: Portland, ME
Date: 08/14/18

Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

Hospital
Land Use Code (LUC) 610

Employees 200

Fitted Curve:

Time Period	ITE Trip Rate	Trip Ends	Directional Split* IN	Directional Split* OUT	Directional Distribution IN	Directional Distribution OUT	Sample Size/R2
Weekday	T =4.40 (X) + 711.46	1591	50%	50%	796	795	19/.77
AM Peak Adjacent Street	T =0.32 (X) + 35.15	99	80%	20%	79	20	9/.77
PM Peak Adjacent Street	T =0.28 (X) + 75.75	132	35%	65%	46	86	8/.69
AM Peak of Generator	T = 0.33 (X) +66.57	133	65%	35%	86	47	8/.83
PM Peak of Generator	T = 0..36 (X) + 97.41	169	40%	60%	68	101	15/.73
Saturday	T = 2.95 (X)+ 691.43	1281	50%	50%	641	640	15/.84
Saturday Peak of Generator	Not given	-	55%	45%	-	-	4

* Percentages rounded to nearest 5%

Average Rate:

Time Period	ITE Trip Rate	Trip Ends	Directional Split* IN	Directional Split* OUT	Directional Distribution IN	Directional Distribution OUT	Sample Size
Weekday	**T = 5.2 (X)**	**1040**	**50%**	**50%**	**520**	**520**	**19**
AM Peak Adjacent Street	**T = 0.34 (X)**	**68**	**80%**	**20%**	**54**	**14**	**9**
PM Peak Adjacent Street	**T = 0.33 (X)**	**66**	**35%**	**65%**	**23**	**43**	**8**
AM Peak of Generator	**T = 0.39 (X)**	**78**	**65%**	**35%**	**51**	**27**	**8**
PM Peak of Generator	**T = 0.47 (X)**	**94**	**40%**	**60%**	**38**	**56**	**15**
Saturday	**T = 3.78 (X)**	**756**	**50%**	**50%**	**378**	**378**	**15**
Saturday Peak of Generator	**T = 0.53 (X)**	**106**	**55%**	**45%**	**58**	**48**	**4**

* Percentages rounded to nearest 5%

Section 2
Traffic Crashes

2.A. Crash Summary Data

Gorrill Palmer obtained the crash data from MaineDOT for the period of 2015-2017, the most recent period available (Attachment 2A).

In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor {CRF} compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average) **and:**

2. A minimum of eight crashes over the same three year period.

Based on the crash data provided by MaineDOT, there are eight high crash locations in the vicinity of the study area:

- Intersection of Park Avenue with Valley Street
- Intersection of Congress Street with Gilman Street
- Intersection of St. John Street with A Street
- Intersection of Park Avenue with St. John Street
- Valley Street from A Street to C Street
- Congress Street from Forest Street to Weymouth Street
- St. John Street from Congress Street to Non-Intersection (just south of Park Avenue)

To better evaluate the high crash locations and identify correctable crash patterns, the police reports for these locations were provided by MaineDOT and used to create collision diagrams, included as Attachment 2A to this section. The following discusses the high crash locations as well as pedestrian and bicycle crashes in more detail.

High Crash Locations

The following describes the HCLs in more detail.

Park Avenue / Valley Street

This intersection has a CRF of 1.80 and experienced 10 collisions during the most recent three-year period. It is an unsignalized intersection that is STOP controlled on Valley Street with free flowing traffic on Park Avenue. The northbound Valley Street approach is one-way into the intersection.

There is one crash pattern at this intersection involving vehicles turning left from northbound Valley Street onto westbound Park Avenue and colliding with vehicles traveling westbound on Park Avenue. Additionally, one collision that occurred at this intersection involved a pedestrian and one that involved a bicyclist. The traffic from the proposed MMC expansion is not expected to exacerbate this pattern.

Congress Street / Gilman Street

This intersection has a CRF of 3.26 and experienced 20 collisions during the most recent three-year period. It is an unsignalized intersection that is STOP controlled on the Gilman Street approaches with free flowing traffic on Congress Street. The southbound Gilman Street approach is one-way into the intersection. Based on a review of the collision diagram there are three crash patterns at this intersection; southbound through traffic on Gilman Street failing to yield to eastbound through traffic on Congress Street, southbound through traffic on Gilman Street failing to yield to westbound through traffic on Congress Street, and rear end collisions involving eastbound Congress Street traffic.

There were four collisions that involved southbound through traffic on Gilman Street failing to yield the right of way to the eastbound through traffic on Congress Street and three collisions that involved vehicles coming from the same direction failing to yield the right of way to westbound through traffic on Congress Street. These types of collisions may be due to the buildings along Congress Street blocking the sight distance of the southbound traffic. Because the MMC employee parking is being relocated to St. John Street, both the AM and PM total entering traffic volume for this intersection will be decreased from the Predevelopment condition to the Postdevelopment condition.

There were three rear end collisions on Congress Street eastbound. All three were caused by drivers following too closely and/or driver inattention. Additionally, all three collisions involved vehicles stopping for pedestrians in the crosswalk.

St. John Street / A Street

This intersection has a CRF of 1.82 and experienced 8 collisions during the most recent three-year period. It is an unsignalized four-leg intersection with two-way traffic on all approaches. Based on a review of the collision diagram, there were no correctable crash patterns identified at this intersection.

Park Avenue / St. John Street

This intersection has a CRF of 1.63 and experienced 36 collisions during the most recent three-year period. It is a signalized four-leg intersection with two-way traffic on all approaches, with the exception of Park Avenue to the east of St. John Street, which is one way away from the intersection. Based on a review of the collision diagram, there are four crash patterns at this intersection.

One crash pattern involved vehicles in the northbound St. John Street left turn lane attempting to go straight through the intersection from the left-most lane and colliding with left turning vehicles in the adjacent left-through lane. There were 13 such crashes at this intersection during the most recent three year period. Most of the drivers that incorrectly attempted to travel through the intersection claimed that they believed they could travel through the intersection from that lane.

Another crash pattern was northbound left turning vehicles sideswiping one another while traveling in the left turn lane and left-through lane from the northbound St. John Street approach to the intersection. Six of these crashes occurred at this intersection during the most recent three year period. There is already a skip line striping between the left turn lane and the left-through lane through the intersection. Many of the crashes involved in the two crash patterns discussed at this intersection so far occurred either during the winter or in the spring when the striping of the skip line may have faded away.

A third crash pattern at this intersection involves right angle collisions between westbound through vehicles on Park Avenue failing to yield to northbound through vehicles on St. John Street. Three of these crashes occurred at this intersection during the most recent three year period. All three collisions involved the westbound Park Avenue vehicle running the red light.

The fourth crash pattern at this intersection involved rear-end collisions involving vehicles at the northbound approach to this intersection. One potential contributing factor to rear end collisions at signalized intersections is inadequate signal clearance times.

Valley Street from A Street to C Street

This intersection has a CRF of 2.89 and experienced 8 collisions during the most recent three-year period. There were no correctable crash patterns identified, however there were five crashes involving parked vehicles. Of the five crashes involving parked vehicles, three crashes involved vehicles that were parked illegally. Stricter enforcement of the parking regulations may help reduce the number of crashes along this segment of Valley Street. It should also be noted that there was one crash involving a pedestrian at this location during the most recent three year period.

Congress Street from Forest Street to Weymouth Street

This section of Congress Street has a CRF of 1.45 and experienced 10 collisions during the most recent three-year period. Based on a review of the collision diagram there is one crash pattern of rear end collisions in the eastbound direction. Of the 10 collisions, five were rear end collisions on Congress Street eastbound. The five collisions were caused by drivers following too closely. There are multiple driveways in this roadway segment, including an entrance to the Maine Medical Center visitor parking garage.

An overall review of the collisions showed that there were 9 collisions that occurred on a weekday and of those, 2 occurred during the AM peak commuter hour and 4 occurred during the PM peak commuter hour, when traffic volumes are heaviest. Additionally, one of the collisions that occurred in this area involved a bicyclist.

Restriping of this section of Congress Street to include a center turn lane may be an alternative to be pursued to improve this section of Congress Street.

St. John Street from Congress Street to Non-Intersection (just south of Park Avenue)

This section of St. John Street has a CRF of 3.00 and experienced 30 collisions during the most recent three-year period. Based on a review of the collision diagram, there are two crash patterns.

The first crash pattern involves sideswipe crashes involving vehicles traveling northbound on St. John Street, which are caused by vehicles making lane changes.

Of the 30 collisions, 17 involved vehicles attempting to turn left onto St. John Street from various driveways. There are many driveways on this link of St. John Street including McDonald's, Amato's, Sullivan Tire, Dunkin' Donuts, Lang's Express, Salty Sally's Bare and Grille and Portland Physical Therapy. Of the 30 crashes in this roadway segment, two involved left turns into driveways from St. John Street.

In a recent Traffic Impact Study completed by Maine Traffic Resources for a Dunkin Donuts relocation project in this section of St. John Street, a "road diet" was recommended that would include a single travel lane in each direction with a center turn lane. Gorrill Palmer supports that recommendation.

Pedestrian Collisions

There were 22 collisions involving pedestrians throughout the study area. Of those, 15 occurred when the pedestrian was within the marked crosswalk, seven of which involved one vehicle rear ending another that was yielding to the pedestrian. Several of the collisions involved pedestrians crossing without the walk sign at a signalized intersection,

or abruptly entering the intersection. Others involved vehicles failing to yield to the pedestrians in the crosswalks.

Bicycle Collisions

There were 9 collisions involving bicyclists throughout the study area. One collision involved a bicyclist riding in a bike lane being struck by a turning vehicle on Park Avenue. Several of the collisions involved bicyclists riding in the roadway, but not following traffic rules.

2.B. Attachments

Attachment 2A – Crash Report, Collision Diagrams

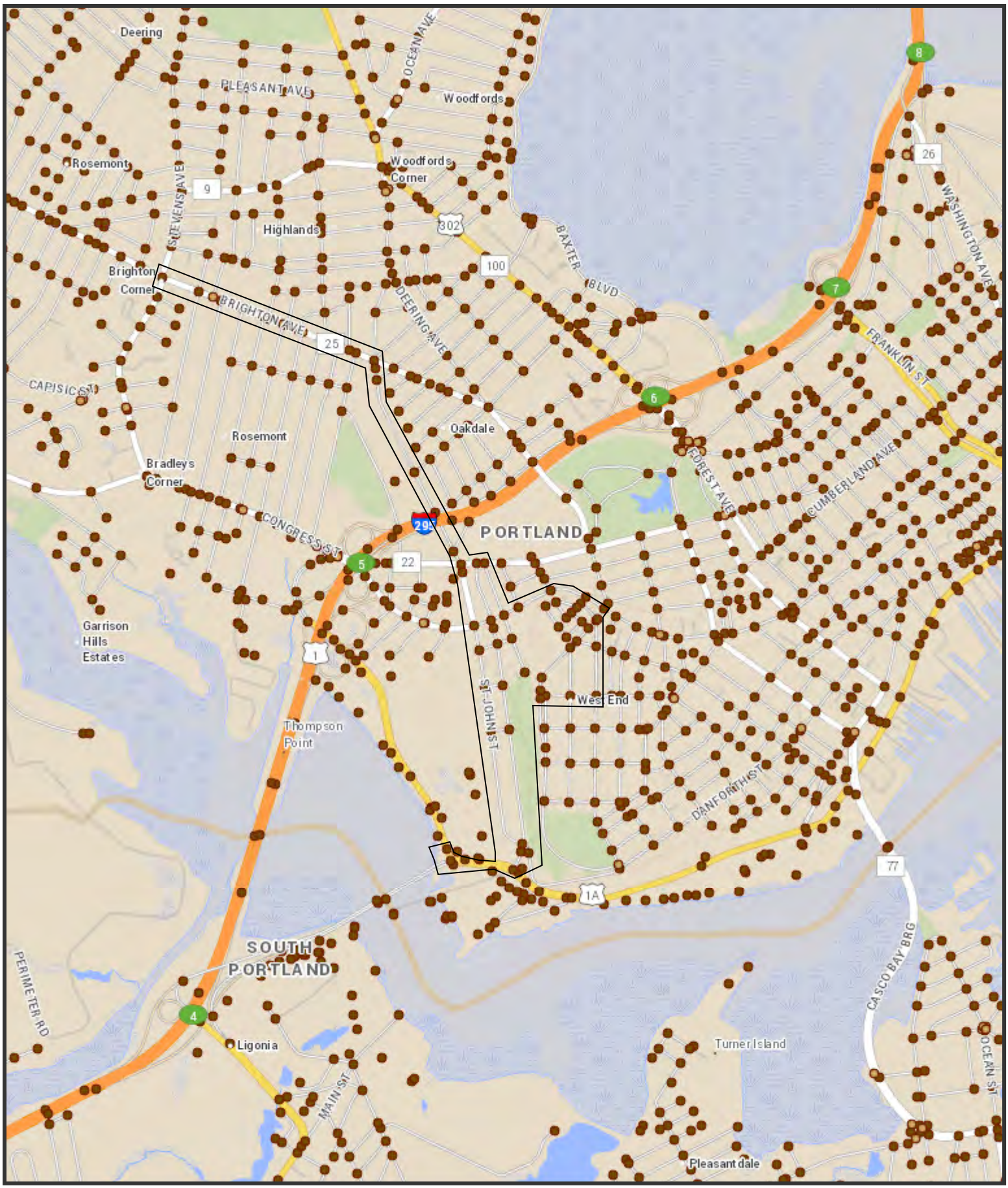
Attachment 2A

Node Map

Crash History

Collision Diagrams

PORTLAND NODE MAP PAGE 1



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0.4 Miles

1 inch = 0.45 miles

Date: 8/8/2018
Time: 4:08:26 PM

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☑ 1320 Summary

REPORT DESCRIPTION

Portland
Brighton Ave., St. John St., Congress St. Area

REPORT PARAMETERS

Year 2015, Start Month 1 through Year 2017 End Month: 12

Route: 0001A	Start Node: 66546	Start Offset: 0	☐ Exclude First Node
	End Node: 16747	End Offset: 0	☐ Exclude Last Node
Route: 001AS	Start Node: 16747	Start Offset: 0	☑ Exclude First Node
	End Node: 66542	End Offset: 0	☑ Exclude Last Node
Route: 3209586	Start Node: 66548	Start Offset: 0	☑ Exclude First Node
	End Node: 66546	End Offset: 0	☑ Exclude Last Node
Route: 3201019	Start Node: 16747	Start Offset: 0	☑ Exclude First Node
	End Node: 16753	End Offset: 0	☐ Exclude Last Node
Route: 3209776	Start Node: 16752	Start Offset: 0	☑ Exclude First Node
	End Node: 67695	End Offset: 0	☑ Exclude Last Node
Route: 0560191	Start Node: 67749	Start Offset: 0	☐ Exclude First Node
	End Node: 16748	End Offset: 0	☑ Exclude Last Node
Route: 3209812	Start Node: 67750	Start Offset: 0	☑ Exclude First Node
	End Node: 67749	End Offset: 0	☑ Exclude Last Node
Route: 0560314	Start Node: 19081	Start Offset: 0	☐ Exclude First Node
	End Node: 19079	End Offset: 0	☐ Exclude Last Node
Route: 0560001	Start Node: 19080	Start Offset: 0	☑ Exclude First Node
	End Node: 16751	End Offset: 0	☑ Exclude Last Node
Route: 0560100	Start Node: 16750	Start Offset: 0	☑ Exclude First Node
	End Node: 16763	End Offset: 0	☑ Exclude Last Node

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☑ 1320 Summary

REPORT DESCRIPTION

Portland
Brighton Ave., St. John St., Congress St. Area

REPORT PARAMETERS

Year 2015, Start Month 1 through Year 2017 End Month: 12

Route: 0560184	Start Node: 16749	Start Offset: 0	☑ Exclude First Node
	End Node: 16762	End Offset: 0	☑ Exclude Last Node
Route: 0560160	Start Node: 16825	Start Offset: 0	☐ Exclude First Node
	End Node: 18571	End Offset: 0	☑ Exclude Last Node
Route: 0560160	Start Node: 18571	Start Offset: 0	☑ Exclude First Node
	End Node: 16752	End Offset: 0	☑ Exclude Last Node
Route: 0560160	Start Node: 16752	Start Offset: 0	☑ Exclude First Node
	End Node: 16765	End Offset: 0	☑ Exclude Last Node
Route: 0560077	Start Node: 16825	Start Offset: 0	☑ Exclude First Node
	End Node: 12625	End Offset: 0	☐ Exclude Last Node
Route: 0560785	Start Node: 12751	Start Offset: 0	☑ Exclude First Node
	End Node: 12625	End Offset: 0	☑ Exclude Last Node
Route: 0560782	Start Node: 71553	Start Offset: 0	☐ Exclude First Node
	End Node: 12751	End Offset: 0	☑ Exclude Last Node
Route: 3200519	Start Node: 60369	Start Offset: 0	☑ Exclude First Node
	End Node: 71553	End Offset: 0	☑ Exclude Last Node
Route: 0560782	Start Node: 12751	Start Offset: 0	☐ Exclude First Node
	End Node: 12605	End Offset: 0	☐ Exclude Last Node
Route: 0560124	Start Node: 12602	Start Offset: 0	☑ Exclude First Node
	End Node: 12603	End Offset: 0	☑ Exclude Last Node

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☑ 1320 Summary

REPORT DESCRIPTION

Portland
Brighton Ave., St. John St., Congress St. Area

REPORT PARAMETERS

Year 2015, Start Month 1 through Year 2017 End Month: 12

Route: 0560751	Start Node: 12604	Start Offset: 0	☑ Exclude First Node
	End Node: 12605	End Offset: 0	☑ Exclude Last Node
Route: 0560071	Start Node: 19110	Start Offset: 0	☑ Exclude First Node
	End Node: 19111	End Offset: 0	☑ Exclude Last Node
Route: 0560071	Start Node: 19111	Start Offset: 0	☑ Exclude First Node
	End Node: 19112	End Offset: 0	☐ Exclude Last Node
Route: 0560128	Start Node: 19112	Start Offset: 0	☑ Exclude First Node
	End Node: 12624	End Offset: 0	☐ Exclude Last Node
Route: 0560251	Start Node: 12617	Start Offset: 0	☑ Exclude First Node
	End Node: 16826	End Offset: 0	☑ Exclude Last Node
Route: 0560633	Start Node: 12620	Start Offset: 0	☑ Exclude First Node
	End Node: 19112	End Offset: 0	☑ Exclude Last Node
Route: 0560171	Start Node: 12619	Start Offset: 0	☑ Exclude First Node
	End Node: 12624	End Offset: 0	☑ Exclude Last Node
Route: 0560780	Start Node: 12622	Start Offset: 0	☑ Exclude First Node
	End Node: 12623	End Offset: 0	☑ Exclude Last Node
Route: 0560369	Start Node: 12618	Start Offset: 0	☑ Exclude First Node
	End Node: 12621	End Offset: 0	☑ Exclude Last Node
Route: 0560076	Start Node: 18352	Start Offset: 0	☑ Exclude First Node
	End Node: 15476	End Offset: 0	☑ Exclude Last Node

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☑ 1320 Summary

REPORT DESCRIPTION

Portland
Brighton Ave., St. John St., Congress St. Area

REPORT PARAMETERS

Year 2015, Start Month 1 through Year 2017 End Month: 12

Route: 0022X	Start Node: 19079	Start Offset: 0	☑ Exclude First Node
	End Node: 16753	End Offset: 0	☑ Exclude Last Node
Route: 0022X	Start Node: 16753	Start Offset: 0	☑ Exclude First Node
	End Node: 16770	End Offset: 0	☑ Exclude Last Node
Route: 3201042	Start Node: 16748	Start Offset: 0	☑ Exclude First Node
	End Node: 16765	End Offset: 0	☐ Exclude Last Node
Route: 0022S	Start Node: 16765	Start Offset: 0	☑ Exclude First Node
	End Node: 16770	End Offset: 0	☐ Exclude Last Node
Route: 0560637	Start Node: 16770	Start Offset: 0	☑ Exclude First Node
	End Node: 12700	End Offset: 0	☑ Exclude Last Node
Route: 3210295	Start Node: 12700	Start Offset: 0	☑ Exclude First Node
	End Node: 71539	End Offset: 0	☑ Exclude Last Node
Route: 0025X	Start Node: 12700	Start Offset: 0	☐ Exclude First Node
	End Node: 12928	End Offset: 0	☐ Exclude Last Node
Route: 0560001	Start Node: 16751	Start Offset: 0	☑ Exclude First Node
	End Node: 16764	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
16747	0001A - 9.88	Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST	9	26	0	0	3	4	19	26.9	10.520	0.82	1.12	0.00
											Statewide Crash Rate:	0.74		
66542	0001A - 9.72	Int of FORE RIVER PKY VETERANS BRIDGE	9	19	0	0	1	2	16	15.8	9.400	0.67	1.14	0.00
											Statewide Crash Rate:	0.74		
66546	0001A - 9.69	Int of FORE RIVER PKY RD INV 3209586	2	0	0	0	0	0	0	0.0	3.283	0.00	0.44	0.00
											Statewide Crash Rate:	0.16		
66548	001AS - 2.59	Int of FORE RIVER PKY RD INV 3209586	2	0	0	0	0	0	0	0.0	5.449	0.00	0.38	0.00
											Statewide Crash Rate:	0.16		
16753	3201019 - 0.82	Int of PARK AV VALLEY ST	2	10	0	0	1	4	5	50.0	4.639	0.72	0.40	1.80
											Statewide Crash Rate:	0.16		
16749	3201019 - 0.37	Int of D ST VALLEY ST	2	2	0	0	0	0	2	0.0	1.357	0.49	0.55	0.00
											Statewide Crash Rate:	0.16		
16751	3201019 - 0.60	Int of A ST VALLEY ST	2	5	0	0	0	2	3	40.0	1.467	1.14	0.54	2.11
											Statewide Crash Rate:	0.16		
16748	3201019 - 0.07	Int of DANFORTH ST ST JOHN ST VALLEY ST	9	11	0	0	1	2	8	27.3	3.995	0.92	1.34	0.00
											Statewide Crash Rate:	0.74		
16750	3201019 - 0.49	Int of C ST VALLEY ST	2	1	0	0	0	0	1	0.0	1.286	0.26	0.55	0.00
											Statewide Crash Rate:	0.16		
16752	3201019 - 0.66	Int of CONGRESS ST VALLEY ST	9	9	0	0	0	1	8	11.1	5.210	0.58	1.27	0.00
											Statewide Crash Rate:	0.74		
67750	3201019 - 0.05	Int of RD INV 3209812 VALLEY ST	2	0	0	0	0	0	0	0.0	2.723	0.00	0.46	0.00
											Statewide Crash Rate:	0.16		
67695	3201019 - 0.64	Non Int VALLEY ST	2	0	0	0	0	0	0	0.0	0.480	0.00	0.67	0.00
											Statewide Crash Rate:	0.16		
67749	0560191 - 1.34	Int of DANFORTH ST RD INV 3209812	2	0	0	0	0	0	0	0.0	2.670	0.00	0.44	0.00
											Statewide Crash Rate:	0.15		
18571	0560314 - 0.17	Int of CONGRESS ST GILMAN ST	2	20	0	0	0	6	14	30.0	5.274	1.26	0.39	3.26
											Statewide Crash Rate:	0.16		
19080	0560314 - 0.10	0509500 POR,GILMAN,'A' ST.	2	0	0	0	0	0	0	0.0	0.058	0.00	-0.42	0.00
											Statewide Crash Rate:	0.14		
19081	0560314 - 0	0509501 POR,GILMAN ST,END	2	0	0	0	0	0	0	0.0	0.019	0.00	-4.47	0.00
											Statewide Crash Rate:	0.14		
19079	0560314 - 0.31	Int of GILMAN ST PARK AV	2	1	0	0	1	0	0	100.0	3.841	0.09	0.42	0.00
											Statewide Crash Rate:	0.16		
16828	0560160 - 2.23	Int of CONGRESS ST FOREST ST	2	1	0	0	0	0	1	0.0	4.848	0.07	0.40	0.00
											Statewide Crash Rate:	0.16		
16827	0560160 - 2.13	Int of CONGRESS ST WEYMOUTH ST	2	3	0	0	0	1	2	33.3	4.615	0.22	0.40	0.00
											Statewide Crash Rate:	0.16		
16825	0560160 - 1.97	Int of BRAMHALL ST CONGRESS ST DEERING AV	9	17	0	1	1	4	11	35.3	7.276	0.78	1.19	0.00
											Statewide Crash Rate:	0.74		
16826	0560160 - 2.03	Int of CONGRESS ST ELLSWORTH ST	2	3	0	0	1	0	2	33.3	4.494	0.22	0.40	0.00
											Statewide Crash Rate:	0.16		
18352	0560077 - 0.01	Int of BRAMHALL PL BRAMHALL ST	2	0	0	0	0	0	0	0.0	2.944	0.00	0.41	0.00
											Statewide Crash Rate:	0.14		

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
12625	0560077 - 0.24	Int of BRAMHALL ST WESTERN PROMENADE	2	0	0	0	0	0	0	0.0	0.386	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
12603	0560077 - 0.13	0503015 POR,BRAMHALL,BRACKETT,CHADWICK	2	0	0	0	0	0	0	0.0	0.521	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
19111	0560077 - 0.11	0509531 POR,BRACKETT,BRAMHALL ST.	2	4	0	0	1	1	2	50.0	1.973	0.68	0.45	1.50
												Statewide Crash Rate:	0.14	
12621	0560077 - 0.06	0503033 POR,BRAMHALL,HILL ST.	2	1	0	0	0	0	1	0.0	1.575	0.21	0.48	0.00
												Statewide Crash Rate:	0.14	
12604	0560077 - 0.03	0503016 POR,BRAMHALL,VAUGHN ST.	2	1	0	0	0	0	1	0.0	3.051	0.11	0.40	0.00
												Statewide Crash Rate:	0.14	
60369	0560785 - 0.62	Non Int WESTERN PROMENADE	2	0	0	0	0	0	0	0.0	0.386	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
71553	0560782 - 0	Non Int WESTERN PROMENADE	2	0	0	0	0	0	0	0.0	0.214	0.00	0.56	0.00
												Statewide Crash Rate:	0.14	
12751	0560782 - 0.01	Int of WEST ST WESTERN PROMENADE	2	0	0	0	0	0	0	0.0	0.395	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
12602	0560782 - 0.07	Int of CHADWICK ST, WEST ST	2	0	0	0	0	0	0	0.0	1.295	0.00	0.50	0.00
												Statewide Crash Rate:	0.14	
12605	0560782 - 0.14	0503017 POR,VAUGHN,WEST ST.	2	0	0	0	0	0	0	0.0	1.753	0.00	0.47	0.00
												Statewide Crash Rate:	0.14	
19110	0560751 - 0.06	0509530 POR,BRACKETT,VAUGHN ST.	2	1	0	0	1	0	0	100.0	2.274	0.15	0.44	0.00
												Statewide Crash Rate:	0.14	
19112	0560071 - 0.82	0509532 POR,CHARLES,BRACKETT ST.	2	0	0	0	0	0	0	0.0	0.843	0.00	0.55	0.00
												Statewide Crash Rate:	0.14	
12617	0560128 - 0.03	0503029 POR,ELLSWORTH,CHARLES ST.	2	0	0	0	0	0	0	0.0	0.930	0.00	0.54	0.00
												Statewide Crash Rate:	0.14	
12624	0560128 - 0.09	0503036 POR,CHARLES,CRESCENT ST.	2	1	0	0	0	0	1	0.0	0.313	1.06	0.60	1.77
												Statewide Crash Rate:	0.14	
12622	0560251 - 0.03	0503034 POR,WESCOTT,ELLSWORTH ST.	2	0	0	0	0	0	0	0.0	0.542	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
12618	0560251 - 0.05	0503030 POR,ELLSWORTH,HILL ST.	2	1	0	0	0	0	1	0.0	0.871	0.38	0.54	0.00
												Statewide Crash Rate:	0.14	
15476	0560251 - 0.08	Int of BRAMHALL PL ELLSWORTH ST	2	0	0	0	0	0	0	0.0	0.525	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
12619	0560251 - 0.07	0503031 POR,CRESCENT,ELLSWORTH ST.	2	0	0	0	0	0	0	0.0	0.537	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
12623	0560171 - 0.05	0503035 POR,CRESCENT,WESCOTT ST.	2	0	0	0	0	0	0	0.0	0.096	0.00	0.20	0.00
												Statewide Crash Rate:	0.14	
12620	0560369 - 0.03	0503032 POR,HILL,RUSSELL ST.	2	1	0	0	0	0	1	0.0	0.242	1.38	0.58	2.37
												Statewide Crash Rate:	0.14	
16763	3201042 - 0.44	Int of C ST ST JOHN ST	2	3	0	0	1	0	2	33.3	2.590	0.39	0.47	0.00
												Statewide Crash Rate:	0.16	
16762	3201042 - 0.32	Int of D ST ST JOHN ST	2	0	0	0	0	0	0	0.0	2.480	0.00	0.47	0.00
												Statewide Crash Rate:	0.16	

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
16764	3201042 - 0.54	Int of A ST ST JOHN ST	2	8	0	0	0	1	7	12.5	3.383	0.79	0.43	1.82
												Statewide Crash Rate:	0.16	
16765	3201042 - 0.60	Int of CONGRESS ST ST JOHN ST	9	25	0	1	1	3	20	20.0	11.212	0.74	1.11	0.00
												Statewide Crash Rate:	0.74	
16770	0022S - 1.04	Int of PARK AV ST JOHN ST	9	36	0	0	2	4	30	16.7	5.948	2.02	1.24	1.63
												Statewide Crash Rate:	0.74	
66777	0022S - 1.02	Non Int ST JOHN ST	2	0	0	0	0	0	0	0.0	2.639	0.00	0.46	0.00
												Statewide Crash Rate:	0.16	
12629	0560637 - 0.15	Int of GRANITE ST ST JOHN ST	2	1	0	0	0	0	1	0.0	3.175	0.10	0.44	0.00
												Statewide Crash Rate:	0.16	
12692	0560637 - 0.53	Int of DARTMOUTH ST ST JOHN ST	2	1	0	0	0	0	1	0.0	2.890	0.12	0.45	0.00
												Statewide Crash Rate:	0.16	
12695	0560637 - 0.27	Int of FALMOUTH ST ST JOHN ST	2	1	0	0	0	0	1	0.0	3.223	0.10	0.44	0.00
												Statewide Crash Rate:	0.16	
12628	0560637 - 0.04	Int of ST JOHN ST WASHBURN AV	2	0	0	0	0	0	0	0.0	3.041	0.00	0.45	0.00
												Statewide Crash Rate:	0.16	
71539	0560637 - 0.56	Non Int ST JOHN ST	2	0	0	0	0	0	0	0.0	2.745	0.00	0.46	0.00
												Statewide Crash Rate:	0.16	
12878	0025X - 1.15	Int of BRIGHTON AV MASSACHUSETTS AV	2	1	0	0	0	0	1	0.0	6.452	0.05	0.33	0.00
												Statewide Crash Rate:	0.14	
A12883	0025X - 1.20	Int of BOLTON ST BRIGHTON AV	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
A12891	0025X - 1.30	Int of BRIGHTON AV FRANCES ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
P12776	0025X - 1.26	Int of BRIGHTON AV ORLAND ST	2	3	0	0	0	0	3	0.0	6.582	0.15	0.33	0.00
												Statewide Crash Rate:	0.14	
A12892	0025X - 1.35	Int of BRIGHTON AV EDWARDS ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
12877	0025X - 1.10	Int of BRIGHTON AV DOUGLASS ST	2	7	0	0	0	0	7	0.0	6.575	0.35	0.33	1.07
												Statewide Crash Rate:	0.14	
P12899	0025X - 1.47	Int of BRIGHTON AV, CALEB ST	2	3	0	0	0	1	2	33.3	6.064	0.16	0.34	0.00
												Statewide Crash Rate:	0.14	
12928	0025X - 1.63	Int of BRIGHTON AV STEVENS AV	9	54	0	0	2	9	43	20.4	8.793	2.05	1.15	1.78
												Statewide Crash Rate:	0.74	
12779	0025X - 1.12	Int of BRIGHTON AV, ST GEORGE ST	2	0	0	0	0	0	0	0.0	6.095	0.00	0.34	0.00
												Statewide Crash Rate:	0.14	
P12782	0025X - 1.18	Int of BEACON ST, BRIGHTON AV	2	4	0	0	2	0	2	50.0	6.796	0.20	0.33	0.00
												Statewide Crash Rate:	0.14	
A12884	0025X - 1.25	Int of BRIGHTON AV WHITNEY AV	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
A12904	0025X - 1.49	Int of BRIGHTON AV HOLLIS RD	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
P12775	0025X - 1.29	Int of BRIGHTON AV, DEBLOIS ST	2	1	0	0	0	0	1	0.0	6.090	0.05	0.34	0.00
												Statewide Crash Rate:	0.14	

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
P12783	0025X - 1.34	Int of BRIGHTON AV, HIGHLAND ST	2	6	0	0	0	1	5	16.7	6.056	0.33	0.34	0.00
											Statewide Crash Rate:	0.14		
12903	0025X - 1.53	Int of BRADLEY ST, BRIGHTON AV	2	3	0	0	0	2	1	66.7	5.930	0.17	0.34	0.00
											Statewide Crash Rate:	0.14		
12898	0025X - 1.41	0503311 POR,BRIGHTON AVE,CRAIGIE ST.	2	4	0	0	0	0	4	0.0	6.112	0.22	0.34	0.00
											Statewide Crash Rate:	0.14		
12700	0025X - 1.05	Int of BRIGHTON AV DEVONSHIRE ST NOYES ST ST JOH	9	21	0	1	0	7	13	38.1	7.464	0.94	1.19	0.00
											Statewide Crash Rate:	0.74		
Study Years:	3.00	NODE TOTALS:		320	0	3	19	55	243	24.1	226.905	0.47	0.39	1.21

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
66546	66542	3508657	0 - 0.03	0001A - 9.69	0.03	2	0	0	0	0	0	0	0.0	0.00064	0.00	828.15	0.00
Int of FORE RIVER PKY RD INV 3209586				US 1A											Statewide Crash Rate: 218.56		
66542	16747	3140171	0 - 0.16	0001A - 9.72	0.16	2	3	0	0	0	1	2	33.3	0.00782	127.84	445.86	0.00
Int of FORE RIVER PKY VETERANS BRIDGE				US 1A											Statewide Crash Rate: 218.56		
16747	66548	3117394	0 - 0.13	001AS - 2.46	0.13	2	4	0	0	0	1	3	25.0	0.00708	188.21	456.26	0.00
Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST				US 1AS											Statewide Crash Rate: 218.56		
66548	66542	3121654	0 - 0.04	001AS - 2.59	0.04	2	0	0	0	0	0	0	0.0	0.00187	0.00	637.86	0.00
Int of FORE RIVER PKY RD INV 3209586				US 1AS											Statewide Crash Rate: 218.56		
66548	66546	3120374	0 - 0.06	3209586 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00046	0.00	880.08	0.00
Int of FORE RIVER PKY RD INV 3209586				RD INV 3209586											Statewide Crash Rate: 218.56		
16747	67750	3417945	0 - 0.05	3201019 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00155	0.00	669.13	0.00
Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST				RD INV 3201019											Statewide Crash Rate: 218.56		
67750	16748	3417946	0 - 0.02	3201019 - 0.05	0.02	2	0	0	0	0	0	0	0.0	0.00047	0.00	878.84	0.00
Int of RD INV 3209812 VALLEY ST				RD INV 3201019											Statewide Crash Rate: 218.56		
16748	16749	3139464	0 - 0.30	3201019 - 0.07	0.30	2	2	0	0	1	0	1	50.0	0.00383	174.05	530.31	0.00
Int of DANFORTH ST ST JOHN ST VALLEY ST				RD INV 3201019											Statewide Crash Rate: 218.56		
16749	16750	3118971	0 - 0.12	3201019 - 0.37	0.12	2	4	0	0	0	0	2	0.0	0.00148	903.57	677.99	1.33
Int of D ST VALLEY ST				RD INV 3201019											Statewide Crash Rate: 218.56		
16750	16751	3117941	0 - 0.11	3201019 - 0.49	0.11	2	8	0	0	0	2	5	28.6	0.00133	2010.83	696.66	2.89
Int of C ST VALLEY ST				RD INV 3201019											Statewide Crash Rate: 218.56		
16751	67695	3416725	0 - 0.04	3201019 - 0.60	0.04	2	1	0	0	0	0	1	0.0	0.00038	868.76	906.67	0.00
Int of A ST VALLEY ST				RD INV 3201019											Statewide Crash Rate: 218.56		
67695	16752	3508600	0 - 0.02	3201019 - 0.64	0.02	2	0	0	0	0	0	0	0.0	0.00010	0.00	726.01	0.00
Non Int VALLEY ST				RD INV 3201019											Statewide Crash Rate: 218.56		
16752	16753	3118516	0 - 0.16	3201019 - 0.66	0.16	2	2	0	0	0	0	2	0.0	0.00134	496.76	694.56	0.00
Int of CONGRESS ST VALLEY ST				RD INV 3201019											Statewide Crash Rate: 218.56		
16752	67695	3416727	0 - 0.03	3209776 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00014	0.00	893.23	0.00
Int of CONGRESS ST VALLEY ST				RD INV 3209776											Statewide Crash Rate: 218.56		
16748	67749	3417943	0 - 0.03	0560191 - 1.34	0.03	2	0	0	0	0	0	0	0.0	0.00062	0.00	696.56	0.00
Int of DANFORTH ST ST JOHN ST VALLEY ST				RD INV 05 60191											Statewide Crash Rate: 174.83		
67750	67749	3417947	0 - 0.02	3209812 - 0	0.02	2	0	0	0	0	0	0	0.0	0.00008	0.00	316.22	0.00
Int of RD INV 3209812 VALLEY ST				RD INV 3209812											Statewide Crash Rate: 174.83		
19080	19081	194795	0 - 0.10	0560314 - 0	0.10	2	5	0	0	0	0	3	0.0	0.00004	43077.45	926.59	46.49
0509500 POR,GILMAN,'A' ST.				RD INV 05 60314											Statewide Crash Rate: 407.52		
18571	19080	194101	0 - 0.07	0560314 - 0.10	0.07	2	3	0	0	0	1	2	33.3	0.00002	49542.97	-1166.96	0.00
Int of CONGRESS ST GILMAN ST				RD INV 05 60314											Statewide Crash Rate: 407.52		
18571	19079	194100	0 - 0.14	0560314 - 0.17	0.14	2	4	0	0	0	0	1	0.0	0.00023	5889.98	1666.75	3.53
Int of CONGRESS ST GILMAN ST				RD INV 05 60314											Statewide Crash Rate: 407.52		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
16751	19080	192420	0 - 0.03	0560001 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00001	0.00	-3169.30	0.00
Int of A ST VALLEY ST				RD INV 05 60001											Statewide Crash Rate: 407.52		
16750	16763	192417	0 - 0.05	0560100 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00007	0.00	1603.07	0.00
Int of C ST VALLEY ST				RD INV 05 60100											Statewide Crash Rate: 407.52		
16749	16762	192415	0 - 0.04	0560184 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00008	0.00	1693.39	0.00
Int of D ST VALLEY ST				RD INV 05 60184											Statewide Crash Rate: 407.52		
16825	16826	3106408	0 - 0.06	0560160 - 1.97	0.06	2	6	0	1	0	1	3	40.0	0.00285	701.52	571.89	1.23
Int of BRAMHALL ST CONGRESS ST DEERING AV				RD INV 05 60160											Statewide Crash Rate: 218.56		
16826	16827	3106410	0 - 0.10	0560160 - 2.03	0.10	2	4	0	0	0	1	3	25.0	0.00424	314.80	517.06	0.00
Int of CONGRESS ST ELLSWORTH ST				RD INV 05 60160											Statewide Crash Rate: 218.56		
16827	16828	3120728	0 - 0.10	0560160 - 2.13	0.10	2	10	0	0	0	2	8	20.0	0.00453	735.77	508.44	1.45
Int of CONGRESS ST WEYMOUTH ST				RD INV 05 60160											Statewide Crash Rate: 218.56		
16828	18571	3106411	0 - 0.04	0560160 - 2.23	0.04	2	4	0	0	0	1	3	25.0	0.00207	645.26	621.60	1.04
Int of CONGRESS ST FOREST ST				RD INV 05 60160											Statewide Crash Rate: 218.56		
16752	18571	3106395	0 - 0.04	0560160 - 2.27	0.04	2	3	0	0	0	0	3	0.0	0.00201	497.12	625.94	0.00
Int of CONGRESS ST VALLEY ST				RD INV 05 60160											Statewide Crash Rate: 218.56		
16752	16765	3106394	0 - 0.05	0560160 - 2.31	0.05	2	1	0	0	0	0	1	0.0	0.00222	150.41	610.42	0.00
Int of CONGRESS ST VALLEY ST				RD INV 05 60160											Statewide Crash Rate: 218.56		
16825	18352	192521	0 - 0.01	0560077 - 0	0.01	2	2	0	0	0	0	1	0.0	0.00029	2267.52	1591.62	1.42
Int of BRAMHALL ST CONGRESS ST DEERING AV				RD INV 05 60077											Statewide Crash Rate: 407.52		
12604	18352	186995	0 - 0.02	0560077 - 0.01	0.02	2	0	0	0	0	0	0	0.0	0.00058	0.00	1368.39	0.00
0503016 POR,BRAMHALL,VAUGHN ST.				RD INV 05 60077											Statewide Crash Rate: 407.52		
12604	12621	186994	0 - 0.03	0560077 - 0.03	0.03	2	1	0	0	0	0	1	0.0	0.00047	706.95	1436.70	0.00
0503016 POR,BRAMHALL,VAUGHN ST.				RD INV 05 60077											Statewide Crash Rate: 407.52		
12621	19111	187026	0 - 0.05	0560077 - 0.06	0.05	2	2	0	0	0	0	1	0.0	0.00069	963.34	1307.97	0.00
0503033 POR,BRAMHALL,HILL ST.				RD INV 05 60077											Statewide Crash Rate: 407.52		
12603	19111	186993	0 - 0.02	0560077 - 0.11	0.02	2	0	0	0	0	0	0	0.0	0.00021	0.00	1687.34	0.00
0503015 POR,BRAMHALL,BRACKETT,CHADWICK				RD INV 05 60077											Statewide Crash Rate: 407.52		
12603	12625	186992	0 - 0.11	0560077 - 0.13	0.11	2	0	0	0	0	0	0	0.0	0.00042	0.00	1472.20	0.00
0503015 POR,BRAMHALL,BRACKETT,CHADWICK				RD INV 05 60077											Statewide Crash Rate: 407.52		
60369	12751	3097430	0 - 0.02	0560785 - 0.60	0.02	2	0	0	0	0	0	0	0.0	0.00003	0.00	680.37	0.00
Non Int WESTERN PROMENADE				RD INV 05 60785											Statewide Crash Rate: 407.52		
12625	60369	2074703	0 - 0.03	0560785 - 0.62	0.03	2	0	0	0	0	0	0	0.0	0.00012	0.00	1758.24	0.00
Int of BRAMHALL ST WESTERN PROMENADE				RD INV 05 60785											Statewide Crash Rate: 407.52		
71553	12751	4047594	0 - 0.01	0560782 - 0	0.01	2	0	0	0	0	0	0	0.0	0.00002	0.00	-892.86	0.00
Non Int WESTERN PROMENADE				RD INV 05 60782											Statewide Crash Rate: 407.52		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
60369	71553	4047593	0 - 0.01	3200519 - 0	0.01	2	0	0	0	0	0	0	0.0	0.00002	0.00	-892.86	0.00
Non Int WESTERN PROMENADE				RD INV 3200519											Statewide Crash Rate: 407.52		
12602	12751	3097432	0 - 0.06	0560782 - 0.01	0.06	2	0	0	0	0	0	0	0.0	0.00020	0.00	1694.97	0.00
Int of CHADWICK ST, WEST ST				RD INV 05 60782											Statewide Crash Rate: 407.52		
12602	12605	186990	0 - 0.07	0560782 - 0.07	0.07	2	0	0	0	0	0	0	0.0	0.00052	0.00	1403.49	0.00
Int of CHADWICK ST, WEST ST				RD INV 05 60782											Statewide Crash Rate: 407.52		
12602	12603	186989	0 - 0.13	0560124 - 0.27	0.13	2	2	0	0	0	0	1	0.0	0.00091	733.68	1220.10	0.00
Int of CHADWICK ST, WEST ST				RD INV 05 60124											Statewide Crash Rate: 407.52		
12604	19110	186996	0 - 0.06	0560751 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00099	0.00	1194.44	0.00
0503016 POR,BRAMHALL,VAUGHN ST.				RD INV 05 60751											Statewide Crash Rate: 407.52		
12605	19110	186999	0 - 0.13	0560751 - 0.06	0.13	2	3	0	0	0	0	3	0.0	0.00167	598.89	1042.44	0.00
0503017 POR,VAUGHN,WEST ST.				RD INV 05 60751											Statewide Crash Rate: 407.52		
19110	19111	194832	0 - 0.06	0560071 - 0.72	0.06	2	0	0	0	0	0	0	0.0	0.00040	0.00	1492.48	0.00
0509530 POR,BRACKETT,VAUGHN ST.				RD INV 05 60071											Statewide Crash Rate: 407.52		
19111	19112	194833	0 - 0.04	0560071 - 0.78	0.04	2	0	0	0	0	0	0	0.0	0.00034	0.00	1544.01	0.00
0509531 POR,BRACKETT,BRAMHALL ST.				RD INV 05 60071											Statewide Crash Rate: 407.52		
12617	19112	187018	0 - 0.03	0560128 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00025	0.00	1640.21	0.00
0503029 POR,ELLSWORTH,CHARLES ST.				RD INV 05 60128											Statewide Crash Rate: 407.52		
12617	12624	187017	0 - 0.06	0560128 - 0.03	0.06	2	0	0	0	0	0	0	0.0	0.00034	0.00	1541.73	0.00
0503029 POR,ELLSWORTH,CHARLES ST.				RD INV 05 60128											Statewide Crash Rate: 407.52		
12617	12622	187016	0 - 0.03	0560251 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00014	0.00	1756.21	0.00
0503029 POR,ELLSWORTH,CHARLES ST.				RD INV 05 60251											Statewide Crash Rate: 407.52		
12618	12622	187021	0 - 0.02	0560251 - 0.03	0.02	2	0	0	0	0	0	0	0.0	0.00010	0.00	1739.73	0.00
0503030 POR,ELLSWORTH,HILL ST.				RD INV 05 60251											Statewide Crash Rate: 407.52		
12618	12619	187019	0 - 0.02	0560251 - 0.05	0.02	2	0	0	0	0	0	0	0.0	0.00011	0.00	1752.80	0.00
0503030 POR,ELLSWORTH,HILL ST.				RD INV 05 60251											Statewide Crash Rate: 407.52		
12619	15476	187023	0 - 0.01	0560251 - 0.07	0.01	2	0	0	0	0	0	0	0.0	0.00004	0.00	1140.14	0.00
0503031 POR,CRESCENT,ELLSWORTH ST.				RD INV 05 60251											Statewide Crash Rate: 407.52		
15476	16826	191013	0 - 0.02	0560251 - 0.08	0.02	2	0	0	0	0	0	0	0.0	0.00010	0.00	1741.07	0.00
Int of BRAMHALL PL ELLSWORTH ST				RD INV 05 60251											Statewide Crash Rate: 407.52		
12620	19112	187025	0 - 0.05	0560633 - 0	0.05	2	1	0	0	0	0	1	0.0	0.00003	11783.77	160.62	73.37
0503032 POR,HILL,RUSSELL ST.				RD INV 05 60633											Statewide Crash Rate: 407.52		
12619	12623	187022	0 - 0.05	0560171 - 0	0.05	2	1	0	0	0	0	1	0.0	0.00005	6739.79	1306.79	5.16
0503031 POR,CRESCENT,ELLSWORTH ST.				RD INV 05 60171											Statewide Crash Rate: 407.52		
12623	12624	187028	0 - 0.04	0560171 - 0.05	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-939.97	0.00
0503035 POR,CRESCENT,WESCOTT ST.				RD INV 05 60171											Statewide Crash Rate: 407.52		
12622	12623	187027	0 - 0.05	0560780 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00007	0.00	1609.51	0.00
0503034 POR,WESCOTT,ELLSWORTH ST.				RD INV 05 60780											Statewide Crash Rate: 407.52		
12618	12620	187020	0 - 0.03	0560369 - 0	0.03	2	1	0	0	0	0	1	0.0	0.00005	6302.57	1384.61	4.55
0503030 POR,ELLSWORTH,HILL ST.				RD INV 05 60369											Statewide Crash Rate: 407.52		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
12620	12621	187024	0 - 0.02	0560369 - 0.03	0.02	2	0	0	0	0	0	0	0.0	0.00004	0.00	933.70	0.00
0503032 POR,HILL,RUSSELL ST.				RD INV 05 60369											Statewide Crash Rate: 407.52		
15476	18352	191014	0 - 0.06	0560076 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00004	0.00	863.16	0.00
Int of BRAMHALL PL ELLSWORTH ST				RD INV 05 60076											Statewide Crash Rate: 407.52		
16753	19079	3122262	0 - 0.02	0022X - 0.53	0.02	2	1	0	0	0	0	1	0.0	0.00079	420.00	789.03	0.00
Int of PARK AV VALLEY ST				ST RTE 22											Statewide Crash Rate: 218.56		
16753	16770	4338968	0 - 0.02	0022X - 0.55	0.02	2	1	0	0	0	0	1	0.0	0.00073	458.87	804.91	0.00
Int of PARK AV VALLEY ST				ST RTE 22											Statewide Crash Rate: 218.56		
16753	16770	4338968	0.02 - 0.04	0022X - 0.57	0.02	2	0	0	0	0	0	0	0.0	0.00073	0.00	804.91	0.00
Int of PARK AV VALLEY ST				ST RTE 22											Statewide Crash Rate: 218.56		
16748	16762	3944344	0 - 0.06	3201042 - 0	0.06	2	2	0	0	1	0	1	50.0	0.00139	478.71	688.07	0.00
Int of DANFORTH ST ST JOHN ST VALLEY ST				RD INV 3201042											Statewide Crash Rate: 218.56		
16748	16762	3944344	0.06 - 0.32	3201042 - 0.06	0.26	2	2	0	0	1	0	1	50.0	0.00603	110.47	473.98	0.00
Int of DANFORTH ST ST JOHN ST VALLEY ST				RD INV 3201042											Statewide Crash Rate: 218.56		
16762	16763	3120382	0 - 0.12	3201042 - 0.32	0.12	2	5	0	0	0	0	4	0.0	0.00292	571.18	568.48	1.00
Int of D ST ST JOHN ST				RD INV 3201042											Statewide Crash Rate: 218.56		
16763	16764	3119255	0 - 0.10	3201042 - 0.44	0.10	2	4	0	0	0	0	4	0.0	0.00261	510.48	584.97	0.00
Int of C ST ST JOHN ST				RD INV 3201042											Statewide Crash Rate: 218.56		
16764	16765	3106397	0 - 0.06	3201042 - 0.54	0.06	2	0	0	0	0	0	0	0.0	0.00206	0.00	622.08	0.00
Int of A ST ST JOHN ST				RD INV 3201042											Statewide Crash Rate: 218.56		
16765	66777	3155094	0 - 0.14	0022S - 0.88	0.14	2	30	0	0	0	6	23	20.7	0.00739	1353.16	451.78	3.00
Int of CONGRESS ST ST JOHN ST				ST RTE 22S											Statewide Crash Rate: 218.56		
66777	16770	3154475	0 - 0.02	0022S - 1.02	0.02	2	0	0	0	0	0	0	0.0	0.00106	0.00	737.39	0.00
Non Int ST JOHN ST				ST RTE 22S											Statewide Crash Rate: 218.56		
12628	16770	3122179	0 - 0.04	0560637 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00119	0.00	715.26	0.00
Int of ST JOHN ST WASHBURN AV				RD INV 05 60637											Statewide Crash Rate: 218.56		
12628	12629	3131531	0 - 0.11	0560637 - 0.04	0.11	2	3	0	0	0	1	2	33.3	0.00338	296.12	547.57	0.00
Int of ST JOHN ST WASHBURN AV				RD INV 05 60637											Statewide Crash Rate: 218.56		
12629	12695	3120379	0 - 0.12	0560637 - 0.15	0.12	2	3	0	0	1	0	2	33.3	0.00376	265.69	532.67	0.00
Int of GRANITE ST ST JOHN ST				RD INV 05 60637											Statewide Crash Rate: 218.56		
12692	12695	3129248	0 - 0.26	0560637 - 0.27	0.26	2	6	0	0	1	1	4	33.3	0.00751	266.16	450.03	0.00
Int of DARTMOUTH ST ST JOHN ST				RD INV 05 60637											Statewide Crash Rate: 218.56		
12692	71539	4047229	0 - 0.03	0560637 - 0.53	0.03	2	0	0	0	0	0	0	0.0	0.00079	0.00	790.98	0.00
Int of DARTMOUTH ST ST JOHN ST				RD INV 05 60637											Statewide Crash Rate: 218.56		
71539	12700	4047230	0 - 0.02	0560637 - 0.56	0.02	2	0	0	0	0	0	0	0.0	0.00024	0.00	943.59	0.00
Non Int ST JOHN ST				RD INV 05 60637											Statewide Crash Rate: 218.56		
12700	71539	4047231	0 - 0.02	3210295 - 0	0.02	2	0	0	0	0	0	0	0.0	0.00029	0.00	935.64	0.00
Int of BRIGHTON AV DEVONSHIRE ST NOYES ST ST JOHN ST				RD INV 3210295											Statewide Crash Rate: 218.56		
12700	12877	3944348	0 - 0.05	0025X - 1.05	0.05	2	8	1	0	0	2	5	37.5	0.00320	833.87	525.54	1.59
Int of BRIGHTON AV DEVONSHIRE ST NOYES				ST RTE 25											Statewide Crash Rate: 202.97		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
ST ST JOHN ST																	
12779	12877	3120098	0 - 0.02	0025X - 1.10	0.02	2	1	0	0	0	1	0	100.0	0.00121	275.34	674.27	0.00
Int of BRIGHTON AV, ST GEORGE ST				ST RTE 25											Statewide Crash Rate: 202.97		
12779	12878	3129250	0 - 0.03	0025X - 1.12	0.03	2	2	0	0	0	0	2	0.0	0.00181	368.03	608.80	0.00
Int of BRIGHTON AV, ST GEORGE ST				ST RTE 25											Statewide Crash Rate: 202.97		
12782	12878	3131537	0 - 0.03	0025X - 1.15	0.03	2	3	0	0	0	2	1	66.7	0.00200	501.20	593.80	0.00
Int of BEACON ST, BRIGHTON AV				ST RTE 25											Statewide Crash Rate: 202.97		
12782	12883	3120099	0 - 0.02	0025X - 1.18	0.02	2	0	0	0	0	0	0	0.0	0.00129	0.00	663.59	0.00
Int of BEACON ST, BRIGHTON AV				ST RTE 25											Statewide Crash Rate: 202.97		
12883	12884	3123616	0 - 0.05	0025X - 1.20	0.05	2	0	0	0	0	0	0	0.0	0.00318	0.00	526.41	0.00
Int of BOLTON ST BRIGHTON AV				ST RTE 25											Statewide Crash Rate: 202.97		
12776	12884	3122184	0 - 0.01	0025X - 1.25	0.01	2	0	0	0	0	0	0	0.0	0.00064	0.00	779.59	0.00
Int of BRIGHTON AV ORLAND ST				ST RTE 25											Statewide Crash Rate: 202.97		
12775	12776	3106212	0 - 0.03	0025X - 1.26	0.03	2	2	0	0	0	1	1	50.0	0.00191	349.34	600.67	0.00
Int of BRIGHTON AV, DEBLOIS ST				ST RTE 25											Statewide Crash Rate: 202.97		
12775	12891	3123710	0 - 0.01	0025X - 1.29	0.01	2	0	0	0	0	0	0	0.0	0.00056	0.00	799.93	0.00
Int of BRIGHTON AV, DEBLOIS ST				ST RTE 25											Statewide Crash Rate: 202.97		
12783	12891	3123925	0 - 0.04	0025X - 1.30	0.04	2	1	0	0	0	1	0	100.0	0.00224	148.49	575.94	0.00
Int of BRIGHTON AV, HIGHLAND ST				ST RTE 25											Statewide Crash Rate: 202.97		
12783	12892	3131538	0 - 0.01	0025X - 1.34	0.01	2	0	0	0	0	0	0	0.0	0.00061	0.00	788.53	0.00
Int of BRIGHTON AV, HIGHLAND ST				ST RTE 25											Statewide Crash Rate: 202.97		
12892	12898	187491	0 - 0.06	0025X - 1.35	0.06	2	2	0	0	0	0	2	0.0	0.00362	183.97	508.96	0.00
Int of BRIGHTON AV EDWARDS ST				ST RTE 25											Statewide Crash Rate: 202.97		
12898	12899	187501	0 - 0.06	0025X - 1.41	0.06	2	4	0	0	0	1	3	25.0	0.00361	369.75	509.60	0.00
0503311 POR,BRIGHTON AVE,CRAIGIE ST.				ST RTE 25											Statewide Crash Rate: 202.97		
12899	12904	3131543	0 - 0.02	0025X - 1.47	0.02	2	1	0	0	0	1	0	100.0	0.00117	285.32	680.22	0.00
Int of BRIGHTON AV, CALEB ST				ST RTE 25											Statewide Crash Rate: 202.97		
12903	12904	3106229	0 - 0.04	0025X - 1.49	0.04	2	1	1	0	0	0	0	100.0	0.00233	142.84	570.17	0.00
Int of BRADLEY ST, BRIGHTON AV				ST RTE 25											Statewide Crash Rate: 202.97		
12903	12928	3131544	0 - 0.10	0025X - 1.53	0.10	2	1	0	0	0	0	1	0.0	0.00581	57.38	452.28	0.00
Int of BRADLEY ST, BRIGHTON AV				ST RTE 25											Statewide Crash Rate: 202.97		
16751	16764	192419	0 - 0.05	0560001 - 0.03	0.05	2	5	0	0	0	0	4	0.0	0.00036	4631.04	1527.03	3.03
Int of A ST VALLEY ST				RD INV 05 60001											Statewide Crash Rate: 407.52		
Study Years: 3.00				Section Totals:	5.54		165	2	1	5	27	115	21.2	0.13524	406.69	288.24	1.41
				Grand Totals:	5.54		485	2	4	24	82	358	23.1	0.13524	1195.42	406.85	2.94

COLLISION DIAGRAM

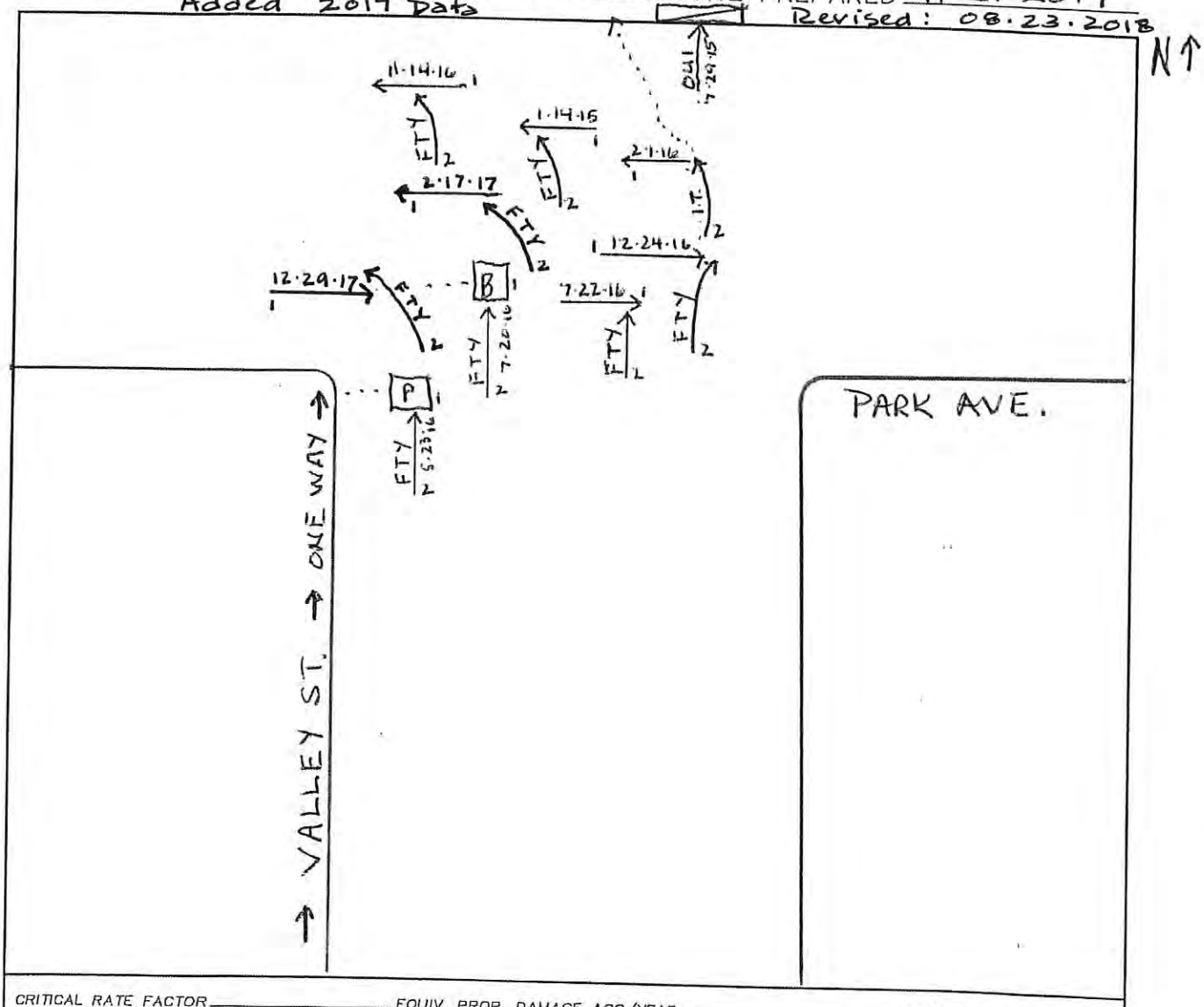
SHEET 1 OF 2

LOCATION Intersection of Park Avenue & Valley Street

TOWN Portland, Maine NODE NO(S) 16753

YEARS REVIEWED 2014 - 2016 DATE PREPARED 11.21.2017

Added 2017 Data Revised: 08.23.2018



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS 20. OTHER VISION OBSCUREMENT
30. OTHER HUMAN VIOLATION FACTOR 31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
OR FACTOR 51. UNKNOWN

SYMBOLS

ANGLE	→	PEDESTRIAN	→ P	FATAL ACCIDENT	●
BACKING	→←	REAR END	→|		
FIXED OBJECT	→□	SIDE SWIPE	⇉	VEHICLE (MOVING)	→
HEAD ON	→|←	TURNING MOVE	↱	BICYCLE	- - - B
OVERTURN	→○	CHANGE LANE	⇉	ANIMAL	- - - A
PARKED VEHICLE	▨	OUT OF CONTROL	∿→	SLED	- - - S

WEATHER
C - CLEAR
SL - SLEET
F - FOG
S - SNOW
R - RAIN
CL - CLOUDY
XW - CROSS WINDS

INJURIES
K - FATAL
A - INCAPACITATING
B - NON-INCAPACITATING
C - POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION Intersection of Park Avenue & Valley Street

TOWN Portland, Maine NODE NO(S) 16753

YEARS REVIEWED 2014 - 2016 DATE PREPARED 11.21.2017

Added 2017 Data Revised: 08.23.2018

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
15-0190	01.14.15	12:40					2	2	2	
15.2555	07.29.15	17:30					2	1	14/17	OWI
16.0371	02.01.16	14:50					2	1	10	
16.1541	05.23.16	22:02				1	5	1	2	
16.2240	07.20.16	17:24			1		2	1	2	
16.2272	07.22.16	13:48				1	2	1	2	
16.3509	11.14.16	12:20					2	1	2	
16.3941	12.24.16	11:10				1	2	2	2	
17.0600	02.17.17	09:14					2	1	2	
17.4129	12.29.17	13:09				1	2	1	2	

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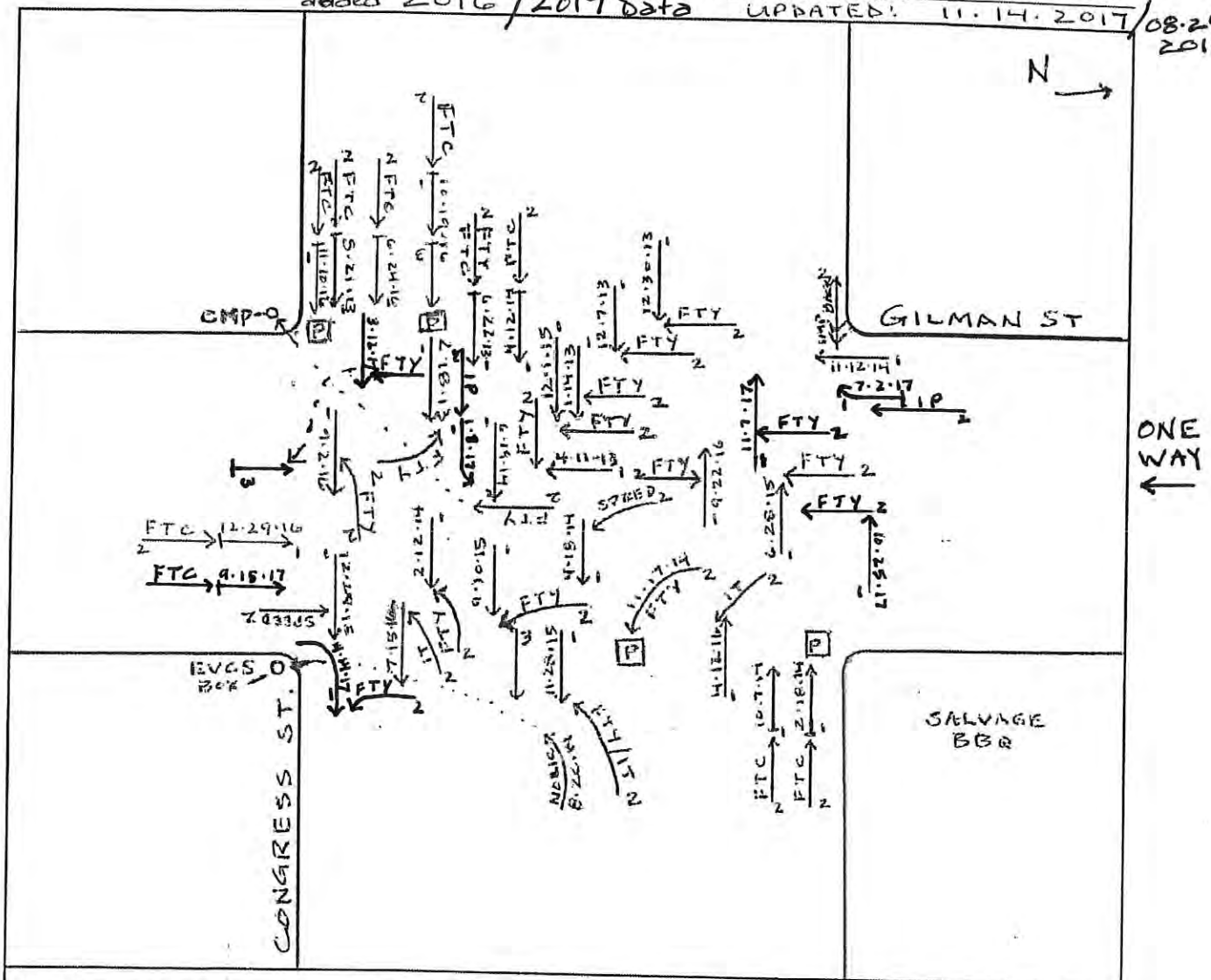
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Intersection of Congress Street & Gilman Street

TOWN Portland, Maine NODE NO(S) 18571

YEARS REVIEWED 2013 - 2015 added 2016/2017 Data DATE PREPARED 10·24·2016 UPDATED: 11·14·2017/08·24·2018



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE

1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN

1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR

41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE	PEDESTRIAN	FATAL ACCIDENT
BACKING	REAR END	
FIXED OBJECT	SIDE SWIPE	VEHICLE (MOVING)
HEAD ON	TURNING MOVE	BICYCLE
OVERTURN	CHANGE LANE	ANIMAL
PARKED VEHICLE	OUT OF CONTROL	SLED

WEATHER

C - CLEAR
SL - SLEET
F - FOG
S - SNOW
R - RAIN
CL - CLOUDY
XW - CROSS WINDS

INJURIES

K - FATAL
A - INCAPACITATING
B - NON-INCAPACITATING
C - POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION Intersection of Congress Street & Gilman Street

TOWN Portland, Maine NODE NO(S) 18571

YEARS REVIEWED 2013 - 2015 DATE PREPARED 10.24.2016
added 2016/2017 DATA UPDATED: 11.14.2017 / 08.24.2018

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
13.169	01.14.13	16:15					2	1	2	
13.609	02.18.13	21:00				1	4	1	2	
13.1153	04.11.13	12:40					2	1	2	
13.1780	06.22.13	12:13				1	2	1	2/4	
13.2344	08.21.13	14:08					2	1	4	
13.3531	12.07.13	10:11				1	2	2	2/19	SMV
13.3827	12.30.13	11:43					2	2	2	
14.538	02.12.14	14:50					2	1	2	
14.631	02.18.14	12:10					2	1	4	Pedestrian
14.1194	04.12.14	12:30					2	1	4/14	
14.1243	04.18.14	11:10					2	1	3	
14.1789	06.19.14	23:45					4	1	2	
14.2519	08.26.14	14:54					2	1	15/30	NO LICENSE NO INSURANCE
14.2955	10.07.14	13:14					2	1	4	
14.3344	11.12.14	18:49					4	1	11	
14.3389	11.17.14	17:15				1	5	2	2	Pedestrian
15.2214	06.28.15	13:00					2	2	2	
15.3054	09.10.15	20:16					4	1	2	
15.3961	11.28.15	12:30					2	1	2/10	
15.3994	12.01.15	16:00					2	2	2	
15.4357	12.29.15	15:00					2	3	3	
16.1134	04.12.16	14:24					2	2	10	
16.1930	06.24.16	18:38					2	1	4	
16.2178	07.15.16	12:20					2	1	10	
16.2693	09.02.16	08:43					2	1	2	No License
16.2932	09.22.16	12:59				1	2	1	2	
16.3228	10.19.16	10:51				1	2	1	4	
16.3480	11.10.16	11:35				1	2	1	4	
16.3991	12.29.16	16:41					4	3	4	
17.0081	01.08.17	17:32					4	2	12	
17.0882	03.12.17	12:00				2	2	1	2	
17.1262	04.14.17	10:30					2	1	2	
17.2092	07.02.17	18:00					2	1	12	
17.2941	09.15.17	11:15				1	2	1	4	
17.3359	10.25.17	04:42					4	2	2	
17.3493	11.07.17	08:12				1	2	1	2	

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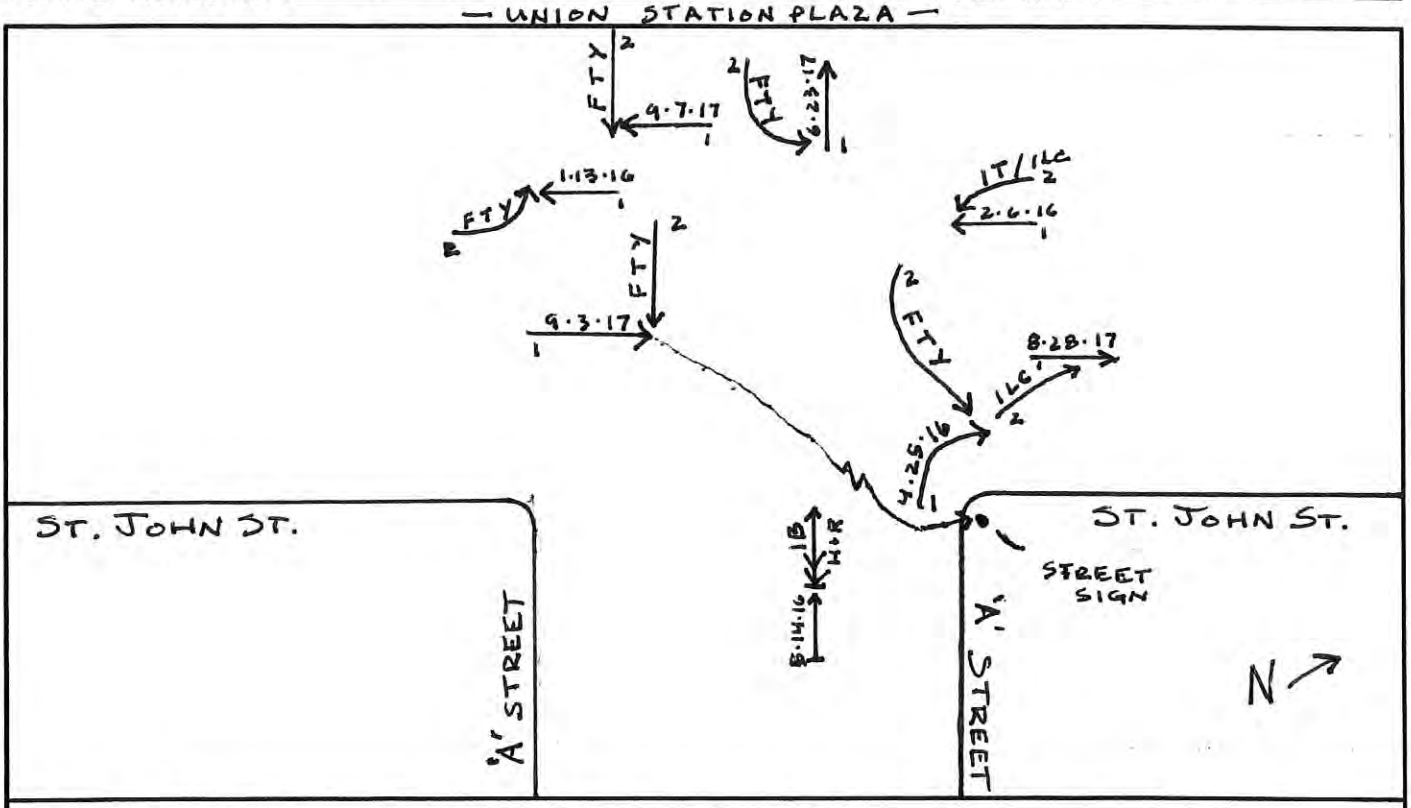
COLLISION DIAGRAM

SHEET 1 OF 1

LOCATION St. John Street / 'A' Street

TOWN Portland, Maine NODE NO(S) 16764

YEARS REVIEWED 2015 to 2017 DATE PREPARED 08·24·2018



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS – HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

– VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE	PEDESTRIAN P	FATAL ACCIDENT
BACKING	REAR END	
FIXED OBJECT	SIDE SWIPE	VEHICLE (MOVING)
HEAD ON	TURNING MOVE	BICYCLE B
OVERTURN	CHANGE LANE	ANIMAL A
PARKED VEHICLE	OUT OF CONTROL	SLED S

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
16·0134	01·13·16	07:06					2	3	2/14	
16·0455	02·06·16	16:24					2	2	8/10	
16·1232	04·25·16	17:06					2	1	2	
16·1433	05·14·16	12:25					2	1	11/31	
17·2019	06·23·17	12:06					2	1	2/14	
17·2741	08·28·17	14:26					2	1	8	
17·2808	09·03·17	18:24				3	3	2	2/3	
17·2844	09·07·17	17:58					2	1	2	

S:/SHEETS/COLLISION DIAGRAM.DWG

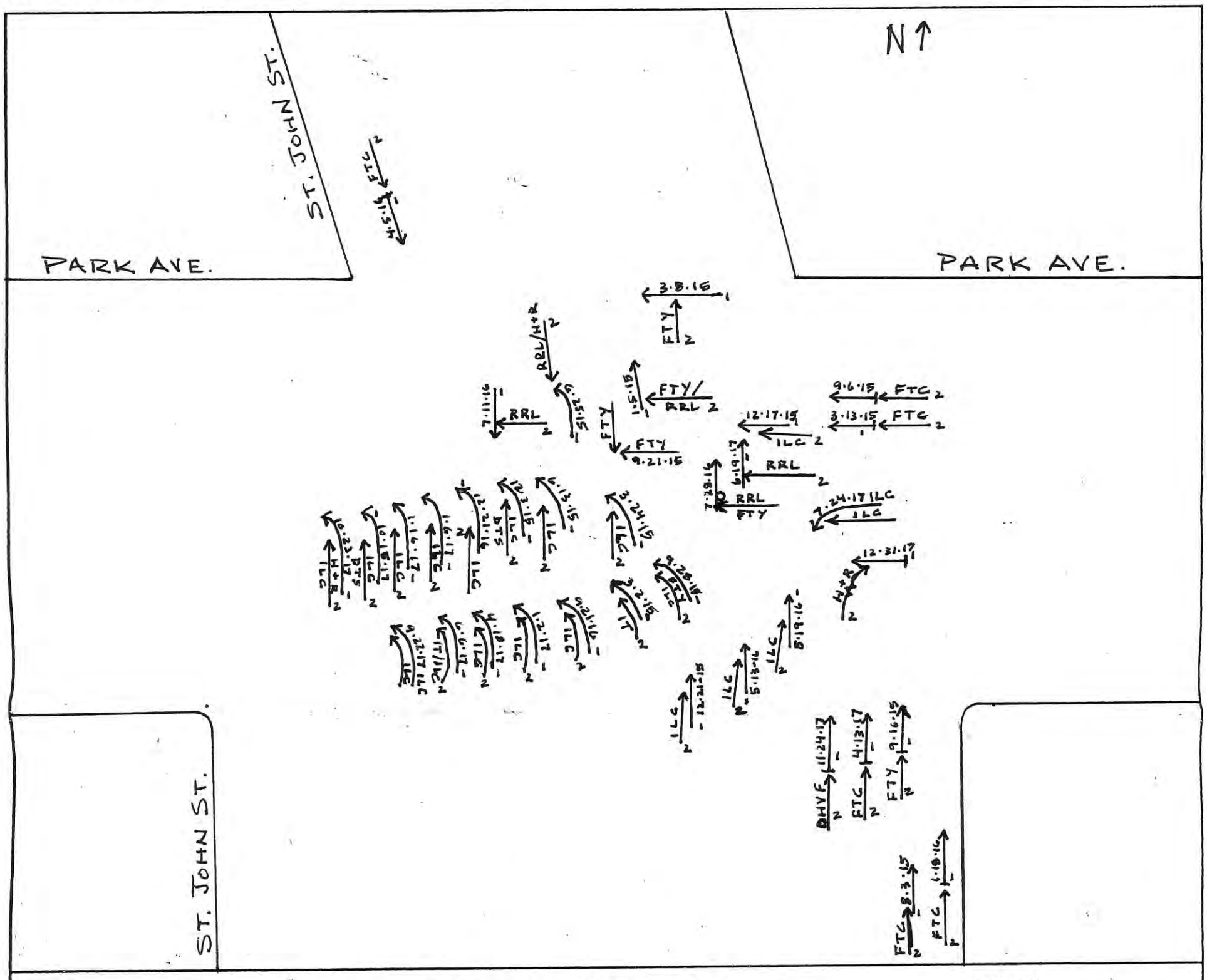
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Park Avenue / St. John Street

TOWN Portland, Maine NODE NO(S) 16770

YEARS REVIEWED 2015 to 2017 DATE PREPARED 08.22.2018



CRITICAL RATE FACTOR EQUIV. PROP. DAMAGE ACC/YEAR ACC/MEV

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH–SANDED
4. ICE/PACKED SNOW–SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH–NOT SANDED 9. ICE–PKD. SNOW–NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS – HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER–NO PASSING 7. IMPROPER PASS–OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION–DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED–WINDSHIELD GLASS
19. VISION OBSCURED–SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

– VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE		PEDESTRIAN	P	FATAL ACCIDENT	
BACKING		REAR END			
FIXED OBJECT		SIDE SWIPE		VEHICLE (MOVING)	
HEAD ON		TURNING MOVE		BICYCLE	B
OVERTURN		CHANGE LANE		ANIMAL	A
PARKED VEHICLE		OUT OF CONTROL		SLED	S

WEATHER
C – CLEAR F – FOG R – RAIN
SL – SLEET S – SNOW CL – CLOUDY
XW – CROSS WINDS

INJURIES
K – FATAL B – NON–INCAPACITATING
A – INCAPACITATING C – POSSIBLE INJURY

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2866.01

COLLISION DIAGRAM

LOCATION Park Avenue / St. John Street

TOWN Portland, Maine NODE NO(S) 16770

YEARS REVIEWED 2015 to 2017 DATE PREPARED 08·22·2018

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
15·0051	01·05·15	15:28			3		2	3	2/5	
15·1037	03·02·15	20:45					4	1	10	
15·1106	03·08·15	11:39				2	2	1	2/5	
15·1164	03·13·15	13:58				2	2	1	2/4	
15·1273	03·24·15	15:30					2	1	8	
15·2027	06·13·15	16:42					2	1	8/10	
15·2184	06·25·15	18:55					2	1	31	
15·2605	08·03·15	17:20					2	1	4	
15·3014	09·26·15	14:31					2	1	4/14	
15·3110	09·16·15	14:28				1	2	1	2/14	
15·3164	09·21·15	05:36					1	1	2	
15·3253	09·28·15	10:29					2	1	8/10	
15·4031	12·03·15	17:09					4	2	5	
15·4211	12·17·15	14:58					2	2	8	
15·4278	12·21·15	20:35					4	1	8	
16·0208	01·18·16	15:00					2	3	3/4	
16·1078	04·05·16	15:42					2	1	4	
16·1420	05·13·16	13:17					2	1	8	
16·1502	05·19·16	17:32					2	1	8	
16·2107	07·11·16	13:10					2	1	5	
16·2341	07·28·16	20:06				2	3	1	2/5/14	
16·2921	09·21·16	16:33					2	1	8	
16·3906	12·21·16	12:47					2	1	8	
17·0012	01·02·17	20:30					4	1	8	
17·0060	01·06·17	16:37					4	1	8	
17·0158	01·16·17	16:56					4	1	8	
17·1251	04·13·17	13:08					2	1	4	
17·1302	04·18·17	19:06					4	1	8	
17·1827	06·06·17	12:46					2	2	10	
17·1966	06·19·17	15:37					2	1	5	
17·2353	07·24·17	13:10					2	2	5	
17·3010	09·22·17	16:25					2	1	8	
17·3241	10·15·17	14:25					2	1	5	
17·3340	10·23·17	13:13					2	1	8/31	
17·3674	11·24·17	23:27			1	1	4	1	30	
17·4166	12·31·17	20:40					4	1	3/10/31	

S:/SHEETS/COLLISION DIAGRAM.DWG

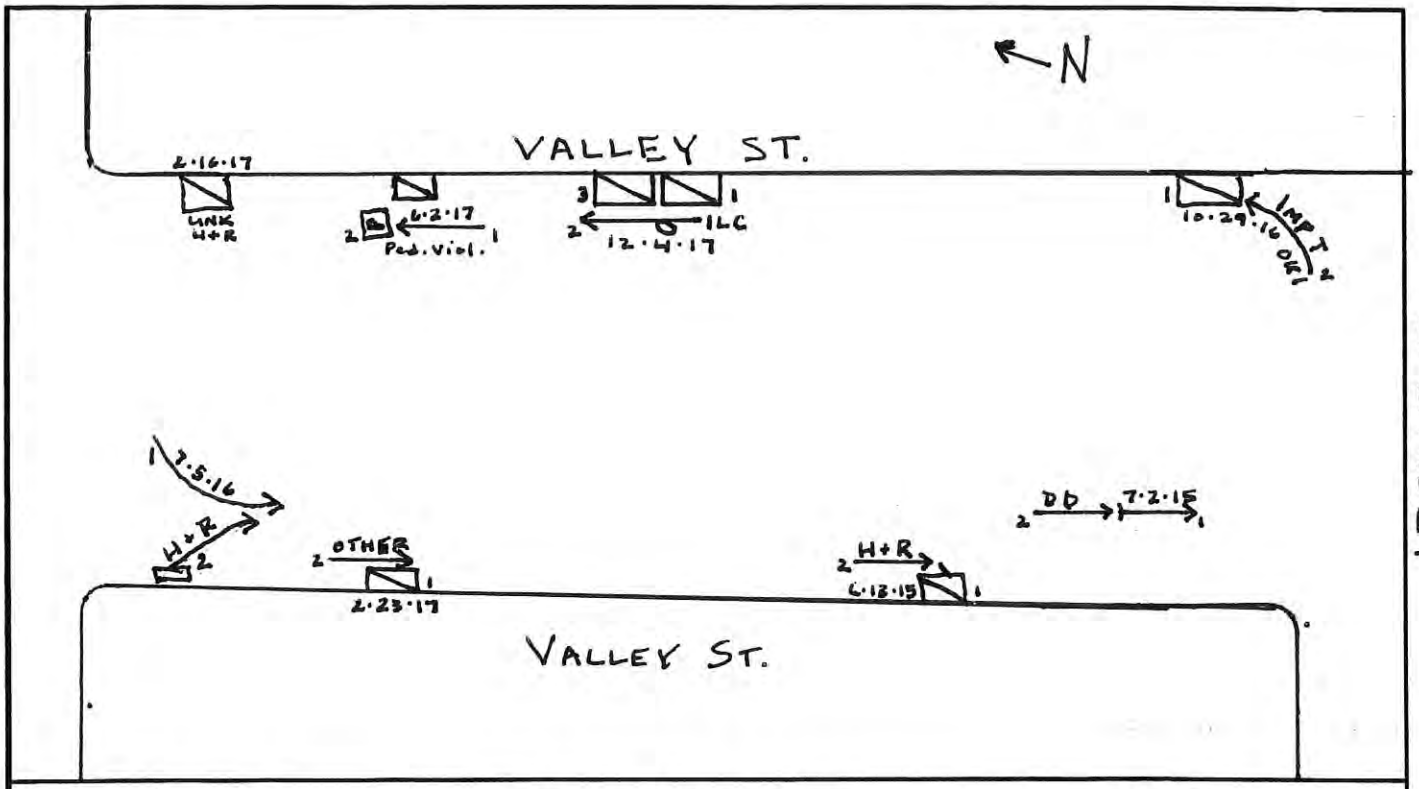
COLLISION DIAGRAM

SHEET 1 OF 1

LOCATION Valley St. from 'A' Street to 'C' Street

TOWN Portland, Maine NODE NO(S) 16750 to 16751

YEARS REVIEWED 2015 to 2017 DATE PREPARED 08.24.2018



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE		PEDESTRIAN	P	FATAL ACCIDENT	●
BACKING		REAR END			
FIXED OBJECT	□	SIDE SWIPE		VEHICLE (MOVING)	
HEAD ON		TURNING MOVE		BICYCLE	B
OVERTURN		CHANGE LANE		ANIMAL	A
PARKED VEHICLE		OUT OF CONTROL		SLED	S

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
15.2037	06.13.15	21:30				1	4	1	31	
15.2268	07.02.15	08:00					2	1	14	
16.2031	07.05.16	07:14					2	1	31	
16.3334	10.29.16	01:17					4	1	10/17	
17.0609	02.16.17	20:00					4	1	31	
17.0710	02.23.17	17:20					2	1	30	
17.1786	06.02.17	06:55					2	1	16	Pedestrian
17.3754	12.04.17	08:36					2	1	8/14	

S:/SHEETS/COLLISION DIAGRAM.DWG

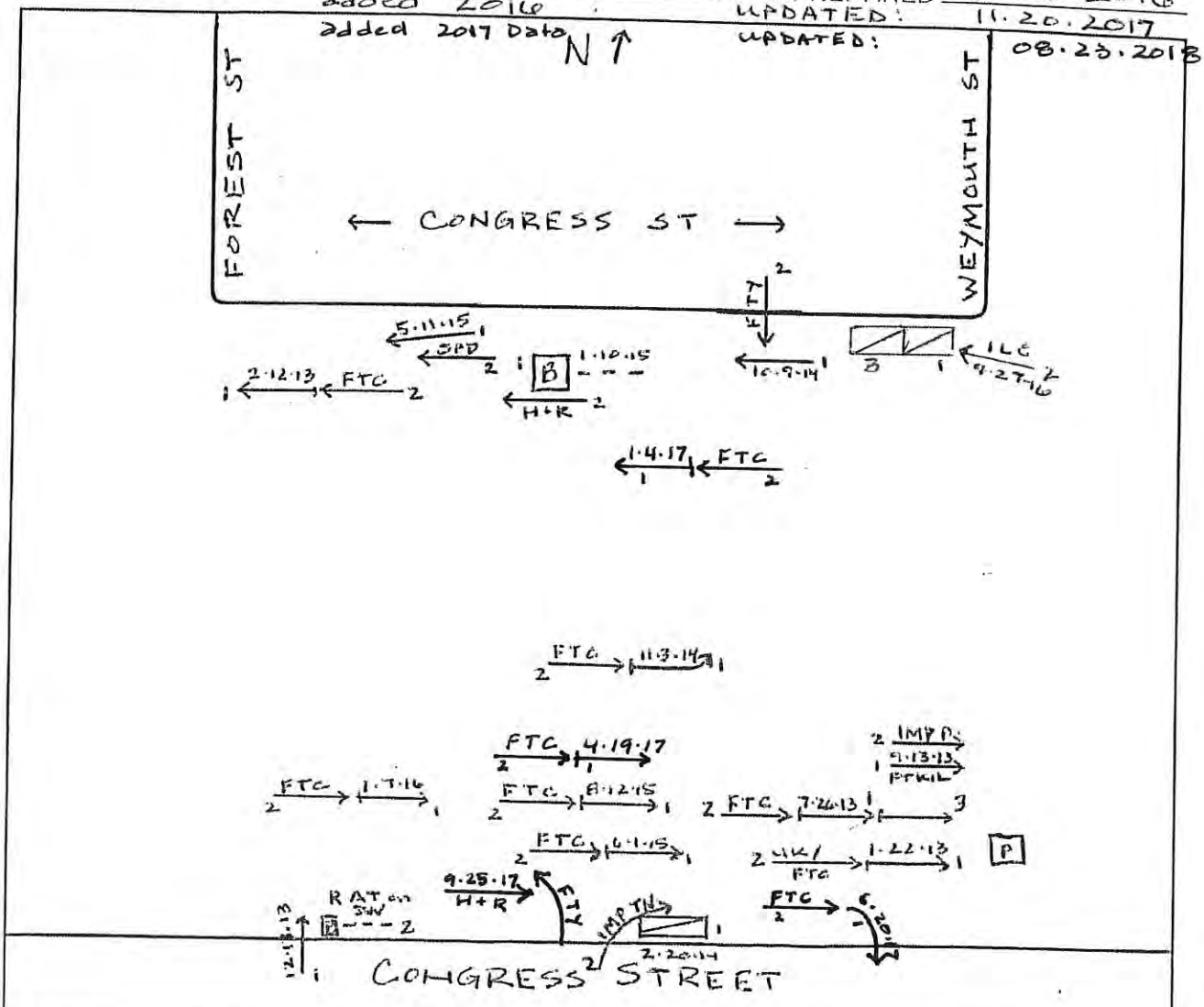
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION Congress Street - Forest to Weymouth Street

TOWN Portland, Maine — NODE NO(S) 16827 to 16828

YEARS REVIEWED 2013 - 2015 added 2016 added 2017 Data — DATE PREPARED 10.25.2016 UPDATED: 11.20.2017 UPDATED: 08.23.2018



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE-PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER-NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION-DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED-WINDSHIELD GLASS
19. VISION OBSCURED-SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
OR FACTOR 51. UNKNOWN

SYMBOLS
ANGLE, BACKING, FIXED OBJECT, HEAD ON, OVERTURN, PARKED VEHICLE, PEDESTRIAN, REAR END, SIDE SWIPE, TURNING MOVE, CHANGE LANE, OUT OF CONTROL, FATAL ACCIDENT, VEHICLE (MOVING), BICYCLE (B), ANIMAL (A), SLED (S)

WEATHER
C - CLEAR
SL - SLEET
F - FOG
S - SNOW
R - RAIN
CL - CLOUDY
XW - CROSS WINDS

INJURIES
K - FATAL
A - INCAPACITATING
B - NON-INCAPACITATING
C - POSSIBLE INJURY

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION Congress Street - Forest to Weymouth Street

TOWN Portland, Maine NODE NO(S) 16827 to 16828

YEARS REVIEWED 2013 - 2015 DATE PREPARED 10.25.2016

added 2017 Data added 2016 UPDATED: 11.20.2017 / 08.23.2018

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
13.272	01.22.13	11:55					2	1	51	Pedestrian
13.525	02.12.13	11:50					2	1	4	
13.2108	07.26.13	15:35				1	2	1	4	
13.2604	09.13.13	22:03					4	2	7/8	
13.3610	12.13.13	13:33					2	1	16	Bicyclist
14.710	02.20.14	16:15					2	2	10	
14.2975	10.09.14	13:43					2	1	2	
14.3295	11.03.14	14:38					2	2	4	
15.125	01.10.15	20:40				1	4	3	31	Hit + Run Bicyclist
15.1725	05.11.15	16:35					2	1	3	
15.1925	06.01.15	14:55					2	2	4	
15.2704	08.12.15	15:02					2	1	4	
16.0071	01.07.16	16:28					4	1	4	
16.2980	09.27.16	10:36					2	1	8	
17.0029	01.04.17	13:50					2	1	4	
17.1307	04.19.17	08:01					2	1	4	
17.1971	06.20.17	08:00					2	1	4	
17.3033	09.25.17	20:20					4	1	2	

S:/SHEETS/COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

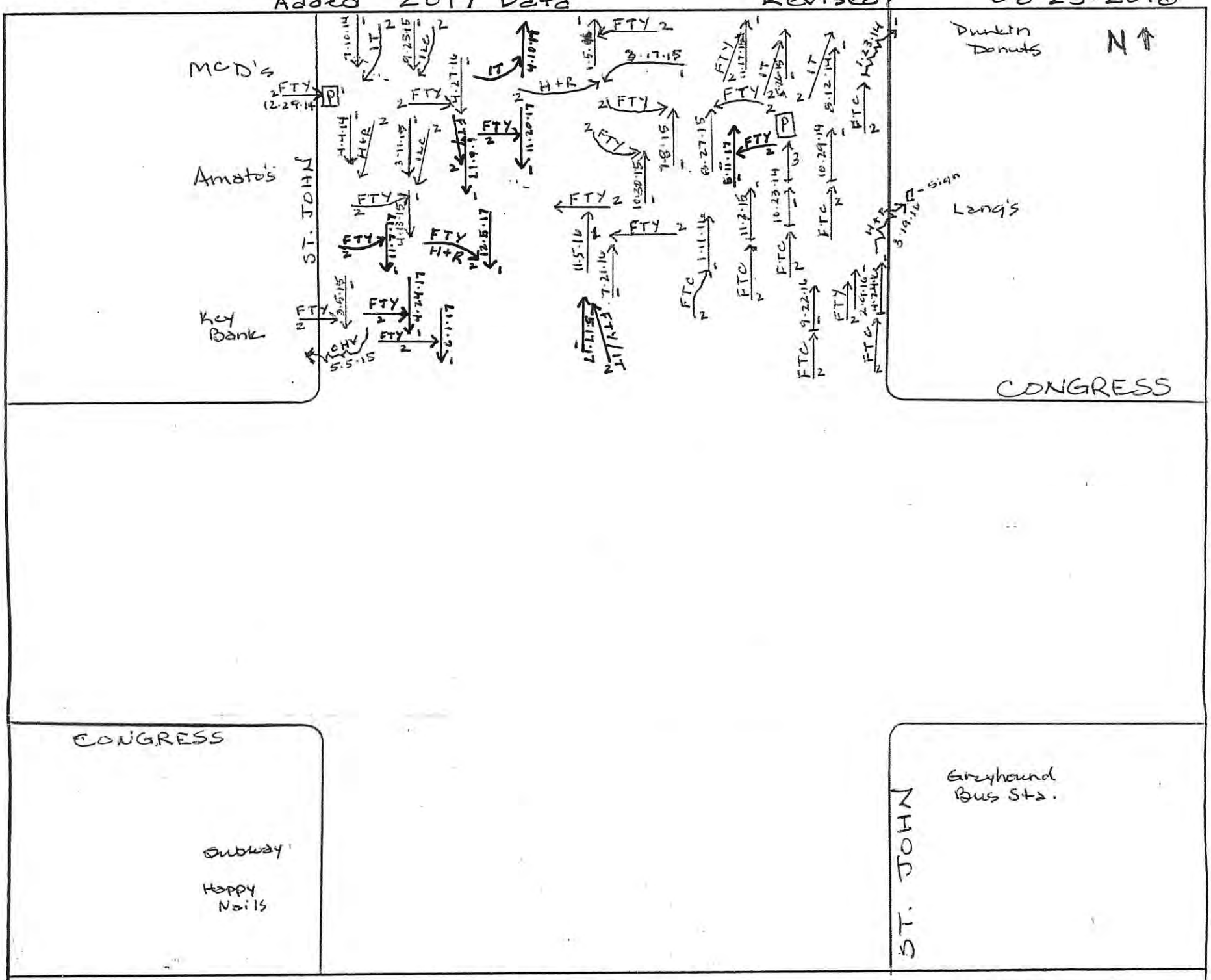
SHEET 1 OF 3

LOCATION Intersection of Congress Street & St. John Street

TOWN Portland, Maine NODE NO(S) 16765 - 66777

YEARS REVIEWED 2014 - 2016 DATE PREPARED 11.21.2017

Added 2017 Data Revised: 08.23.2018



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT

1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE

1. DRY 2. WET 3. SNOW/SLUSH–SANDED
4. ICE/PACKED SNOW–SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH–NOT SANDED 9. ICE–PKD. SNOW–NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS – HUMAN

1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER–NO PASSING 7. IMPROPER PASS–OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION–DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED–WINDSHIELD GLASS
19. VISION OBSCURED–SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

– VEHICULAR

41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE, PEDESTRIAN, FATAL ACCIDENT
BACKING, REAR END
FIXED OBJECT, SIDE SWIPE, VEHICLE (MOVING)
HEAD ON, TURNING MOVE, BICYCLE
OVERTURN, CHANGE LANE, ANIMAL
PARKED VEHICLE, OUT OF CONTROL, SLED

WEATHER

C – CLEAR
F – FOG
R – RAIN
SL – SLEET
S – SNOW
CL – CLOUDY
XW – CROSS WINDS

INJURIES

K – FATAL
A – INCAPACITATING
B – NON–INCAPACITATING
C – POSSIBLE INJURY

S:/SHEETS/COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

LOCATION Intersection of Congress Street & St. John Street

TOWN Portland, ME NODE NO(S) 16765 - 66777

YEARS REVIEWED 2014 - 2016 DATE PREPARED 11.21.2017

Added 2017 Data Revised: 08.23.2017

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
14-0299	01-23-14	06:31				1	2	1	4/31	
14-1129	04-04-14	13:00					2	1	31	
14-1990	07-10-14	06:08					2	1	10	
14-2345	08-12-14	14:30			1		2	1	10	
14-3141	10-23-14	18:01					4	2	4	
14-3202	10-29-14	16:03					2	1	4	
14-3836	12-29-14	00:55			1		4	1	2	
15-1075	03-05-15	14:47					2	1	2	
15-1142	03-11-15	08:00					2	1	2/8/14	
15-1208	03-17-15	14:58					2	1	31	
15-1458	04-13-15	12:00					2	1	2	Suspended license
15-1654	05-05-15	15:24				3	2	1	30	
15-1861	05-26-15	20:18					3	1	10	
15-2343	07-08-15	19:21					2	1	2	
15-2908	08-27-15	15:49				1	2	1	2	
15-3228	09-25-15	16:04					2	1	8	
15-3635	10-30-15	10:41					2	1	2	
15-3684	11-03-15	11:50					2	1	4	
15-3841	11-17-15	12:17					2	1	2/7	
16-0030	01-05-16	15:09					2	1	2	
16-0108	01-11-16	14:15					2	1	4	Expired License
16-0489	02-09-16	16:09					2	1	2	
16-0902	03-19-16	18:45					4	1	31	
16-1219	04-24-16	16:24					2	1	4	Permited Driver only
16-1251	04-27-16	12:02					2	1	2	
16-2261	07-21-16	17:52				1	2	1	2	Suspended NH License
16-2929	09-22-16	11:08					2	1	4	
16-3415	11-05-16	10:30					2	1	2	

S:/SHEETS/COLLISION DIAGRAM.DWG

COLLISION DIAGRAM

SHEET 3 OF 3

LOCATION Congress St. / St. John St.

TOWN Portland, Maine NODE NO(S) 16765 - 66777

YEARS REVIEWED Adding 2017 Data DATE PREPARED 08.23.2018

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
17.0053	01.06.17	06:48					2	2	2	
17.1210	04.10.17	08:15					2	1	10	
17.1355	04.24.17	11:55					2	1	2	
17.1553	05.11.17	16:58				2	2	1	2	
17.1615	05.17.17	18:18				1	2	1	2/10	
17.1782	06.01.17	17:08				1	2	1	2	
17.3490	11.07.17	07:49					2	1	2/14	
17.3630	11.20.17	11:31					2	1	2	
17.3783	12.05.17	17:49					4	2	31	

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Section 3
Development Entrances and Exits

3.A. Entrance and Exit Locations

Vehicular access to the specific site is currently via an access to the employee parking garage on Gilman Street and an access to the visitor parking garage on Congress Street with a second access to the visitor parking garage on Crescent Street, and a pick-up and drop-off area in front of the East Tower off Bramhall Street.

Vehicular access to the proposed MMC expansion includes a full movement access with Congress Street, primarily to the pick-up / drop-off area. The existing Congress Street access to the visitor garage will be maintained and a vehicular connection will be provided between the existing visitor garage and the pick-up / drop-off area. This new connection will eliminate the need for traffic to recirculate onto Congress Street, thus reducing off-site conflicts. All other MMC site accesses will be maintained.

3.B. Plan View

A proposed site plan is provided in the Site Plan application provided under separate cover.

- Frontage Road(s) – Congress Street and Gilman Street
- Posted Speed Limit – 25 mph
- Sight Lines – The posted speed on Congress Street is 25 mph, which requires a MaineDOT and City available sight distance of 200 feet. The sight distances at the proposed site access currently appear to meet the requirements; however, we recommend that this be reviewed throughout the review process to ensure no obstacles such as signing, vegetation, or structures restrict proper sight distances.

Section 4
Title, Right, or Interest

4.A. Evidence of Title, Right, or Interest

A copy of the deeds to the property are included in Attachment in 4A.

4.B. Attachments

Attachment 4A – Deeds

Attachment 4A

Deeds

Know All Men by These Presents,

(2)

That We, Henry H. Grant and Gladys H. Grant, both of Portland in the County of Cumberland and State of Maine,

in consideration of one ($1.00) dollar and other valuable considerations

paid by Maine Medical Center, a corporation duly organized and existing under the laws of the State of Maine and located at said Portland,

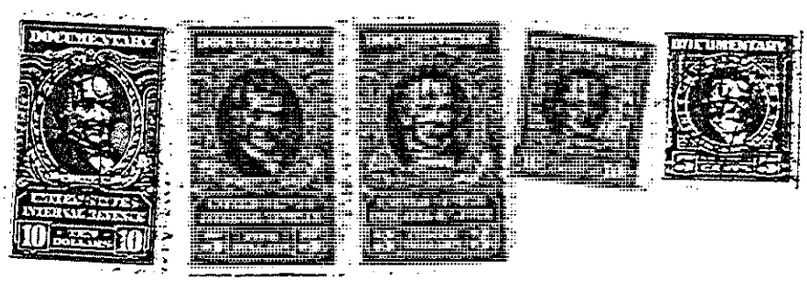
the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors

heirs and assigns forever, a certain lot or parcel of land with the buildings thereon, situated in Portland in the County of Cumberland and State of Maine, on the northwesterly side of Bramhall Street, bounded and described as follows:

Commencing at the southwesterly corner of land, now or formerly, of James Miller and Charlotte Johnson on Bramhall Street; thence northwesterly by land of said James Miller and Charlotte Johnson, sixty (60) feet to land formerly of William J. Knowlton; thence southwesterly along said Knowlton land, parallel with said street, fifty-five (55) feet to a corner of land formerly of William J. Knowlton; thence parallel with first mentioned line sixty (60) feet, more or less, to said street; thence northeasterly by said street fifty-five (55) feet to the place of beginning.

Being the same premises conveyed to us by Russell Fanning by deed recorded in Cumberland County Registry of Deeds in Book 1833, Page 415, and are conveyed subject to the conditions contained in said deed.

The Grantee herein, as part of the consideration hereof, assumes and agrees to pay taxes for the taxable year 1961.



To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said

Maine Medical Center, its successors

~~heirs~~ and assigns, to its and their use and behoof forever.

And we do ~~covenant~~ with the said Grantee its successors, / ~~heirs~~ and assigns, that we are lawfully seized in fee of the premises, that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs shall and will ~~Warrant and Defend~~ the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

~~In Witness Whereof.~~ We the said Henry H. Grant

and Gladys H. Grant, being husband and

wife ~~xxxxxxxxxxx~~

joining in this deed as Grantor s, and relinquishing and conveying all right by descent and all other rights in the above described premises, have hereunto set our hand s and seals this thirty-first day of July in the year of our Lord one thousand nine hundred and sixty-one.

~~Signed, Sealed and Delivered~~
~~in presence of~~

R. E. Jensen	Gladys H. Grant

~~State of Maine.~~ Cumberland, ~~ss.~~ July 31, 1961.

Personally appeared the above named Henry H. Grant

and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Norman E. Jensen

Justice of the Peace
~~Notary Public~~

AUG 4 1961

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE

Received at 10 H 27 M A M, and recorded in

BOOK 2619 PAGE 499 Lowell R. Thompson Register

Phillinde 1881 3/

Warranty Deed

FROM

Henry H. Grant, et al

TO

Maine Medical Center

Dated July 31, 1961

State of Maine.

_____ ss. Registry of Deeds

Received AUG 4 1961 19____

at _____ H., _____ M., _____ M., and

recorded in Book _____ Page _____

ATTEST:

_____ REGISTER

FROM THE OFFICE OF

JENSEN & BAIRD
477 Congress Street
Portland, Maine

L. L. MARTIN, PORTLAND, ME.—OFFICE FURNITURE AND SUPPLIES TYPEWRITERS, ADDING MACHINES, FILING CABINETS, SAFES, ETC.

MARTIN'S FORM NO. 1 — STANDARD REGISTRY FORM

1 - 35

(3)

(No. 106)

Know All Men by these Presents,

That I, DONALD D. McPHEE of Portland in the County of Cumberland and State of Maine,

in consideration of One Dollar ($1) and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation duly organized and existing under the laws of the State of Maine and located at Portland in said County and State

the receipt whereof I do hereby acknowledge, do hereby ~~give, grant, bargain, sell and convey~~ unto the said MAINE MEDICAL CENTER, its

successors ~~Heirs~~ and Assigns forever,

the following described property:

A certain lot or parcel of land with the buildings thereon situated in said Portland and being the premises conveyed to me by Hope K. Fletcher by deed dated November 22, 1946 and recorded in Cumberland County Registry of Deeds in Book 1848, Page 160, in which deed said premises are described as follows:

Beginning at the Northeast corner of Sophia T. Jones lot, so-called, on Arsenal Street; thence Northeasterly on Arsenal Street fifty (50) feet to land of one Raymond; thence Southeasterly by line of Raymond forty-eight (48) feet, more or less, to land of one Haskell; thence Southwesterly along line of said Haskell land thirteen (13) feet and two (2) inches to a point; thence Northwesterly parallel to land of said Raymond three (3) feet to a point; thence Southwesterly along the line of said Haskell land thirty-six (36) feet, more or less, to land of said Jones; thence Northwesterly forty-six (46) feet, more or less to point of beginning.

Also conveying all my interest in and to said Arsenal Street, recently abandoned by the City of Portland.

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors

~~Xxxxx~~ and Assigns, to its and their use and behoof forever.

And I do ~~covenant~~ with the said Grantee, its successors ~~Xxxxx~~ and Assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will ~~Warrant and Defend~~ the same to the said Grantee, its successors ~~Xxxxx~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said DONALD D. McPHEE

and I, Lorraine J. McPhee wife of the said Donald D. McPhee

joining in this deed as Grantor , and relinquishing and conveying my rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 9th day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered
in presence of

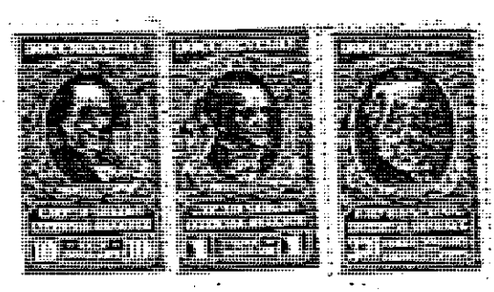
Edward F. Sams
to both

Donald D. McPhee
Lorraine J. McPhee

State of Maine.
Cumberland, ss. May 9, 1953.

Personally appeared the above named Donald D. McPhee and acknowledged the above instrument to be his free act and deed.

Before me,
Edward F. Sams
Justice of the Peace



Philbrick

320

Warranty Deed.

FROM

DONALD D. McPHEE

TO

MAINE MEDICAL CENTER

DATED May, 19 53.

State of Maine.

Cumberland ss: Registry of Deeds.

Received MAY 9 1953, 19 ,

at 2 P., 37 M., 11 M., and

recorded in Book 2127, Page 320

ATTEST:

Robert T. Crosse, REGISTER.

FROM THE OFFICE OF

VERRILL DANA WALKER PHILBRICK

& WHITEHOUSE.

No. 105. ROBERTS OFFICE SUPPLY COMPANY
Portland - Maine - Lewiston

9-37

Know all Men by these Presents, (4)

That I, Henry H. Grant of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable consideration

paid by Maine Medical Center, a corporation organized and existing under the laws of the State of Maine and located at said Portland,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine Medical Center, its Successors ~~heirs~~ and assigns forever,

a certain lot or parcel of land with the buildings thereon situated between Bramhall and Arsenal Streets in said Portland, adjoining land now or formerly belonging to Sophia P. Jones, and more particularly bounded and described as follows:

Beginning on the northerly side line of said Bramhall Street, at the southwesterly corner of said Jones' land; thence westerly by said Bramhall Street, twenty-five (25) feet to a stake and from these two points extending northerly adjoining said Jones land, keeping the width of twenty-five (25) feet, to Arsenal Street.

Excepting and reserving however, a certain lot or parcel of land with the buildings thereon out of the aforesaid property, a conveyance by Westprom Realty Company to Maud L. and Janice M. Pillsbury by deed dated January 23, 1946 and recorded in Cumberland County Registry of Deeds in Book 1803, Page 444, to which reference may be had.

Meaning and intending to convey a parcel of land at the rear of 26 Bramhall Street, which parcel of land is approximately 26'x25' and contains a garage thereon.

Being the same premises conveyed to me by Westprom Realty Company by their warranty deed dated April 11, 1951 and recorded in said Registry of Deeds in Book 2040, Page 192.

To Have and to Hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said

Maine Medical Center, its Successors

~~heirs~~ and assigns, to its and their use and behoof forever.

And I do COVENANT with the said Grantee , its/Successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises, that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will WARRANT AND DEFEND the same to the said Grantee , its Successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said

Henry H. Grant

and I, Gladys H. Grant,

wife of the said

Henry H. Grant

joining in this deed as Grantor , and relinquishing and conveying my right by descent and all other rights in the above described premises, have hereunto set our hands and seals this 4th day of ~~June~~ September in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered
in presence of

H. Edwin Hall

Henry H. Grant.

Gladys H. Grant

State of Maine,
Cumberland, } ss. September 4, 1953.

Personally appeared the above named

HENRY H. GRANT

and acknowledged the above instrument to be his free act and deed.

Before me,

H. Edwin Hall

~~Justice of the Peace.~~
Notary Public
My Commission Expires June 29, 1955

Phillrick

116

Warranty Deed

From

HENRY H. GRANT

To

MAINE MEDICAL CENTER

Dated, ... *1953*

State of Maine.

Cumberland ..... ss. Registry of Deeds.

Received SEP 9 1953 at 9 h., 50 M., A M., and recorded in Book 2147 Page 110

Attest: Robert N. Crommett
Register.

FROM THE OFFICE OF

Warren E. Winslow, Esq.
443 Congress Street
Portland, Maine

LORING, SHORT & HARMON, Law Stationers
PORTLAND, MAINE

9-50

MORTGAGE AND SECURITY AGREEMENT

KNOW ALL MEN BY THESE PRESENTS, that MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine, having its principal place of business at 22 Bramhall Street, in Portland, County of Cumberland, State of Maine (hereinafter referred to as the Grantor), for and in consideration of the sum of ONE MILLION SEVEN HUNDRED NINETY-NINE THOUSAND FIVE HUNDRED SIXTY-NINE ($1,799,569) DOLLARS, paid by MAINE SAVINGS BANK, a banking corporation organized and existing under the laws of the State of Maine, having its principal office at One Maine Savings Plaza, in the said Portland, County of Cumberland and State of Maine (hereinafter called the Grantee), the receipt of which is hereby acknowledged, does give, grant, bargain, sell, and convey unto the said Grantee, its successors and assigns, forever, the following-described premises:

> A certain lot or parcel of land with the buildings and improvements thereon situated at and near Gilman Street, Congress Street, Charles Street, Brackett Street, Bramhall Street and the Western Promenade, in the City of Portland, County of Cumberland and State of Maine, more particularly described in Schedule A attached hereto, which Schedule A is hereby made a part of this Mortgage and Security Agreement by reference thereto.

Also conveying and granting hereby as part of the realty and in addition to said realty and as property mortgaged hereunder, all of the following articles now or hereafter owned or acquired by Grantor, or in which it may now or hereafter acquire an interest, and now or hereafter located on the above-described premises or used therewith as follows: All machinery, equipment, furnishings, furniture, fixtures, chattels and articles of tangible personal property, including, without limitation, all hospital and medical diagnostic, treatment and convalescent equipment, machinery and supplies, all beds and bedding, all food service and cafeteria equipment, machinery and supplies, all other machinery, equipment and chattels used or usable in the operation of a hospital and full service medical center, furnaces, boilers, oil burner, refrigeration, air conditioning and sprinkler systems, awnings, screens, window shades, motors, dynamos, incinerators, plants and shrubbery, whether now owned or hereafter from time to time acquired by the Grantor, together with all substitutions, replacements, additions, attachments, accessories, accretions thereto or thereof, now or in the future, situated or located on, or used or usable in connection with the maintenance and/or operation of hospital and medical center now constructed and any other facilities to be constructed on the premises described in said Schedule A attached hereto. If the lien of this mortgage on any fixtures or personal property be subject to a lease agreement, conditional sale agreement or chattel mortgage covering such property, then in the event of any default hereunder all the rights, title and interest of the Grantor in and to any and all deposits made thereon or therefor are hereby assigned to the Grantee, together with the benefit of any payments now or hereafter made thereon. There are also transferred, set over and assigned by Grantor to Grantee, its successors and assigns, hereby all leases and use agreements of machinery, equipment and other personal property of Grantor in the categories hereinabove set forth, under which Grantor is the lessee of, or entitled to use, such items, and Grantor agrees to execute and deliver to Grantee specific separate assignments to Grantee of such leases and agreements when requested by Grantee; and nothing herein shall obligate Grantee to perform any obligations of Grantor under such leases, or agreements, unless it so chooses, which obligations Grantor hereby covenants and agrees to well and punctually perform.

As further security for payment of the indebtedness and performance of the obligations, covenants and agreements secured hereby, Grantor hereby transfers, sets over and assigns to Grantee:

a. All rents, profits, revenues, royalties, bonuses, rights and benefits under any and all leases or tenancies now existing or hereafter created of the premises or any part thereof, with the right to receive and apply the same to said indebtedness, and Grantee may demand, sue for and recover such payments, but shall not be required to do so; provided, however, that so long as Grantor is not in default hereunder, the right to receive and retain such rents, issues and profits is reserved to Grantor. To carry out the foregoing, Grantor agrees (1) to execute and deliver to Grantee such conditional assignments of leases and rents applicable to the mortgaged premises as the Grantee may from time to time request while this mortgage and the debt secured hereby are outstanding, and further (2) not to cancel, accept a surrender of, reduce the rentals under, anticipate any rentals under, or modify any such leases or tenancies, or consent to an assignment or subletting thereof, in whole or in part, without Grantee's written consent. Nothing herein shall obligate the Grantee to perform the duties of the Grantor as landlord or lessor under any such leases or tenancies, which duties Grantor hereby covenants and agrees to well and punctually perform.

b. All judgments, awards of damages and settlements hereafter made as a result or in lieu of any taking of the premises or any interest thereon or part thereof under the power of eminent domain, or for any damage (whether caused by such taking or otherwise) to the premises or the improvements thereon or any part thereof, including any award for change of grade of streets. Grantee may apply all such sums or any part thereof so received on the indebtedness secured hereby in such manner as it elects or, at its option, the entire amount or any part thereof so received may be released. Grantor hereby irrevocably authorizes and appoints Grantee its attorney-in-fact to collect and receive any such judgments, awards, and settlements from the authorities or entities making the same, to appear in any proceeding therefor, to give receipts and acquittances therefor, and to apply the same to payment on account of the debt secured hereby, whether then matured or not; and the Grantor will execute and deliver to the Grantee on demand such assignments and other instruments as the Grantee may require for said purposes and will reimburse the Grantee for its costs (including reasonable counsel fees) in the collection of such judgments and settlements.

Receipt of rents, awards, and any other moneys or evidences thereof, pursuant to the provisions of the foregoing paragraphs a. and b. and any disposition of the same by Grantee shall not constitute a waiver of the right of foreclosure by Grantee in the event of default or failure of performance by Grantor of any covenant or agreement contained herein or any note secured hereby.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to Grantee, its successors and assigns, to its and their use and behoof forever; PROVIDED NEVERTHELESS, that if Grantor pays to Grantee the sum of ONE MILLION SEVEN HUNDRED NINETY-NINE THOUSAND FIVE HUNDRED SIXTY-NINE ($1,799,569.00) DOLLARS, with interest and other charges, as applicable, in accordance with all the terms and conditions of a certain Mortgage Note of even date signed and given by Grantor to Grantee, and until such payment performs all of Grantor's obligations, covenants and agreements contained herein and contained in said promissory note, then this deed, as also said certain promissory note, shall be void, otherwise shall remain in full force.

Grantor covenants and agrees with Grantee as follows:

1. That Grantor is lawfully seized of an indefeasible estate in fee simple, free from encumbrances, except as may have been specifically noted herein, or in Schedule A attached hereto, and has good right and power to convey the premises to Grantee to hold as aforesaid, and that Grantor shall and will Warrant and Defend the same to Grantee forever against the claims and demands of all persons, except as aforesaid.

2. That Grantor shall pay all sums secured hereby when due.

3. That Grantor will not permit or suffer the use of any of the mortgaged property for any purposes other than hospital or medical center purposes.

4. That the Loan Guaranty Agreement between the Grantor and the Secretary of Health, Education,and Welfare, which is being executed simultaneously herewith, is incorporated herein and made a part of this mortgage.

5. That upon default hereunder Grantee shall be entitled, in addition to any other rights given by this Agreement or by law, to the appointment of a receiver by any court having jurisdiction, without notice, to take possession and protect the property described herein and operate same and collect the rents, profits, and income therefrom.

6. That the Grantor will keep the building and improvements now existing or hereafter erected on the mortgaged property insured against loss by fire and such other hazards, casualties, and contingencies, as may be stipulated by the Secretary of Health, Education, and Welfare upon the guarantee of the Note and other hazards, all as may be required from time to time by the Grantee, and all such insurance shall be evidenced by standard fire and extended coverage insurance policy or policies, in amounts not less than necessary to comply with the applicable Coinsurance Clause percentage, but in no event shall the amounts of coverage be less than eighty per centum (80%) of the insurable value and in no event less than the unpaid balance of the debt secured hereby, and in default thereof the Grantee shall have the right to obtain such insurance at the cost of Grantor, such cost to be secured hereby. Such policies shall be endorsed with standard mortgagee clause with loss payable to the Grantee and the Secretary of Health, Education, and Welfare, as their interests may appear, and shall be deposited with the Grantee; and that if the premises mortgaged hereby, or any part thereof, shall be damaged by fire or other hazard against which insurance is held as hereinabove provided, the amounts paid by any insurance company in pursuance of the contract of insurance to the extent of the indebtedness then remaining unpaid, shall be paid to the Grantee and, at the option of Grantee and the Secretary of Health, Education, and Welfare, may be applied to the debt or released for the repairing or rebuilding of the premises.

7. That at the request of Grantor with consent of Grantee, or at the option of Grantee, the principal balance secured hereby may be reamortized on terms acceptable to the Secretary of Health, Education, and Welfare if a partial prepayment results from an eminent domain or condemnation award or from a fire or casualty insurance payment where there is a resulting loss of project income.

8. That in order more fully to protect the security of this Mortgage, together with, and in addition to, such payments of interest, or of principal and interest, Grantor will pay to the Grantee, on the

dates each month that such payments are due, until the Note is fully paid, the following sums:

(a) A sum equal to the ground rents, if any, next due, plus the premiums that will next become due and payable on policies of fire and other property insurance covering the premises covered hereby, plus water rates, taxes and assessments next due on the premises covered hereby (all as estimated by the Grantee) less all sums already paid therefor divided by the number of months to elapse before one month prior to the date when such ground rents, premiums, water rates, taxes and assessments will become delinquent, such sums to be held by Grantee in escrow to pay said ground rents, premiums, water rates, taxes, and special assessments; no interest shall be due on sums so held;

(b) All payments mentioned in the preceding subsection of this paragraph and all payments to be made under the Note secured hereby shall be added together and the aggregate amount thereof shall be paid each (month) in a single payment to be applied by Grantee to the following items in the order set forth:

(I) ground rents, taxes, special assessments, water rates, fire and other property insurance premiums;

(II) interest on the Note secured hereby;

(III) amortization of the principal of said Note;

9. In the event of Grantor's failure to pay any sums provided for in this Mortgage, the Grantee, at its option, may pay the same. Any excess funds accumulated under (a) of the preceding paragraph remaining after payment of the items therein mentioned, shall be credited to subsequent periodic payments of the same nature required thereunder; but if any such items shall exceed the estimate therefor, or if the Grantor shall fail to pay any other governmental or municipal charge, the Grantor shall forthwith make good the deficiency or pay the charge before the same become delinquent or subject to interest or penalties and in default thereof the Grantee may pay the same. All sums paid by the Grantee shall be added to the principal of the debt secured hereby and shall bear interest from the date of payment at the rate specified in the Note and shall be due and payable on demand. If the property is sold under foreclosure or is otherwise acquired by the Grantee after default, any remaining balance of the accumulations under (a) of the preceding paragraph shall be credited to the principal of the Mortgage as of the date of the commencement of foreclosure proceedings or as of the date the property is otherwise acquired.

10. That Grantor will keep the premises above conveyed in good order and condition and will not commit or permit any waste thereof, reasonable wear and tear excepted, and in the event of the failure of the Grantor to keep the buildings on said premises and those to be erected on said premises, or improvements thereon, in good repair, the Grantee may make such repairs as in its discretion it may deem necessary for the proper preservation thereof, and any sums paid for such repairs shall bear interest from the date of payment at the rate specified in the Note, shall be due and payable on demand and shall be fully secured by this Mortgage.

11. That Grantor will not voluntarily create, permit or suffer

to be created against the property subject to this Mortgage any lien or liens inferior or superior to the lien of this Mortgage and further that it will keep and maintain the same free from the claim of all persons supplying labor or materials which will enter into the construction of any and all buildings and improvements now being erected or to be erected on said premises.

12. That Grantor further covenants and agrees that this mortgage shall constitute a security agreement with respect to any and all machinery, equipment, chattels, articles of personal property, and fixtures described and included in this mortgage, and all additions, accessions, substitutions, and replacements thereto and therefor, and all of which are hereinafter referred to as the collateral, and Grantor hereby grants and conveys to Grantee, its successors and assigns, a security interest therein. That upon default of any term, condition or covenant of this mortgage and acceleration of any indebtedness hereby secured, the Grantee may, at its discretion, require the Grantor to assemble the collateral and make it available to the Grantee at a place reasonably convenient to both parties to be designated by the Grantee. That the Grantee shall give the Grantor notice, by registered mail, postage prepaid, of the time and place of any public sale or other intended disposition thereof is to be made by sending notice to the Grantor at least five days before the time of the sale or other disposition, which provisions for notice the Grantor and Grantee agree are reasonable; provided, however, that nothing herein shall preclude the Grantee from proceeding as to both real and personal property in accordance with Grantee's rights and remedies in respect of the real property. Grantee shall have all of the remedies of a secured party under the Uniform Commercial Code as now in effect in the State of Maine and such further remedies as may from time to time hereafter be provided in Maine for a secured party. Grantor agrees that all rights of Grantee as to said collateral and as to said real estate, and rights and interests appurtenant thereto, may be exercised together or separately and further agrees that in exercising its power of sale as to said collateral and as to said real estate, and rights and interest appurtenant thereto, the Grantee may sell the collateral or any part thereof either separately from or together with the said real estate, rights and interests appurtenant thereto, or any part thereof, all as the Grantee may in its discretion elect.

13. That Grantor shall maintain full and correct books and records showing in detail the earnings and expenses of the mortgaged premises; will permit the Grantee and its representatives to examine said books and records and all supporting vouchers and data any time and from time to time upon request by the Grantee at the mortgaged premises or at such other place in the County in which the mortgaged premises are located as such books and records are customarily kept; and Grantor hereby agrees to furnish to Grantee within one hundred twenty (120) days after the close of each fiscal year an audited financial statement of the operation of the premises reflecting income (including sources thereof) and expenses, such statement to be prepared by a certified or other competent accountant satisfactory to the Grantee.

14. That Grantor within seven (7) days upon request in person or within ten (10) days upon request by mail shall furnish a duly acknowledged written statement setting forth the amount of the debt secured by this mortgage, and stating either that no offsets or defenses exist against the mortgage debt, or, if such offsets or defenses are alleged to exist, the nature thereof.

15. That in case of foreclosure of this Mortgage, and as often

as any proceedings shall be taken to foreclose the same, the Grantor will pay to the Grantee a reasonable attorney's fee, and the same shall be a further charge and lien upon the said premises.

16. That no sale of the premises hereby mortgaged and no forebearance on the part of the Grantee, and no extention of the time for the payments of the debt hereby secured given by the Grantee, shall operate to release, discharge, modify, change, or affect the original liability of the Grantor herein either in whole or in part.

17. That in the event of any default, as herein described, this mortgage may be foreclosed in any manner prescribed or permitted by law, appraisement being hereby waived; and out of all the monies arising from a sale to retain the amount then due or to become due according to the conditions of this instrument together with the costs and charges of making such sale, and the overplus, if any there be, shall be paid by the party or parties making such sale to the Grantor, its successors and assigns.

18. That no waiver of any covenant herein or of the Note secured hereby shall at any time thereafter be held to be a waiver of the terms hereof or of the Note secured hereby.

19. That receipt and disposition of rents, income of the premises, insurance proceeds, eminent domain awards, or any other sums under the provisions of the mortgage, the note, or other loan documentation by Grantee shall not be a waiver or release of any rights of the Grantee, including but not limited to, the right of foreclosure or acceleration of the note, whether such receipt or disposition shall be before or after exercise of any such rights.

20. That Grantee hereof, its successors and assigns, shall have The Statutory Power of Sale in addition to all other rights of a Mortgagee allowed by law and this mortgage in case of default in any term or condition contained or referred to herein.

21. That it is an additional condition of this Mortgage and Security Agreement for breach of which foreclosure may be claimed and for breach of which all indebtedness secured hereby may be declared due and payable at once, that title to the within described mortgaged premises shall not pass be deed, mortgage or other means, or operation of law, from Grantor, or from any subsequent title holder, either voluntarily or involuntarily. This condition shall continue until all indebtedness and obligations secured hereby are satisfied, and permission given, or election not to foreclose or accelerate said indebtedness by Grantee, its successors or assigns, as to any one such transfer, shall not constitute a waiver of any rights of Grantee, its successors or assigns, as to any subsequent such transfer of title as to which this condition shall remain in full force and effect. The term title as used herein shall mean the estate of the Grantor subject to the lien of this mortgage.

22. This Mortgage and Security Agreement is expressly made subject and inferior to a Mortgage (FHA Form 4125-B) and to Security Agreement both of even date herewith executed and delivered by Grantor herein to Grantee herein encumbering the real and personal property herein described and securing a Mortgage Note (FHA Form 4125-d) of even date herewith in the amount of $3,245,431.00, all of which documents are hereinafter collectively called the FHA Mortgage. Grantor herein shall perform, or cause to be performed, when due all obligations of the mortgagor under the terms

and provisions of the FHA Mortgage, specifically including prompt payment when due of all indebtedness secured and evidenced thereby. Should Grantor herein fail to comply with its obligatins set forth in this paragraph 22, such failure shall constitute a default under the terms and provisions of this Mortgage and Security Agreement and, in addition to any other rights which the Grantee may have hereunder and by operation of law, the Grantee herein shall have the right, but not the obligation, to make all payments and to do all things to render said FHA Mortgage current, and all advances made for such purpose, including interest paid thereon at the rate specified in said FHA Mortgage Note, shall be payable by Grantor herein to Grantee herein upon demand by Grantee herein and, to the extent permitted by law, all such advances shall be secured by the lien of this Mortgage and Security Agreement.

23. That in the event of default in making any payment provided for herein or in the Note secured hereby, or in the event of a breach of any other stipulation, agreement, condition or covenant of this mortgage, including any transfer of title to the mortgaged premises without permission of Grantee as set forth in paragraph 21 hereof, and if such default or breach is not cured prior to the expiration of 90 days after the Secretary of Health, Education, and Welfare, aforesaid, receives notification from the holder of the loan of such default or breach then in any such event the whole principal sum of said Note shall, at the option of the Grantee, its successors and assigns, as such holder, be deemed to have become immediately due, and the same with interest thereon and with all other costs and charges, shall thereupon be collectible by foreclosure of this mortgage; provided, however, such notice to said Secretary of Health, Education, and Welfare and such 90 day period shall not be necessary should the guaranty of this mortgage indebtedness be terminated or become void pursuant to its terms and Grantee receives written notice thereof from said Secretary.

The covenants herein contained shall bind, and the benefits and advantages shall inure to, the respective successors and assigns of the parties hereto and to the extent permitted by law shall bind any future owner of the mortgaged premises or any part thereof. Whenever used, the singular number shall include the plural and the plural the singular, and the use of any gender shall include all genders.

IN WITNESS WHEREOF, the said Grantor has caused these presents to be signed in its name by JACK R. DYSON, its Treasurer, and its corporate seal to be hereunto affixed this 14th day of February, 1975.

Signed, Sealed and Delivered in the Presence of:

Robert B. Patterson, Jr.

MAINE MEDICAL CENTER, a Maine corporation

BY _____
Its Treasurer

(CORPORATE SEAL)

STATE OF MAINE
COUNTY OF CUMBERLAND, ss. February 14, 1975

Then personally appeared the above-named Jack R. Dyson as Treasurer of Maine Medical Center, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me.

_____
Notary Public

MY COMMISSION EXPIRES
MAY 2, 1980

SCHEDULE A

GRANTOR: MAINE MEDICAL CENTER

GRANTEE: MAINE SAVINGS BANK

DATE : February 14, 1975

A certain lot or parcel of land together with the buildings and improvements thereon, located in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows: Beginning at a point at the intersection of the southeasterly side of Congress Street and the easterly side of Gilman Street, said point being marked by an iron pin; thence North 79° 44½' East, four hundred twenty and seventy-nine hundredths (420.79) feet to a point marked by an iron; thence South 18° 24' East by land now or formerly of Brophy, one hundred forty-eight and eighty-five hundredths (148.85) feet, more or less, to an iron; thence North 72° 01' East by said Brophy land, seventy-four and eight tenths (74.8) feet, more or less, to Charles Street; thence by Charles Street, South 18° 24' East, three hundred fifty-seven and twenty-three hundredths (357.23) feet to a point; thence South 18° 04½' East, ninety-eight and eighty hundredths (98.80) feet to a point on the northwesterly terminus of Brackett Street; thence South 62° 24' West by Brackett Street, thirty-eight and fifty-seven (38.57) feet to a point; thence South 33° 29' East by said Brackett Street, sixty and thirty-two hundredths (60.32) feet to a point; thence South 57° 21½' East by said Brackett Street, fifty and eighteen hundredths (50.18) feet to a point and land now or formerly of Gemma A. McKenzie et al; thence South 61° 08½' West by said McKenzie land, forty-two and ninety-six hundredths (42.96) feet to a point; thence South 27° 36' East by said McKenzie land, sixty-two and twenty-eight hundredths (62.28) feet, more or less, to the northerly side of Bramhall Street; thence South 61° 00½' West by said Bramhall Street, five hundred nine and fifty-eight hundredths (509.58) feet to a point in the Western Promenade; thence North 50° 49' 20" West, one hundred fifty-one and thirty-nine hundredths (151.39) feet to a point on the southeasterly line of Arsenal Street; thence North 62° 24' East by Arsenal Street, fifty (50) feet to a point at the easterly terminus of Arsenal Street; thence North 27° 36' West by said Arsenal Street and by land conveyed by the Maine Medical Center to the City of Portland by deed dated August 4, 1972, and recorded in Cumberland County Registry of Deeds in Book 3278, Page 212, one hundred (100) feet to a point; thence South 85° 56' West by said City of Portland land, ninety-four and two hundredths (94.02) feet, more or less, to Gilman Street; thenc North 04° 04' West by said Gilman Street, six hundred ninety-five and twenty-five hundredths (695.25) feet, more or less, to said Congress Street and the point of beginning.

Being the same premises shown on a plan entitled "Plan of Property in Portland, Maine made for Maine Medical Center", H.I. & E.C. Jordan-Surveyors, dated May 31, 1966 and updated and certified on June 13, 1966, July 7, 1966, October 26, 1972, January 24, 1975 and February 12, 1975.

COPY

such default or breach then in any such event the entire unpaid principal balance of this mortgage note plus accrued interest, at the option of the holder hereof shall become immediately due and payable; provided, however, such notice to said Secretary and such 90 day period shall not be necessary should the guaranty of this mortgage note be terminated or become void pursuant to its terms and payee receives written notice thereof from said Secretary.

The payments due hereunder shall be made to Maine Savings Bank at its office at One Maine Savings Plaza, Portland, Maine 04111, unless another holder or address be given in writing to the parties liable herefor.

All parties to this mortgage note, whether principal, surety, guarantor, or endorser, hereby waive presentment for payment, demand, protest, notice of protest, and notice of dishonor.

Signed and Sealed the day and year first above written.

WITNESS:
Thomas F. Trechette
Robert B. Patterson Jr.

MAINE MEDICAL CENTER, a Maine corporation

By [signature]
Its Treasurer

(CORPORATE SEAL)

THIS IS TO CERTIFY that this is the Note described in and secured by said Mortgage and Security Agreement of even date herewith and in the same principal amount as herein stated and secured by real estate and personal property situated in the City of Portland, Cumberland County, Maine.

Dated: February 14, 1975

Louis A. Wood
Notary Public

MY COMMISSION EXPIRES
MAY 2, 1980

COPY

3

MORTGAGE NOTE

$1,799,569.00

Portland, Maine
February 14, 1975

FOR VALUE RECEIVED, the undersigned, MAINE MEDICAL CENTER, a Maine corporation located in the City of Portland, County of Cumberland and State of Maine, promises to pay to MAINE SAVINGS BANK, a Maine banking corporation, or order, at its principal place of business at One Maine Savings Plaza in the said City of Portland, County of Cumberland and State of Maine, the principal sum of ONE MILLION SEVEN HUNDRED NINETY-NINE THOUSAND FIVE HUNDRED SIXTY-NINE ($1,799,569.00) DOLLARS, with interest from date at the rate of seven per centum (7%) per annum on the unpaid balance thereof until paid; which principal and interest shall be paid as follows: Interest only at said rate shall be paid on the first day of March, 1975; thereafter commencing on the first day of April, 1975, monthly installments of interest and principal shall be paid in the sum of Twelve Thousand Seven Hundred Eighteen and 98/100ths ($12,718.98) Dollars each; such payments shall continue to be made monthly thereafter upon the first day of each succeeding month until the entire indebtedness has been paid in full; in any event, the balance of principal, if any, remaining unpaid, plus accrued interest at said rate, shall be paid on March 1, 2000. Said monthly installments of interest and principal shall be applied first to interest at said rate per annum upon the principal sum, or so much thereof as shall from time to time remain unpaid, and the balance thereof shall be applied to principal.

In the event any installment, or part of any installment, of principal or interest becomes delinquent for more than 15 days, there shall be due, at the option of the holder hereof, an additional sum equal to two cents ($.02) for each dollar ($1.00) of each installment so delinquent; provided, nevertheless, that as long as this mortgage note shall be guaranteed by the Secretary of the Department of Health, Education, and Welfare the amount of the monthly payment upon which such delinquency charge may be imposed shall be limited to the amount actually to be paid by the maker hereof and shall not include for such purpose any amount payable as an interest subsidy by said Secretary.

This note is secured by Mortgage and Security Agreement upon real estate and personal property situated in the City of Portland, Cumberland County, State of Maine.

Privilege is reserved to pay the debt in whole or in an amount equal to one or more monthly payments on principal next due, on the first day of any month prior to maturity upon at least thirty (30) days' prior written notice to the holder.

No default shall exist by reason of nonpayment of any required installment of principal so long as the amount of optional additional prepayments of principal already made pursuant to the privilege of prepayment set forth in this mortgage note equals or exceeds the amount of such required installment of principal.

In the event of default in the making of any payment provided for herein, including any delinquency charge, or in the event of a breach of any agreement, condition or covenant of the said Mortgage and Security Agreement given by the maker hereof to Maine Savings Bank, and if such default or breach is not cured prior to the expiration of 90 days after the Secretary of Health, Education, and Welfare, aforesaid, receives notification from the holder hereof of

(6)

(No. 106)

Know All Men by these Presents,

That We, Leola J. Noyes and William H. Noyes, Jr., both of Portland, County of Cumberland, State of Maine,

in consideration of one dollar ($1.00) and other valuable considerations

paid by Maine Medical Center, a Corporation established by law in said Portland

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center

its successors ~~Heirs~~ and Assigns forever,

the following described property:

A certain lot or parcel of land with the buildings thereon situated in said Portland between Bramhall and Arsenal Streets adjoining land formerly belonging to Sophia P. Jones and conveyed to us by Maud L. Pillsbury by deed dated October 2, 1951, recorded in Cumberland County Registry of Deeds in Book 2060, Page 419, and therein bounded and described as follows: Beginning on the northerly side of Bramhall Street at the southwesterly corner of said Jones land; thence running westerly by said Bramhall Street twenty-five (25) feet to a stake and from these two points extending northerly adjoining said Jones land keeping a width of twenty-five (25) feet, a distance of sixty-eight feet and two incles (68'2"), which distances are marked by stakes and which stakes are twenty-six (26) feet distant from the southerly boundary line of Arsenal Street.

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Maine Medical Center, its successors

~~Heirs~~ and Assigns, to its and their use and behoof forever.

And we do covenant with the said Grantee, its successors ~~Heirs~~ and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our Heirs, shall and will Warrant and Defend the same to the said Grantee, its successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, We, the said Leola J. Noyes and William H. Noyes, Jr., the said grantors, both being unmarried

~~and~~ ~~wife of the said~~

~~joining in this deed as grantor, and relinquishing and conveying rights by descent and all other rights in the above described premises~~ have hereunto set our hands and seals this 12th day of June in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Haus
to both

Leola J. Noyes
William H. Noyes Jr.

State of Maine.
Cumberland } ss.

June 12, 1953

Personally appeared the above named Leola J. Noyes and William H. Noyes, Jr. and acknowledged the above instrument to be their free act and deed.

Before me, Edward F. Haus
Justice of the Peace

Philbrick 1st

317

Warranty Deed.

FROM

LEOLA J. NOYES, et al

TO

MAINE MEDICAL CENTER

DATED June, 1953.

State of Maine.
Cumberland, ss: Registry of Deeds.

Received JUN 12 1953, 19, at 1 H., 47 M., 8 M., and recorded in Book 2133, Page 317.

ATTEST:

Robert V. Crommett, Register.

FROM THE OFFICE OF

Verrill Dana Walker Philbrick

& Whitehouse

No. 106. ROBERTS OFFICE SUPPLY COMPANY
Portland - Maine - Lewiston

1-114

(No. 106)

Know All Men by these Presents,

That WE, FRED A. PATTERSON and ELLA H. WHIDDEN both of Derry in the County of Rockingham and State of New Hampshire, RUBY E. McKENZIE of Raymond in said County and State and ALZO F. PATTERSON of Portland in the County of Cumberland and State of Maine

in consideration of One dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a Corporation organized and existing under the laws of Maine and located at said Portland,

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center, its Successors

and Assigns forever,

the following described property:

A certain lot or parcel of land with the buildings thereon, situated in said Portland on the northerly side of Bramhall Street and bounded and described as follows:

Beginning on the northerly side of Bramhall Street at the southwesterly corner of land formerly of Frederick A. Carle; thence running westerly by said Bramhall Street twenty-five (25) feet to a stake or point, and from these two points extending northerly adjoining said Carle land, keeping a width of twenty-five (25) feet, to Arsenal Street, being the premises conveyed to Daniel W. Patterson by Maria M. Jose by deed dated September 12, 1921 and recorded in Cumberland County Registry of Deeds in Book 1085, Page 228.

The said Daniel W. Patterson died intestate on September 3, 1952 leaving no widow and as his sole heirs-at-law, the Grantors herein.

The Grantee as part of the consideration hereof assumes and agrees to pay the taxes for the taxable year of 1953.

Also conveying all our right, title and interest in and to Arsenal Street recently abandoned by the City of Portland, Maine.

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Maine Medical Center, its Successors and Assigns ~~forever~~, to its and their use and behoof forever.

And we do covenant with the said Grantee, its / Successors and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid.

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our Heirs, shall and will Warrant and Defend the same to the said Grantee, its Successors and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, We the said Fred A. Patterson and Chrystine I. Patterson, wife of the said Fred A. Patterson; Ella H. Whidden and Charles F. Whidden, husband of the said Ella H. Whidden; Ruby E. McKenzie and Elmer W. McKenzie, husband of the said Ruby E. McKenzie, and Alzo F. Patterson and Bessie E. Patterson, wife of the said Alzo F. Patterson

~~xxx~~ ~~xxxxxxxxxxxxxxxx~~

joining in this deed as Grantors, and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this twentieth day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

R. E. Jensen	Alzo F. Patterson
R. E. Jensen	Bessie E. Patterson
Pamela Chase	Fred A. Patterson
Pamela Chase	Chrystine I. Patterson
Arthur K. Smith	Ella H. Whidden
Arthur K. Smith	Charles F. Whidden
P. J. Campbell	Ruby E. MacKenzie
P. J. Campbell	Elmer MacKenzie

State of Maine.
Cumberland } ss.

May 20, 1953

Personally appeared the above named Alzo F. Patterson and acknowledged the above instrument to be his free act and deed.

Before me, Raymond E. Jensen
Justice of the Peace

Phillbrick

311

Warranty Deed.

FROM

ALZO F. PATTERSON, ET ALS.

TO

MAINE MEDICAL CENTER

DATED ....., 1953.

State of Maine.

Cumberland ss: Registry of Deeds.

Received JUN 12 1953, 19/

at 11 H., 5 M., A M., and

recorded in Book 2133, Page 311

ATTEST:

Robert L. Cross, REGISTER.

FROM THE OFFICE OF
RAYMOND E. JENSEN
415 Congress Street
Portland, Maine

No. 106. ROBERTS OFFICE SUPPLY COMPANY
Portland - Maine - Lewiston

11-5

Know All Men by These Presents.

(8)

That I, John T.Lennon of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar and other valuable considerations

paid by Maine Medical Center, a corporation organized and existing under the Laws of the State of Maine and located at said Portland

the receipt whereof I do hereby acknowledge, do hereby ~~give, grant, bargain, sell and convey~~ unto the said Maine Medical Center,its successors ~~heirs~~ and assigns forever, ~~a~~ certain lots or parcels of land with the buildings thereon situated in said Portland and bounded and described as follows:

First:

Beginning on the northerly side of Bramhall Street at the southwesterly corner of land now or formerly of Thomas H.Pratt,running thence westerly by said Bramhall Street fifty (50) feet to land now or formerly of Sophia M. Knight,and from these two points extending northerly towards Arsenal Street, holding tosaid width of fifty feet,and adjoining said Pratt premises on one side and said Knight premises on the other for a distance of sixty (60) feet to land now or formerly of Edward T.Burrowes.The said lot is the southerly portion of the premises conveyed to Albert B.Cole,Frank H.Cole and Warren W.Cole by Nettie E.Pierce by deed dated September 26,1911 and recorded in the Registry of Deeds for said County of Cumberland in Book 882,Page 188. Said premises are numbered thirty (30) on said Bramhall Street.

Second:

A certain lot of land with the buildings thereon on the southerly side of Arsenal Street in said Portland bounded and described as follows:

Commencing at a point on the Westerly line of land of Maude E.Pratt at a point sixty (60) feet northerly from the northerly side of Bramhall Street, thence westerly on a line parallel with and sixty (60) feet from said Bramhall Street, fifty (50) feet,more or less,to land of Sophia M.Knight;thence northerly from these two points keeping a width of fifty (50) feet and bounded on the West by Land of said Knight and on the East by land of said Pratt and George H.Fletcher,forty-nine (49) feet,more or less, to said Arsenal Street.

Being the same property conveyed to me by Harriet B.Foster by her warranty deed dated February 24,1945 and recorded in the Cumberland County Registry of Deeds in Book 1771 Page 131.

Also conveying all my,right, title and interest in and to Arsenal Street, recently abandoned by theCity of Portland.

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors heirs and assigns, to its and their use and behoof forever.

And I do covenant with the said Grantee, its successors heirs and assigns, that I am lawfully seized in fee of the premises, that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will ~~Warrant and Defend~~ the same to the said Grantee, its ~~heirs~~ successors and assigns forever, against the lawful claims and demands of all persons.

~~In Witness Whereof~~ I the said John T.Lennon

and Ann C.Lennon

wife of the said John T.Lennon

joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises, have hereunto set our hand and seal this fifth day of May in the year of our Lord one thousand nine hundred and fifty three.

~~Signed, Sealed and Delivered in presence of~~

John J. Devine
to both

John T. Lennon
Ann C. Lennon

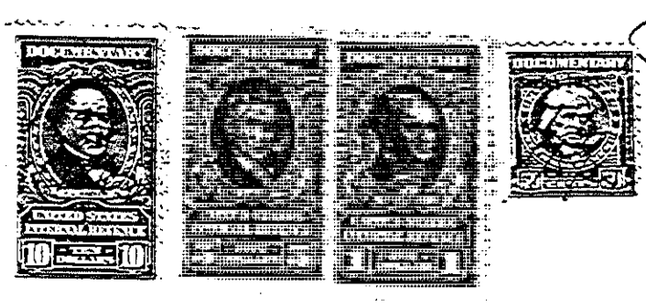
1650

~~State of Maine.~~ Cumberland ss. May 5, 19 53.

Personally appeared the above named John T.Lennon

and acknowledged the foregoing instrument to be his free act and deed.

Before me,
John J. Devine
Justice of the Peace
~~Notary Public~~



Phillbrook

269

Warranty Deed

FROM

John T.Lennon

TO

Maine Medical Center

Dated May 5th 19 53

State of Maine.
Cumberland Co. Registry of Deeds

Received MAY 5 1953 19/

at 2 H., 30 M., 0 M., and

recorded in Book 2127 Page 269

ATTEST: Robert W. Crockett Register

FROM THE OFFICE OF

Devine, Devine, Devine
102 Exchange St
Portland,Maine.

L. L. MARTIN, PORTLAND, ME.—OFFICE FURNITURE AND SUPPLIES
TYPEWRITERS, ADDING MACHINES, FILING CABINETS, SAFES, ETC.

MARTIN'S FORM NO. 1 — STANDARD REGISTRY FORM

9 3 3

(9)

(No. 106)

Know All Men by these Presents,

That I, HAZEL B. THERIO of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation duly organized and existing under the Laws of the State of Maine and located at said Portland

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said MAINE MEDICAL CENTER, its

successors and Assigns forever,

the following described property:

A certain lot or parcel of land with the buildings thereon situated on the Westerly side of Bramhall Street in said Portland, being more particularly described in deed from Hazel E. Skillings to the Grantor, dated September 18, 1945 and recorded in Cumberland County Registry of Deeds in Book 1790, Page 500, in which deed said premises are described as follows:

A certain lot or parcel of land, with the buildings thereon situated in said City of Portland, on the Northwesterly side of Bramhall Street, bounded and described as follows: Beginning at the most easterly corner of land now or formerly of Sophia P. Jones; thence Northeasterly on said Bramhall Street fifty (50) feet to land now or formerly of one Raymond; thence Northwesterly by said Raymond land fifty-nine (59) feet; thence Southwesterly thirteen (13) feet two (2) inches, more or less, to a fence; thence Northwesterly by the line of the division fence three (3) feet two (2) inches; thence Southwesterly by said fence thirty-six (36) feet five (5) inches, more or less, to said Jones land; thence Southeasterly by said Jones land sixty-two (62) feet two (2) inches to the point begun at.

Also, all my right, title and interest in and to Arsenal Street recently abandoned by the City of Portland.

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors

and Assigns, to its and their use and behoof forever.

And I do covenant with the said Grantee, its successors and Assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will Warrant and Defend the same to the said Grantee, its successors

Heirs and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Hazel B. Therio,
being unmarried,

~~xxxxx~~ ~~xxxxxxxxxxxxxxx~~

~~joining in this deed as Grantor, and relinquishing and conveying~~
~~rights by descent and all other rights in the above~~
~~described premises~~, have hereunto set my hand and seal this
16th day of May in the year of our Lord
one thousand nine hundred and fifty-three.

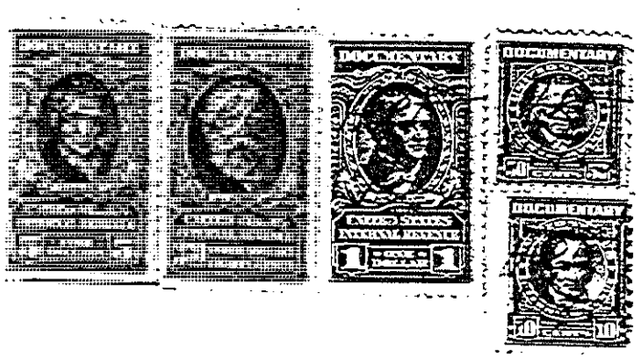
~~Signed, Sealed and Delivered~~
in presence of

Edward F. Sawyer — Hazel B. Therio

~~State of Maine.~~
Cumberland } ss. May 16, 1953.

Personally appeared the above named Hazel B. Therio
and acknowledged the above instrument to be her free act and
deed.

Before me, Edward F. Sawyer.
Justice of the Peace



Philbrick

443

Warranty Deed.

FROM

HAZEL B. THERIO

TO

MAINE MEDICAL CENTER

DATED May, 19 53.

State of Maine.

Cumberland ss: Registry of Deeds.

Received MAY 16 1953, 19 ,

at 10 H, 25 M., A M., and

recorded in Book 2127, Page 143.

ATTEST:

Robert V. Crommett, REGISTER.

FROM THE OFFICE OF

VERRILL DANA WALKER PHILBRICK

& WHITEHOUSE.

No. 100. ROBERTS OFFICE SUPPLY COMPANY
Portland - Maine - Lewiston

10-35

(No. 106)

Know All Men by these Presents,

That We, Albert N. Tardif and M. Louise Tardif, both of Portland, County of Cumberland, State of Maine

in consideration of one dollar ($1.00) and other valuable considerations

paid by Maine Medical Center, a Corporation established by law at said Portland

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center

its successors ~~Heirs~~ and Assigns forever,

the following described property:

A certain lot or parcel of land with the buildings thereon situated on the northerly side of Bramhall Street in said Portland which was conveyed to the grantors by Wilhelmina M. Mantine, by deed dated September 16, 1935 and recorded in Cumberland County Registry of Deeds in Book 1478, Page 294 and therein described as follows: Beginning on the northerly side of Bramhall Street at the easterly corner of land formerly of James Miller; thence northeasterly by Bramhall Street twenty-one and seven twentieths (21-7/20) feet to a stake; thence northwesterly about one hundred eleven (111) feet to a point in the southerly side of Arsenal Street; thence southwesterly by Arsenal Street twenty-two and three quarters (22-3/4) feet to said Miller's land; thence southeasterly by said Miller's land one hundred eleven and four tenths (111-4/10) feet to the point of beginning.

Also all our right title and interest in and to Arsenal Street recently abandoned by the City of Portland.

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Maine Medical Center, its successors

~~Heirs~~ and Assigns, to its and their use and behoof forever.

And we do covenant with the said Grantee, its ~~Heirs~~ successors and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and ~~our~~ Heirs, shall and will Warrant and Defend the same to the said Grantee, its successors

~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Wherrof, We the said Albert N. Tardif

and M. Louise Tardif, the said Grantors, being Husband and Wife

~~and~~ ~~wife of the said~~

each joining in this deed as Grantors, and each relinquishing and conveying our respective rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 11th day of June in the year of our Lord one thousand nine hundred and fifty-three.

~~Signed, Sealed and Delivered~~
~~in presence of~~

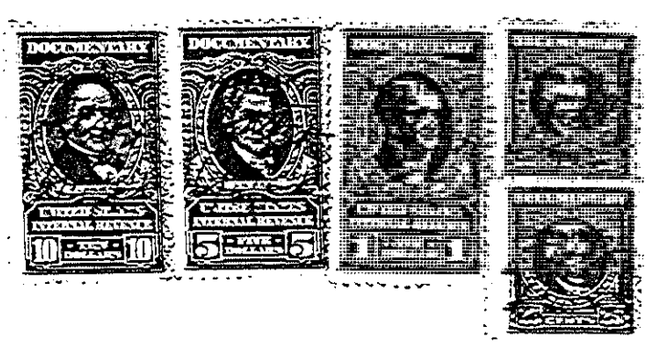
Edward F. Sawyer
to both

Albert N Tardif
M Louise Tardif

~~State of Maine.~~
Cumberland } ss. June 11, 1953.

Personally appeared the above named Albert N. Tardif and M. Louise Tardif and acknowledged the above instrument to be their free act and deed.

Before me, Edward F. Sawyer
Justice of the Peace



Philbrick

310

Warranty Deed.

FROM

ALBERT N. TARDIF, et al

TO

MAINE MEDICAL CENTER

DATED June, 1953.

State of Maine.
Cumberland ss: Registry of Deeds.

Received JUN 12 1953, 19 ,

at 11 H., 5 M., A M., and

recorded in Book 2133, Page 310

ATTEST:

Robert T. Crowell, REGISTER.

FROM THE OFFICE OF

Verrill Dana Walker Philbrick

& Whitehouse

No. 106. ROBERTS OFFICE SUPPLY COMPANY
Portland - Maine - Lewiston

11-5

(11)

No. 106

Know All Men by these Presents,

That I, CLARA G. READ, of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations

paid by MAINE MEDICAL CENTER, a Maine corporation having a place of business in said Portland, in said County and State,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center,

its Successors ~~Heirs~~ and Assigns forever,

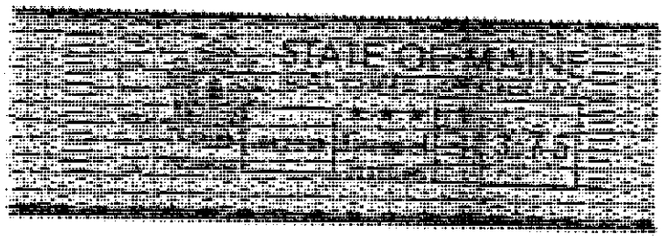
the following described property:

A certain lot or parcel of land, with the buildings thereon, situated on the southwesterly side of Charles Street in said Portland, bounded and described as follows:

Beginning on said southwesterly side of Charles Street at a point thirty (30) feet northwesterly by said Street from the northeasterly corner of land formerly of Charles A. Donnell; thence northwesterly by said Street thirty (30) feet; thence southwesterly parallel with the line of said Donnell land seventy-four and two-tenths (74.2) feet to land formerly known as the Arsenal property; thence southeasterly by said Arsenal lot thirty (30) feet; thence northeasterly parallel with said Donnell land seventy-four and two-tenths (74.2) feet to the point of beginning.

Being the same premises conveyed to this Grantor and Clarence D. Read, as joint tenants, by Grace R. Loomis by deed dated September 1, 1948 and recorded in Cumberland County Registry of Deeds in Book 1926, Page 336. The said Clarence D. Read having deceased and his estate is of record in the Registry of Probate for Cumberland County, Maine.

The Grantor herein shall have the right to occupy the premises hereby conveyed until September 15, 1969.



To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Maine Medical Center, its Successors

~~Heirs~~ and Assigns, to them and their use and behoof forever.

And I do covenant with the said Grantee, its/ ~~Heirs~~ Successors and Assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will Warrant and Defend the same to the said Grantee, its Successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Clara G. Read, being a widow,

~~and~~ ~~wife of the said~~

~~joining in this deed as Grantor, and relinquishing and conveying~~

~~rights by descent and all other rights in the above~~

~~described premises~~, have hereunto set my hand and seal this [illegible] day of July in the year of our Lord one thousand nine hundred and sixty-nine.

Signed, Sealed and Delivered
in presence of

[illegible] [illegible]

State of Maine,
CUMBERLAND } ss. July [illegible] 1969.

Personally appeared the above named

CLARA G. READ

and acknowledged the above instrument to be [illegible] free act and deed.

Before me, [illegible]

Justice of the Peace

JUL 23 1969
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 10 H 58 M.M. and recorded in
BOOK 3695 PAGE 34 Seward R. T[illegible] Register

Phillich/40

Warranty Deed.

FROM

CLARA G. READ

TO

MAINE MEDICAL CENTER

DATED July 22, 1969.

State of Maine,

..... ss: Registry of Deeds

Received JUL 2 6 1969, 19 ,

at ..... M., ... M., ... M., and

recorded in Book....., Page.....

ATTEST:

....., REGISTER.

FROM THE OFFICE OF

JOHN W. STURGIS
415 Congress Street
Portland, Maine

No. 106. ROBERTS OFFICE SUPPLY COMPANY
Portland, Maine

10.50

(12)

No. 106

Know All Men by these Presents,

That We, WILLIAM C. GOKEY and SUZANNE E. GOKEY, both of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of Maine and located at Portland, County of Cumberland and State of Maine

the receipt whereof we do hereby acknowledge, do hereby ~~give, grant, bargain, sell and convey~~, unto the said Maine Medical Center,

its successors ~~xxxxx~~ and Assigns forever,

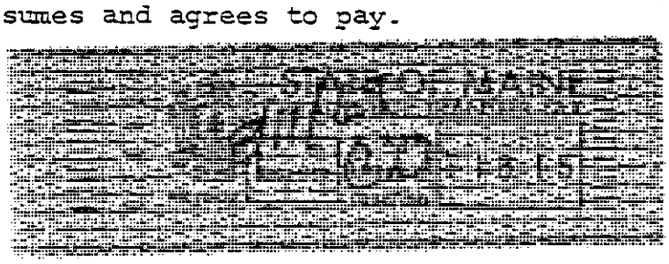
the following described property:

A certain lot or parcel of land with the buildings thereon situated on the southeasterly side of Ellsworth Street in said Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at the northeasterly corner of a lot of land on Bramhall's Hill which John B. Brown sold to one Tuttle; thence northeasterly on said Ellsworth Street forty (40) feet; thence southeasterly about seventy-four (74) feet to land formerly of Davis; thence southwesterly by said Davis's land to land formerly of said Tuttle forty (40) feet; thence northwesterly to said Ellsworth Street, the bounds begun at, seventy-four (74) feet.

Being the same premises conveyed to William C. Gokey and Suzanne E. Gokey by Thelma A. Barter, by deed dated June 19, 1968, recorded in Cumberland County Registry of Deeds in Book 3045, Page 187.

This conveyance is made subject to taxes for the year 1969 which the Grantee assumes and agrees to pay.



To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Maine Medical Center, its successors

~~Heirs~~ and Assigns, to its and their use and behoof forever.

And we do covenant with the said Grantee, its successors ~~Heirs~~ and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our Heirs, shall and will Warrant and Defend the same to the said Grantee, its successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we the said William C. Gokey and Suzanne E. Gokey, being husband and wife

~~and wife of the said~~

~~joining in this deed as Grantor, and relinquishing and conveying all rights by descent and all other rights in the above described premises~~, have hereunto set our hands and seals this 11th day of August in the year of our Lord one thousand nine hundred and sixty-nine.

Signed, Sealed and Delivered in presence of

State of Maine, Cumberland } ss. August 11, 1969

Personally appeared the above named William C. Gokey and acknowledged the above instrument to be his free act and deed.

Before me,

Justice of the Peace

AUG 11 1969
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 2 E 24 M. and recorded in
BOOK 3197 PAGE 244 Register

Philbrick / EFD

Warranty Deed.

FROM

William C. Gokey et al

TO

Maine Medical Center

DATED August, 1969.

State of Maine,

..... on: Registry of Deeds

Received AUG 11 1969, 19 ,

at ..... H., ... M., ... M., and

recorded in Book....., Page.....

ATTEST:

....., REGISTER.

FROM THE OFFICE OF
Verrill Dana Philbrick Whitehouse
& Putnam
57 Exchange Street
Portland, Maine

No. 106. ROBERTS OFFICE SUPPLY COMPANY
Portland, Maine

2-28

(13)

(154)
EXECUTOR'S AND TRUSTEE'S DEED.
[WHEN THE WILL AUTHORIZES A SALE.]

927

Know all Men by these Presents,

That I, HELEN M. GRIFFIN

of Portland in the county of Cumberland

sole acting executor of the last will and testament

of Mary Davis late of Portland

deceased, testate, by virtue of the authority to me given by

the said Mary Davis in her last will and

testament, in my capacity of executor as afore-

said, and in consideration of One Dollar ($1.00) and other

valuable considerations

to me paid by MAINE MEDICAL CENTER, a corporation organized under the laws of Maine and situated in Portland

the receipt whereof is hereby ac-

knowledged, do hereby grant and convey unto the said Maine Medical Center, its successors

and assigns, the following described real estate, which was

the property of the said Mary Davis.

A certain lot or parcel of land with the buildings thereon situated in Portland on the northerly side of Brackett Street, bounded and described as follows:

Beginning at the intersection of the northerly side of Brackett Street with the westerly side of Russell Street; thence running northeasterly by Russell Street thirty-seven (37) feet, more or less, to land formerly owned by Hobart W. Richardson; thence running northwesterly by said Richardson land seventy-four (74) feet, more or less, to land formerly owned or occupied by W. S. Dunn; thence southwesterly by the line of said Dunn's land forty-one (41) feet, more or less, to a lane; thence southeasterly by said lane forty-one (41) feet, more or less, to Brackett Street; thence easterly by Brackett Street thirty-seven (37) feet, more or less, to the point of beginning.

Being the same premises conveyed to Mary Davis by Harry E. Davis by deed dated March 18, 1915, recorded in Cumberland County Registry of Deeds in Book 945, Page 109.

Reference is made to Will of said Mary Davis, abstract of which is recorded in said Registry of Deeds in Book 3025, Page 28.

928

To have and to hold the above-granted premises unto the said Maine Medical Center, its successors ~~and~~ ~~assigns~~ and assigns forever. And I the said Helen M. Griffin, in my said capacity, do hereby covenant to and with the said Maine Medical Center, its successors ~~and~~ and assigns, that I am the lawful executor of the last will and testament of the said Mary Davis ; that I have power under said will to sell as aforesaid; and that in making this conveyance, I have in all respects, acted in pursuance of the authority granted in and by the said last will and testament.

In Witness Whereof, I the said Helen M. Griffin

in my said capacity of executor

as aforesaid have hereunto set my hand and seal .

this 31st day of March in the year of our

Lord one thousand nine hundred and sixty-six.

Signed, Sealed and Delivered
in presence of

Helen M Griffin

March 31 1966.

State of Maine.
Cumberland } ss.

Then personally appeared the above named Helen M. Griffin

and acknowledged the above instrument to be her free act and deed

in her said capacity.

Before me,

Justice of the Peace.

MAR 31 1966
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 3 H 55 M P.M. and recorded in
BOOK 2951 PAGE 927 Register

Executor's and Trustee's Deed.

(WHEN THE WILL AUTHORIZES A SALE.)

Helen M. Griffin

TO

Maine Medical Center

Dated, ... 19

..... ss. **Registry of Deeds.**

Received 19

MAR 31 1966

at ..... H., ... M., ... M., and

recorded in Book ..... Page .....

Attest: ..... Register.

FROM THE OFFICE OF

Verrill Dana Walker Philbrick
& Whitehouse
57 Exchange Street
Portland, Maine

LORING, SHORT & HARMON, LAW STATIONERS
PORTLAND, MAINE

3355

(15)

KNOW ALL MEN BY THESE PRESENTS

THAT OLD COLONY TRUST COMPANY a Corporation located in Boston, County of Suffolk and Commonwealth of Massachusetts, sole surviving Trustee under a Trust Agreement created by ALICE A. BURKITT late of Portland and dated March 30, 1961 by virtue of the authority to it given by said Trust Agreement in its capacity of Trustee as aforesaid, and in consideration of One Dollar ($1.00) and other valuable considerations to it paid by MAINE MEDICAL CENTER of Portland, Maine, the receipt whereof is hereby acknowledged, does hereby sell and convey unto the said Maine Medical Center its successors and assigns forever, the following described real estate, which was the property of Alice A. Burkitt late of Portland, situated in said Portland, Maine and bounded as follows:

a certain lot or parcel of land with the buildings thereon, situated in said Portland, bounded and described as follows: Beginning at a point on the easterly side of Western Promenade, which point is eighty-five (85) feet from the intersection of the northeasterly side line of said Promenade with the northwesterly side line of Bramhall Street; thence northerly by the line of said Promenade seventy-seven and five tenths (77.5) feet, more or less, to Arsenal Street; thence northeasterly by said Arsenal Street seventy-four and one tenths (74.1) feet, more or less, to land now or formerly of William J. Miller et al; thence southeasterly at right angles to Arsenal Street by said Miller land fifty-five and five tenths (55.5) feet, more or less, to land formerly of Hiram Knowlton; thence southwesterly parallel with said Arsenal Street one hundred and twenty-seven (127) feet, more or less, to the Western Promenade and point of beginning, containing fifty-six hundred (5600) square feet more or less.

Also another parcel of land adjoining the above described lot, and bounded and described as follows: Commencing at a point on the northwesterly side of Bramhall Street, which point is the northeasterly corner of land of Frederick C. Hussey et al, and ninety-eight and two tenths (98.2) feet, more or less, from the intersection of said northwesterly side line of Bramhall Street with the easterly side line of the Western Promenade; thence northeasterly on said Bramhall Street thirty-three and five tenths (33.5) feet to a point and land formerly of Hiram Knowlton, and from these two points extending northwesterly keeping a width of thirty-three and five

tenths (33.5) feet a distance of sixty (60) feet to the first parcel herein conveyed, containing two thousand and ten (2010) square feet.

Meaning and intending to convey and hereby conveying the real estate acquired by Alice A. Burkitt by Warranty Deed of Good Will Home Association dated December 11, 1930 recorded in the Cumberland County Registry of Deeds Book 1361, page 373; said real estate having been devised to the Grantor as Trustee by the Will of Alice A. Burkitt duly probated in the Cumberland County Probate Court.

TO HAVE AND TO HOLD the above-granted premises unto the said Maine Medical Center its successors and assigns forever. And the said Old Colony Trust Company in its said capacity does hereby covenant to and with the said Maine Medical Center its successors and assigns that it is the sole surviving Trustee under said Trust Agreement; that it has power under said Trust Agreement to sell as aforesaid; and that in making this conveyance it has in all respects acted in pursuance of the authority granted in and by said Trust Agreement.

IN WITNESS WHEREOF, the said Old Colony Trust Company in its said capacity as Trustee as aforesaid has caused this instrument to be signed in its corporate name and sealed with its corporate seal by S. Vincent its ~~Trust Officer~~ Vice President thereunto duly authorized this 4th day of February 1969.

Witness:

OLD COLONY TRUST COMPANY

By _____
Its ~~Trust Officer~~ Vice President

COMMONWEALTH OF MASSACHUSETTS
SUFFOLK, SS.

February 4, 1969.

Then personally appeared the above-named S. Vincent who made oath that the foregoing instrument was his free act and deed and the free act and deed of the Grantor corporation in its said capacity as Trustee as aforesaid.

Before me,

_____
Notary Public

Mary F. Archoska
NOTARY PUBLIC
My commission expires May 23, 1971

Section 5
Public or Private Rights-of-Way

5.A. Public or Private Rights-of-Way

The existing site has four primary accesses; one on Gilman Street for the existing employee garage, one on Congress for the visitor parking garage, one onto Crescent Street for the visitor parking garage, and a pick-up and drop-off driveway off Bramhall Street. The site is proposed to have one new access on Congress Street for the proposed visitor pick-up and drop-off driveway and visitor parking garage connection. The East Tower will continue to be accessed via the existing drop-off and pick-up driveway off Bramhall Street, and the two existing visitor parking garage accesses will remain. The existing Gilman Street employee garage access will be eliminated.

Section 6
Schedule

6.A. Schedule

The proposed project is anticipated to be completed and occupied by 2023.

Relationships.
Responsiveness.
Results.

Section #7
Traffic Impact Study
Bramhall Street - 22; MMC Congress Street Building
Portland, Maine

PREPARED FOR:
Maine Medical Center
22 Bramhall Street
Portland, ME 04102

October 2018

SUBMITTED BY:
Gorrill Palmer
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

Revised - Traffic Impact Study
Bramhall St. – 22; MMC Congress St. Building
Portland, Maine
October 2018

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Attachment 7A
Site Location Map
Turning Movement Diagrams

Attachment 7B
Trip Generation Calculations
May 2013 Traffic Impact Study

Attachment 7C
Capacity and Queue Analysis Results

Attachment 7D
Pedestrian and Bicycle Collision Locations
Left Turn Lane Warrants

I. Introduction

A Scoping Meeting for this project was held on October 23, 2018 that reviewed Sections 1-6 of the Traffic Movement Permit (TMP) application. This traffic impact study is Section 7 of that application, and examines the potential traffic impact of phase three (3) of the proposed Maine Medical Center expansion in Portland, Maine. The site of the expansion is located at the site of the existing Gilman Garage in the southeast corner of the Congress Street / Gilman Street intersection. The site is identified on City Tax Map 53, Lot D007, and City Tax Map 65 Lots H001, H002, H005, H008, and H009. A proposed site plan is provided with the site plan application under separate cover. The attached Figure 1 in Attachment 7A shows the location of the site.

The existing site is the same location as the Gilman parking garage for the employees of Maine Medical Center. The proposed project consists of razing the existing employee garage and constructing additional hospital space, including new operating rooms and patient rooms, although the total number of beds will remain the same, since the new patient rooms are intended to decompress the existing hospital. A new drop off and pick up loop, with access to the visitor garage is proposed on Congress Street, to the west of the existing visitor garage. Parking will be provided for employees at the recently approved St. John Street employee parking garage and for the patients and visitors in the existing and recently expanded visitor parking garage. The expansion is proposed to be a total of 265,000 sf and is also anticipated to add 200 employees by 2023, the opening year of the project. After opening, MMC is anticipated to add an additional 124 employees, for a total increase of 324 employees.

II. Existing Traffic Volumes

Turning movement counts were completed by Accurate Counts at the following intersections from 5:00AM to 9:00AM and 2:00PM to 8:00 PM on the specified dates:

- St John Street / Valley Street: November 8, 2017
- Valley Street / Commercial Street: November 2, 2017
- Congress Street / St. John Street: November 2, 2017
- St John Street / Park Avenue: November 8, 2017

Accurate Counts also completed turning movement counts at the intersection of Valley Street with Congress Street on June 26, 2018 from 6:00AM – 6:00PM.

Turning movement counts were also completed by Gorrill Palmer at the following intersections:

- St. John Street / D Street: May 30, 2018, 6:00AM – 9:00AM and 3:00PM – 6:00PM
- Congress Street / Bramhall Street: August 23, 2018, 6:00AM – 9:00AM and 3:00PM – 6:00PM
- Congress Street / Visitor Garage: August 29, 2018, 6:00AM – 9:15AM and 3:00PM – 6:00PM
- Visitor Garage / Crescent Street: August 29, 2018, 6:00AM – 9:00 AM and 3:00PM – 6:00PM

In addition, turning movement counts were completed by Gorrill Palmer at the intersection of St. John Street with the Margarita's Driveway on May 17, 18, and 19, 2017 from 6:00AM to 8:00AM, 7:45AM to 9:00AM, 5:00PM to 8:00PM, and 3:00PM to 5:00PM. Those volumes were used as the base raw volumes for St. John Street and for Margaritas during the peak hours of the generator. This evaluation has focused on the peak hour of the adjacent street, which occurs at 7:30AM to 8:30AM and 4:15PM to 5:15PM at the intersection of Congress Street with Bramhall Street.

The results of all counts for the peak hour of the adjacent street are shown on the attached Figure 2 in Attachment 7A.

III. Other Developments in the Vicinity of the Site

Approved projects that are not yet opened as well as projects for which applications have been filed are required to be included in the predevelopment volumes for this project. Based on conversations with City Staff, traffic from the proposed Mercy Hospital expansion, the proposed Dunkin' Donuts on St. John Street, and the Thompson's Point development should be included in the background traffic. It should be noted that although portions of the Thompson's Point development have been constructed, the full build out traffic volumes from the August 2011 Traffic Impact Study have been utilized to be conservative. The traffic from this project that is forecast to impact the Maine Medical Center Expansion study area is shown on the attached Figure 4.

IV. Predevelopment Traffic Volumes

Traffic volumes that are not collected during peak summer months are typically seasonally adjusted to estimate traffic volumes that may be experienced during the peak summer months. Since the traffic counts were not collected during the peak summer months, the raw volumes shown on Figure 2 have been seasonally adjusted based on the weekly group mean factors published by MaineDOT. The following summarizes the adjustment at each intersection:

- Valley Street / Commercial Street: 8.3%
- St. John Street / Valley Street: 8.3%
- D Street / St. John Street: 2.4%
- Margaritas / St. John Street: 3.6%
- Congress Street / St. John Street: 8.3%
- Park Avenue / St. John Street: 8.3%
- Valley Street / Congress Street: 2.4%
- Gilman Street / Congress Street: 15.5% (Congress through traffic only)
- Bramhall Street / Congress Street: 0.0%

In addition to the seasonal adjustment, the adjacent roadway volumes were also increased by an annual growth rate to forecast the traffic volume that may be experienced during the build out year of the project. An annual growth rate of 0.5% per year (approved by the City and consistent with other studies in the area) has been applied to the seasonally adjusted volumes to yield the 2023 Adjusted Volumes shown on the attached Figure 3. The 2023 Adjusted Volumes have been combined with the Other Development Volumes to yield the 2023 Predevelopment traffic volumes shown on the attached Figure 5. It should be noted that the employee growth rate in the IDP is forecast to be approximately 0.63% per year, which is very similar to the growth rate approved by the City for overall on-street traffic and used on other studies in the area.

It should be noted that the traffic volumes into and out of parking areas has not been adjusted because significant seasonal or annual fluctuation is not anticipated.

V. Trip Generation

The trip generation for the Phase 3 Expansion was calculated using the Institute of Transportation Engineers' (ITE) publication, *Trip Generation*, Seventh Edition, Land Use Code (LUC) 610 – Hospital. The Tenth Edition is available, but has not yet been accepted by the MaineDOT. The expansion is proposed to be a total of 265,000 sf and is anticipated to add 200 employees by 2023 and an additional 124 employees after opening for a total of 324 employees. As approved at the October 13, 2017 Pre-Scoping meeting, the trip generation for the expansion has been based on the number of employees, students, and physicians. The following is a summary of the trip generation for the expansion based on an increase of 324 employees:

- AM Peak Hour Adjacent Street: 110 trip ends
- PM Peak Hour Adjacent Street: 107 trip ends
- AM Peak Hour of Generator: 126 trip ends
- PM Peak Hour of Generator: 152 trip ends
- Saturday Peak Hour: 172 trip ends

A trip end is defined as a trip into or out of the site; thus, a round trip is equal to two trip ends. Since the forecast traffic exceeds 99 trip ends during a peak hour, a Traffic Movement Permit is required. The City of Portland has delegated review authority, so the application can be administered by the City. A copy of the trip generation calculations are included as an attachment to this section.

Based on ITE's *Trip Generation*, the following trip distribution is anticipated:

- AM Peak Hour Adjacent Street: 88 in / 22 out
- PM Peak Hour Adjacent Street: 37 in / 70 out
- AM Peak Hour of Generator: 82 in / 44 out
- PM Peak Hour of Generator: 61 in / 91 out
- Saturday Peak Hour: 95 in / 77 out

VI. Trip Composition and Assignment

GP has assumed that all trips are primary in nature and made for the sole purpose of going to and from the site. The forecast trip generation is anticipated to be comprised of patients/visitors and employees. The portion of the trip generation that is forecast to be due to patients/visitors has been based on information provided by MMC in an email dated August 8, 2018.

Table 2.4 on page 41 of the IDP shows the forecast campus weekday volumes for 2026. The patient and visitor volumes from 2026 have been proportionally reduced based on the growth rates to estimate the number of patients and visitors in 2023. Based on the 2026 patient and visitor volumes, an increase of approximately 50 patients and visitors in an average weekday is anticipated by 2023 due to the proposed expansion. The distribution of the patient/visitors has been based on the following assumptions:

- 20% of daily trips occur during the peak hours
- 80% entering during the AM peak hour
- 80% exiting during the PM peak hour

Based on these assumptions, the following trip composition is forecast for the peak hours of the adjacent street:

- AM Peak Hour Adjacent Street (assumed 7:30AM – 8:30AM):
    - Patients/Visitors: 14 trip ends (11 in / 3 out)
    - Employees: 58 trip ends (46 in / 12 out)

- PM Peak Hour Adjacent Street (assumed 4:15PM – 5:15PM):
    - Patients/Visitors: 14 trip ends (3 in / 11 out)
    - Employees: 56 trip ends (21 in / 35 out)

It should be noted that although the patient/visitor trip generation appears to be low, it is a reasonable level of trip generation for the expansion since the expansion is proposed to decompress the existing hospital, and not significantly increase the number of patients at the hospital.

The patient/visitor trip assignment has been based on the proposed driveway locations, information from MMC in an email dated August 8, 2018, and the existing traffic patterns and is shown on Figure 6 in Attachment 7A. The trip assignment for the employees was initially based on the VHB Travelshed for employees, and adjusted per City comments. The trip assignments are shown on Figure 7 in Attachment 7A.

VII. Previously Approved Expansions

Although the currently proposed expansion is for 324 employees, there were previously approved expansions that did not trigger a Traffic Movement Permit. It is required that any development on a property that was completed within the last 10 years be included in the permitted trip generation. Based on information from the City of Portland, there were two previously approved, constructed, and occupied expansions. Based on a review of a traffic impact study completed for the second expansion, dated May 2013, the trip generation for the combined expansions was forecast to be the following:

- AM Peak Hour of the Generator: 77 trip ends
- PM Peak Hour of the Generator: 84 trip ends

It should be noted that the May 2013 traffic impact study included only the peak hours of the generator. Since the expansion projects that were forecast to generate this traffic have been completed and occupied, this traffic is assumed to be included in the existing traffic on the adjacent roadway network. However, it must be included when determining the study area for the currently proposed expansion. The forecast trip generation for the currently proposed expansion has been combined with the previous expansions to yield the following trip generation:

- AM Peak Hour: 187 trip ends
- PM Peak Hour: 191 trip ends

The proposed expansion focuses on the peak hour of the adjacent street traffic, since this is expected to be the most congested time period on the adjacent roadway network. Since the only available information for the previous studies is the peak hour of the generator, those volumes were added to the proposed traffic for the purposes of determining the overall study area. This is a conservative approach, since it overlaps the peak of the hospital that includes primarily employees and occurs off hours, with the peak of the adjacent street traffic.

The distribution between patients and visitors for the previous expansion is assumed to be the same as the currently proposed expansion. The attached Figure 17 shows the estimated trip assignment for the previous expansion and the currently proposed expansion.

VIII. Congress Street Pick-Up / Drop-Off

As part of the proposed expansion, a new patient drop-off / pick-up loop is proposed on Congress Street to the west of the existing visitor garage. The loop is proposed to have a connection to the Visitor Garage, to allow people to drop a patient off then park or pick up a patient after exiting the Visitor Garage. This prevents traffic from recirculating on Congress Street between the loop and the parking garage. There is space for approximately 11 vehicles before backing onto Congress Street, which is anticipated to be adequate based on observations completed at the existing Bramhall Street loop. It is anticipated that the new Congress Street pick-up / drop-off will draw existing traffic from the Bramhall Street drop-off loop. To estimate the traffic that may use the Congress drop-off instead of the Bramhall drop-off, counts and observations were completed by Gorrill Palmer at the Bramhall drop-off on August 28-30, 2018 from 7:00AM – 10:00AM and 3:00PM – 6:00PM. On August 29, 2018 an additional two hours, from 10:00AM – 12:00PM, was also collected. The counts were separated into six types of trips through the loop; pick-up, drop-off, pass-through, parked, valet parking (park), and valet parking (return). Using the counts collected, traffic was reassigned based on existing traffic patterns and the following assumptions:

- Valet parking and return will remain at the Bramhall drop off
- 75% of pick-ups and drop-offs will use the Congress drop off (from MMC in an email dated August 8, 2018)
- 25% of pick-ups and drop-offs will remain at the Bramhall drop off (from MMC in an email dated August 8, 2018)

The reassigned traffic volumes are shown on Figure 8 in Attachment 7A. It should be noted that the initial assumption was that valet parking would remain only at the Bramhall drop-off. Since that time, it has been identified that there will be valet parking at the

Congress Street drop-off as well as the Bramhall drop-off. This may increase traffic volumes using the Congress drop-off and right turning traffic from Congress to Bramhall. The increase in traffic due to valet parking is not forecast to significantly impact the results of this evaluation.

IX. Phase 3 Net Impact

The Phase 3 patient/visitor trip assignment on Figure 6, the Phase 3 employee trip assignment on Figure 7, and the reassigned drop-off traffic on Figure 8 were combined to yield the Phase 3 Net Impact shown on Figure 9 in Attachment 7A.

X. Existing Employee Garage

The proposed Phase 3 expansion will be located at the site of the existing employee garage in the southeast corner of the Congress Street / Gilman Street intersection. The existing employee garage is proposed to be razed and MMC will be constructing a new 2400 space employee parking garage on St. John Street. As a result, the existing employee traffic volumes will be relocated to St. John Street. The existing employee garage traffic volumes have been estimated based on the turning movement counts completed at the garage access on Gilman Street on November 2, 2017, the previously approved proposed employee garage assignment, and existing traffic patterns. Figure 10 in Attachment 7A shows the existing employee garage traffic to be removed from the adjacent roadway network.

XI. Proposed Employee Garage

MMC will construct an approximately 2,400 space employee parking garage with an adjacent surface lot with approximately 50 spaces on St. John Street. The proposed garage and adjacent surface lot are anticipated to initially accommodate the following:

- Gilman Garage: 1,274 spaces
- Sportsman Lot: 60 spaces
- 222 St. John Street Lot: 283 spaces
- Gateway Garage: 100 spaces
- Classic Lot: 97 spaces
- 321 Brackett Street Lot: 9 spaces
- MMC Employee On-Street Parking: 200 spaces (estimated)

Total Parking Spaces = 2,023

The 200 on-street parking spaces are an approximate number of spaces intended to include vehicles that may currently park on neighborhood streets. It should be noted that in the garage and surface lot 50 spaces are proposed to be reserved for the Eagles and approximately 150 are reserved for 222 St. John Street. The 50 parking spaces reserved for the Eagles are not expected to occur on a regular and frequent basis. Additionally, the Eagles and 222 St. John Street peaks are not expected to coincide with the peaks of MMC.

The Institutional Development Plan (IDP) identifies a current total of 2,027 employee parking spaces both on and off campus. The existing employee spaces that are not included in the garage spaces identified above are located in the 7 Bramhall Street lot (26 spaces). This lot is proposed to remain where it is because it serves specific programs at that location.

Existing Parking Area Traffic Volumes

Traffic counts were completed at the existing Gilman Garage access as follows:

- Accurate Counts - November 2, 2017 from 5:00AM to 9:00PM (16 hours) – The counts indicate that the peak hours of traffic entering and exiting the garage occurred from 6:45AM to 7:45AM with 448 trip ends, and 6:00PM to 7:00PM with 326 trip ends.
- GP – January 18, 2018 from 6:30AM to 8:00AM and 5:45PM to 7:15PM - The times were chosen based on the peak hours determined in the November 2, 2017 counts. The counts completed by GP confirmed the original findings from the November 2, 2017 counts.

Traffic counts were also completed at the existing 222 St. John Street surface parking as follows:

- GP - January 18, 2018 from 6:15AM to 7:45AM and from 3:30PM to 5:00PM
- GP - January 23, 2018 from 5:45PM to 7:15PM

The 222 St. John Street parking lot peak hours occurred from 6:15AM to 7:15AM and 3:30PM to 4:30PM. The entering and exiting traffic for each 15 minute period at the 222 St. John Street is shown on the attached "St. John Street Parking Garage Trip Generation" table.

The Gilman Employee Parking Garage and 222 St. John Street surface lot represent approximately 85% of the MMC employee spaces anticipated to be accommodated by the proposed St. John Street garage. As such, it is anticipated that when combined they will

represent the majority of the traffic patterns that can be expected at the new garage. To represent the traffic patterns of the remaining 15% of the satellite lots as well as the on-street parking spaces, the traffic patterns were assumed to be similar to the 222 St. John Street satellite lot. The trip generation for each 15 minute period for each satellite parking area has been estimated based on the trip generation at the 222 St. John Street parking lot and is shown on the attached "St. John Street Parking Garage Trip Generation" table.

Reassigned Parking Area Traffic Volumes

Since the employees that currently park in the Gilman garage will be shifted to the new garage, they will have to take a shuttle in the future rather than have direct access to the hospital as they do currently. Because of this shift, we would expect those employees to arrive approximately 15 minutes earlier than they typically would and that they would end up leaving the new garage approximately 15 minutes later. Therefore, the counted volumes for the Gilman Garage were adjusted by 15 minutes to estimate the traffic that would be experienced when the spaces are relocated to 222 St. John Street. The adjusted Gilman Garage volumes are shown on the attached "St. John Street Parking Garage Trip Generation" table.

The trip generation for the proposed St. John Street garage is based on adding the existing or estimated trip generation of each 15 minute period for each parking location to identify the overall AM & PM peak hours. The AM peak hour of the proposed garage is estimated to occur from 6:00AM to 7:00AM with and the PM peak hour of the garage is estimated to occur 4:15PM to 5:15PM. The peak hours of the garage were evaluated in the St. John Street Garage Memorandum dated June 19, 2018, completed by Gorrill Palmer. This evaluation focuses on the peak hours of the adjacent street which occur from 7:30AM to 8:30AM and 4:15PM to 5:15PM. It should be noted that the PM peak hour of the adjacent street occurs at the same time as the PM peak hour of the proposed garage. The trip generation for the reassigned 2,023 spaces is estimated to be **443 trip ends** during the AM peak hour of the adjacent street and **474 trip ends** during the PM peak hour of the adjacent street. Detailed data is shown on the attached spreadsheet.

Trip Distribution and Assignment

The garage is proposed to be accessed via a full movement driveway directly onto St. John Street as well as indirectly via the Margarita's driveway. During peak hours of the garage, the garage will be set up such that the ground level and first deck will be accessed via the Margarita's driveway and decks 2-8 will be accessed directly via the St. John Street access. All of the 222 St. John Street employees, the 50 Eagles spaces, and some of the MMC Campus employees will use the ground level and first deck parking spaces with decks 2 – 8 used by MMC Campus employees only. It should be noted that at the time this study was prepared, it was estimated that of the approximately All employee shuttles throughout the day (enter and exit) will access the garage via the Margarita's access.

Unused shuttles during non-peak times of the day are expected to be parked on the ground level.

The trip distribution (enter vs. exit) for the proposed St. John Street garage has been based on the counts completed at the existing 222 St. John Street surface lot and the Gilman Garage. Based on the counts, the following trip distribution is anticipated for the proposed 222 St. John Street garage:

- AM Peak Hour: 98% entering, 2% exiting
- PM Peak Hour: 14% entering, 86% exiting

The regional trip assignment has been based primarily on the VHB travelshed completed for the IDP and revised slightly per comments received from the City. For localized assignment, it is based on GP's review of the area as well as numerous discussions with the City of Portland staff and traffic consultant. The trip assignment is shown on the attached Figure 11 in Attachment 7A.

Proposed Parking Garage Trip Generation – Adjacent Street Peak Hour

The proposed St. John Street garage was evaluated for full capacity in a memorandum dated June 19, 2018. To ensure that the proposed garage can accommodate the proposed expansion, the total trip generation for the full capacity garage has been compared to the trip generation for the reassigned existing spaces. The difference between the reassigned existing spaces and the full capacity garage trip generation has been compared to the proposed expansion employee trip generation to determine if the proposed garage can accommodate the proposed expansion.

The total trip generation for the proposed St. John Street garage is based on adding the existing or estimated trip generation of each 15 minute period for each parking location to identify the overall AM & PM peak hours. Then, a ratio of the proposed number of parking spaces (2,450) to the existing combined number of parking spaces to forecast the trip generation for the proposed garage.

Based on the combined volumes for the parking areas and the proportional increase in number of parking spaces, the trip generation of the proposed garage during the peak hours of the adjacent street is forecast to be **537 trip ends** during the AM peak hour and **574 trip ends** during the PM peak hour.

The MMC employee's full garage is 94 trip ends greater than the existing reassigned volumes during the AM peak hour of the adjacent street and 100 trip ends greater than the reassigned volumes during the PM peak hour of the adjacent street. The proposed garage was previously evaluated for full capacity and was forecast to operate at acceptable levels of service. The ITE forecast trip generation for the AM and PM peak hours of the

adjacent street is forecast to be 68 trip ends and 66 trip ends respectively, which is less than the increase from the existing to full build out of the garage. Since the garage is forecast to operate at acceptable levels of service with more trip generation, the garage can accommodate the increase of 200 employees and students.

XII. Shuttle Assignment

MMC will be upgrading their current shuttle service to accommodate the new garage. In addition to employee traffic, shuttles will be used to transport employees between the parking garage and the hospital. There are proposed to be 13 shuttles during the peak hours, each with an approximate 15 minute headway. Based on this information, one shuttle can make approximately four trips to and from the proposed garage during a one hour period. With 13 shuttles, approximately 52 round (52 enter and 52 exit) trips are anticipated at the site during the peak hour. As identified previously, all entering and exiting shuttles will use the Margarita's access. These 104 trips have been added to the employee trips. The shuttle assignment has been based on the shuttle routes provided by MMC. At this time, seven of the shuttles are proposed to use the Congress Street drop off area on Gilman Street and six shuttles are proposed to use the Bramhall Street drop off. It has been assumed that the shuttles will turn right out of the Margarita's access with the Gilman Drop off shuttles entering taking a right in and the Bramhall shuttles entering taking a left in. The shuttle assignment is shown on Figure 12 in Attachment 7A.

XIII. 222 St. John Street MMC Traffic

MMC currently utilizes a satellite parking lot at 222 St. John Street for employees. This traffic currently uses the Margarita's access and will be relocated to the proposed parking garage and is included in the proposed parking garage trip generation. The existing estimated 222 St. John Street MMC traffic is shown on Figure 13 in Attachment 7A.

XIV. 222 St. John Street Cut-Through (Non-MMC Traffic)

The existing turning movement counts indicate that some traffic uses the existing Union Station access from Congress Street to the site. For the purposes of this assessment, to be conservative, it has been assumed that this cut-through will not be available and that traffic has been reassigned to the adjacent street. The attached Figure 14 shows the reassignment of the cut-through traffic (not including MMC traffic).

XV. Proposed Garage Net Impact

The net impact of the proposed St. John Street garage has been calculated by combining the Proposed Garage Reassignment on Figure 11 with the Shuttle Assignment on Figure 12 and the 222 St. John Street Cut-Through traffic on Figure 14, then subtracting the existing Gilman garage traffic on Figure 10 and the existing 222 St. John Street MMC traffic on Figure 13. This yields the Proposed Garage Net Impact traffic volumes on Figure 15 included in Attachment 7A.

XVI. Postdevelopment Traffic Volumes

The predevelopment traffic volumes shown in Figure 5 have been combined with the Phase 3 Net Impact on Figure 9 and the Proposed Employee Garage Net Impact on Figure 15 to yield the 2023 Postdevelopment volumes shown on the attached Figure 16 in Attachment 7A.

XVII. Capacity Analysis

GP completed capacity analyses for the intersections discussed above using the Synchro/SimTraffic computer analysis software (Version 10). Level of service rankings are similar to the academic ranking system where an 'A' is good with little control delay and an 'F' represents poor conditions. At an unsignalized intersection, if the level of service falls below a 'D', an evaluation should be made to determine if mitigation is warranted. The following tables summarize the relationship between control delay per vehicle and level of service:

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (s)
A	Less than 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

Level of Service Criteria for Unsignalized Intersections

Level of Service	Control Delay per Vehicle (s)
A	Less than 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

The analysis has been completed assuming that the signal at the intersection of Valley Street with Congress is removed and will be unsignalized (based on a study completed by Sebago Technics, Inc.). This change is supported by the City and MaineDOT. Additionally, the intersection of St. John Street with the proposed Garage access is unsignalized in the predevelopment conditions and signalized in the postdevelopment conditions. The predevelopment conditions include timing and phasing that was provided by the City. The postdevelopment has been evaluated based on optimized signal timing. This includes converting the intersection of St. John Street / Congress Street from exclusive pedestrian phasing to concurrent pedestrian phasing. The following table summarizes the capacity analysis results. The detailed analyses are included in Attachment 7C.

Level of Service Summary

Approach	Level of Service			
	AM Pre	AM Post	PM Pre	PM Post
Park / St John (S)				
Park WB	C	C	D	D
St. John NB	C	B	D	C
St. John SB	E	C	D	C
Overall	**D**	**C**	**D**	**C**
Congress / St John (S)				
Congress EB	B	C	B	C
Congress WB	B	B	B	B
St. John NB	C	C	C	C
St. John SB	C	C	C	C
Overall	**B**	**C**	**B**	**C**
Margarita's / St. John (U)				
Margarita's EB	A	A	A	A
St. John NB	A	A	A	A
St. John SB	A	A	A	A
Garage / D / St. John (U/S)				
Garage EB	A	B	A	B
D WB	A	A	A	A
St. John NB	A	A	A	A
St. John SB	A	A	A	B
Overall	**N/A**	**A**	**N/A**	**B**

Approach	Level of Service			
	AM Pre	AM Post	PM Pre	PM Post
Valley / St. John (S)				
St. John EB	B	B	B	B
St. John WB	B	B	B	B
Valley NB	B	B	B	B
Valley SB	B	B	B	B
Overall	**B**	**B**	**B**	**B**
Commercial / Valley (S)				
Fore River Pkwy EB	E	C	E	D
Commercial WB	B	B	B	B
Valley SB	B	B	B	B
Overall	**D**	**C**	**D**	**C**
Valley / Congress (U)				
Congress EB	A	A	A	A
Congress WB	A	A	A	A
Valley NB	B	B	B	B
Gilman / Congress (U)				
Congress EB	A	A	A	A
Congress WB	A	A	A	A
Gilman NB	C	B	D	D
Gilman SB	A	B	B	B
Proposed Drop-Off / Congress (U)				
Congress EB	N/A	A	N/A	A
Congress WB	N/A	A	N/A	A
Drop-Off NB	N/A	C	N/A	C
Visitor Garage / Congress (U)				
Congress EB	A	A	A	A
Congress WB	A	A	A	A
Visitor Garage NB	C	C	B	C
MOB Garage SB	A	A	A	A
Bramhall / Congress (S)				
Congress EB	A	A	B	B
Congress WB	B	B	C	C
Bramhall NE	B	B	B	B
Deering SW	B	B	B	B
Overall	**B**	**B**	**B**	**B**

S=Signalized, U=Unsignalized

As shown in the table, all approaches to the study area intersections are forecast to operate at acceptable levels of service ('D' or better) during the AM and PM peak hours. Additionally, the operation of most intersection approaches is forecast to be maintained, while some are forecast to improve from the predevelopment conditions due to adjustments to signal timing. Any intersection approaches that are forecast to decrease in operation are forecast to decrease by one level of service (e.g. 'B' to 'C').

It should be noted that the intersection of Valley Street with A Street was not included in the capacity analysis. However, the removal of the existing employee garage is anticipated to **reduce** the traffic volumes at this intersection by 132 trip ends during the AM peak hour and 102 trip ends during the PM peak hour, which will improve its operation.

XVIII. Queue Analysis

GP completed a queue analysis using the same Synchro/SimTraffic computer analysis software that was used for the capacity analysis. The queuing analysis involves comparing the postdevelopment 95th percentile queue lengths of the site driveway and turn lanes to the available storage lengths. The queue lengths have been rounded up to the nearest five feet. The following table summarizes the postdevelopment 95th percentile queue lengths based on SimTraffic analyses. The detailed reports are included in Attachment 7C.

Queue Analysis Summary

Approach	Storage Length (ft)	95th Percentile Queue Length (ft)			
		AM Pre	AM Post	PM Pre	PM Post
Park / St John					
Park WB L	95	125	140	185	195
Park WB T	95	200	200	275	280
Park WB TR		225	230	410	525
St. John NB L		160	175	405	335
St. John NB LT		275	290	510	475
St. John NB R	110	165	165	185	175
St. John SB LT		740	330	340	260
St. John SB R	55	105	105	105	105
Congress / St John					
Congress EB L		200	245	195	230
Congress EB T		335	405	315	365
Congress EB R	290	165	295	140	205
Congress WB L	80	65	80	80	95
Congress WB R		100	95	135	140
St. John NB T		90	175	160	345
St. John NB TR	265	115	175	165	220
St. John SB L		135	110	110	110
St. John SB T		170	220	205	210
Margarita's / St. John					
Margarita's EB L		35	40	85	60
Margarita's EB R	125	30	55	60	60
St. John NB LT		30	100	40	100
St. John SB T		--	15	5	10

Approach	Storage Length (ft)	95th Percentile Queue Length (ft)			
		AM Pre	AM Post	PM Pre	PM Post
Garage / D / St. John					
Garage EB LTR		15	N/A	20	N/A
Garage EB LT		N/A	145	N/A	165
Garage EB R	150	N/A	80	N/A	100
D WB LTR		40	35	45	35
St. John NB LTR		10	N/A	20	N/A
St. John NB L	100	N/A	55	N/A	50
St. John NB TR		N/A	120	N/A	165
St. John SB LTR		20	N/A	25	N/A
St. John SB L	75	N/A	60	N/A	85
St. John SB TR		N/A	160	N/A	220
Valley / St. John					
St. John EB LT		90	120	90	140
St. John EB R	110	100	120	125	140
St. John WB L	335	245	215	25	250
St. John WB TR		50	50	60	60
Valley NB L		135	160	115	120
Valley NB TR		245	225	145	165
Valley SB LT		55	50	85	40
Valley SB TR	265	70	45	130	30
Commercial / Valley					
Fore River Pkwy EB L	430	630	395	625	465
Fore River Pkwy EB L	430	640	435	640	505
Fore River Pkwy EB T		1525	330	1225	650
Fore River Pkwy EB T		1420	265	1130	570
Commercial WB T		190	195	225	215
Commercial WB T		190	185	220	205
Commercial WB R	415	80	85	60	60
Valley SB L		105	115	115	115
Valley SB R		115	120	140	145
Valley SB R		120	130	140	155
Valley / Congress					
Congress EB L	50	10	15	15	20
Congress EB TR		5	10	10	15
Congress WB L	50	20	45	35	50
Congress WB TR		5	5	15	5
Valley NB LT		60	55	80	70
Valley NB R	170	55	60	65	55
Gilman / Congress					
Congress EB TR		45	30	30	30
Congress WB T		25	--	30	40
Congress WB L	65	65	45	75	65
Gilman NB LTR		100	70	200	105
Gilman SB LTR		45	50	55	60

Approach	Storage Length (ft)	95th Percentile Queue Length (ft)			
		AM Pre	AM Post	PM Pre	PM Post
Proposed Drop-Off / Congress					
Congress EB TR		N/A	20	N/A	--
Congress WB LT		N/A	85	N/A	115
Drop-Off NB LR		N/A	55	N/A	75
Visitor Garage / Congress					
Congress EB		100	110	30	45
Congress WB		30	35	40	55
Visitor Garage NB		55	50	70	65
MOB Garage SB		25	25	70	70
Bramhall / Congress					
Congress EB L		50	50	120	140
Congress EB TR	400	190	200	215	265
Congress WB L		135	135	180	160
Congress WB TR	65	105	105	105	105
Congress WB L		100	100	105	85
Bramhall NE TR	135	125	125	150	145
Deering SW L		105	120	235	230
Deering SW TR	50	85	85	85	90

As shown in the table, the 95th percentile queue lengths can be accommodated by the storage lengths for most approaches. Some queue lengths exceed the available storage lengths in both the predevelopment and postdevelopment conditions. The 95th percentiles are not forecast to increase by more than three vehicles for most approaches, assuming the length of a vehicle and the associated gap between vehicles is equal to 25 feet. In addition, there are several lanes which are forecast to have improved queue lengths, likely due to the redistribution of traffic in the study area and the modifications to signal timing. The 95th percentile queue length of the proposed Congress Street drop off is not forecast to exceed four vehicles during the AM or PM peak hours.

XIX. Sight Line Evaluation

As discussed in Sections 1-6, the existing sight distances at the proposed drop-off appears to meet City and MaineDOT criteria for 25 mph. The sight distances should continue to be evaluated through the design process to ensure no signs, landscaping or structures will create sight distance deficiencies.

XX. Crash Summary Data

Gorrill Palmer obtained the crash data from MaineDOT for the period of 2015-2017, the most recent period available (See Section 2 of Sections 1-6, Attachment 2A).

In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor (CRF) of 1.00 or more for a three year period. A CRF compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average **and**:

2. A minimum of eight crashes over the same three year period.

Based on the crash data provided by MaineDOT, there are seven high crash locations in the vicinity of the study area:

- Intersection of Park Avenue with Valley Street
- Intersection of Congress Street with Gilman Street
- Intersection of St. John Street with A Street
- Intersection of Park Avenue with St. John Street
- Valley Street from A Street to C Street
- Congress Street from Forest Street to Weymouth Street
- St. John Street from Congress Street to Non-Intersection (just south of Park Avenue)

To better evaluate the high crash locations and identify correctable crash patterns, the police reports for these locations were provided by MaineDOT and used to create collision diagrams, included as an attachment to this section. The following discusses the high crash locations as well as pedestrian and bicycle crashes in more detail.

Park Avenue / Valley Street

This intersection has a CRF of 1.80 and experienced 10 collisions during the most recent three-year period. It is an unsignalized intersection that is STOP controlled on Valley Street with free flowing traffic on Park Avenue. The northbound Valley Street approach is one-way into the intersection.

There is one crash pattern at this intersection involving vehicles turning left from northbound Valley Street onto westbound Park Avenue and colliding with vehicles

traveling westbound on Park Avenue. Potential mitigation for this crash pattern may include restricting left turns out of Valley Street.

Additionally, one collision that occurred at this intersection involved a pedestrian and one involved a bicyclist. The traffic from the proposed MMC expansion is not expected to exacerbate this pattern.

Congress Street / Gilman Street

This intersection has a CRF of 3.26 and experienced 20 collisions during the most recent three-year period. It is an unsignalized intersection that is STOP controlled on the Gilman Street approaches with free flowing traffic on Congress Street. The southbound Gilman Street approach is one-way into the intersection. Based on a review of the collision diagram there are three crash patterns at this intersection; southbound through traffic on Gilman Street failing to yield to eastbound through traffic on Congress Street, southbound through traffic on Gilman Street failing to yield to westbound through traffic on Congress Street, and rear end collisions involving eastbound Congress Street traffic.

There were four collisions that involved southbound through traffic on Gilman Street failing to yield the right of way to the eastbound through traffic on Congress Street and three collisions that involved vehicles coming from the same direction failing to yield the right of way to westbound through traffic on Congress Street. These types of collisions may be due to the buildings along Congress Street blocking the sight distance of the southbound traffic. Because the MMC employee parking is being relocated to St. John Street, both the AM and PM total entering traffic volume for this intersection will be decreased from the Predevelopment condition to the Postdevelopment condition.

There were three rear end collisions on Congress Street eastbound. All three were caused by drivers following too closely and/or driver inattention. Additionally, all three collisions involved vehicles stopping for pedestrians in the crosswalk. It is possible that the removal of the traffic signal at the intersection of Congress Street with Valley Street may improve this crash pattern. The crosswalk is located close to the currently signalized intersection. After a vehicle passes through a signalized intersection, they do not anticipate stopping again immediately, which could be a contributing factor of the rear end collisions. If the signal is removed, drivers may be more likely to anticipate stopping. Additionally, if the signal is removed, it may reduce the time that vehicles are queued over the crosswalk, which reduces the time that pedestrians may walk between queued vehicles or be blocked from view by the queue.

St. John Street / A Street

This intersection has a CRF of 1.82 and experienced 8 collisions during the most recent three-year period. It is an unsignalized four-leg intersection with two-way traffic on all

approaches. Based on a review of the collision diagram, there were no correctable crash patterns identified at this intersection. It should be noted that with the removal of the existing employee garage and the construction of the proposed employee garage, the traffic patterns at the intersection are forecast to change (decrease in traffic volume), which may reduce crashes.

Park Avenue / St. John Street

This intersection has a CRF of 1.63 and experienced 36 collisions during the most recent three-year period. It is a signalized four-leg intersection with two-way traffic on all approaches, with the exception of Park Avenue to the east of St. John Street, which is one way away from the intersection. Based on a review of the collision diagram, there are four crash patterns at this intersection.

One crash pattern involved vehicles in the northbound St. John Street left turn lane attempting to go straight through the intersection from the left-most lane and colliding with left turning vehicles in the adjacent left-through lane. There were 13 such crashes at this intersection during the most recent three year period. Most of the drivers that incorrectly attempted to travel through the intersection claimed that they believed they could travel through the intersection from that lane. Overhead lane use signing for the northbound approach mounted next to the traffic signal heads similar to the existing signs facing the westbound and southbound approaches to this intersection may help reduce driver lane confusion.

Another crash pattern was northbound left turning vehicles sideswiping one another while traveling in the left turn lane and left-through lane from the northbound St. John Street approach to the intersection. Six of these crashes occurred at this intersection during the most recent three year period. There is already a skip line striping between the left turn lane and the left-through lane through the intersection. Many of the crashes involved in the two crash patterns discussed at this intersection so far occurred either during the winter or in the spring when the striping of the skip line may have faded away. Re-striping the skip line more frequently may help left turning vehicles stay in their own lane while completing the turn and it also may help vehicles in the left turn lane realize that they cannot travel through the intersection.

A third crash pattern at this intersection involves right angle collisions between westbound through vehicles on Park Avenue failing to yield to northbound through vehicles on St. John Street. Three of these crashes occurred at this intersection during the most recent three year period. All three collisions involved the westbound Park Avenue vehicle running the red light. Additional signage on Park Avenue may improve this pattern.

The fourth crash pattern at this intersection involved rear-end collisions involving vehicles at the northbound approach to this intersection. One potential contributing factor to rear end collisions at signalized intersections is inadequate signal clearance times. This crash pattern may be mitigated by reviewing the signal timings of this intersection to assure that adequate signal clearance times are provided for this approach.

Valley Street from A Street to C Street

This roadway link has a CRF of 2.89 and experienced 8 collisions during the most recent three-year period. There were no correctable crash patterns identified, however there were five crashes involving parked vehicles. Of the five crashes involving parked vehicles, three crashes involved vehicles that were parked illegally. Stricter enforcement of the parking regulations may help reduce the number of crashes along this segment of Valley Street. It should also be noted that there was one crash involving a pedestrian at this location during the most recent three year period.

Congress Street from Forest Street to Weymouth Street

This section of Congress Street has a CRF of 1.45 and experienced 10 collisions during the most recent three-year period. Based on a review of the collision diagram there is one crash pattern of rear end collisions in the eastbound direction. Of the 10 collisions, five were rear end collisions on Congress Street eastbound. The five collisions were caused by drivers following too closely. There are multiple driveways in this roadway segment, including an entrance to the Maine Medical Center visitor parking garage.

An overall review of the collisions showed that there were 9 collisions that occurred on a weekday and of those, 2 occurred during the AM peak commuter hour and 4 occurred during the PM peak commuter hour, when traffic volumes are heaviest. Additionally, one of the collisions that occurred in this area involved a bicyclist.

Restriping of this section of Congress Street to include a center turn lane may be an alternative to be pursued to improve this section of Congress Street.

St. John Street from Congress Street to Non-Intersection (just south of Park Avenue)

This section of St. John Street has a CRF of 3.00 and experienced 30 collisions during the most recent three-year period. Based on a review of the collision diagram, there are two crash patterns.

The first crash pattern involves sideswipe crashes involving vehicles traveling northbound on St. John Street, which are caused by vehicles making lane changes.

Of the 30 collisions, 17 involved vehicles attempting to turn left onto St. John Street from various driveways. There are many driveways on this link of St. John Street including McDonald's, Amato's, Sullivan Tire, Dunkin' Donuts, Lang's Express, Salty Sally's Bare and Grille and Portland Physical Therapy. Of the 30 crashes in this roadway segment, two involved left turns into driveways from St. John Street.

In a recent Traffic Impact Study completed by Maine Traffic Resources for a Dunkin Donuts relocation project in this section of St. John Street, a "road diet" was recommended that would include a single travel lane in each direction with a center turn lane. Gorrill Palmer supports that recommendation.

Pedestrian Collisions

There were 22 collisions involving pedestrians throughout the study area. Of those, 15 occurred when the pedestrian was within the marked crosswalk, seven of which involved one vehicle rear ending another that was yielding to the pedestrian. Several of the collisions involved pedestrians crossing without the walk sign at a signalized intersection, or abruptly entering the intersection. Others involved vehicles failing to yield to the pedestrians in the crosswalks. The attached Figure A in Attachment 7D shows the locations of the pedestrian collisions. Several of the pedestrian involved collisions appear to be located at or near the intersection of Congress Street with Bramhall Street. Most of these collisions occurred after dark. Although there is lighting at the intersection, additional lighting may improve pedestrian visibility. Additionally, three of the rear end collisions due to vehicles yielding to pedestrians in the crosswalk occurred on Congress Street at Gilman Street, discussed above.

Bicycle Collisions

There were 9 collisions involving bicyclists throughout the study area. One collision involved a bicyclist riding in a bike lane being struck by a turning vehicle on Park Avenue. Several of the collisions involved bicyclists riding in the roadway, but not following traffic rules. The bicycle crashes are also shown on the attached Figure A.

XXI. Left Turn Lane Evaluation

The need for a left turn lane on Congress Street at the proposed drop-off has been evaluated using two different sources. The first was Figure 8-19 from the MaineDOT Highway Design Guide, "Volume Warrants for Left-Turn Lanes at Unsignalized Intersections on 2-Lane Highways (40 mph)." Although the speed limit on Congress Street is unposted and assumed to be 25 mph, the 40 mph warrant is the lowest speed chart available for reviewing left turn lanes. This yields a conservative lane warrant evaluation. Based on a review of the evaluation, a left turn lane is warranted during the

AM peak hour and is not warranted in the PM peak hour. The detailed evaluation is included in Attachment 7D.

The second source was the National Cooperative Highway Research Program (NCHRP) 457, Figure 2-5 "Guideline for determining the need for a major-road left-turn bay at a two-way stop controlled intersection." This figure allows for the use of the assumed 25 mph speed limit. This evaluation supported the MaineDOT evaluation and indicated that the warrant is met in the AM peak hour but is not warranted in the PM peak hour. The detailed evaluation is included in Attachment 7D.

In addition to the two formal left turn lane warrant evaluations, the turning movements and crash history on the corridor were also considered in determining if left turn treatment should be considered. As discussed in the previous section, Congress Street in front of the proposed drop-off is a high crash location, with a crash pattern of rear end collisions. Additionally, the left turn volumes within this segment of Congress Street are shown on Figure 18 in Attachment 7A. Based on the left turn lane evaluation the crash history, and the left turn volumes, a center two way left turn lane is recommended on Congress Street from Forest Street to Weymouth Street.

XXII. Executive Summary

1. The proposed development is forecast to generate 126 trip ends during the AM peak hour of the generator, 152 trip ends during the PM peak hour of the generator, and 172 trip ends during the Saturday peak hour of the generator. This level of trip generation requires a MaineDOT traffic movement permit.

2. All study area intersection approaches are forecast to operate at acceptable levels of service in the Postdevelopment conditions. Additionally, for signalized intersections, we recommend that timing and phasing of the study area intersections be adjusted as needed upon completion of the MMC expansion.

3. Overall, the 95th percentile queue lengths are not forecast to exceed the predevelopment queue lengths by more than three vehicles for most approaches. For many approaches, the 95th percentile queue lengths are forecast to decrease from the predevelopment conditions due to both the redistribution of traffic throughout the study area and the optimization of signal timing.

4. The existing sight distances at the proposed Congress Street drop off appear to meet MaineDOT and City of Portland Standards.

5. The MaineDOT crash data indicates that there are seven high crash locations in the study area:

    - Intersection of Park Avenue with Valley Street
    - Intersection of Congress Street with Gilman Street
    - Intersection of St. John Street with A Street
    - Intersection of Park Avenue with St. John Street
    - Valley Street from A Street to C Street
    - Congress Street from Forest Street to Weymouth Street
    - St. John Street from Congress Street to Non-Intersection (just south of Park Avenue)

6. Based on a review of the MaineDOT and NCHRP left turn lane warrants at the proposed Congress Street drop-off / pick-up loop, as well as the crash history and the left turning volumes at adjacent intersections on Congress Street, a center two way left turn lane is recommended on Congress Street from Forest Street to Weymouth Street.

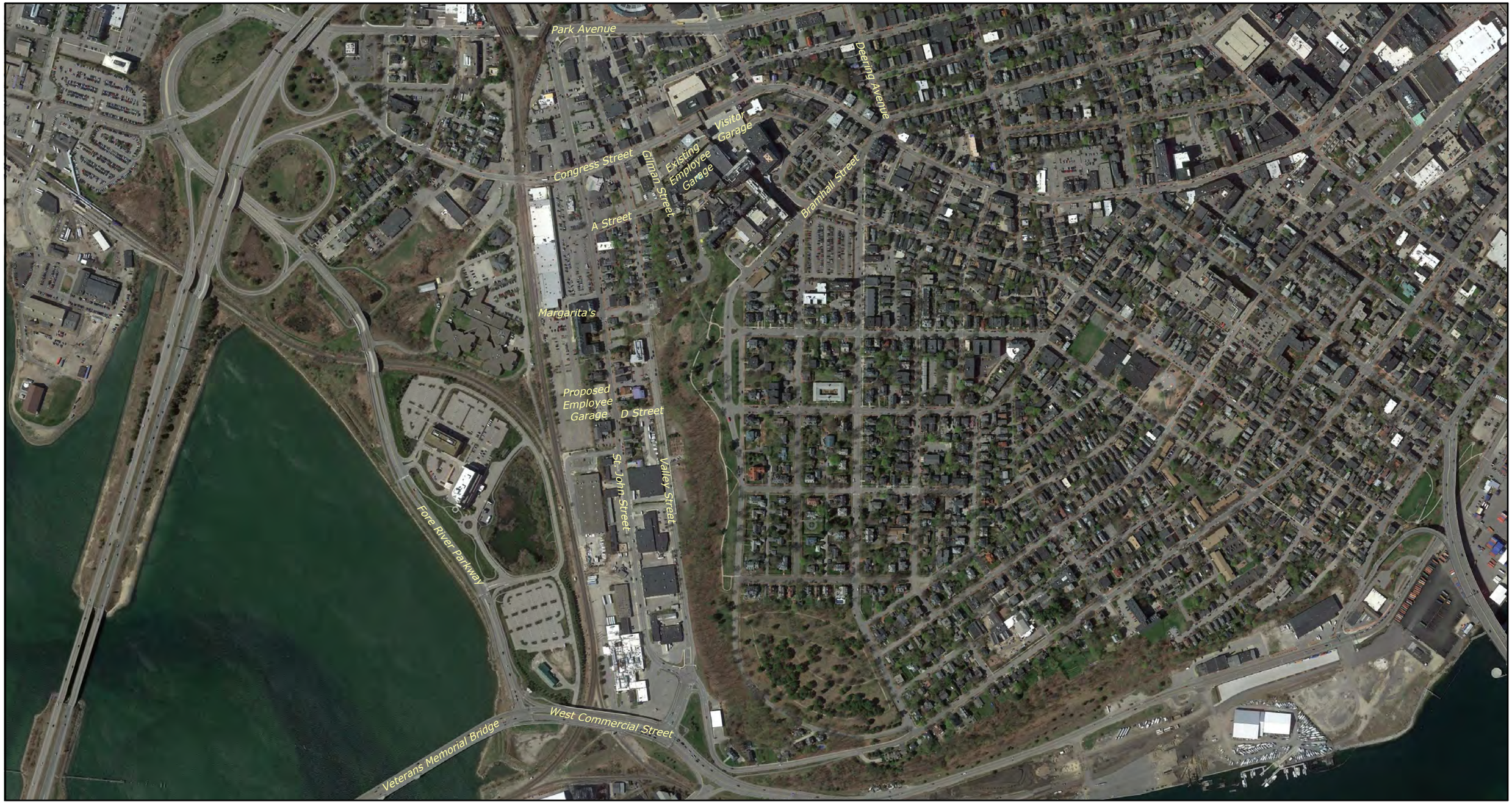
7. Overall, the proposed expansion is forecast to have a moderate impact on the surrounding roadway network; however, the surrounding roadway network has the capacity to accommodate the proposed project.

Attachment 7A

Site Location Map
Turning Movement Figures
VHB Travelshed

Location Map

Figure No. 1



Bramhall St. - 22; MMC Congress Street Building
PORTLAND, MAINE

Design:	EAL	Scale:	NONE
Draft:		Date:	SEP 2018
Checked:	RED	File Name:	28866.01 - TIS Figures

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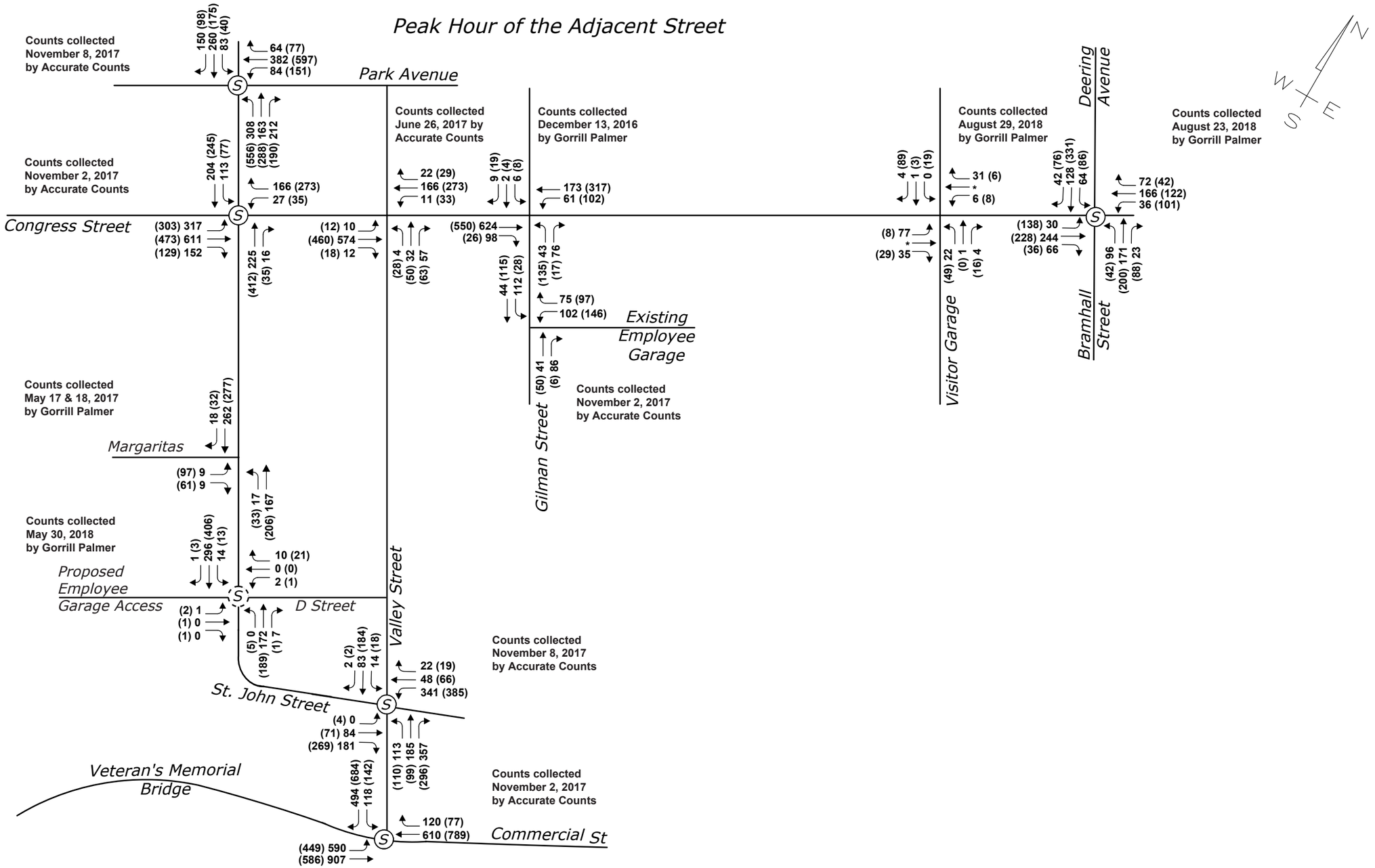

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Draft: Date: OCT 2018
Checked: RED File Name: 2866.01 - TIS Figures

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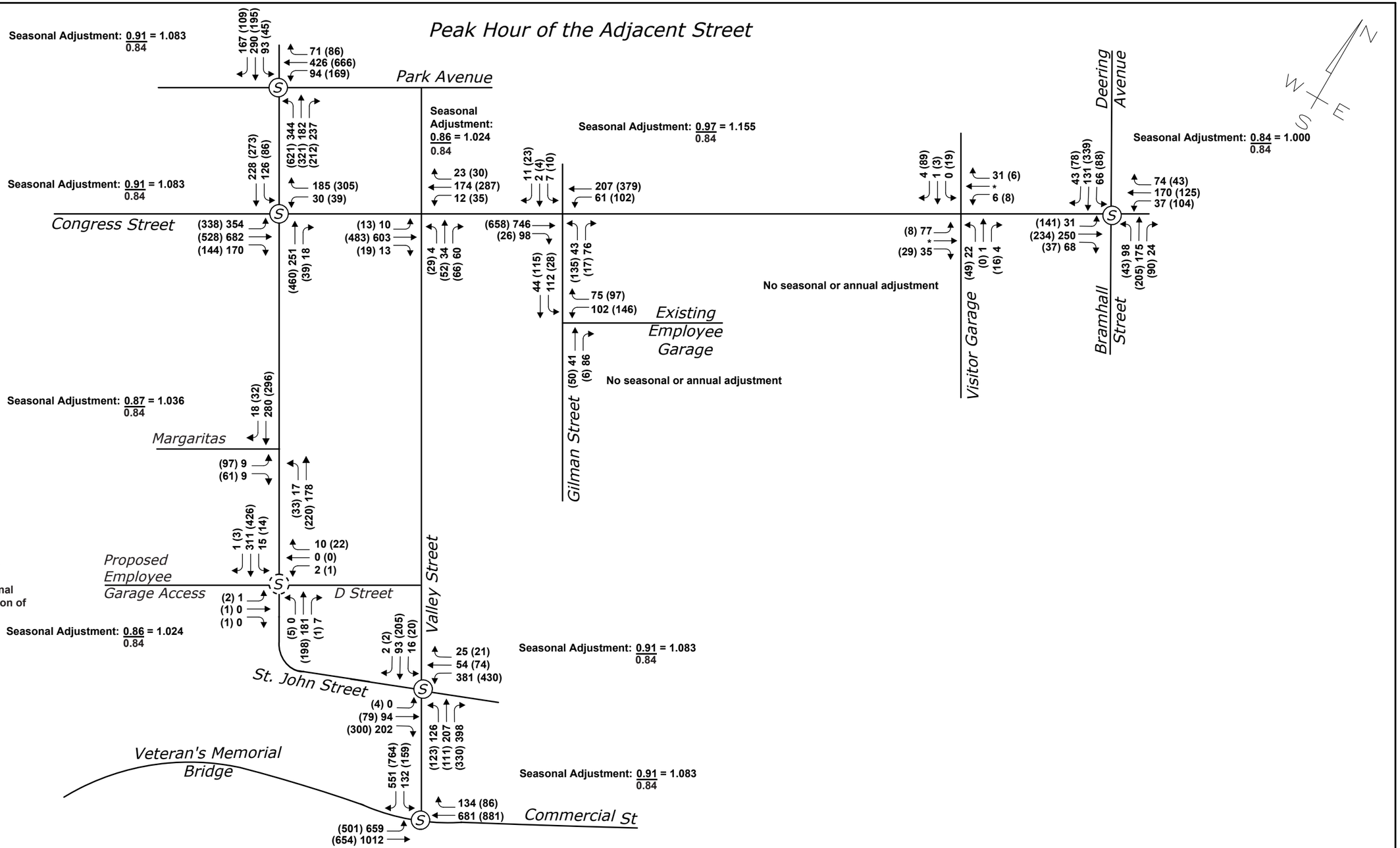
2023 Adjusted Volumes

Figure No. 3



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Draft: Date: SEP 2018
Checked: RED File Name: 28866.01 - TIS Figures

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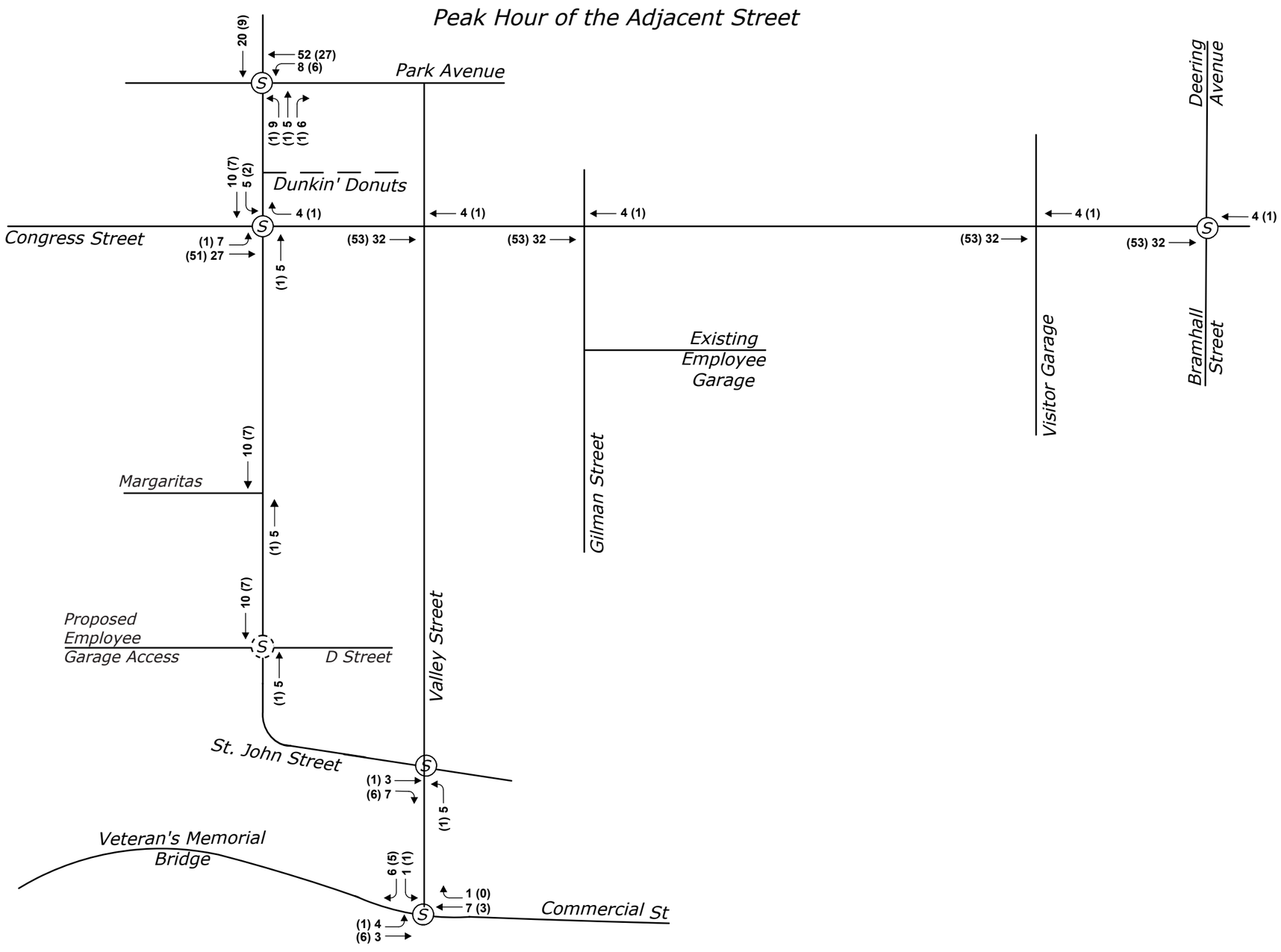
Other Development

Figure No. 4



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Design: EAL
Draft:
Checked: RED
Scale: NONE
Date: SEP 2018
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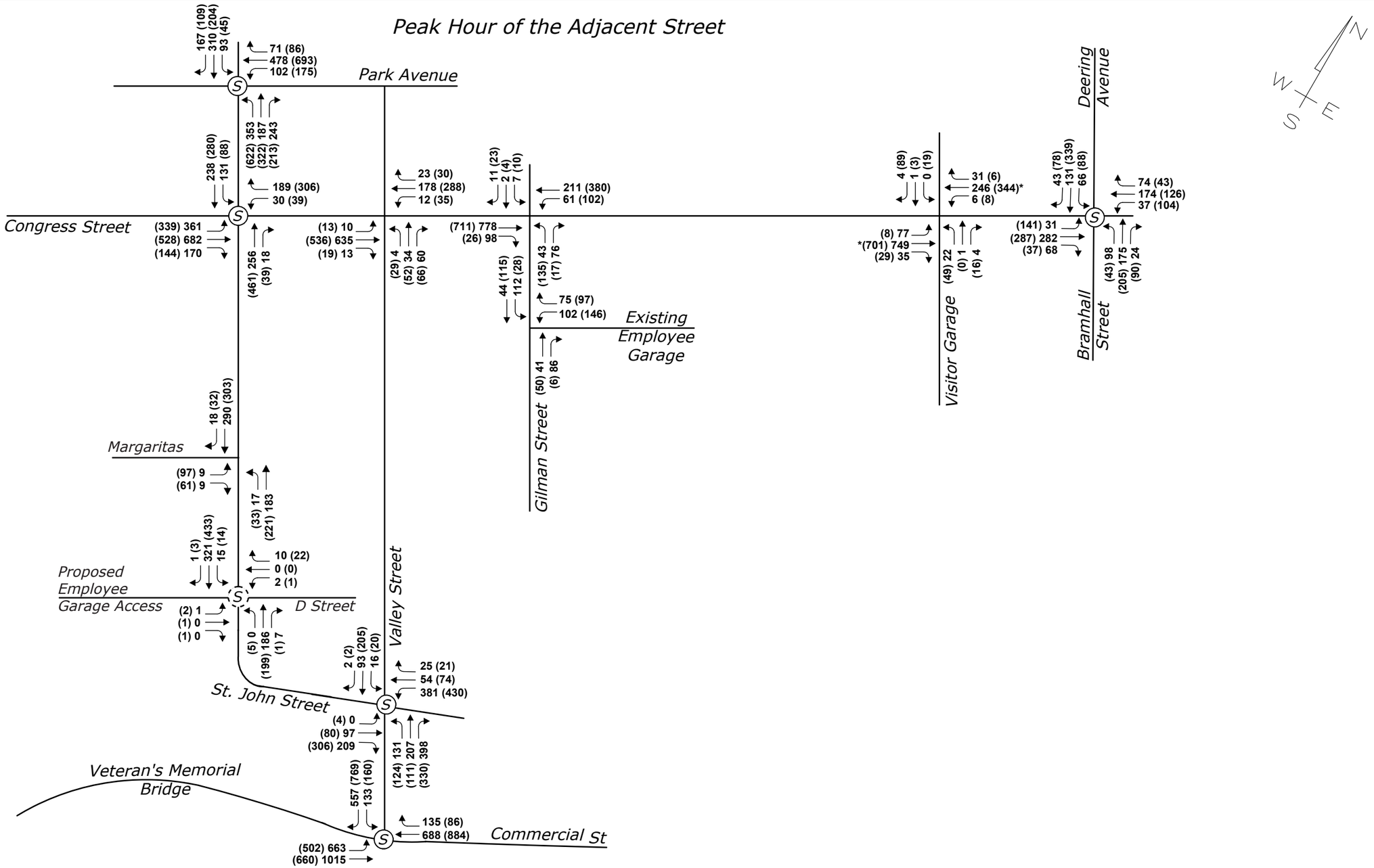
2023 Predevelopment

Figure No. 5



Bramhall St. - 22; MMC Congress Street Building
PORTLAND, MAINE

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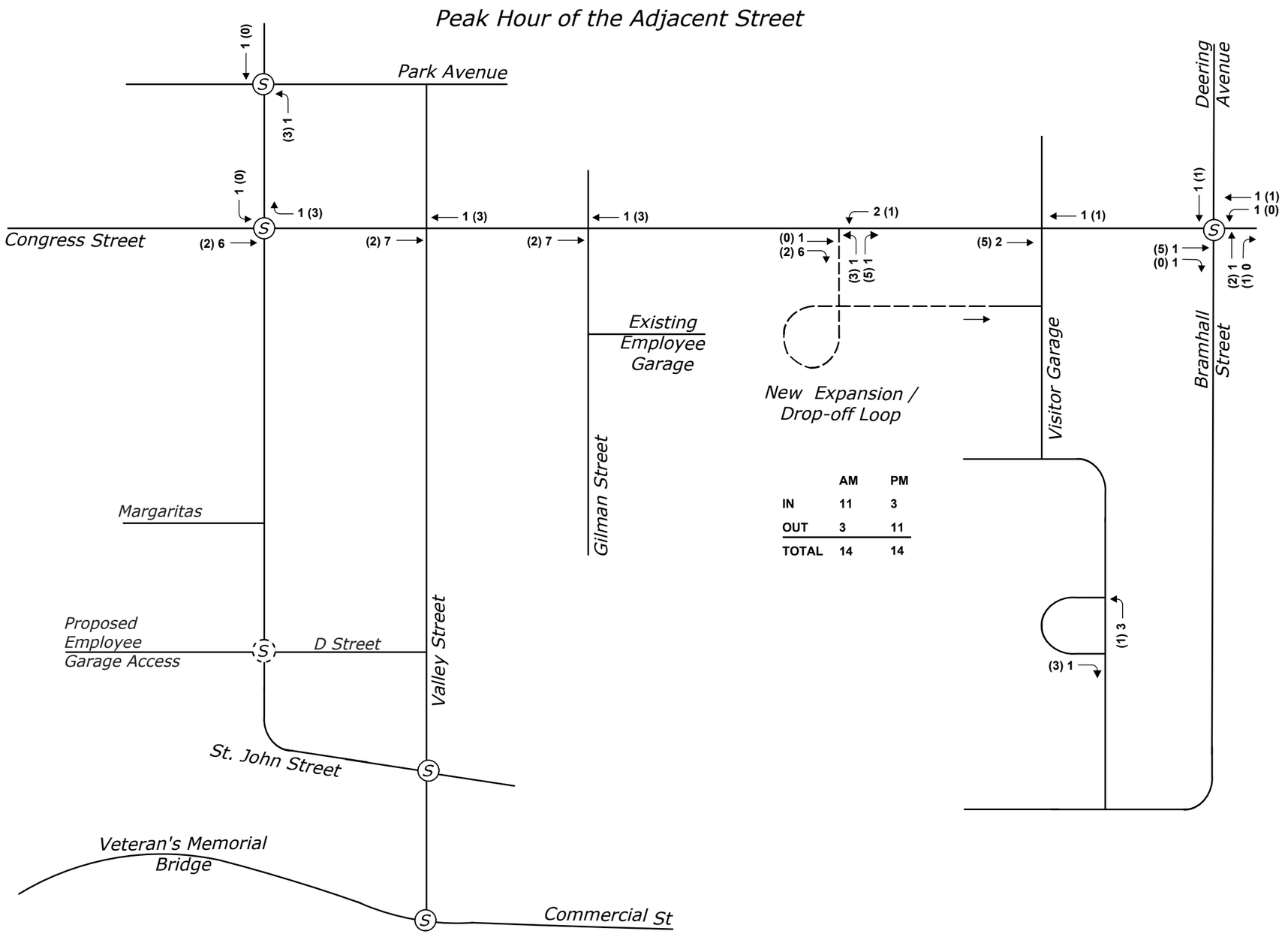
Phase 3 Patient/Visitor Assignment

Figure No. 6



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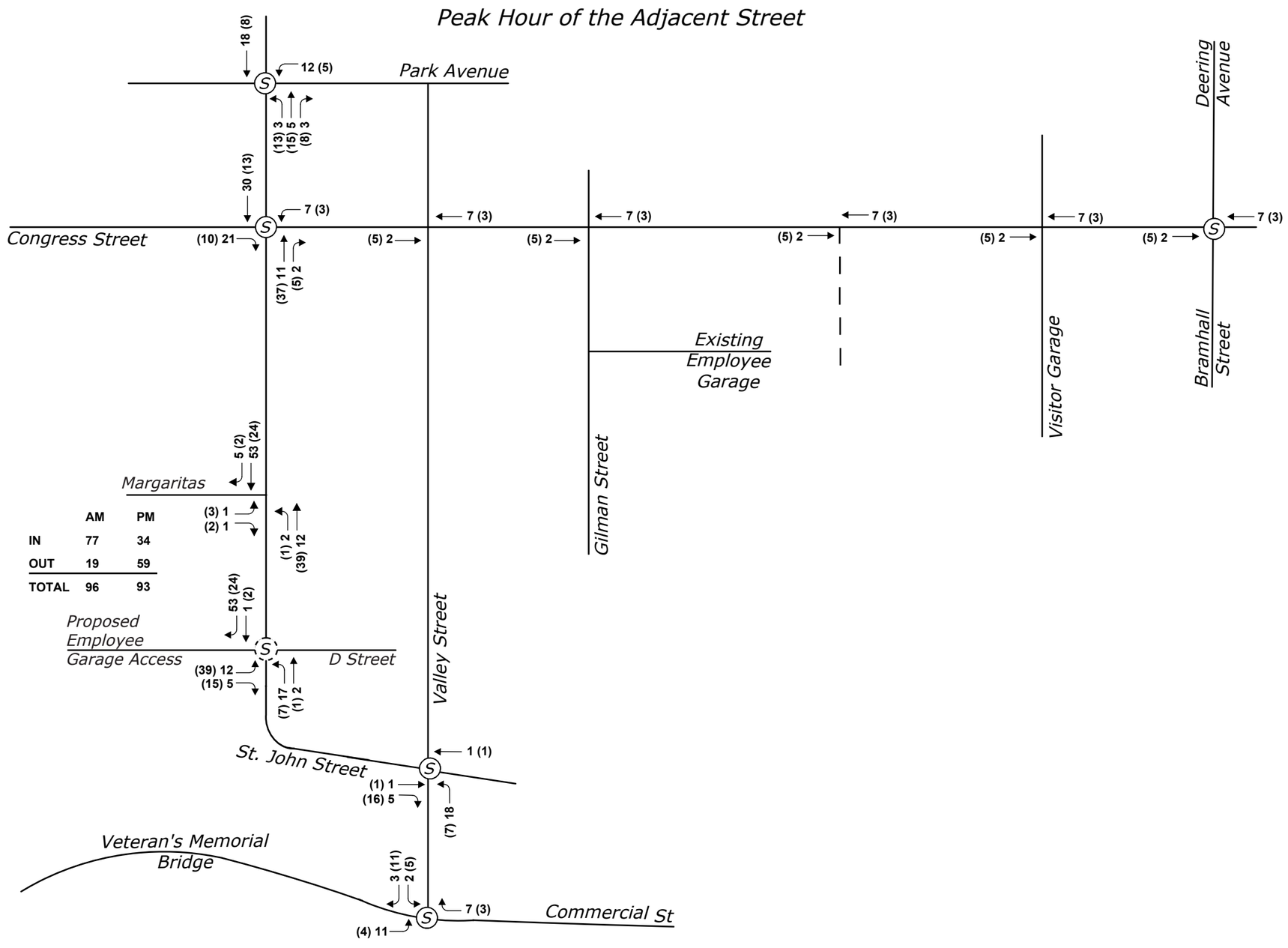
Phase 3 Employee Trip Assignment

Figure No. 7



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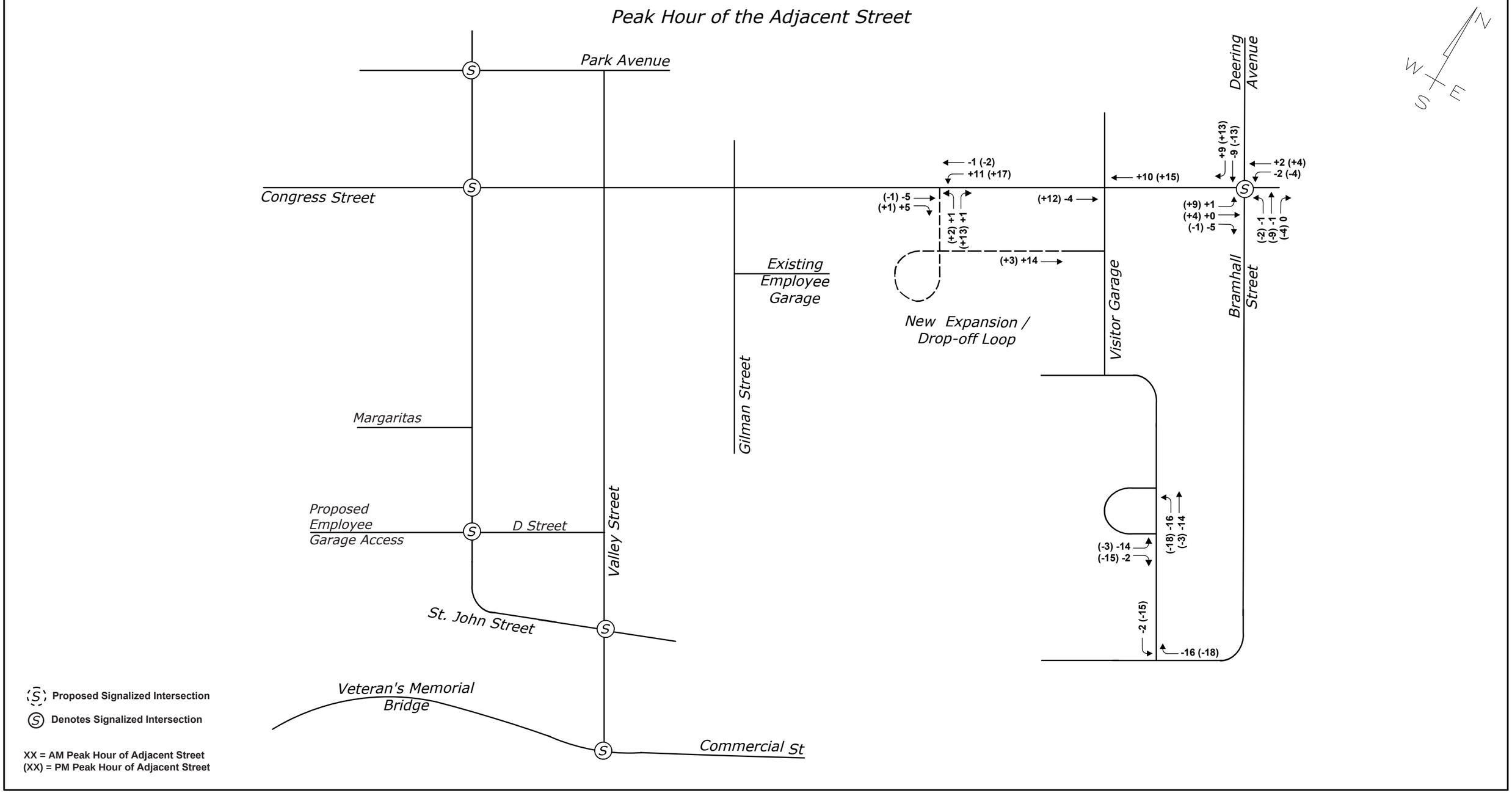
Phase 3 Drop Off Reassignment

Figure No. 8



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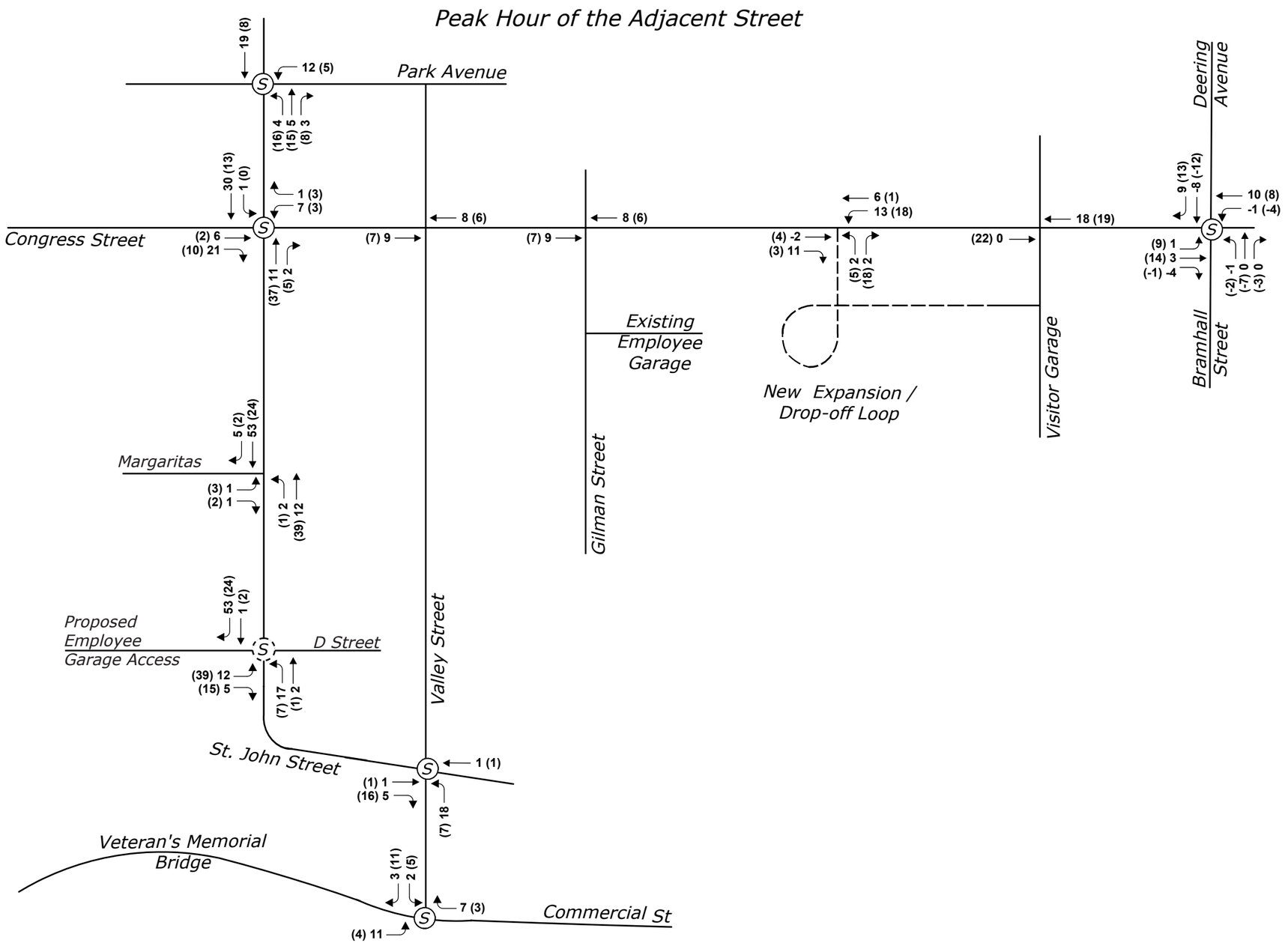

Bramhall St. - 22; MMC Congress Street Building
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Draft:		Date:	OCT 2018
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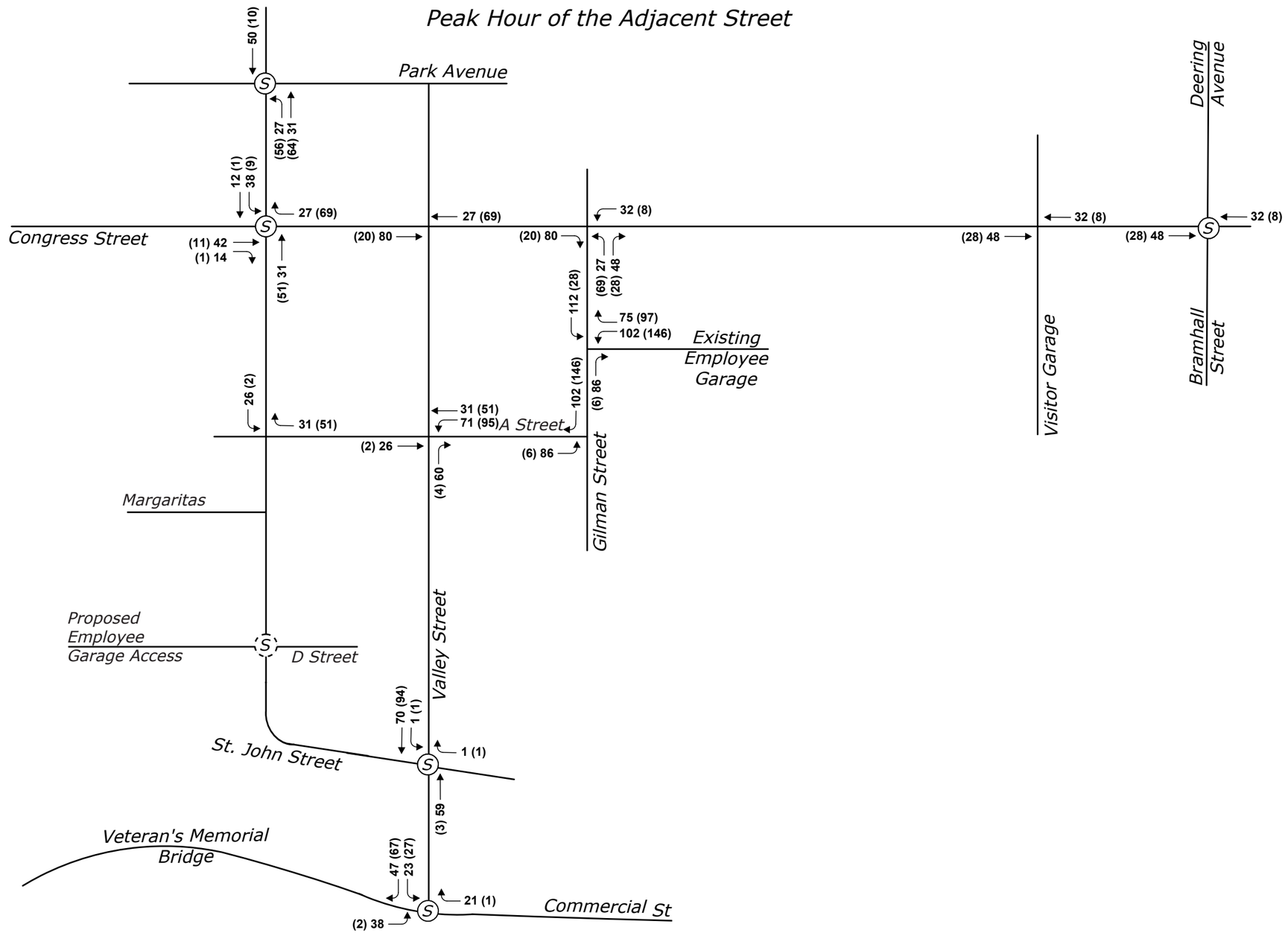
Existing Employee Garage Assignment

Figure No. 10



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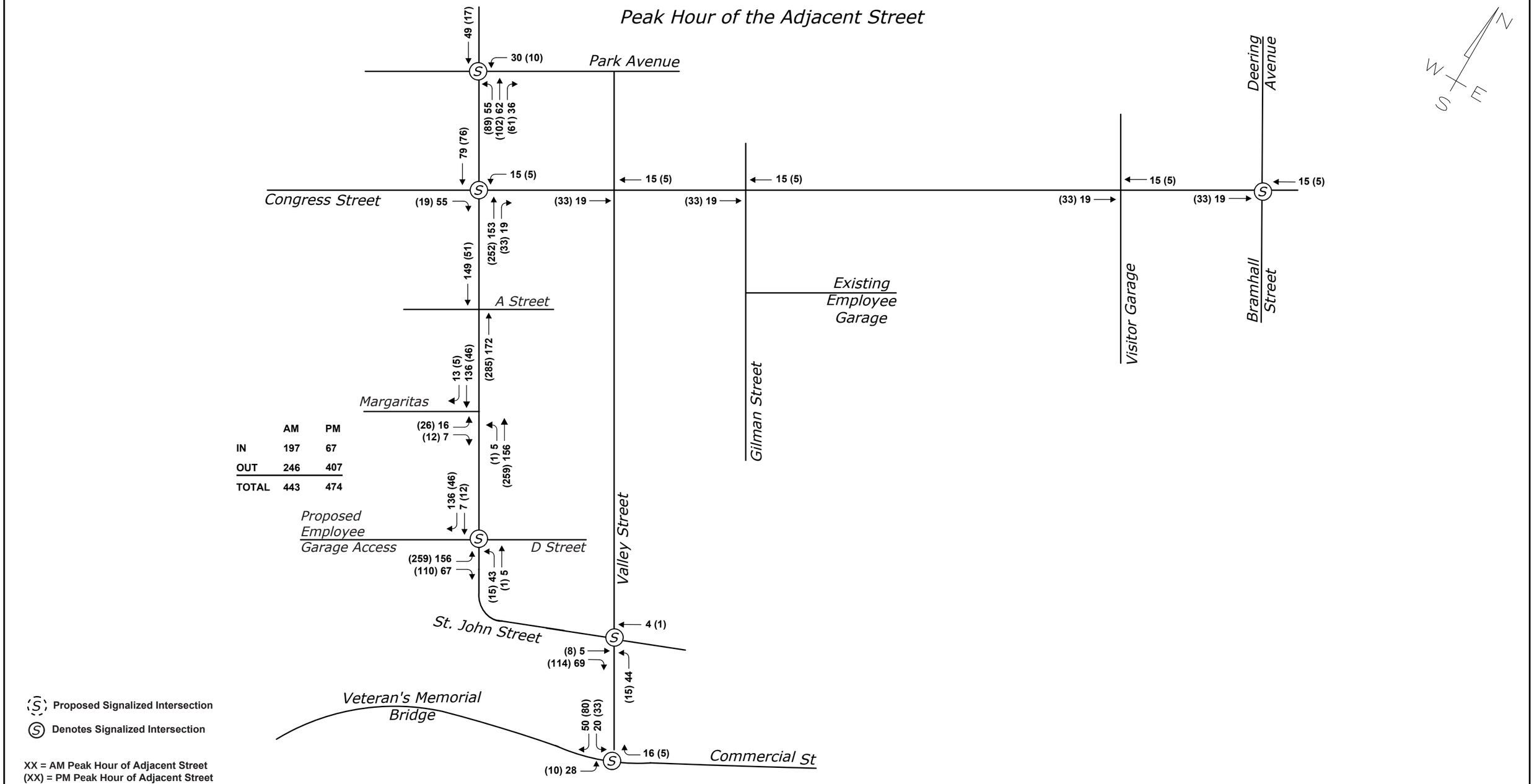
Proposed Garage Reassignment

Figure No. 11



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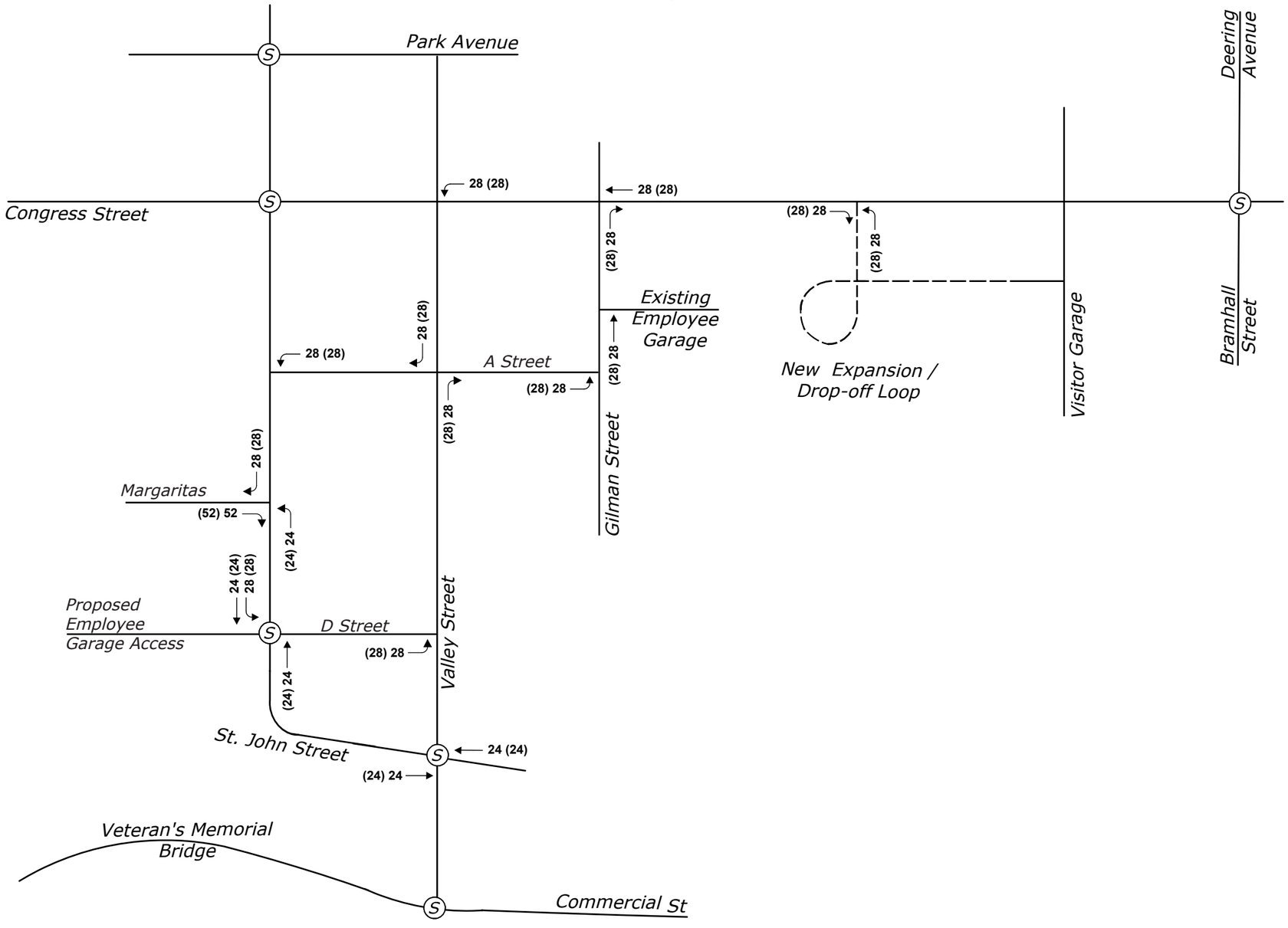
Shuttle Assignment

Figure No. 12

Peak Hour of the Adjacent Street



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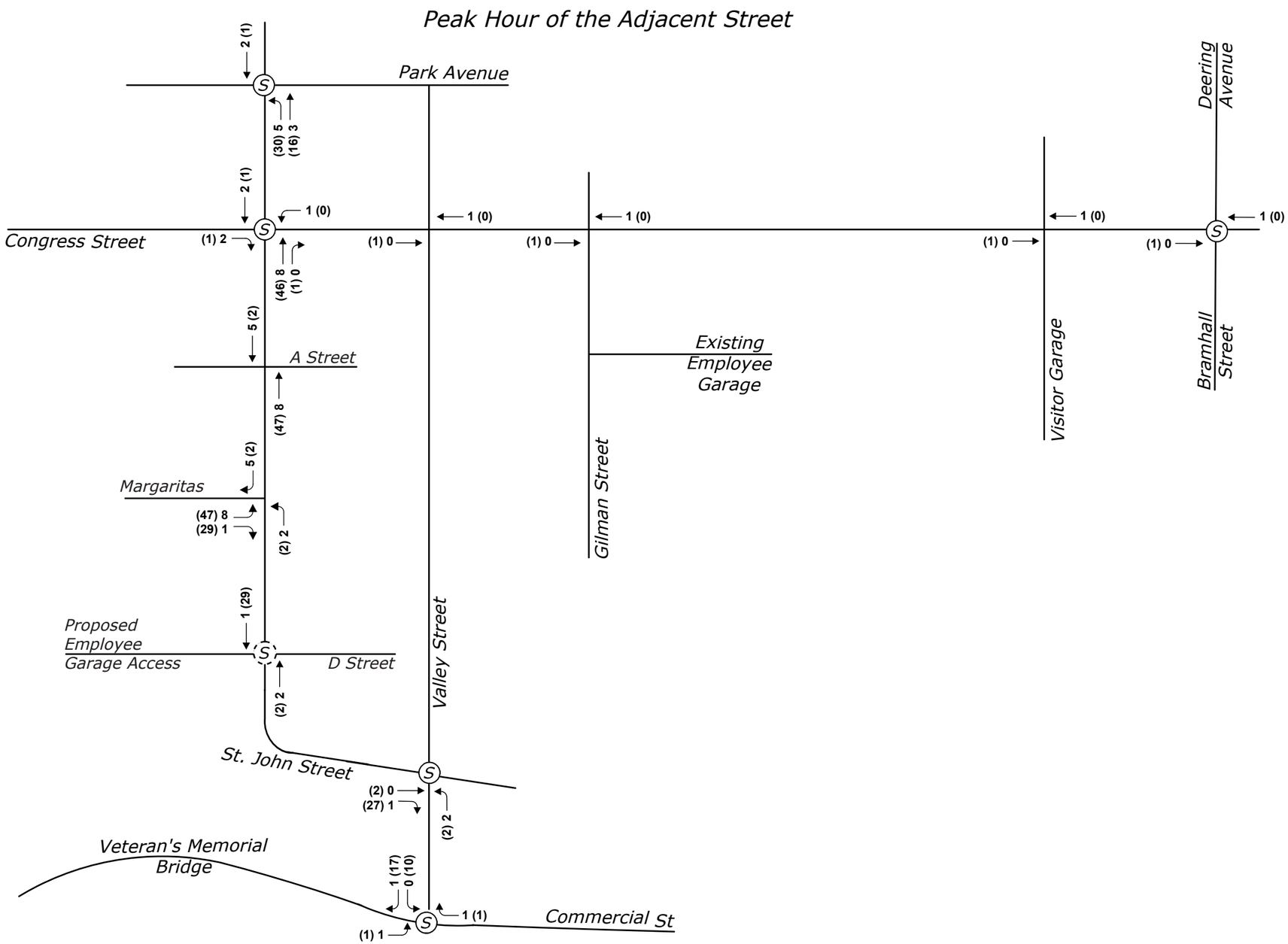
222 St. John Existing MMC Traffic

Figure No. 13



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Draft:		Date:	SEP 2018
Checked:	RED	File Name:	28866.01 - TIS Figures

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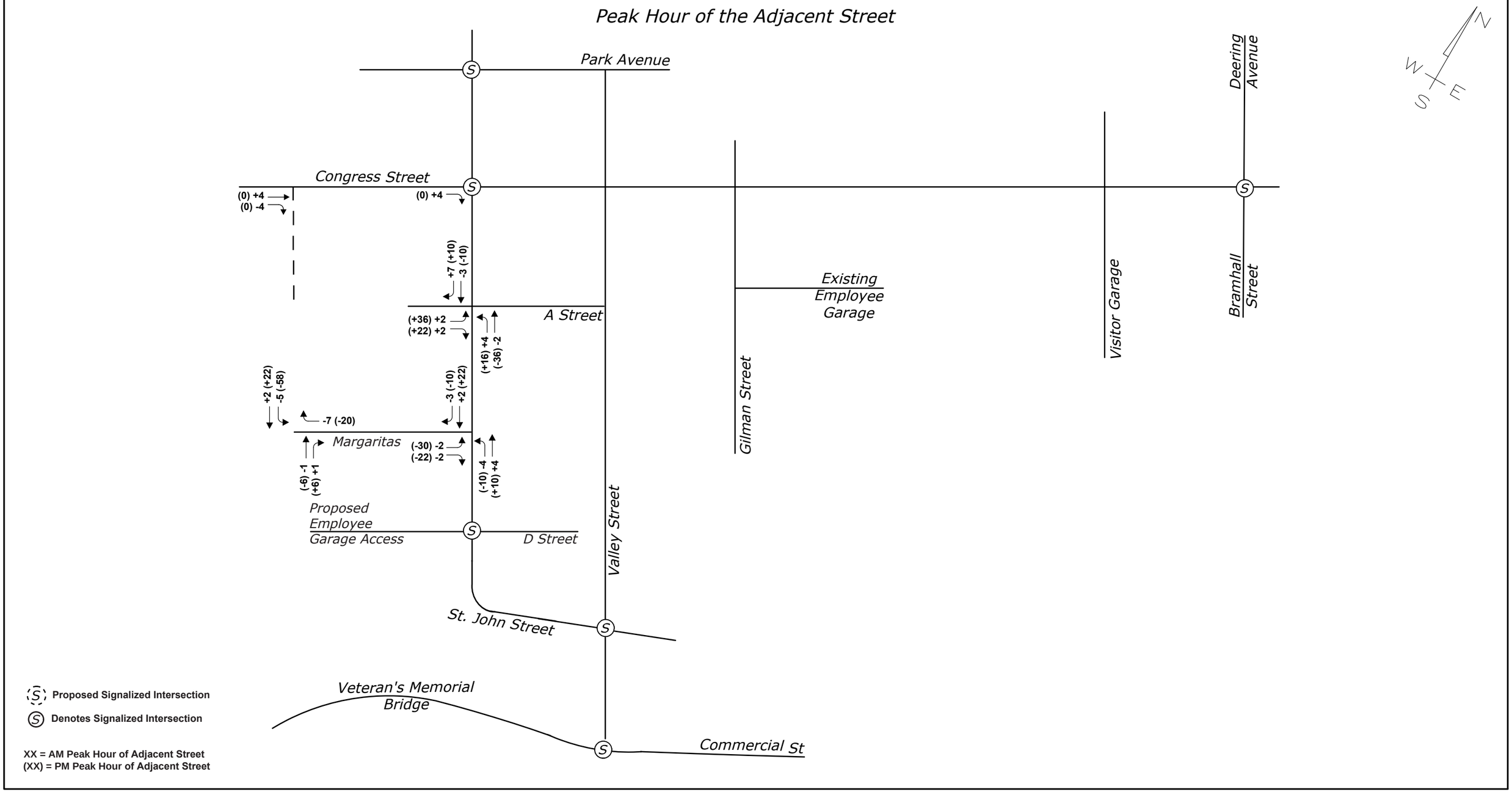
222 St. John Cut-Through (Non-MMC)

Figure No. 14



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Scale: NONE
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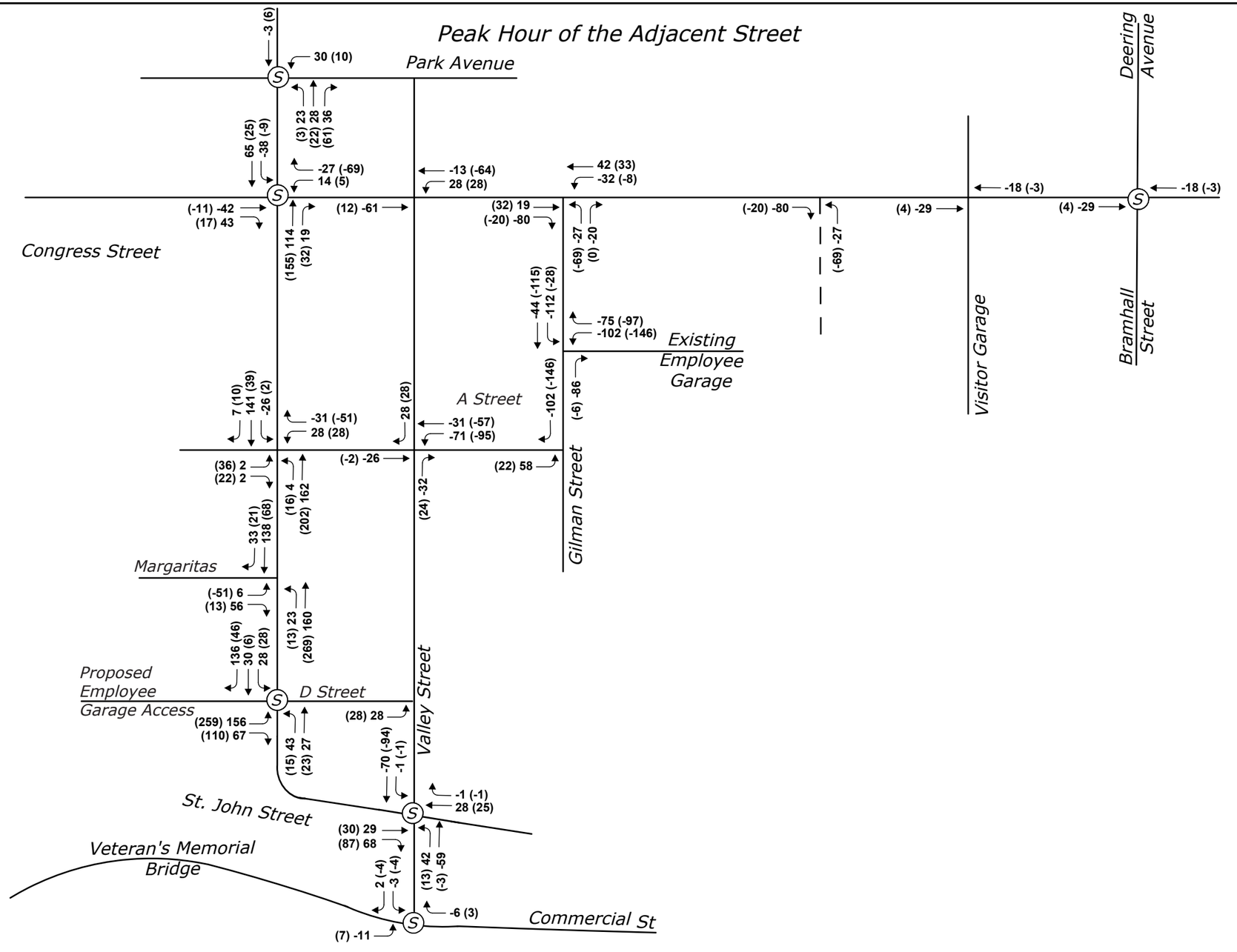
Net Impact Due to Proposed Employee Garage

Figure No. 15



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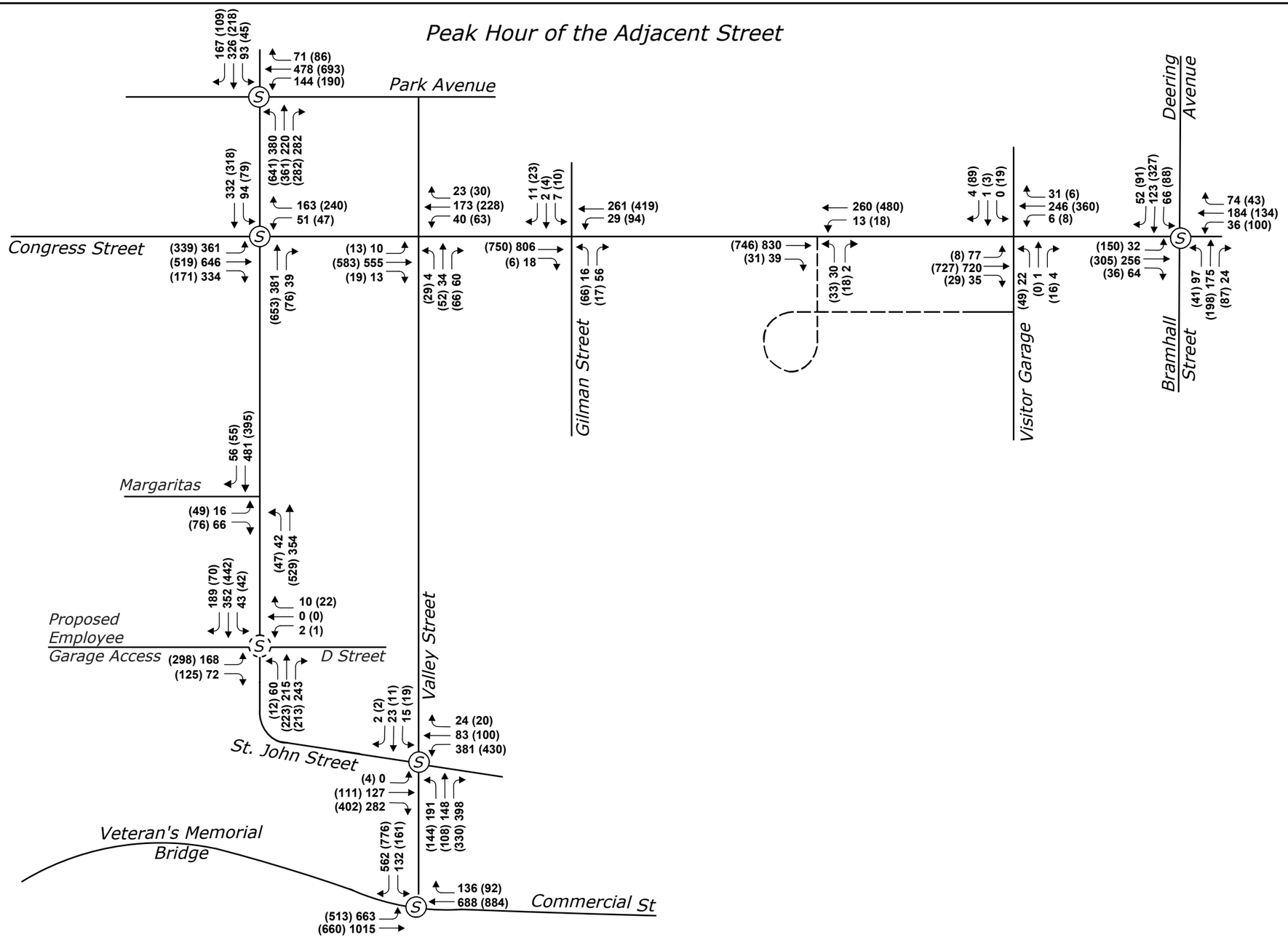
2023 Postdevelopment

Figure No. 16



* Through volumes based on volumes at adjacent intersections.

Proposed Signalized Intersection

Denotes Signalized Intersection

XX = AM Peak Hour of Adjacent Street
(XX) = PM Peak Hour of Adjacent Street

Bramhall St. - 22; MMC Congress Street Building
PORTLAND, MAINE

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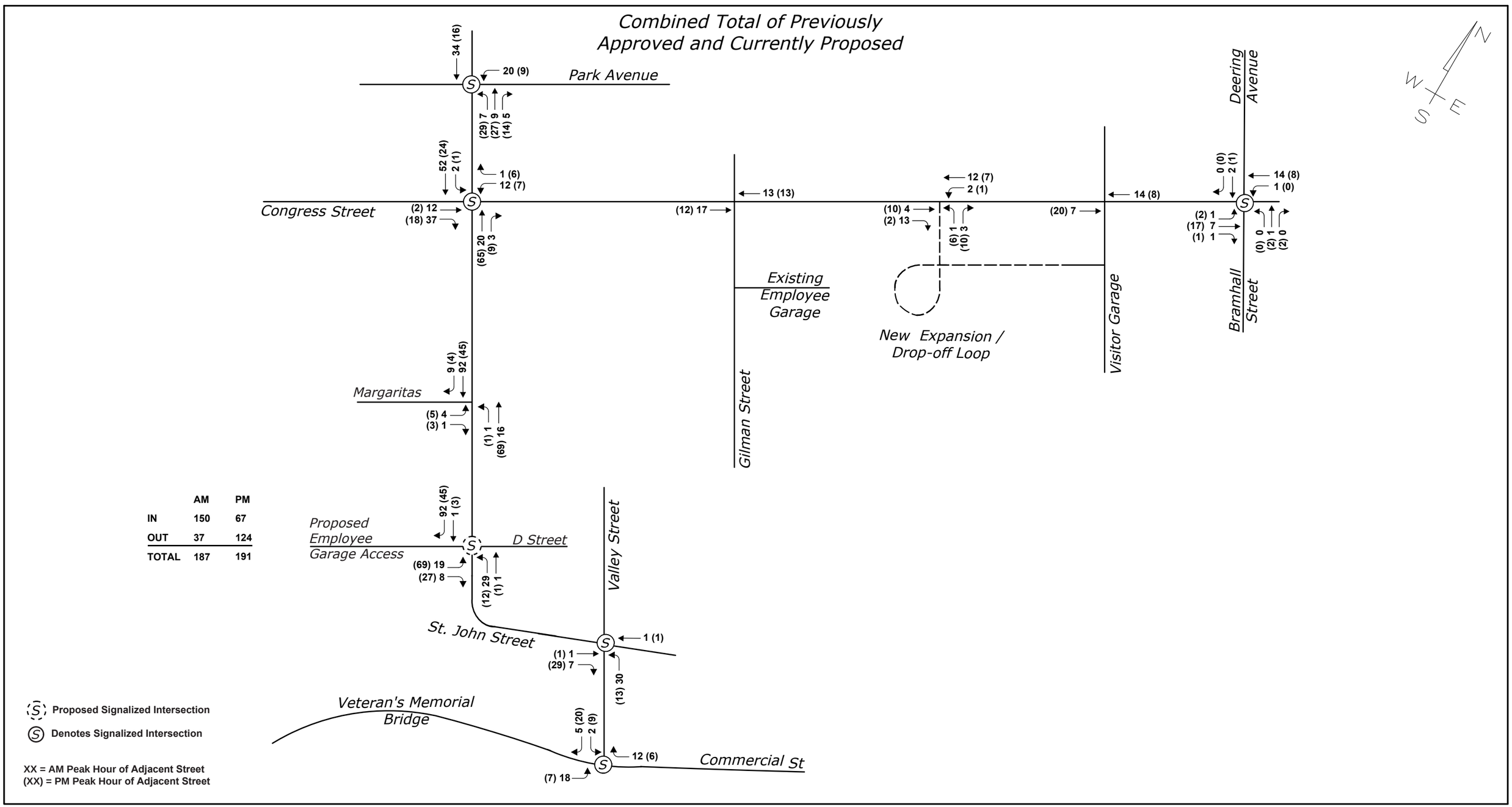
Study Area

Figure No. 17



Bramhall St. - 22; MMC Congress Street Building
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Design: EAL Scale: NONE
Draft: Date: OCT 2018
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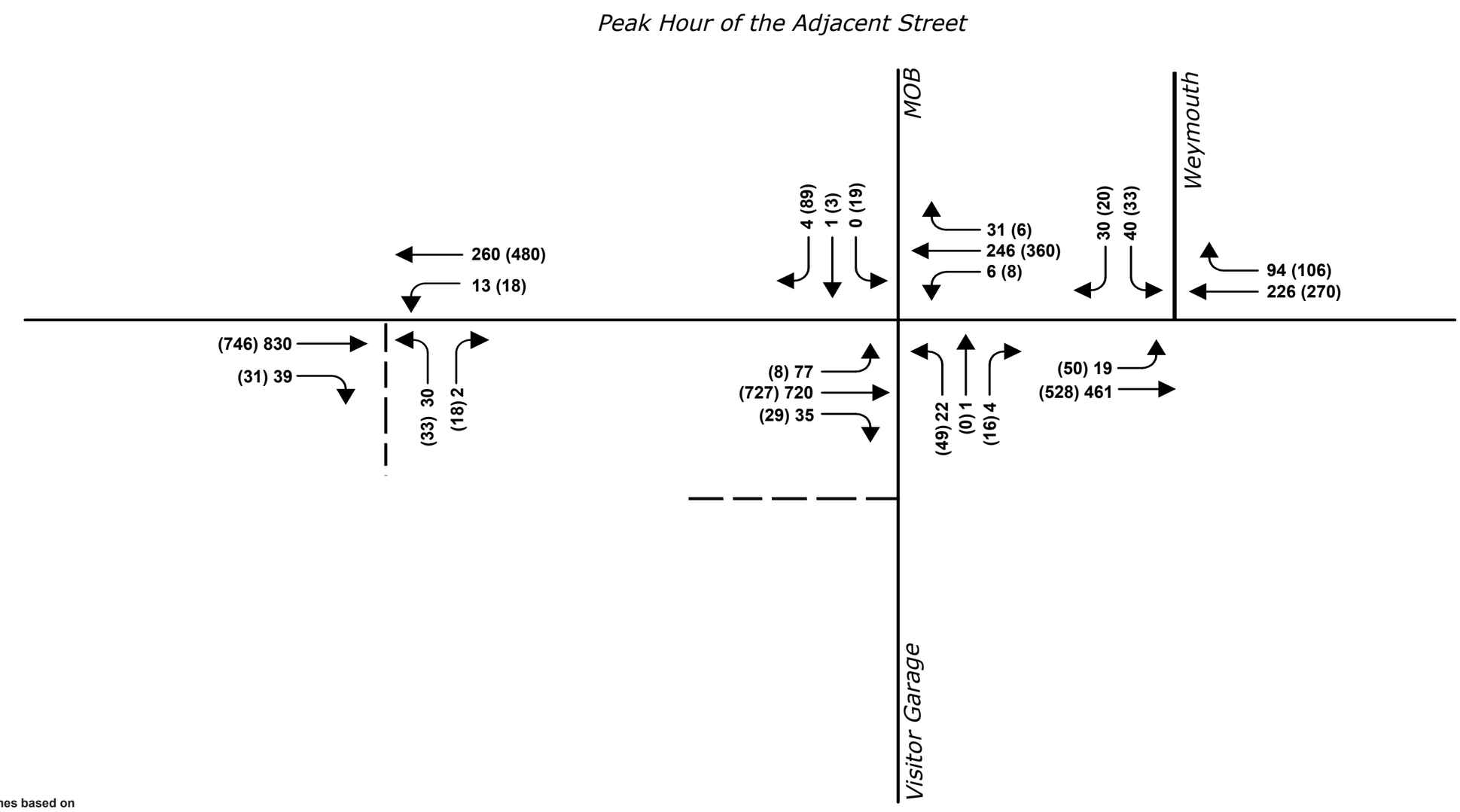
Peak Hour of the Adjacent Street



* Through volumes based on volumes at adjacent intersections.

(S) Proposed Signalized Intersection

(S) Denotes Signalized Intersection

XX = AM Peak Hour of Adjacent Street
(XX) = PM Peak Hour of Adjacent Street

Bramhall St. - 22; MMC Congress Street Building
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LEGEND

Bramhall Employees	1 mile	Travelshed
<1 mile	3 miles	295 North
1-3 miles	5 miles	35 - 302 - 117 North
3-5 miles	10 miles	95 North
5-10 miles	20 miles	95 South
10-20 miles	30 miles	Ferries
20-30 miles	40 miles	Peninsular Surface Streets
30-40 miles	50 miles	Rt 25 - Brighton Ave
40-50 miles		South Portland Surface Streets
>50 miles		Maine Medical Center

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Bramhall Employee Address Locations and Travelsheds
Maine Medical Center

vhb

0 2.5 5 Miles

Attachment 7B

Trip Generation Calculations
May 2013 Traffic Impact Study

JN:	2866.01	Gorrill Palmer
Project Description:	Maine Medical Center Phase 3	707 Sable Oaks Drive
Project Location:	Portland, ME	Suite 30
Date:	08/14/18	South Portland, Maine 04106

Hospital
Land Use Code (LUC) 610

Employees 324

Fitted Curve:

Time Period	ITE Trip Rate	Trip Ends	Directional Split*		Directional Distribution		Sample Size/R2
			IN	OUT	IN	OUT	
Weekday	T =4.40 (X) + 711.46	2137	50%	50%	1069	1068	19/.77
AM Peak Adjacent Street	T =0.32 (X) + 35.15	139	80%	20%	111	28	9/.77
PM Peak Adjacent Street	T =0.28 (X) + 75.75	166	35%	65%	58	108	8/.69
AM Peak of Generator	T = 0.33 (X) +66.57	173	65%	35%	112	61	8/.83
PM Peak of Generator	T = 0..36 (X) + 97.41	214	40%	60%	86	128	15/.73
Saturday	T = 2.95 (X)+ 691.43	1647	50%	50%	824	823	15/.84
Saturday Peak of Generator	Not given	-	55%	45%	-	-	4

* Percentages rounded to nearest 5%

Average Rate:

Time Period	ITE Trip Rate	Trip Ends	Directional Split*		Directional Distribution		Sample Size
			IN	OUT	IN	OUT	
Weekday	**T = 5.2 (X)**	**1685**	**50%**	**50%**	**843**	**842**	**19**
AM Peak Adjacent Street	**T = 0.34 (X)**	**110**	**80%**	**20%**	**88**	**22**	**9**
PM Peak Adjacent Street	**T = 0.33 (X)**	**107**	**35%**	**65%**	**37**	**70**	**8**
AM Peak of Generator	**T = 0.39 (X)**	**126**	**65%**	**35%**	**82**	**44**	**8**
PM Peak of Generator	**T = 0.47 (X)**	**152**	**40%**	**60%**	**61**	**91**	**15**
Saturday	**T = 3.78 (X)**	**1225**	**50%**	**50%**	**613**	**612**	**15**
Saturday Peak of Generator	**T = 0.53 (X)**	**172**	**55%**	**45%**	**95**	**77**	**4**

* Percentages rounded to nearest 5%

Attachment E 1

Traffic Impact Study; Parking Study and Transportation Demand Management Plan
Proposed Bean 2 Roof Addition
Maine Medical Center - Bramhall Campus
Portland, Maine

Prepared for:

Maine Medical Center
22 Bramhall Street
Portland, Maine 04102

May 2013

Prepared by:

Gorrill-Palmer Consulting Engineers, Inc.

Engineering Excellence Since 1998

PO Box 1237
15 Shaker Road
Gray, ME 04039

(207) 657-6910
Fax: (207) 657-6912
E-mail: mailbox@gorrillpalmer.com

E.2

Traffic Impact, Parking Study and Transportation Demand Management Plan
Bean 2 Roof Addition
Maine Medical Center Bramhall Campus
Portland, Maine

Index

Section	*Description*	*Page*
	Executive Summary	1
I.	Existing and Proposed Site	2
II.	Background Traffic Conditions	2-3
III.	Trip Generation	3
IV.	Crash Data	7-8
V.	Parking Evaluation	8
VI.	Transportation Demand Management Plan	9

Appendix

Maine DOT Crash Data
Trip Generation Calculations

E.3

Executive Summary

The following Executive Summary is prepared for the reader's convenience, but is not intended to be a substitute for reading the full report.

Gorrill-Palmer Consulting Engineers, Inc. was retained by Maine Medical Center (MMC) to prepare this traffic and parking assessment as well as a Transportation Demand Management Plan Review for the proposed addition to the Bean 2 building at their Bramhall campus in Portland, Maine. Proposed for the site is a 18,758 square foot addition on top of the Bean 2 building. A total of 49 staff will be added as a result of the project. Based on MMC records, a total of 184 staff have been added since the previous expansion of the Bramhall campus. The additional parking demand for the 49 employees is forecast to be 41 spaces and MMC plans to accommodate them at their parking facilities at 887 Congress Street and at 995 Congress Street.

Based on this study, our office has determined the following:

1. The proposed development is forecast to generate 28 and 30 trip ends in the weekday AM and PM peak hours respectively. The increase since the previous project is estimated to be 77 and 84 trip ends in the weekday AM and PM peak hours respectively (Note: A trip end is either a trip in or out of the site. Thus a round trip would equal two trip ends). At this level of trip generation, this project does not require a traffic permit from the Maine Department of Transportation.

2. Gorrill-Palmer Consulting Engineers, Inc. referenced the Maine DOT collision records to determine that are five high crash locations in the vicinity of the project.

3. Gorrill-Palmer Consulting Engineers, Inc. estimates that the additional 49 employees will generate a demand for 41 parking spaces. It is our understanding from MMC that this additional demand can be accommodated at 887 Congress Street and at 995 Congress Street.

4. Maine Medical Center has a comprehensive Demand Management Plan for their Bramhall campus which supports the City's transportation and environmental sustainability goals by encouraging and promoting bicycling, walking, and use of transit. MMC is planning to add two additional bike racks which will accommodate up to 36 bikes as well as a parking space for a U-Share car on the Bramhall campus.

Based on these findings, it is the opinion of Gorrill-Palmer Consulting Engineers, Inc. that the proposed project can be accommodated by the City's transportation system.

E.4

I. *Existing and Proposed Site*

The proposed project consists of an addition to the top of the existing Bean 2 building at Maine Medical Center's (MMC) Bramhall campus in Portland, Maine.

Proposed for the site is a 18,758 sf addition which is forecast by MMC to add 49 employees. MMC estimates that they have added approximately 184 employees since the last major addition to the Bramhall Campus.

II. *Background Conditions*

Gorrill-Palmer Consulting Engineers, Inc. based the study on the following information:

- A site plan, Sheet A01-01 prepared by Perkins + Will dated April 3, 2013.
- Crash data for 2009-2011 provided by the Maine Department of Transportation.

III. *Trip Generation*

Gorrill-Palmer Consulting Engineers, Inc. used the Institute of Transportation Engineers (ITE) publication *Trip Generation*, 7th Edition, to estimate the potential trip generation for the proposed expansion. Based on MMC records, a total of 184 staff have been added since the previous expansion of the Bramhall campus. With the planned staff addition of 49 employees associated with this project, the total additional staff is 233 since the previous expansion resulting in a total staff level of 4,804 following the expansion. Based on Land Use Code (LUC) 610, Hospital, Gorrill-Palmer Consulting Engineers, Inc. has estimated the difference in trip ends using the prior employee level of 4,571 and the post development level of 4804 (Note a trip end is either a trip in or out of the site; thus one round trip is equal to two trip ends):

AM Peak Hour of MMC	77 trip ends
PM Peak Hour of MMC	84 trip ends

Maine Medical received a traffic movement permit for their previous expansion. The level of forecast traffic increase associated with the employee increase since that time does not require a traffic movement permit from the MaineDOT since the peak hour traffic increase is less than 100 trip ends.

IV. *Crash Data*

In order to evaluate whether a location has a crash problem, Maine DOT uses two criteria to define High Crash Locations (HCL). Both criteria must be met in order to be classified as an HCL.

E. 5

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor (CRF) compares the actual accident rate to the rate for similar intersections in the State. A CRF of less than 1.00 indicates a rate less than average) and:

2. A minimum of 8 crashes over a three-year period.

Our office reviewed the 2009-2011 crash data in this area and has summarized the high crash locations or areas which are close to meeting that definition below:

Intersections with Significant Collision History

Location	No. of Collisions	Critical Rate Factor
Congress/Gilman	10	1.89
Bramhall/Congress/Deering	17	0.64
Congress/Valley	28	1.31
Congress/St. John	24	0.75

Roadway Segment with Significant Collision History

Location	No. of Collisions	Critical Rate Factor
Congress between Ellsworth and Weymouth	10	1.52
Congress between Weymouth and Forest St	10	1.50
St. John between C St and A St	11	2.68

This information shows that there are five high crash locations in the vicinity of the site. The MaineDOT furnished the collision reports for these locations and our office is preparing the collision diagrams which will be furnished to the City upon completion.

A copy of the collision history is included in the appendix.

V. *Parking Demand*

Gorrill-Palmer Consulting Engineers, Inc. used the Institute of Transportation Engineers (ITE) publication *Parking Generation*, 3rd Edition, to estimate the potential parking demand for the proposed expansion. Land Use Code 610, Hospital, estimates an average demand of 0.83 spaces per employee. Based on the estimated 49 employees to be added with the planned addition, the project will create a demand for 41 additional parking spaces. It is our understanding from MMC that this additional demand can be accommodated at 887 Cougress Street and at 995 Congress Street.

It is our understanding from John Peverada of the City's parking department staff that, they have done periodic checking of MMC's parking garages at the corner of Gilman Road and Congress Street and has seen vacancies. He also observed that the parking meeting on the Eastern Promenade were underutilized.

Attachment 7C

Capacity and Queuing Analysis Results

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	6740	6752	6658	6699	6614	6691
Vehs Exited	6727	6685	6605	6628	6589	6646
Starting Vehs	251	220	223	227	223	224
Ending Vehs	264	287	276	298	248	268
Denied Entry Before	1	2	2	2	2	1
Denied Entry After	3	3	3	3	0	0
Travel Distance (mi)	5093	5125	5012	5064	5000	5059
Travel Time (hr)	259.0	290.9	255.4	264.1	258.5	265.6
Total Delay (hr)	75.8	106.4	75.1	82.0	78.5	83.5
Total Stops	7849	8817	7746	8126	7889	8085
Fuel Used (gal)	182.8	190.0	179.6	182.9	180.3	183.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	6740	6752	6658	6699	6614	6691
Vehs Exited	6727	6685	6605	6628	6589	6646
Starting Vehs	251	220	223	227	223	224
Ending Vehs	264	287	276	298	248	268
Denied Entry Before	1	2	2	2	2	1
Denied Entry After	3	3	3	3	0	0
Travel Distance (mi)	5093	5125	5012	5064	5000	5059
Travel Time (hr)	259.0	290.9	255.4	264.1	258.5	265.6
Total Delay (hr)	75.8	106.4	75.1	82.0	78.5	83.5
Total Stops	7849	8817	7746	8126	7889	8085
Fuel Used (gal)	182.8	190.0	179.6	182.9	180.3	183.1

1: St. John Street & Margaritas Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	2.4	0.0	0.0	0.1
Total Del/Veh (s)	5.3	1.1	1.6	1.6
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

3: St. John Street & Garage Access/D St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.2	4.1	1.9	0.9	1.4
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

5: Valley & St. John Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	2.8	0.0	2.3	0.9
Total Del/Veh (s)	12.8	16.6	14.4	15.7	14.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

7: St. John Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.0	0.8	0.0	0.4
Total Del/Veh (s)	16.2	9.5	30.1	22.3	18.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

13: Fore River Pkwy & Valley Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.4	0.4	0.0	0.3
Total Del/Veh (s)	53.8	18.3	11.6	35.7
Denied Entry Before	0	1	0	1
Denied Entry After	0	0	0	0

19: St. John Street & Park Avenue Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.0	0.0	0.9	0.6
Total Del/Veh (s)	29.1	22.0	54.0	33.2
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

24: Gilman Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.2	0.1	0.2
Total Del/Veh (s)	3.5	3.1	20.0	9.6	5.1
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

29: Bramhall Street/Deering Avenue & Congress Street Performance by approach

Approach	EB	WB	NE	SW	All
Denied Del/Veh (s)	0.0	1.9	2.2	2.9	1.2
Total Del/Veh (s)	8.3	13.0	13.9	11.3	10.7
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

35: Visitor Garage/Forest Street Garage & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	3.0	2.1	20.6	9.9	3.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	42.5
Denied Entry Before	1
Denied Entry After	0

Intersection: 1: St. John Street & Margaritas

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	30	30	40
Average Queue (ft)	5	7	5
95th Queue (ft)	24	27	25
Link Distance (ft)	626		678
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		125	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: St. John Street & Garage Access/D St

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	31	39	48
Average Queue (ft)	3	11	2
95th Queue (ft)	18	35	22
Link Distance (ft)	570	495	678
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Valley & St. John Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	TR	L	TR	LT	TR
Maximum Queue (ft)	126	124	292	67	155	274	74	91
Average Queue (ft)	52	62	131	16	57	153	25	35
95th Queue (ft)	97	105	224	45	117	242	60	73
Link Distance (ft)	1618			1012	268	268	937	
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						1		
Storage Bay Dist (ft)		110	335					265
Storage Blk Time (%)	1	1	0					
Queuing Penalty (veh)	1	1	0					

Intersection: 7: St. John Street & Congress Street

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	R	T	TR	L	T
Maximum Queue (ft)	249	380	314	87	129	121	137	159	207
Average Queue (ft)	125	214	57	24	62	50	66	72	93
95th Queue (ft)	206	336	174	63	109	94	119	131	174
Link Distance (ft)	1767	1767			367	670		794	794
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			290	80			175		
Storage Blk Time (%)		2	0	0	4		0		
Queuing Penalty (veh)		3	0	1	1		0		

Intersection: 13: Fore River Pkwy & Valley

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	480	527	942	885	196	188	100	137	126	131
Average Queue (ft)	356	420	443	352	132	118	40	64	70	70
95th Queue (ft)	605	620	1249	1122	183	177	82	116	113	111
Link Distance (ft)			2719	2719	1454	1454		268	268	268
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	430	430					415			
Storage Blk Time (%)	7	37	2							
Queuing Penalty (veh)	35	190	14							

Intersection: 19: St. John Street & Park Avenue

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	155	219	251	188	353	135	655	80
Average Queue (ft)	52	112	141	108	176	105	325	63
95th Queue (ft)	111	187	207	175	285	172	571	106
Link Distance (ft)			1678	794	794		2255	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	95	95				110		55
Storage Blk Time (%)	2	8	24		21	0	55	7
Queuing Penalty (veh)	6	26	83		52	1	92	27

Intersection: 24: Gilman Street & Congress Street

Movement	EB	WB	NB	SB
Directions Served	TR	L	LTR	LTR
Maximum Queue (ft)	28	68	153	55
Average Queue (ft)	2	30	59	15
95th Queue (ft)	15	64	109	44
Link Distance (ft)	367		1063	624
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		65		
Storage Blk Time (%)		1		
Queuing Penalty (veh)		2		

Intersection: 29: Bramhall Street/Deering Avenue & Congress Street

Movement	EB	EB	WB	WB	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	55	220	176	90	140	142	132	74
Average Queue (ft)	18	116	48	70	54	61	42	47
95th Queue (ft)	47	187	132	101	106	113	97	78
Link Distance (ft)	965		1272		1186		795	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		400		65		135		50
Storage Blk Time (%)			0	11	0	0	3	9
Queuing Penalty (veh)			1	4	1	0	5	6

Intersection: 35: Visitor Garage/Forest Street Garage & Congress Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	163	35	47	30
Average Queue (ft)	30	2	22	5
95th Queue (ft)	100	16	50	23
Link Distance (ft)	425	965	508	434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 553

Intersection: 5: Valley & St. John Street

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	34.0	23.0	18.0	34.0	46.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0
Recall	None	None	None	None	None
Avg. Green (s)	15.3	15.8	10.0	15.3	27.6
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	6	7	20	6	4
Cycles @ Minimum (%)	0	0	4	0	0
Cycles Maxed Out (%)	1	21	8	1	4
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: St. John Street & Congress Street

Phase	1	2	3	4	5	6	8
Movement(s) Served	EBL	WBL	SBL	NBT	WBL	EBTL	SBT
Maximum Green (s)	15.3	27.2	6.7	8.0	5.0	37.5	21.5
Minimum Green (s)	8.0	8.0	3.0	8.0	5.0	8.0	5.0
Recall	None	Min	None	None	None	Min	None
Avg. Green (s)	13.0	15.9	6.7	8.4	5.5	31.3	20.1
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	NA
Cycles Skipped (%)	2	0	9	4	73	0	0
Cycles @ Minimum (%)	15	34	0	91	24	0	0
Cycles Maxed Out (%)	47	16	78	96	27	36	76
Cycles with Peds (%)	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 13: Fore River Pkwy & Valley

Phase	4	6	7	8
Movement(s) Served	EBT	SBL	EBL	WBT
Maximum Green (s)	39.0	11.0	17.0	17.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	39.0	10.3	17.0	16.1
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	68	74	98	69
Cycles with Peds (%)	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 19: St. John Street & Park Avenue

Phase	2	6	8
Movement(s) Served	NBTL	SBTL	WBTL
Maximum Green (s)	40.0	25.0	40.0
Minimum Green (s)	3.0	3.0	3.0
Recall	Min	Min	Min
Avg. Green (s)	27.2	24.5	24.6
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	21	82	5
Cycles with Peds (%)	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 29: Bramhall Street/Deering Avenue & Congress Street

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SWL	NETL	WBL	EBTL	NEL	SWTL	EBL	WBTL
Maximum Green (s)	5.5	13.5	5.5	17.5	5.5	13.5	5.5	17.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	Max	None	None	None	Max	None	None
Avg. Green (s)	5.5	14.9	5.7	14.9	5.5	16.7	7.1	15.2
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	50	0	76	3	65	1	79	4
Cycles @ Minimum (%)	0	0	13	0	9	0	0	0
Cycles Maxed Out (%)	45	100	10	41	25	99	19	38
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7366	7440	7423	7329	7474	7405
Vehs Exited	7310	7424	7376	7305	7450	7372
Starting Vehs	220	237	220	225	249	227
Ending Vehs	276	253	267	249	273	263
Denied Entry Before	3	2	2	1	2	1
Denied Entry After	1	1	0	2	4	0
Travel Distance (mi)	5356	5472	5415	5335	5458	5407
Travel Time (hr)	262.5	270.7	271.1	259.9	269.4	266.7
Total Delay (hr)	69.2	73.4	75.9	67.7	72.1	71.7
Total Stops	8551	8779	8794	8373	8667	8630
Fuel Used (gal)	191.5	196.1	194.8	189.2	194.4	193.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7366	7440	7423	7329	7474	7405
Vehs Exited	7310	7424	7376	7305	7450	7372
Starting Vehs	220	237	220	225	249	227
Ending Vehs	276	253	267	249	273	263
Denied Entry Before	3	2	2	1	2	1
Denied Entry After	1	1	0	2	4	0
Travel Distance (mi)	5356	5472	5415	5335	5458	5407
Travel Time (hr)	262.5	270.7	271.1	259.9	269.4	266.7
Total Delay (hr)	69.2	73.4	75.9	67.7	72.1	71.7
Total Stops	8551	8779	8794	8373	8667	8630
Fuel Used (gal)	191.5	196.1	194.8	189.2	194.4	193.2

1: St. John Street & Margaritas Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	3.4	0.0	0.0	0.3
Total Del/Veh (s)	5.6	2.3	2.0	2.4
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

3: St. John Street & Garage Access/D St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.4	0.1	0.5	0.2	0.5
Total Del/Veh (s)	13.7	5.4	5.8	6.8	7.6
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

5: Valley & St. John Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	2.7	0.0	1.7	0.8
Total Del/Veh (s)	12.9	16.7	13.4	18.1	14.3
Denied Entry Before	0	1	0	0	1
Denied Entry After	0	0	0	0	0

7: St. John Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.0	0.3	0.0	0.3
Total Del/Veh (s)	18.7	9.8	30.6	22.8	20.6
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

12: Congress Street Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.3	1.5	19.2	1.8
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

13: Fore River Pkwy & Valley Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.4	0.5	0.0	0.3
Total Del/Veh (s)	25.3	18.7	11.7	20.7
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

19: St. John Street & Park Avenue Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.2	0.0	0.6	0.6
Total Del/Veh (s)	31.5	18.2	22.0	23.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

24: Gilman Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.2
Total Del/Veh (s)	2.4	1.2	13.4	8.9	2.9
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

29: Bramhall Street/Deering Avenue & Congress Street Performance by approach

Approach	EB	WB	NE	SW	All
Denied Del/Veh (s)	0.0	1.9	2.2	2.8	1.2
Total Del/Veh (s)	7.3	13.0	13.1	11.1	10.0
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

35: Visitor Garage/Forest Street Garage & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1	0.1
Total Del/Veh (s)	2.2	2.1	16.4	8.6	2.5
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	32.8
Denied Entry Before	1
Denied Entry After	0

Intersection: 1: St. John Street & Margaritas

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	34	64	95	9
Average Queue (ft)	11	29	21	0
95th Queue (ft)	34	49	68	4
Link Distance (ft)	620		678	670
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		125		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: St. John Street & Garage Access/D St

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	126	65	39	61	114	91	169
Average Queue (ft)	63	29	11	19	52	24	83
95th Queue (ft)	105	53	36	46	98	63	145
Link Distance (ft)	564		489		1605		678
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		150		100		75	
Storage Blk Time (%)	0				0	0	5
Queuing Penalty (veh)	0				0	1	2

Intersection: 5: Valley & St. John Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	TR	L	TR	LT	TR
Maximum Queue (ft)	164	133	270	70	154	247	40	56
Average Queue (ft)	58	70	138	23	74	141	14	10
95th Queue (ft)	114	118	228	54	131	224	39	37
Link Distance (ft)	1605			1012	268	268	937	
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)		110	335					265
Storage Blk Time (%)	0	1						
Queuing Penalty (veh)	1	2						

Intersection: 7: St. John Street & Congress Street

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	R	T	TR	L	T
Maximum Queue (ft)	377	552	315	89	106	261	197	146	203
Average Queue (ft)	138	229	82	36	49	92	105	61	109
95th Queue (ft)	266	403	221	76	88	193	174	117	181
Link Distance (ft)	1767	1767			367	670		794	794
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			290	80			175		
Storage Blk Time (%)		3	0	1	1	1	2		
Queuing Penalty (veh)		7	0	1	1	3	3		

Intersection: 12: Congress Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	44	111	71
Average Queue (ft)	2	14	27
95th Queue (ft)	20	62	63
Link Distance (ft)	169	202	174
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Fore River Pkwy & Valley

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	377	428	335	325	238	238	98	128	140	148
Average Queue (ft)	177	267	86	98	136	126	40	62	72	73
95th Queue (ft)	372	419	243	199	202	198	79	112	118	120
Link Distance (ft)			2719	2719	1454	1454		268	268	268
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	430	430					415			
Storage Blk Time (%)	0	2								
Queuing Penalty (veh)	2	10								

Intersection: 19: St. John Street & Park Avenue

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	162	228	255	194	286	135	326	80
Average Queue (ft)	71	114	139	92	151	100	169	64
95th Queue (ft)	128	197	214	157	253	168	290	102
Link Distance (ft)			1678	794	794		2255	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	95	95				110		55
Storage Blk Time (%)	4	9	29		14	1	33	4
Queuing Penalty (veh)	13	29	108		38	3	55	16

Intersection: 24: Gilman Street & Congress Street

Movement	EB	WB	NB	SB
Directions Served	TR	L	LTR	LTR
Maximum Queue (ft)	10	57	88	68
Average Queue (ft)	1	13	38	17
95th Queue (ft)	8	40	71	49
Link Distance (ft)	367		1063	624
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		65		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		1		

Intersection: 29: Bramhall Street/Deering Avenue & Congress Street

Movement	EB	EB	WB	WB	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	61	213	190	90	140	140	143	75
Average Queue (ft)	18	102	43	68	51	62	39	49
95th Queue (ft)	46	173	122	98	105	116	96	80
Link Distance (ft)	965		1272		1186		795	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		400		65		135		50
Storage Blk Time (%)			1	10	0	0	4	8
Queuing Penalty (veh)			1	4	0	0	6	6

Intersection: 35: Visitor Garage/Forest Street Garage & Congress Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	163	103	58	34
Average Queue (ft)	35	7	21	6
95th Queue (ft)	108	45	49	27
Link Distance (ft)	202	965	508	434
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 314

Intersection: 3: St. John Street & Garage Access/D St

Phase	2	4	5	6	8
Movement(s) Served	NBTL	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	45.0	5.0	6.5	34.0	5.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	26.1	5.0	5.7	22.0	5.0
g/C Ratio	-0.01	-0.01	-0.01	NA	-0.01
Cycles Skipped (%)	5	5	76	0	5
Cycles @ Minimum (%)	0	95	5	1	95
Cycles Maxed Out (%)	8	95	4	17	95
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Valley & St. John Street

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	26.0	21.0	18.0	26.0	44.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0
Recall	None	None	None	None	None
Avg. Green (s)	13.9	15.7	11.5	13.9	30.6
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	11	7	14	11	6
Cycles @ Minimum (%)	0	0	1	0	0
Cycles Maxed Out (%)	4	32	17	4	10
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: St. John Street & Congress Street

Phase	1	2	3	4	5	6	8
Movement(s) Served	EBL	WBL	SBL	NBT	WBL	EBTL	SBT
Maximum Green (s)	15.6	24.4	5.7	11.5	5.0	35.0	24.0
Minimum Green (s)	8.0	8.0	3.0	8.0	5.0	8.0	5.0
Recall	None	Min	None	None	None	Min	None
Avg. Green (s)	13.7	15.5	5.9	11.9	5.6	29.8	22.6
g/C Ratio	-0.01	NA	-0.01	NA	-0.01	NA	NA
Cycles Skipped (%)	2	0	12	0	54	0	0
Cycles @ Minimum (%)	8	28	0	2	40	0	0
Cycles Maxed Out (%)	57	25	85	85	46	37	68
Cycles with Peds (%)	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 13: Fore River Pkwy & Valley

Phase	4	6	7	8
Movement(s) Served	EBT	SBL	EBL	WBT
Maximum Green (s)	39.0	11.0	17.0	17.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	38.8	10.2	16.9	16.4
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	70	70	95	74
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 19: St. John Street & Park Avenue

Phase	2	6	8
Movement(s) Served	NBTL	SBTL	WBTL
Maximum Green (s)	15.0	20.0	10.0
Minimum Green (s)	3.0	3.0	3.0
Recall	Min	Min	Min
Avg. Green (s)	14.5	17.3	10.0
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	2	0
Cycles Maxed Out (%)	86	59	97
Cycles with Peds (%)	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 29: Bramhall Street/Deering Avenue & Congress Street

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SWL	NETL	WBL	EBTL	NEL	SWTL	EBL	WBTL
Maximum Green (s)	5.5	13.5	5.5	17.5	5.5	13.5	5.5	17.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	Max	None	None	None	Max	None	None
Avg. Green (s)	5.6	15.0	6.6	13.9	5.5	16.4	7.6	14.3
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	58	0	74	6	72	1	81	5
Cycles @ Minimum (%)	1	0	12	0	6	0	0	0
Cycles Maxed Out (%)	38	100	11	30	21	99	17	30
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7331	7512	7399	7678	7334	7453
Vehs Exited	7265	7409	7298	7540	7291	7361
Starting Vehs	213	198	216	165	200	193
Ending Vehs	279	301	317	303	243	286
Denied Entry Before	4	2	3	3	0	2
Denied Entry After	2	1	5	1	3	1
Travel Distance (mi)	4625	4680	4600	4791	4585	4656
Travel Time (hr)	253.6	269.0	270.0	266.4	243.9	260.6
Total Delay (hr)	85.3	99.0	102.8	92.3	77.0	91.3
Total Stops	9003	9407	9298	9280	8484	9093
Fuel Used (gal)	173.1	178.4	176.6	180.5	169.3	175.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7331	7512	7399	7678	7334	7453
Vehs Exited	7265	7409	7298	7540	7291	7361
Starting Vehs	213	198	216	165	200	193
Ending Vehs	279	301	317	303	243	286
Denied Entry Before	4	2	3	3	0	2
Denied Entry After	2	1	5	1	3	1
Travel Distance (mi)	4625	4680	4600	4791	4585	4656
Travel Time (hr)	253.6	269.0	270.0	266.4	243.9	260.6
Total Delay (hr)	85.3	99.0	102.8	92.3	77.0	91.3
Total Stops	9003	9407	9298	9280	8484	9093
Fuel Used (gal)	173.1	178.4	176.6	180.5	169.3	175.6

1: St. John Street & Margaritas Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	1.7	0.0	0.0	0.3
Total Del/Veh (s)	7.3	1.5	1.9	2.7
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

3: St. John Street & Garage Access/D St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.1
Total Del/Veh (s)	7.3	3.3	2.1	0.8	1.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

5: Valley & St. John Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	2.8	0.0	2.3	1.1
Total Del/Veh (s)	10.7	19.6	14.0	16.4	15.2
Denied Entry Before	0	1	0	0	1
Denied Entry After	0	0	0	0	0

7: St. John Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.0	0.9	0.0	0.4
Total Del/Veh (s)	16.6	9.0	26.8	21.7	17.8
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

12: Gilman Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.2	0.1	0.2
Total Del/Veh (s)	2.4	2.4	37.2	12.8	6.5
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

13: Fore River Pkwy & Valley Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.9	0.3	0.0	0.5
Total Del/Veh (s)	53.1	18.4	12.4	29.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

18: Bramhall Street/Deering Avenue & Congress Street Performance by approach

Approach	EB	WB	NE	SW	All
Denied Del/Veh (s)	0.0	1.4	2.7	3.0	1.6
Total Del/Veh (s)	16.3	23.5	14.4	16.5	17.1
Denied Entry Before	0	0	0	1	1
Denied Entry After	0	0	0	1	1

19: St. John Street & Park Avenue Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.6	0.1	0.8	0.8
Total Del/Veh (s)	37.4	34.8	39.6	36.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

32: Visitor Garage/Forest Street Garage & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.2	0.1
Total Del/Veh (s)	1.8	1.7	17.2	9.0	3.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	1.3
Total Del/Veh (s)	41.7
Denied Entry Before	2
Denied Entry After	1

Intersection: 1: St. John Street & Margaritas

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	77	59	80
Average Queue (ft)	37	27	11
95th Queue (ft)	63	50	47
Link Distance (ft)	424		678
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		125	
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Intersection: 3: St. John Street & Garage Access/D St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	36	41	29
Average Queue (ft)	4	15	3	2
95th Queue (ft)	21	40	23	15
Link Distance (ft)	436	550	1618	678
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Valley & St. John Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	TR	L	TR	LT	TR
Maximum Queue (ft)	163	133	274	152	144	175	102	135
Average Queue (ft)	44	76	156	27	58	83	36	62
95th Queue (ft)	106	117	258	100	110	154	77	110
Link Distance (ft)	1618			988	263	263	1083	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		110	335					265
Storage Blk Time (%)	0	1	1					
Queuing Penalty (veh)	0	1	1					

Intersection: 7: St. John Street & Congress Street

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	R	T	TR	L	T
Maximum Queue (ft)	240	339	232	104	166	234	188	121	255
Average Queue (ft)	110	186	59	32	85	98	109	52	120
95th Queue (ft)	192	293	145	81	141	177	177	103	212
Link Distance (ft)	1767	1767			367	671		792	792
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			290	80			175		
Storage Blk Time (%)		1	0	1	9	1	1		
Queuing Penalty (veh)		2	0	2	4	2	3		

Intersection: 12: Gilman Street & Congress Street

Movement	EB	WB	WB	NB	SB
Directions Served	TR	L	T	LTR	LTR
Maximum Queue (ft)	4	73	49	177	76
Average Queue (ft)	0	34	2	83	26
95th Queue (ft)	4	65	29	155	59
Link Distance (ft)	367		425	1063	624
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65			
Storage Blk Time (%)		1	0		
Queuing Penalty (veh)		5	0		

Intersection: 13: Fore River Pkwy & Valley

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	446	491	725	696	229	230	60	146	145	151
Average Queue (ft)	255	323	279	244	153	142	23	64	89	94
95th Queue (ft)	530	561	903	828	216	213	53	116	133	141
Link Distance (ft)			1529	1529	1274	1274		263	263	263
Upstream Blk Time (%)			1	0						
Queuing Penalty (veh)			0	0						
Storage Bay Dist (ft)	430	430					415			
Storage Blk Time (%)	7	23	2							
Queuing Penalty (veh)	22	76	10							

Intersection: 18: Bramhall Street/Deering Avenue & Congress Street

Movement	EB	EB	WB	WB	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	225	285	217	90	140	156	284	75
Average Queue (ft)	75	136	77	68	33	87	119	69
95th Queue (ft)	156	240	167	102	101	147	241	84
Link Distance (ft)	965		1272		1186		795	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		400		65		135		50
Storage Blk Time (%)		0	7	13	0	2	6	29
Queuing Penalty (veh)		0	11	14	0	1	24	25

Intersection: 19: St. John Street & Park Avenue

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	164	235	596	406	520	135	365	80
Average Queue (ft)	101	189	262	228	324	106	183	54
95th Queue (ft)	178	269	481	357	492	179	310	105
Link Distance (ft)			1640	792	792		1989	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	95	95				110		55
Storage Blk Time (%)	10	26	42		44	0	47	4
Queuing Penalty (veh)	45	112	217		94	2	51	10

Intersection: 32: Visitor Garage/Forest Street Garage & Congress Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	123	81	82	87
Average Queue (ft)	8	6	37	40
95th Queue (ft)	59	43	69	67
Link Distance (ft)	425	965	508	434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 734

Intersection: 5: Valley & St. John Street

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	18.0	19.0	18.0	18.0	42.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0
Recall	None	None	None	None	None
Avg. Green (s)	14.6	16.3	11.2	14.6	30.4
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	3	1	16	3	2
Cycles @ Minimum (%)	0	0	4	0	0
Cycles Maxed Out (%)	39	51	12	39	9
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: St. John Street & Congress Street

Phase	1	2	3	4	5	6	8
Movement(s) Served	EBL	WBL	SBL	NBT	WBL	EBTL	SBT
Maximum Green (s)	13.7	33.2	5.7	14.6	4.5	42.4	27.1
Minimum Green (s)	8.0	8.0	3.0	8.0	4.5	8.0	5.0
Recall	None	Min	None	None	None	Min	None
Avg. Green (s)	12.3	14.5	5.7	13.8	5.8	27.8	24.5
g/C Ratio	-0.01	NA	-0.01	NA	-0.01	NA	NA
Cycles Skipped (%)	4	0	15	0	66	0	0
Cycles @ Minimum (%)	7	41	0	4	25	0	0
Cycles Maxed Out (%)	56	6	80	64	34	9	55
Cycles with Peds (%)	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 13: Fore River Pkwy & Valley

Phase	4	6	7	8
Movement(s) Served	EBT	SBL	EBL	WBT
Maximum Green (s)	34.0	11.0	11.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	33.8	11.0	11.0	17.6
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	88	94	98	88
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 18: Bramhall Street/Deering Avenue & Congress Street

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SWL	NETL	WBL	EBTL	NEL	SWTL	EBL	WBTL
Maximum Green (s)	5.5	18.5	5.5	12.5	5.5	18.5	7.5	10.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	Max	None	None	None	Max	None	None
Avg. Green (s)	5.5	19.5	6.2	13.5	5.5	22.9	9.8	12.1
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	-0.01
Cycles Skipped (%)	44	0	31	3	78	0	23	17
Cycles @ Minimum (%)	0	0	15	0	3	0	0	0
Cycles Maxed Out (%)	55	100	51	74	17	100	63	61
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 19: St. John Street & Park Avenue

Phase	2	6	8
Movement(s) Served	NBTL	SBTL	WBTL
Maximum Green (s)	40.0	25.0	40.0
Minimum Green (s)	3.0	3.0	3.0
Recall	Min	Min	Min
Avg. Green (s)	37.9	21.1	35.2
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	79	47	48
Cycles with Peds (%)	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7831	7966	7847	8076	7814	7904
Vehs Exited	7813	7849	7783	8055	7757	7851
Starting Vehs	252	221	215	251	225	229
Ending Vehs	270	338	279	272	282	281
Denied Entry Before	0	3	2	4	4	1
Denied Entry After	3	3	3	2	5	1
Travel Distance (mi)	4829	4926	4831	4966	4830	4876
Travel Time (hr)	261.7	290.4	275.9	276.3	277.5	276.4
Total Delay (hr)	85.7	110.7	99.9	95.0	101.5	98.6
Total Stops	9846	11329	10407	10601	10702	10579
Fuel Used (gal)	181.4	191.5	185.7	189.1	186.0	186.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7831	7966	7847	8076	7814	7904
Vehs Exited	7813	7849	7783	8055	7757	7851
Starting Vehs	252	221	215	251	225	229
Ending Vehs	270	338	279	272	282	281
Denied Entry Before	0	3	2	4	4	1
Denied Entry After	3	3	3	2	5	1
Travel Distance (mi)	4829	4926	4831	4966	4830	4876
Travel Time (hr)	261.7	290.4	275.9	276.3	277.5	276.4
Total Delay (hr)	85.7	110.7	99.9	95.0	101.5	98.6
Total Stops	9846	11329	10407	10601	10702	10579
Fuel Used (gal)	181.4	191.5	185.7	189.1	186.0	186.7

1: St. John Street & Margaritas Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	2.6	0.0	0.0	0.3
Total Del/Veh (s)	10.0	2.9	2.2	3.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

3: St. John Street & Garage Access/D St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.4	0.1	0.4	0.1	0.6
Total Del/Veh (s)	12.0	4.9	8.9	12.7	11.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

5: Valley & St. John Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	2.7	0.0	1.3	0.9
Total Del/Veh (s)	13.3	18.1	14.4	19.2	15.3
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	1	0	0	1

7: St. John Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.0	0.7	0.0	0.4
Total Del/Veh (s)	21.6	9.0	29.1	21.5	21.2
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

12: Gilman Street & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.1	0.1	0.1
Total Del/Veh (s)	2.3	1.8	25.4	10.9	3.6
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

13: Fore River Pkwy & Valley Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.9	0.3	0.0	0.4
Total Del/Veh (s)	56.9	18.3	12.8	31.6
Denied Entry Before	1	0	0	1
Denied Entry After	0	0	0	0

18: Bramhall Street/Deering Avenue & Congress Street Performance by approach

Approach	EB	WB	NE	SW	All
Denied Del/Veh (s)	0.0	1.4	2.7	3.1	1.5
Total Del/Veh (s)	16.5	21.5	13.4	15.2	16.4
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

19: St. John Street & Park Avenue Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.6	0.1	1.0	0.8
Total Del/Veh (s)	42.8	23.3	28.5	31.5
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

22: Proposed Drop Off & Congress Street Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.0	1.2	16.3	1.6
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

32: Visitor Garage/Forest Street Garage & Congress Street Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.1	0.1	0.2	0.1
Total Del/Veh (s)	1.2	1.8	17.3	8.6	2.8
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	1.3
Total Del/Veh (s)	42.4
Denied Entry Before	1
Denied Entry After	1

Intersection: 1: St. John Street & Margaritas

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	76	65	158	17
Average Queue (ft)	30	32	31	1
95th Queue (ft)	63	55	98	6
Link Distance (ft)	549		677	671
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		125		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: St. John Street & Garage Access/D St

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	LT	R	LTR	L	TR	L	TR
Maximum Queue (ft)	168	103	35	73	193	100	293
Average Queue (ft)	89	42	14	13	83	33	133
95th Queue (ft)	147	81	37	44	157	84	239
Link Distance (ft)	559		663		1605		677
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		150		100		75	
Storage Blk Time (%)	0	0			3	0	16
Queuing Penalty (veh)	1	0			1	2	7

Intersection: 5: Valley & St. John Street

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	L	TR	L	TR	LT	TR
Maximum Queue (ft)	192	135	276	97	146	203	42	50
Average Queue (ft)	66	97	154	24	66	100	13	8
95th Queue (ft)	148	143	240	67	121	167	39	31
Link Distance (ft)	1605			988	270	270	1083	
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)		110	335					265
Storage Blk Time (%)	1	4						
Queuing Penalty (veh)	3	5						

Intersection: 7: St. John Street & Congress Street

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	R	L	R	T	TR	L	T
Maximum Queue (ft)	237	372	313	104	159	439	200	103	240
Average Queue (ft)	136	222	71	40	74	168	156	50	109
95th Queue (ft)	217	340	199	87	130	330	214	93	211
Link Distance (ft)	1767	1767			367	671		792	792
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			290	80			175		
Storage Blk Time (%)		2	0	1	6	3	5		
Queuing Penalty (veh)		4	0	2	3	12	17		

Intersection: 12: Gilman Street & Congress Street

Movement	EB	WB	WB	NB	SB
Directions Served	TR	L	T	LTR	LTR
Maximum Queue (ft)	10	69	20	105	66
Average Queue (ft)	0	30	1	46	27
95th Queue (ft)	7	59	14	81	57
Link Distance (ft)	367		170	1063	624
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65			
Storage Blk Time (%)		1			
Queuing Penalty (veh)		3			

Intersection: 13: Fore River Pkwy & Valley

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	453	500	777	722	227	206	65	123	170	170
Average Queue (ft)	321	372	309	245	151	137	25	65	100	103
95th Queue (ft)	573	595	820	715	207	201	55	106	151	151
Link Distance (ft)			1519	1519	1275	1275		270	270	270
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	430	430					415			
Storage Blk Time (%)	9	28	3							
Queuing Penalty (veh)	29	91	14							

Intersection: 18: Bramhall Street/Deering Avenue & Congress Street

Movement	EB	EB	WB	WB	NE	NE	SW	SW
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	148	273	196	90	114	151	267	75
Average Queue (ft)	69	139	74	69	28	76	117	69
95th Queue (ft)	123	234	153	99	74	130	231	86
Link Distance (ft)	966		1272		1186		795	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		400		65		135		50
Storage Blk Time (%)			5	11		1	5	27
Queuing Penalty (veh)			9	11		0	22	24

Intersection: 19: St. John Street & Park Avenue

Movement	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	LT	R	LT	R
Maximum Queue (ft)	164	235	590	281	447	135	283	80
Average Queue (ft)	115	184	270	157	258	112	137	56
95th Queue (ft)	193	265	581	248	397	175	239	101
Link Distance (ft)			1640	792	792		1376	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	95	95				110		55
Storage Blk Time (%)	10	30	49		31	1	36	3
Queuing Penalty (veh)	44	128	260		87	6	39	8

Intersection: 22: Proposed Drop Off & Congress Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	19	147	74
Average Queue (ft)	1	18	30
95th Queue (ft)	8	79	61
Link Distance (ft)	170	201	194
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		1	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 32: Visitor Garage/Forest Street Garage & Congress Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	72	97	99	83
Average Queue (ft)	5	9	41	41
95th Queue (ft)	35	49	77	69
Link Distance (ft)	201	966	624	434
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 831

Intersection: 3: St. John Street & Garage Access/D St

Phase	2	4	5	6	8
Movement(s) Served	NBTL	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	31.0	19.0	5.5	21.0	19.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0
Recall	Min	None	None	Min	None
Avg. Green (s)	21.1	12.6	5.8	19.5	12.6
g/C Ratio	-0.01	-0.01	-0.01	NA	-0.01
Cycles Skipped (%)	1	1	88	0	1
Cycles @ Minimum (%)	0	2	1	0	2
Cycles Maxed Out (%)	16	20	9	53	20
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Valley & St. John Street

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	18.0	19.0	18.0	18.0	42.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0
Recall	None	None	None	None	None
Avg. Green (s)	12.1	16.4	13.6	12.1	35.1
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	8	1	9	8	5
Cycles @ Minimum (%)	0	0	1	0	0
Cycles Maxed Out (%)	20	52	34	20	24
Cycles with Peds (%)	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: St. John Street & Congress Street

Phase	1	2	3	4	5	6	8
Movement(s) Served	EBL	WBL	SBL	NBT	WBL	EBTL	SBT
Maximum Green (s)	16.3	22.7	5.7	22.5	4.5	34.5	35.0
Minimum Green (s)	8.0	8.0	3.0	8.0	4.5	8.0	5.0
Recall	None	Min	None	None	None	Min	None
Avg. Green (s)	14.2	15.6	5.7	22.0	5.0	30.0	33.3
g/C Ratio	NA	NA	-0.01	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	11	0	49	0	0
Cycles @ Minimum (%)	7	24	0	0	44	0	0
Cycles Maxed Out (%)	56	26	82	73	51	36	62
Cycles with Peds (%)	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 13: Fore River Pkwy & Valley

Phase	4	6	7	8
Movement(s) Served	EBT	SBL	EBL	WBT
Maximum Green (s)	34.0	11.0	11.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0
Recall	None	None	None	None
Avg. Green (s)	33.8	10.8	11.0	17.5
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	89	91	98	89
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 18: Bramhall Street/Deering Avenue & Congress Street

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SWL	NETL	WBL	EBTL	NEL	SWTL	EBL	WBTL
Maximum Green (s)	5.5	18.5	5.5	12.5	5.5	18.5	5.5	12.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	Max	None	None	None	Max	None	None
Avg. Green (s)	5.6	19.4	6.1	12.9	5.7	22.8	8.1	12.8
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	-0.01
Cycles Skipped (%)	45	0	30	2	80	0	23	15
Cycles @ Minimum (%)	0	0	15	0	5	0	0	0
Cycles Maxed Out (%)	52	100	53	73	14	100	77	48
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 19: St. John Street & Park Avenue

Phase	2	6	8
Movement(s) Served	NBTL	SBTL	WBTL
Maximum Green (s)	29.0	17.0	19.0
Minimum Green (s)	3.0	3.0	3.0
Recall	Min	Min	Min
Avg. Green (s)	28.5	14.8	19.2
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	89	52	96
Cycles with Peds (%)	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Attachment 7D

Pedestrian and Bicycle Collision Locations
Left Turn Lane Warrants

Pedestrian and Bicycle Collisions

Figure No. A

Bramhall St. - 22; MMC Congress Street Building
PORTLAND, MAINE

Design: EAL Scale: NONE
Draft: Date: OCT 2018
Checked: RED File Name: 2866.01 - TIS Figures

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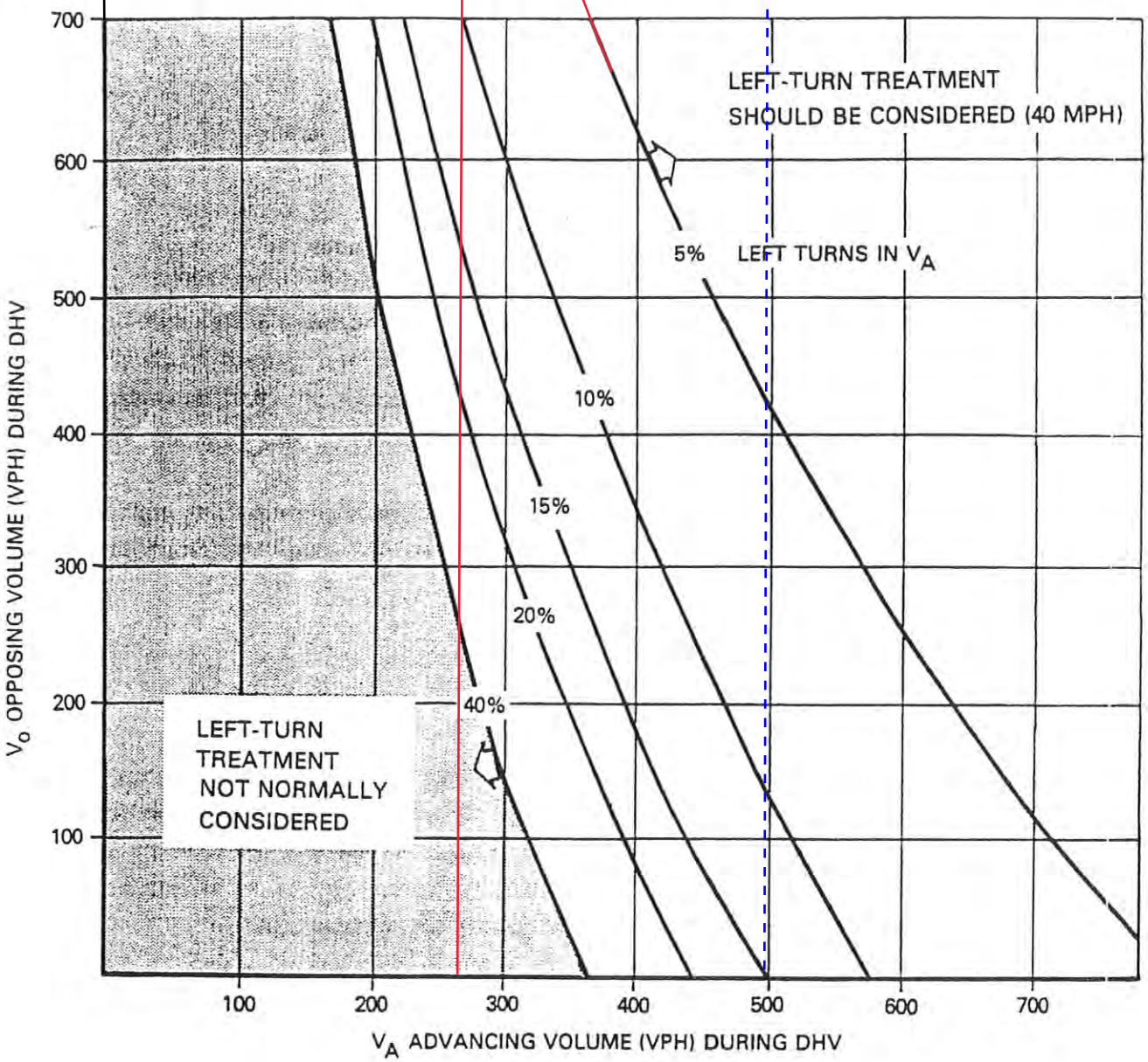
Congress Street Proposed Drop Off Left Turn Lane Warrant

867



Instructions:

1. The family of curves represent the percent of left turns in the advancing volume (V_A). The designer should locate the curve for the actual percentage of left turns. When this is not an even increment of 5, the designer should estimate where the curve lies.

4. Read V_A and V_O into the chart and locate the intersection of the two volumes.

5. Note the location of the point in #2 relative to the line in #1. If the point is to the right of the line, then a left-turn lane is warranted. If the point is to the left of the line, then a left-turn lane is not warranted based on traffic volumes.

AM Peak Hour
V_A = 269
V_O = 867
%L = 4.5%

PM Peak Hour
V_A = 496
V_O = 774
%L = 3.4%

VOLUME WARRANTS FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS ON 2-LANE HIGHWAYS (40 mph)

Figure 8-19

AM Peak Hour of Adjacent Street

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

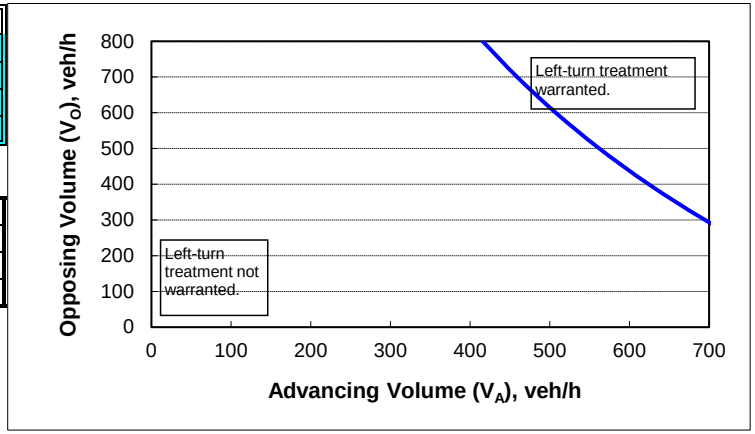
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	25
Percent of left-turns in advancing volume (V_A), %:	5%
Advancing volume (V_A), veh/h:	269
Opposing volume (V_O), veh/h:	867

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	389
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

PM Peak Hour of Adjacent Street

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

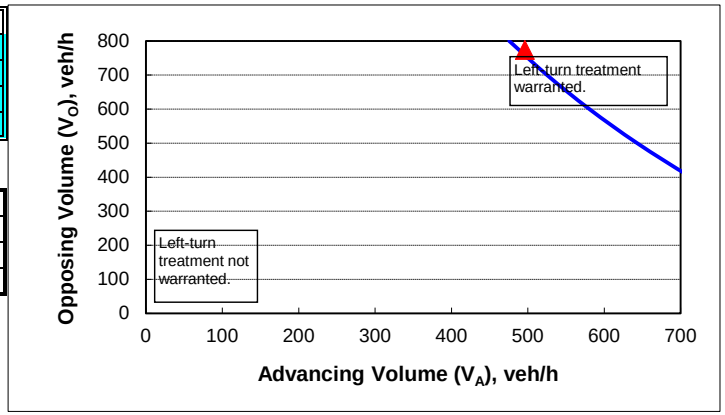
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	25
Percent of left-turns in advancing volume (V_A), %:	3%
Advancing volume (V_A), veh/h:	496
Opposing volume (V_O), veh/h:	774

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	488
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

WRITTEN SUBMISSION 10 – ACCESS AND CIRCULATION
BRAMHALL ST. -22; MMC CONGRESS STREET BUILDING

THE INFORMATION REQUESTED IN THIS SECTION MAY BE FOUND WITHIN OUR RESPONSE TO SECTION 9 – TRANSPORTATION ANALYSIS – TRAFFIC IMPACT.

WRITTEN SUBMISSION 19 – LANDSCAPING AND LANDSCAPE PRESERVATION
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THERE ARE MATURE EXISTING TREES ON THE SITE, HOWEVER, IT IS NOT POSSIBLE TO PRESERVE THEM WITH DEMOLITION OPERATIONS AND NEW CONSTRUCTION .

Att. L

WRITTEN SUBMISSION 11 – LOADING AND SERVICING
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE PROJECT DOES NOT INCLUDE ANY LOADING OR SERVICE AREAS. THE NEW ADDITION WILL BE SERVICED FROM THE EXISTING LOADING DOCKS NEAR THE REAR OF THE BUILDING.

Att. M

WRITTEN SUBMISSION 12 – SIDEWALKS
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE PROJECT WILL INCLUDE NEW SIDEWALKS INCLUDING PUBLIC SIDEWALKS ALONG CONGRESS STREET AND GILMAN STREET. IN ACCORADNCE WITH THE IDP, THESE WILL BE BRROM FINISH CONCERTE SURFACES. TACTILE WARNING SURFACES AT CROSSWALK LOCATIONS ARE DESIGNED TO COMPLY WITH THE CITY TECHNICAL MANUAL, SECTION 1.

WRITTEN SUBMISSION 13 – PUBLIC TRANSIT
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE APPLICANT HAS MET WITH REPRESENTATIVES FROM METRO ON SEVERAL OCCASIONS, AND THE SITE PLAN INCLUDES A PROPOSED LOCATION FOR A NEW METRO STOP, IN FRONT OF THE NEW BUILDING ON CONGRESS STREET. THE SITE PLAN ALSO INCLUDES A NEW CROSS WALK NEAR FOREST STREET. THE APPLICANT WILL CONTINUE TO MEET WITH METRO UNTIL THESE LOCATIONS ARE FINALIZED.

Maine Medical Center
MaineHealth

centered around you

Maine Medical Center Campus-Wide Parking Study

Overview

Maine Medical Center (MMC) retained VHB to conduct a campus-wide parking study that includes an analysis of demand and supply for patient, visitor, and employee parking on MMC's Bramhall Campus. This parking study incorporates the targeted impact of MMC's Transportation Demand Management program.

This study quantifies the existing and future parking conditions, with a focus on peak period demand requirements, to help quantify and formulate sound parking strategies to adequately support MMC's patients, visitors, staff, and physicians into the future. The study took into consideration the assessment of two distinct user groups on-campus: patients/visitors and employees (all staff including physicians, nurses, administration, etc.). It also looked at all MMC-controlled parking, including both the on-campus parking as well as off-site, remote staff parking.

Existing Parking Supply

Table 1: Existing MMC Bramhall Campus Parking Supply Summary provides a summary of existing MMC parking spaces. Currently, there are 850 patient/visitor parking spaces. All patient/visitor parking spaces are located on-campus. There are 2,027 employee parking spaces.

Table 1: Existing MMC Bramhall Campus Parking Supply Summary

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS	Employee Garage	0	1,274	1,274	*Owned*
850 patient/visitor spaces	Patient/Visitor Garage	480	0	480	*Owned*
1,538 employee spaces	South Lot	370	0	370	*Owned*
	887 Congress (Forest St Garage)	0	178	178	*Owned*
	7 Bramhall St	0	26	26	*Leased*
	905 Congress St (Sportsman Lot)	0	60	60	*Leased*
OFF-CAMPUS	222 St John St (First Atlantic Lot)	0	283	283	*Leased*
489 employee spaces	181 High St (Gateway Garage)	0	100	100	*Leased*
	993 Congress St (Classic Lot)	0	97	97	*Owned*
	321 Brackett St	0	9	9	*Leased*
	Total Parking Spaces	**850**	**2,027**	**2,877**	

Existing Parking Demand

MMC has continued to witness intensifying demands on the existing parking supply due to increased patient volumes and higher acuity patients with longer lengths of stay. Under current conditions, MMC's staff parking system typically operates at capacity during the weekday daytime hours. When off-site, remote staff parking facilities reach capacity, staff is directed to park on-campus in the Congress Visitor Garage. Some staff members independently choose to park nearby utilizing neighborhood on-street parking, although this is discouraged by MMC.

Patients, visitors, and staff at MMC often comment on the lack of adequate and predictable parking. MMC parking facilities do not have integrated technologies to accurately report parking utilization. Therefore, current demand was estimated using a combination of observed data and comparisons to facilities similar to MMC's Bramhall Campus.

Observations:

On behalf of MMC, VHB conducted on-site parking usage observations in January and March 2017. These months were ideal for parking observations because of the poor weather resulting in increased parking utilization. VHB collected parking count data during peak hours, which included late afternoon, evening, and overnight occupancy and turnover. Parking observations were completed during weekdays when MMC typically sees its biggest parking challenges – Tuesday – Friday. Historically, the highest patient volumes at MMC are on Thursdays and Fridays according to the MMC team responsible for managing parking. High patient volumes coincide with higher volumes of staff. The counts indicate that the parking system typically operates at or above capacity during weekday daytime hours. During the observations, it was difficult for VHB to differentiate staff from patients and visitors. Therefore, a total demand estimate is provided.

The observed data reveals that parking demand at the Bramhall campus among patients, visitors, physicians, and staff total roughly 3,125. MMC parking facilities have capacity of 2,877. The observed parking demand is almost 110% of supply. The observed parking demand is 4.4% below the expected parking demand (3,264) for a suburban hospital of MMC's size, according to Institute of Transportation Engineers (ITE) parking demand projections.[1] The difference equates to a shortage of 139 parking spaces.

In addition to VHB's observations, the MMC staff responsible for managing parking has estimated the employee parking deficit to be between 200 and 300 spaces.

Comparison to Peer Group:

VHB compared MMC's parking ratio per licensed bed to other hospitals in New England and nationally. MMC's 850 patient/visitor parking spaces equate to 1.33 parking spaces per bed which is low compared to peers. The midpoint patient and visitor parking space/licensed bed ratio among MMC peers is 1.87. It is important to note that based on a review of peer institutions, MMC would need to increase its patient/visitor allocation by 341 spaces, or 40%, to achieve a similar beds-to-spaces ratio as its peers. MMC's 2,027 staff parking spaces equate to 3.18 parking spaces per bed which is also low when compared to other peer institutions. The midpoint employee parking space/licensed bed ratio among MMC peers is 4.38. MMC has 637 licensed beds.

When compared to peers, MMC has a shortage of 341 patient and visitor parking spaces and 763 staff parking spaces.

$$\begin{aligned} &\textit{MMC Licensed Beds}\ (637) * \textit{Comparison Group Patient \& Visitor Parking Space per Bed}\ (1.87) \\ &\quad = \textit{Peer Equivalent Patient \& Visitor Parking Spaces}\ (1{,}191) \\ &\quad - \textit{MMC Patient \& Visitor Parking Space}\ (850) \\ &\quad = \boldsymbol{\textit{Patient \& Visitor Parking Space Deficit at MMC}\ (341)} \end{aligned}$$

$$\begin{aligned} &\textit{MMC Licensed Beds}\ (637) * \textit{Peer Group Staff Parking Spaces per Bed}\ (4.38) \\ &\quad = \textit{Peer Group Equivalent Staff Parking Spaces}\ (2{,}790) - \textit{MMC Staff Parking Spaces}\ (2{,}027) \\ &\quad = \boldsymbol{\textit{Staff Parking Space Deficit at MMC}\ (763)} \end{aligned}$$

Current Demand:

MMC used the observed and peer group data to determine the estimated parking demand.

Based on data available, the estimated current MMC parking demand exceeds patient and visitor supply by approximately 25 parking spaces and exceeds employee parking supply by approximately 220 parking spaces. Therefore, the estimated parking demand in 2017 is:

Table 2: 2017 Estimated Parking Demand

- 875 for patient and visitor parking ($875 = \textit{Current Patient Visitor Parking Supply}\ (850) + 25$)
- 2,250 for employees ($2{,}250 = \textit{Current Employee Parking Supply}\ (2{,}027) + 220$)
- 3,125 total estimated parking demand

The current parking demand for MMC's Bramhall campus is approximately 3,125 parking spaces.

[1] This approach is consistent with the City of Portland's Technical Manual, which recommends using ITE for parking demand projections. https://www.portlandmaine.gov/2148/TDM-Parking

MMC feels that the appropriate metric to measure parking utilization is parking demand per Bramhall campus employee. This metric is ideal because the number of employees will change over time. Other metrics such as parking space per bed or parking space per square foot would not accurately account for all factors impacting parking demand on campus. This metric allows for changes in both factors – the number of employees and parking demand. In addition, this metric focuses on MMC employees who are the target population of this transportation demand management plan.

MMC's Bramhall campus has roughly 6,000 employees as of 2017. Therefore the current employee parking demand per Bramhall campus employee is 0.375.

$$\frac{Estimated\ Employee\ Parking\ Demand\ (2{,}250)}{MMC\ Bramhall\ Employees\ (6{,}000)} = Employee\ Parking\ per\ Bramhall\ Employee\ (0.375)$$

Future MMC Parking Actions

MMC has proposed multiple capital projects and programs in connection with the Master Facility Plan outlined in MMC's IDP. Near-term (completed by 2021) projects to expand parking supply include:

1. Patient / Visitor Garage Addition: Expand the existing 480-space Patient/Visitor Garage by three levels to accommodate an additional 225 spaces; and
2. New St John St Garage: Construct a new 2,450 space parking garage on the nearby St. John Street and demolish the existing 1,274-space Employee Garage.

The resultant 2021 parking supply upon completion of these near-term projects is summarized in **Table 3: Expected 2021 MMC Bramhall Campus Parking Supply Summary**.

Table 3: Expected 2021 MMC Bramhall Campus Parking Supply Summary

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS	Patient/Visitor Garage	705	0	705	*Owned*
1,075 patient/visitor spaces	South Lot	370	0	370	*Owned*
264 employee spaces	887 Congress (Forest St Garage)	0	178	178	*Owned*
	7 Bramhall St	0	26	26	*Leased*
OFF-CAMPUS	New Employee Garage	0	2,450	2,450	*Owned*
2,459 employee spaces	321 Brackett St	0	9	9	*Leased*
	Total Parking Spaces	**1,075**	**2,654**	**3,729**	

Per September 22, 2017 Institutional Development Plan

As shown in **Table 3**, the patient parking supply by 2021 will increase by 225 spaces and the employee parking supply will increase by 627 spaces with these two parking projects completed. With the new Employee Parking Garage located off-campus, the amount of employees who park remotely will increase from about 25 percent to 90 percent.

MMC anticipates consolidating the Gateway Garage and Classic Lot parking spaces into the new employee garage following the opening of the new parking garage.

These efforts are intended to enable MMC to continue with their primary Master Plan goals, which include the expansion of important clinical programs and the de-coupling of semi-private patient rooms to fully private rooms. The proposed new hospital building will be located on the site of the former Employee Garage. As defined in the MMC IDP, the hospital anticipates that the overall patient load will grow by approximately eight percent over the next ten years (or about 0.75 percent per year). Similarly, employment at MMC is expected to grow by approximately 7 percent over the next ten years (or about 0.70 percent per year). The growth rates were applied to the 2017 MMC parking demands to reflect overall anticipated institutional parking growth. **Tables 4 and 5** summarize how the new construction will affect the occupancies over time.

Table 4: Future MMC Bramhall Campus Employee Parking Supply/Demand Summary

	2020	2022	2026
Parking Spaces	**2,654**	**2,723**	**2,723**
Effective Parking Capacity	**2,521**	**2,521**	**2,521**
Parking Demand	**2,465**	**2,500**	**2,570**

For employee parking garages, the effective parking capacity is 95% of striped parking spaces, shown in **Table 4**. This is due to the user group familiarity of the parking garage layout, circulation and general trends of the garage availability due to their daily use of the facility and the low space turnover. Effective capacity for the employee parking spaces is not 100% because of anticipated user compliance with lined spaces (i.e. parking in a way that limits the use of the adjacent parking space).

Table 5: Future MMC Bramhall Campus Patient/Visitor Parking Supply/Demand Summary

	2020	2022	2026
Parking Spaces	**1,075**	**1,075**	**1,075**
Effective Parking Capacity	**970**	**970**	**970**
Parking Demand	**892**	**905**	**933**

For patient/visitor garages, the effective parking capacity is 90% of striped parking spaces, shown in **Table 5**. Patients and visitors are often unfamiliar with the garage layout and operations. Planning to accommodate this targeted utilization will ensure arriving patients and visitors have convenient and available parking.

To help alleviate existing and future parking demands, and to support use of other alternative, sustainable modes of transportation, MMC continues to pursue and bolster its Transportation Demand Management (TDM). The purpose of the TDM Plan, called the Commuter Choice Program, is to reduce the amount of single-occupancy vehicles by enabling and promoting alternative modes of transportation to and from MMC's Bramhall Campus for MMC employees.

In the 2017 Transportation Demand Management plan, MMC established the following short-term, mid-term, and long-term single-occupancy vehicle reduction goals shown in **Table 6** below:

Table 6: 2017 TDM Trip Reduction Goals

	Short-Term (0-2 years)	Mid-Term (2-5 years)	Long-Term (5+ years)
Trip Reduction Target	2%	4%	5%

MMC will continue to monitor parking demand and needs at the Bramhall campus and re-evaluate its program goals. The estimated impacts of the TDM program's reduction goals are summarized in **Table 7**.

Table 7: Employee Parking Demand Reduction Due to TDM Efforts Summary

	2020	2022	2026
Parking Demand	**2,465**	**2,500**	**2,570**
Estimated TDM Reduction	**-60**	**-100**	**-120**
TDM Influenced Demand	**2,405**	**2,400**	**2,420**

If TDM targets are met, parking demand will reduce by approximately 60 in the short term (2020), 90 in the mid-term (2022) and 120 forecasting out to longer-term (2026). Such reductions strive to follow with less single-occupancy vehicles travelling to and from the Bramhall campus as intended by the Transportation Demand Management plan and programs.

Table 8: Employee Parking Demand Reduction Due to TDM Efforts Compared to Effective Employee Parking Capacity

	2020	2022	2026
Effective Employee Parking Capacity	**2,521**	**2,521**	**2,521**
TDM Influenced Demand	**2,405**	**2,399**	**2,420**
Estimated Parking Surplus	**116**	**122**	**101**

Table 8 compares the TDM influenced parking demand to the effective parking capacity for employee parking spaces. The amount of parking surplus fluctuates between 2020 and 2026 because of the time it will take for MMC to enhance the existing TDM program.

This analysis projects parking demand for 2026. The lifespan of the parking garage is expected to exceed 30 years. The estimated 2026 parking surplus in **Table 8** is roughly 4% of the total employee parking spaces shown in **Table 3** and is within a reasonable margin of error.

Conclusion

This study quantifies the existing and future parking conditions, with a focus on peak period demand requirements, to help quantify and formulate sound parking strategies to adequately support MMC's patients, visitors, staff, and physicians into the future. VHB determined that existing estimated parking demand at the Bramhall campus exceeds existing supply. The demand for complex healthcare in Maine is growing. As a result, MMC is growing to meet that demand. MMC's forecasts an increase in patient activity at the Bramhall campus by 2026. Using this forecast, VHB estimated a parking demand that will be accommodated only through investments in parking facilities and MMC's Transportation Demand Management program.

WRITTEN SUBMISSION 15 – BICYCLE PARKING
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE TOTAL NUMBER OF PARKING SPACES SERVING THE CAMPUS IS 3,825 PARKING SPACES, INCLUDING THE ST. JOHN STREET PARKING GARAGE.

REQUIRED BICYCLE PARKING :
20 BIKE SPACES FOR THE FIRST 100 VEHICLE SPACES = 20 SPACES
3,825 TOTAL VEHICLE SPACES – 100 = 3,725 / 1 BIKE PER 20 VEHICLES = 186 BICYCLE SPACES
TOTAL REQUIRED BICYCLE SPACES - 20 + 186 = 206 SPACES

BICYCLE SPACES PROVIDED :
PER THE IDP PAGE 58 THERE ARE 193 SPACES ON CAMPUS
40 ADDITIONAL SPACES ARE PROPOSED AT THE ST. JOHN STREET PARKING GARAGE
TOTAL PROPOSED BICYCLE SPACES = 193 + 40 = 233 SPACES

THE APPLICANT IS CURRENTLY EVALUATING ON CAMPUS BICYCLE PARKING PER THE CONDITIONS OF APPROVAL FOR THE EAST TOWER AND VISITOR GARGE EXPANSIONS.

Att. Q

WRITTEN SUBMISSION 16 – SNOW STORAGE
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE APPLICANT WILL CONTRACT WITH A PROPERTY MANAGEMENT COMPANY TO REMOVE SNOW FROM THE SITE. A SNOW MELT SYSTEM IS CONTEMPLATED AT THE PASSENGER ARRIVAL / DEPARTURE PLAZA, HOWEVER, MAY NOT BE INSTALLED PENDING REVIEW OF CONSTRUCTION COSTS.

Maine Medical Center
MaineHealth

centered around you

Get on Board!

Maine Medical Center

Transportation Demand Management Program
August 22, 2018

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Introduction

Purpose

The purpose of Maine Medical Center's Transportation Demand Management program, Get on Board, is to reduce the amount of single-occupancy vehicles by enabling and promoting alternative modes of transportation to and from MMC's Bramhall Campus for MMC employees.

Maine Medical Center

Maine Medical Center is a complete health care resource for the people of greater Portland, the entire state of Maine, and northern New England.

Incorporated in 1868, Maine Medical Center is the state's largest medical center, licensed for 637 beds and employing more than 8,000 people – with approximately 2,000 of those employees residing in the City of Portland. Maine Medical Center's unique role as both a community hospital and a referral center requires an unparalleled depth and breadth of services, including the state's only medical school, through a partnership with Tufts University School of Medicine, and a world-class biomedical research center, the Maine Medical Center Research Institute.

Our care model includes the state's largest multispecialty medical group, Maine Medical Partners. Maine Medical Partners provides a wide range of primary, specialty, and subspecialty care delivered through a network of more than 40 locations throughout greater Portland and the southern Maine region.

Maine Medical Center is the flagship hospital of MaineHealth, a 12-member health system touching central, southern, and western Maine and eastern New Hampshire. The collaboration of MaineHealth's members allows greater availability to community health improvement programs, access to clinical trials and research, and shared electronic medical records.

The strength of the health system, anchored by Maine Medical Center, enables its members to invest in shared programs and services that improve the quality of care while reducing costs whenever possible. As a nonprofit institution, Maine Medical Center has provided more than $200 million annually in community benefits, delivering care to those who need it, regardless of their ability to pay.

MISSION, VISION AND VALUES

Maine Medical Center is dedicated to maintaining and improving the health of the communities it serves by:

- Caring for its community
- Educating tomorrow's caregivers
- Researching new ways to provide care

It proudly carries its unique responsibility as Maine's leader in patient care, education and research. MMC is dedicated to the traditions and ideals of not-for-profit healthcare. It provides care to all who seek it.

MMC's efforts to execute its Mission are aimed at achieving a simple, yet powerful Vision: "Working together so our communities are the healthiest in America."

MMC is guided by a set of Values, helping to meet and exceed the expectations of those it is privileged to serve. MMC's Values:

- Patient-Centered
- Integrity
- Ownership
- Excellence
- Respect
- Innovation

MMC Facility Planning

Maine Medical Center recently announced a project that will expand and modernize much of its patient care facilities. Over the next five years Maine Medical Center plans to spend $512 million on the construction, renovation and expansion of inpatient and outpatient facilities and services. The majority of this investment will occur at MMC's main Bramhall campus.

Every aspect of this project is designed around the needs of patients. The project will optimize current bed capacity at, Maine Medical Center, the state's largest hospital and calls for increasing the number of single rooms available to patients as well as replacing surgical and treatment areas with ones that adhere to 21st century standards. In addition, patient rooms will be universal meaning that each rooms can meet the needs of patients at any point during their stay whether they require critical care or acute care services. About $50 million of the total project cost will be invested in outpatient facilities through the hospital's multi-specialty medical group organization - Maine Medical Partners.

The project also involves the replacement of the largest parking garage on campus, a 1,200-space structure used by employees that sits along Congress Street. The need to replace that garage creates an opportunity to reorient the hospital's main entrance to Congress Street, one of the city's main thoroughfares. The hospital's current main entrance faces Bramhall Street in the city's largely residential West End.

The project is organized into three separate site plan descriptions:

- Site Plan #1:
    - Two floor addition to the East Tower housing 64 private universal rooms.
    - Relocation of the helipad which is currently on the employee garage to the top of the East Tower. Patients arriving via the helipad will have a direct vertical connection via elevator to MMC's Emergency Department and trauma services on the first floor of the East Tower.
    - Three floor addition to the visitor garage on Congress St.
- Site Plan #2:
    - New employee parking garage on St John St that will include over 2,400 parking spaces. The location of the new garage is roughly a quarter mile from the main campus and employees will be encouraged to walk during nice weather.

- Site Plan #3:
    - Removal of the current employee parking garage on Congress St.
    - Construction of a new hospital tower with 64 private universal rooms, 19 procedure rooms, and space for an additional 32 private universal rooms. This building will also include a new hospital entrance and drop-off area with direct connection to the visitor garage.

The project is expected to be completed in the Fall of 2022.

Commitment to TDM

MMC has a long-standing history of promoting health outside of and within its organization. The medical center developed a Transportation Demand Management (TDM) program in 2008, becoming one of the first in Maine to publish such a plan.

In 2008, MMC became one of the first in Maine to develop an independent TDM program.

Known as "Get on Board!," the program supports alternative commuting options such as carpool, public transportation, bicycling, and walking. MMC also engages in an extensive campaign to educate employees about the benefits of alternative modes of transportation and the Get on Board! program. Total enrollment in Get on Board continues to increase year after year.

Over the years, MMC has added elements to strengthen the program's offerings. In 2015, for example, MMC installed additional bicycle parking in its South Parking Lot to enhance cycling access to the main areas of the campus.

The following Plan documents MMC's current TDM efforts, planned program enhancements, as well as new TDM programs. The Plan is intended to serve as a living document. Monitoring reports will be submitted annually to the City's Planning Department.

While MMC encourages sustainable commuting practices across its organization, this TDM Plan applies to MMC's main campus in the west end of Portland, ME, where the majority of MMC's staff is located. Presently, the main campus has approximately 4,400 employed individuals on any given week day. Maine Medical Center employs more than 8,000 people throughout Southern Maine, roughly 6,000 of MMC employees work at the Bramhall Campus.

Contributors to this Plan

MMC would like to thank the City of Portland, the West End, Western Promenade, Libbytown, St John Valley, and Parkside neighborhoods, and Vanasse Hangen Brustlin, Inc. (VHB) for contributing to this Transportation Demand Management Plan.

MMC engaged VHB to assist in the creation of this plan. VHB is a national consulting firm specializing in transportation engineering and a leader in the development and management of Transportation Demand Management plans.

Context

Land Use

CURRENT

MMC's Bramhall campus is located at a high point in the west end of the Portland peninsula that is renowned for the Western Promenade—an 18-acre park and national historic landmark designed by the Olmsted Brothers, among others. The campus abuts the Western Promenade in a dense urban setting that serves, in many ways, as a transitional zone between areas with diverse character, land uses, and demographics.

The campus, which serves the entire state of Maine as well as eastern New Hampshire, is located within less than a mile's distance of I-295, which links Portland to destinations across New England. To the north, the campus fronts on Congress St —Portland's main thoroughfare that extends along the spine of the peninsula to Portland's downtown and beyond. The MMC campus is located at the western gateway into the City.

FUTURE

The area surrounding MMC is identified in the City's Comprehensive Plan as an area with transformational potential. MMC's TDM plan aligns with this future vision. As part of the project, MMC will add a new entrance to Congress Street and envisions providing active ground floor uses in new buildings. This change will heighten the level of pedestrian activity on Congress Street, and serve to promote the corridor.

Parking

CURRENT SUPPLY

MMC offers its patients, visitors, physicians, and employees several options for parking. MMC currently controls approximately 2,877 total off-street parking spaces either via ownership or through leases with others that specifically serve the Bramhall Campus. Of the 2,877 spaces, 850 spaces are available for public use by patients and visitors, and 2,027 parking spaces are subscribed to staff and physicians.

TABLE 1: Existing Parking Spaces

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS	Employee Garage	0	1,274	1,274	Owned
850 patient / visitor	Patient / Visitor Garage	480	0	480	Owned
1,538 employee spaces	South Lot	370	0	370	Owned
	887 Congress (Forest St Garage)*	0	178	178	Owned
	7 Bramhall St	0	26	26	*Leased*
	905 Congress St (Sportsman Lot)	0	60	60	*Leased*
OFF-CAMPUS	222 St John St (First Atlantic Lot)	0	283	283	*Leased*
489 employee spaces	181 High St (Gateway Garage)	0	100	100	*Leased*
	993 Congress St (Classic Lot)	0	97	97	Owned
	321 Brackett St	0	9	9	*Leased*
	TOTAL PARKING SPACES	850 Patient / Visitor	2,027 Employee	2,877 Total	

* The Forest St Garage has an additional 222 spaces that are dedicated to medical office staff and patients.

PARKING DEMAND

MMC has continued to witness intensifying demands on the existing parking supply due to increased patient volumes and higher acuity patients with longer lengths of stay. Under current conditions, MMC's staff parking system typically operates at capacity during the weekday daytime hours. When off-site, remote staff parking facilities reach capacity, staff is directed to park on-campus in the Congress Visitor Garage. Some staff members independently choose to park nearby utilizing neighborhood on-street parking, although this is discouraged by MMC.

Patients, visitors, and staff at MMC often comment on the lack of adequate and predictable parking. MMC parking facilities do not have integrated technologies to accurately report parking utilization. Therefore, current demand was estimated using a combination of observed data and comparisons to facilities similar to MMC's Bramhall Campus.

Observations:

On behalf of MMC, VHB conducted on-site parking usage observations in January and March 2017. These months were ideal for parking observations because of the poor weather resulting in increased parking utilization. VHB collected parking count data during peak hours, which included late afternoon, evening, and overnight occupancy and turnover. Parking observations were completed during weekdays when MMC typically sees its biggest parking challenges – Tuesday – Friday. Historically, the highest patient volumes at MMC are on Thursdays and Fridays according to the MMC team responsible for managing parking. High patient volumes coincide with higher volumes of staff. The counts indicate that the parking system typically operates at or above capacity during weekday daytime hours. During the observations, it was difficult for VHB to differentiate staff from patients and visitors. Therefore, a total demand estimate is provided.

The observed data reveals that parking demand at the Bramhall campus among patients, visitors, physicians, and staff total roughly 3,125. MMC parking facilities have capacity of 2,877. The observed

parking demand is almost 110% of supply. The observed parking demand is 4.4% below the expected parking demand (3,264) for a suburban hospital of MMC's size, according to Institute of Transportation Engineers (ITE) parking demand projections.[1] The difference equates to a shortage of 139 parking spaces.

In addition to VHB's observations, the MMC staff responsible for managing parking has estimated the employee parking deficit to be between 200 and 300 spaces.

Comparison to Peer Group:

VHB compared MMC's parking ratio per licensed bed to other hospitals in New England and nationally. MMC's 850 patient/visitor parking spaces equate to 1.33 parking spaces per bed which is low compared to peers. The midpoint patient and visitor parking space/licensed bed ratio among MMC peers is 1.87. It is important to note that based on a review of peer institutions, MMC would need to increase its patient/visitor allocation by 341 spaces, or 40%, to achieve a similar beds-to-spaces ratio as its peers. MMC's 2,027 staff parking spaces equate to 3.18 parking spaces per bed which is also low when compared to other peer institutions. The midpoint employee parking space/licensed bed ratio among MMC peers is 4.38. MMC has 637 licensed beds.

When compared to peers, MMC has a shortage of 341 patient and visitor parking spaces and 763 staff parking spaces.

$$\begin{aligned} &MMC\ Licensed\ Beds\ (637) * \ Comparison\ Group\ Patient\ \&\ Visitor\ Parking\ Space\ per\ Bed\ (1.87) \\ &\quad = Peer\ Equivalent\ Patient\ \&\ Visitor\ Parking\ Spaces\ (1{,}191) \\ &\quad - MMC\ Patient\ \&\ Visitor\ Parking\ Space\ (850) \\ &\quad = \boldsymbol{Patient\ \&\ Visitor\ Parking\ Space\ Deficit\ at\ MMC\ (341)} \end{aligned}$$

$$\begin{aligned} &MMC\ Licensed\ Beds\ (637) * \ Peer\ Group\ Staff\ Parking\ Spaces\ per\ Bed\ (4.38) \\ &\quad = \ Peer\ Group\ Equivalent\ Staff\ Parking\ Spaces\ (2{,}790) \\ &\quad - MMC\ Staff\ Parking\ Spaces\ (2{,}027) = \boldsymbol{Staff\ Parking\ Space\ Deficit\ at\ MMC\ (763)} \end{aligned}$$

Current Demand:

MMC used the observed and peer group data to determine the estimated parking demand.

Based on data available, the estimated current MMC parking demand exceeds patient and visitor supply by approximately 25 parking spaces and exceeds employee parking supply by approximately 220 parking spaces. Therefore, the estimated parking demand in 2017 is:

2017 Estimated Parking Demand
- 875 for patient and visitor parking ($875 = Current\ Patient\ Visitor\ Parking\ Supply\ (850) + 25$)
- 2,250 for employees ($2{,}250 = \ Current\ Employee\ Parking\ Supply\ (2{,}027) + 220$)
- 3,125 total estimated parking demand

The current parking demand for MMC's Bramhall campus is approximately 3,125 parking spaces.

MMC feels that the appropriate metric to measure parking utilization is parking demand per Bramhall campus employee. This metric is ideal because the number of employees will change over time. Other

[1] This approach is consistent with the City of Portland's Technical Manual, which recommends using ITE for parking demand projections. https://www.portlandmaine.gov/2148/TDM-Parking

metrics such as parking space per bed or parking space per square foot would not accurately account for all factors impacting parking demand on campus. This metric allows for changes in both factors – the number of employees and parking demand. In addition, this metric focuses on MMC employees who are the target population of this transportation demand management plan.

MMC's Bramhall campus has roughly 6,000 employees as of 2017. Therefore the current employee parking demand per Bramhall campus employee is 0.375.

$$\frac{Estimated\ Employee\ Parking\ Demand\ (2{,}250)}{MMC\ Bramhall\ Employees\ (6{,}000)} = Employee\ Parking\ per\ Bramhall\ Employee\ (0.375)$$

FUTURE

Looking towards the future, MMC will undertake a project to modernize its Bramhall campus. The project is detailed above and is anticipated to increase patient/visitor and employee parking demand. This demand will be offset by TDM methods described later in this document, along with expansions in its campus parking capacity.

Data Collection

Currently, MMC has a limited transportation mode data collection system. MMC recognizes the need for an improved system. MMC employs a large number of individuals and tracking their commute behaviors will require a system that relies on automatic data collection wherever possible. MMC is exploring options to improve data collection, such as a card reading system, similar to EZ-PASS, in new parking buildings.

In addition, MMC is exploring various commute management platforms to better understand, manage, and influence employee commute behavior. The commute platforms can help raise awareness for alternative transportation choices, engage (and possibly reward) employees, and provide the data and tools to make informed transportation decisions. Many of the platforms also enable employees to participate in commuting challenges with colleagues (e.g. most cycling trips).

MMC has contacted several commute management companies that are used by employers to explore how commuting platforms can enhance MMC's data collection efforts while potentially rewarding its employees. One Seattle-based commute management provider is currently used by organizations, like Seattle Children's Hospital, Delta Dental of Washington, Boeing, and the Bill and Melinda Gates Foundation. Another provider is located in Santa Monica and is used by companies and institutions, such as Google, Patagonia, the University of Maryland, and MIT. Both platforms are mobile and desktop-friendly and allow employees to easily track their daily commutes, while giving employers the ability to manage commuting programs, data, resources, and rewards in one centralized system. These platforms, among others, will be explored as MMC looks to improve its data collection capabilities.

FIGURE 1: Commute Management Platforms

Commute management platforms offer enhanced opportunities to understand employee commuting behavior and potentially incentivize and reward staff who commute by alternative modes of transportation. Many of these platforms are mobile-friendly and offer easy ways in which to track personal commutes.

Source: Luum

Transit

MMC's main campus is located in a section of the City that is served by the Greater Portland Transit system (METRO), which has multiple routes that stop within walking distance of the Medical Center. The campus is also served by the ZOOM turnpike Express route operated by ShuttleBus-ZOOM.

The METRO routes accessible from the Bramhall Campus have varying service spans with buses generally arriving every 30 to 60 minutes. They provide connections to the nearby Portland Transportation Center (PTC) and the Downtown Hub, which are served by additional METRO and regional bus lines. The PTC also serves as the local connection to Amtrak's Downeaster service that runs along the coast between Boston and Brunswick. The closest bus shelter to the hospital is along Bramhall Street, between the Dana Health Education Center and the South Entrance. This stop is served by METRO Route #8, which provides connections to other parts of the peninsula. There are two other nearby bus stops on the corners of Congress St and Gilman St and Congress St and Weymouth St. These bus stops are served by routes #9, #1, METRO's express service BREEZ, and the ZOOM turnpike express. For the most up to date METRO stops and routes, go to www.gpmetrobus.com.

FIGURE 2: Map of Existing Transit Routes and Stops

Bicycle and Pedestrian Infrastructure

MMC understands that all campus users walk at some point to arrive at their MMC destination. To enhance pedestrian accessibility, MMC maintains its network of campus pathways and public sidewalks adjacent to campus. Similar to other medical centers of its size, MMC provides elevated, covered, and temperature-controlled walkways between its parking garages and key campus circulation corridors.

The bike facility network surrounding MMC's campus is fragmented and lacks bicycle infrastructure as illustrated in Figure 7 below. In addition, the hilly nature of the Western Promenade impacts bicycling and walking in this area.

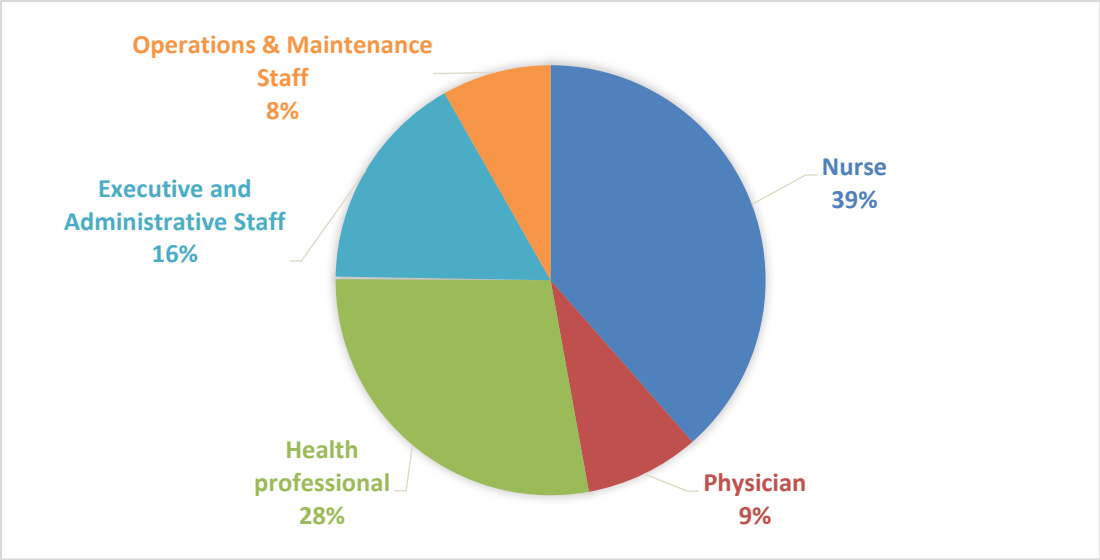
Current Travel Behavior

As part of its efforts to monitor and enhance the Get on Board program, MMC recently conducted a survey of its employees to understand how they commute, any barriers to using alternative transportation, and their interest in other TDM initiatives. The Medical Center also analyzed employee residence data using geospatial analysis tools to better understand employee commuting patterns. The findings from the survey and analysis are summarized below.

Commuting Survey

Approximately 1,600 MMC employees participated in the voluntary survey, administered in February 2017 – nearly a 40% response rate. Approximately 81% of the respondents work at the Bramhall campus. The respondents included a diverse spectrum of employees including operations and maintenance staff, students, executive and administrative staff, health professionals, nurses, and physicians. Figure 3 illustrates the various roles held by the survey participants.

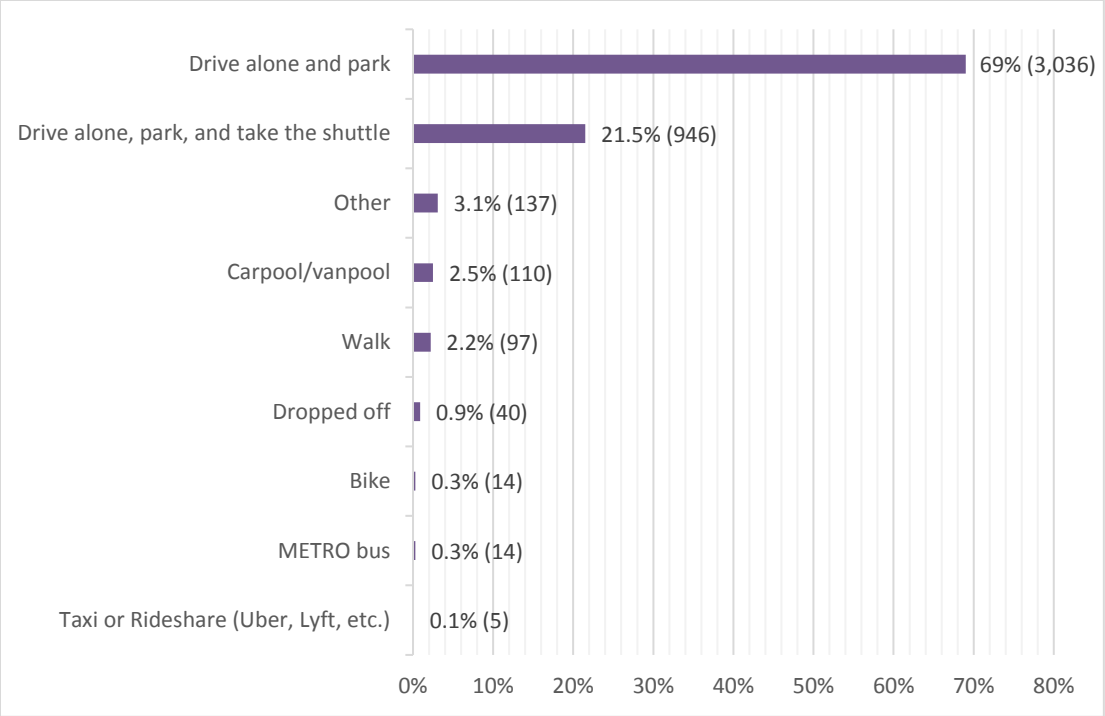
FIGURE 3: Survey Respondents by Hospital Affiliation



The survey found that the majority of employees drive to campus. Among alternative modes, carpooling was the most used mode of travel, followed closely by walking. Figure 4 illustrates the commuting modes of MMC employees.

FIGURE 4: Estimated Employee Travel Mode To and From MMC on an Average Workday

(4,400 estimated employees on campus per average weekday)



The survey also revealed that among Get on Board enrollees who participate in the program, carpooling benefits were the most used benefits, followed by biking benefits and transit benefits.

As the Get on Board program evolves, MMC intends to administer a commuting survey once every two years to track travel trends and to gauge the effectiveness of specific initiatives. The information collected will enable MMC to develop informed, data-based enhancements to Get on Board, providing a greater prospect for program success.

Geospatial Analysis

MMC analyzed the residence locations of its employees to understand employee commuting patterns. The analysis showed that approximately 27% of employees live within a 3-mile radius and approximately 73% of employees live beyond a three mile radius of MMC (See, Figures 5 and 6). Three miles is generally considered a reasonable biking distance by industry standards.

FIGURE 5: MMC Bramhall Campus Employees, Distance to Work by Type of Employee

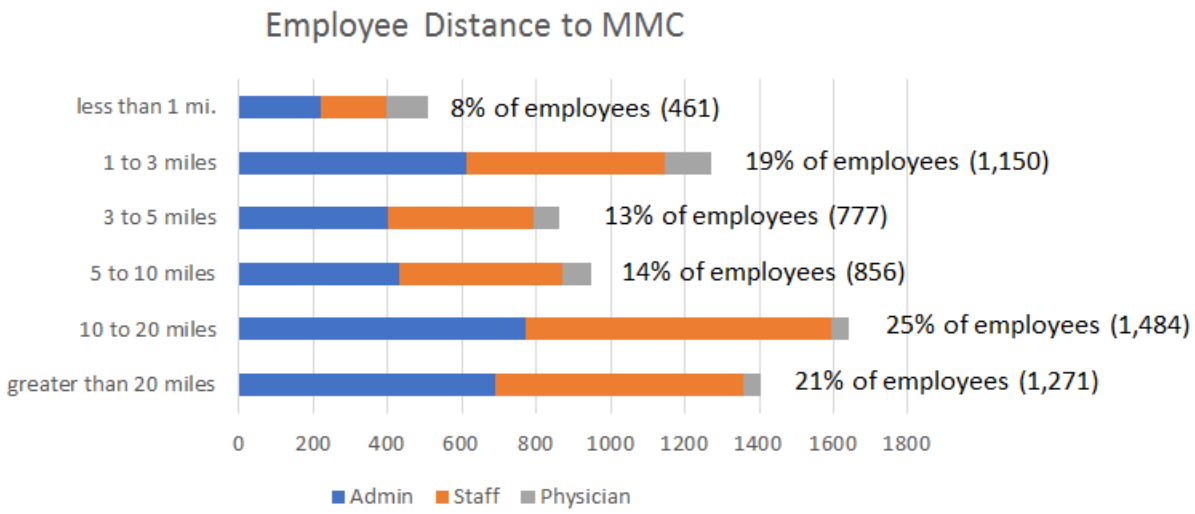
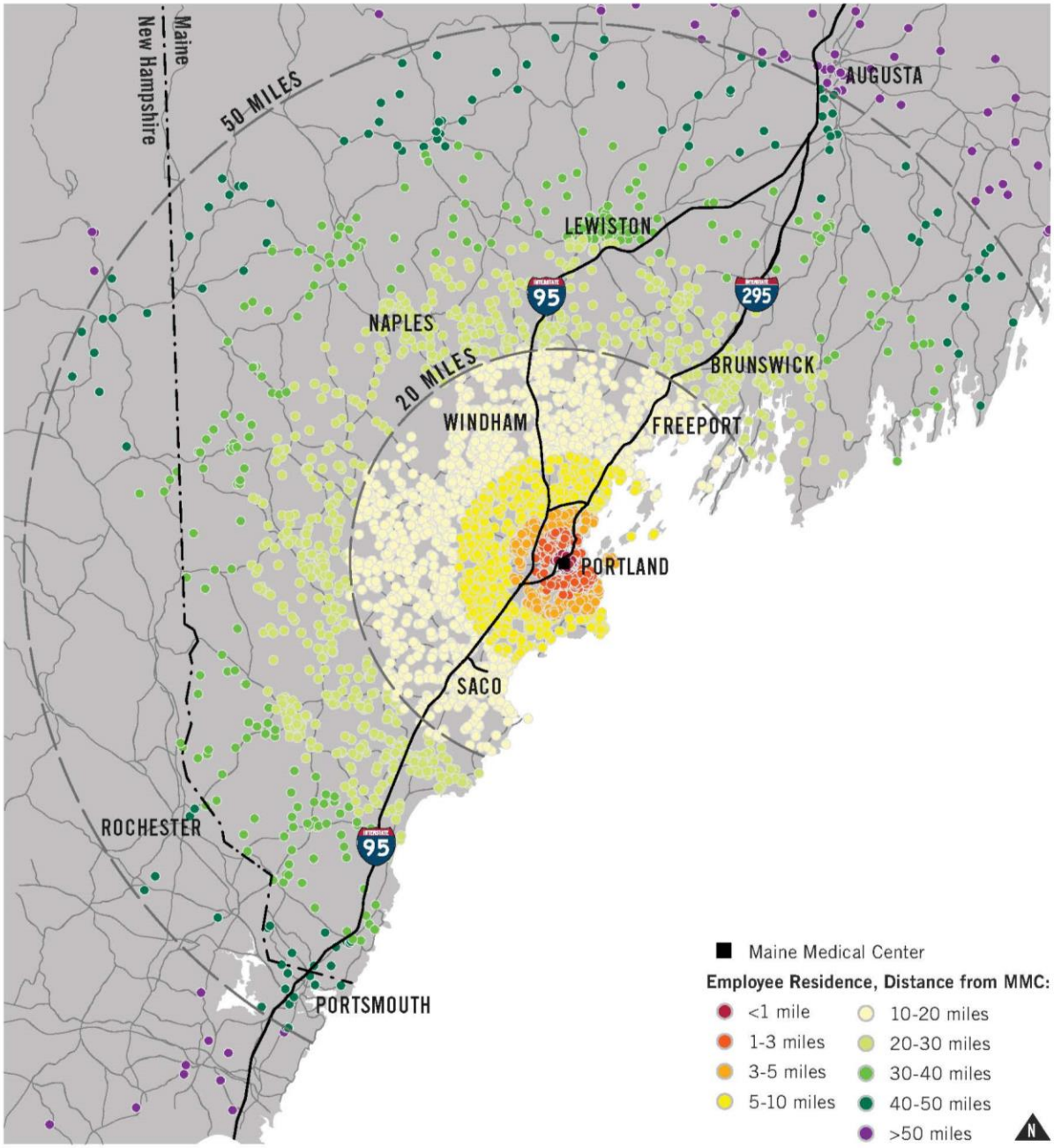


FIGURE 6: Map of MMC Bramhall Campus Employee Residences Illustrating Distance to Work and Travelsheds



Program Goals

The goal of the program is to reduce employee use of single-occupancy vehicles as they commute to work at MMC's Bramhall Campus. At this time, MMC has determined the best way to measure a reduction in employee single-occupancy vehicles is to monitor employee parking demand per employee.

$$Employee\ Parking\ Demand\ Per\ Employee\ = \frac{Estimated\ Employee\ Parking\ Demand}{Bramhall\ Campus\ Employees}$$

As the program grows and evolves and as data collection improves, new goals and metrics may be identified. MMC will also continue to conduct surveys as a way to measure the share of employees who commute by alternative modes of transportation.

VHB conducted a study to determine the existing parking demand for employees (refer to the Context section of this document). VHB's observations and peer group comparison will serve as the baseline for future reduction targets.

Peak parking demand at the Bramhall campus is 4.4% below the expected parking demand for a suburban hospital of MMC's size.

The Get on Board program aims to reduce single-occupancy vehicles on MMC's Bramhall campus through effective TDM measures. These measures include a parking "cash out" program, discounted transit fares, premium parking for carpoolers, and bicycle parking and facilities, among others. Additional details about the program elements are described in the next section. MMC believes the program has had a positive impact on employee travel behavior and has contributed to reduced parking demand over the years.

Based on a review of federal census data, employee travel origin and destination information, existing employee travel mode split, and transportation survey results, MMC believes it can further reduce the portion of employees driving alone to work, thus reducing trip making and resultant parking demands. An initial estimate is that an additional 65 individuals who currently drive to MMC could be shifted into alternative modes of accessing the campus over 5 years. This represents an additional 2% reduction from the ITE parking demand projections.

In consultation with the City, MMC has established the following aggressive short-term, mid-term, and long-term trip reduction goals. These targets are applied to the 2017 baseline identified in the Context section of this document.

	2017 Baseline	Short-Term (0-2 years)	Mid-Term (2-5 years)	Long-Term (5+ years)
Targeted Reduction		2%	4%	5%
Employee Parking Demand Per Employee	0.375	0.367	0.360	0.356

MMC hopes these targets will be achieved through the strategies outlined below. It will endeavor to reduce the number beyond the target identified above through further enhancements or program expansions in the coming years. MMC will continue to monitor parking demand and needs at the Bramhall campus, and re-evaluate its program goals after the initial five year period as needed.

TDM Strategies

Current Get on Board Program Elements

Get on Board is advanced through a range of incentives and the provision of services to support alternative modes. The individual program elements are described below.

Active Transportation

The MMC campus is located in close proximity to existing and planned routes in the City of Portland's growing bicycle and pedestrian network as shown in Figure 7. MMC offers a variety of bike facilities to make bicycle commuters feel welcome and safe. In 2008, MMC installed five (5) strategically-located bike racks and ten (10) bike lockers on its main campus. Three (3) new bicycle racks were added in the vicinity of the Bramhall entrance and in the South Lot in 2016, bringing total storage capacity to 193 bicycles across campus. MMC will conduct a bike rack inventory in July/August 2018 to evaluate the location, condition, and model (or style) of existing bike racks. This assessment will ensure that the racks meet the City's standards regarding the quantity, quality, and distribution of bike parking across the Bramhall campus. MMC understands the city's strong preference for inverted u-racks and bike hitch (or post and ring) racks.

Bicycle and other active transportation commuters also have access to showers facilities across campus, including at Environmental Services, Engineering, the 5th floor of the Maine General Building, and at 229 Vaughan Street.

Beyond on-campus facilities, MMC is an advocate of the City of Portland's Bikeway Network Plan, which will provide bicycle infrastructure on streets adjacent to campus to connect bicyclists with existing and shared use paths.

The City of Portland's latest Comprehensive Plan proposes transforming the streets surrounding MMC into "neighborhood byways", whose design treatments help reduce vehicle speeds and create a safer environment for active transportation users. Neighborhood byway design could encourage walking and biking for employees who live within a reasonable distance of the hospital. MMC also supports ongoing collaboration with the City of Portland, local and regional transit agencies, and neighborhood and advocacy organizations to explore opportunities to improve pedestrian, bicycle, and transit infrastructure and networks serving the Bramhall Campus. The City of Portland has plans to expand the bike lanes illustrated in Figure 7 and add neighborhood byways.

FIGURE 7: Portland Bikeway and Pedestrian Network

Source: City of Portland

In the winter months, some employees choose to leverage their wintertime hobbies, like cross-country skiing, to get to work.

Public Transportation

Under Get on Board (GOB), employees can purchase discounted bus tickets and Shuttle-Bus Zoom tickets conveniently on campus. This is a clear demonstration of MMC's commitment to making the TDM Plan work for its employees and for the City of Portland. Table 2 lists the MMC's current Greater Portland METRO Bus and Shuttle-Bus Zoom discounts provided through "Get on Board!". Note: MMC is dedicated to providing a 100% METRO discount in the short term (as discussed in the recommended Program Enhancements section).

TABLE 2: MMC Transit Discounts

	Regular Price	MMC Sale Price	% Discount
METRO	$13.50	$8.00	40%
S. Portland	$13.50	$8.00	40%
Zoom 10 Ride	$39.00	$29.60	25%
Zoom Monthly	$100.00	$84.50	15%
Zoom Quarterly	$260.00	$197.50	25%

The *Portland Peninsula Transit Study* [2]established several strategies for improving the utilization of transit in Portland. These strategies involved expanding the transit service to development areas, creating more direct connections, and increasing service frequency to compete with drive-alone commute times. The *Portland Transportation Hub Link Feasibility Study*[3] also proposed a route alignment along Congress Street that would increase transit frequency near the hospital. These improvements, if implemented, would highly benefit MMC's campus population in light of the distance that most employees reside from MMC and the fluctuating nature of employees' schedules.

In addition, an MMC representative was recently appointed to the PACTS/GPCOG Transit Committee. MMC is excited to participate in this dynamic group and looks forward to exploring ways in which to improve transit accessibility, connectivity, and reliability in the Greater Portland region.

Carpool

Carpooling is the most popular component of the Get on Board program. Over half of program participants at the main campus take advantage of this benefit. Currently, employees participating in a carpool are given access to preferred parking in an area of the Employee Garage that connects directly to the Main Lobby on the ground floor of the hospital. MMC is planning to relocate its employee parking garage to St. John St. Appropriate incentives that encourage participation in the carpool program have not been fully identified. However, until other incentives are identified, carpool participants will have preferred parking in the St. John St. employee garage.

[2] Portland Transit Committee. *Portland Peninsula Transit Study* (2009), Retrieved from: https://www.portlandmaine.gov/DocumentCenter/Home/View/3383.

[3] Portland Area Comprehensive Transportation System (PACTS). *Portland "Hub Link" Feasibility Study* (2015), Retrieved from: http://www.portlandmaine.gov/DocumentCenter/View/14793 .

Parking Cash Out

Presently, MMC operates a "parking cash out" program that offers employees monetary payments in lieu of a parking space. Program participants submit a form every three months that certifies their use of alternative transportation during the week to commute to work. Upon receipt of a certification, MMC issues the employee a payment equal to the cost of parking at MMC's employee garage. MMC will explore opportunities to help automate this process. For example, commute management platforms (discussed in Data Collection section of the Plan) could allow employees to easily track and manage their daily commutes, potentially reducing the need to submit paperwork.

MMC Shuttles

MMC operates employee shuttle services between the Bramhall campus and off-site parking locations Mondays-Fridays, 6:00 am to 11:00 pm. The shuttles include:

- MMC and off-site parking lots at 222 St. John Street and 995 Congress Street (Monday – Friday, 6:00 AM to 11:00 PM)
- MMC Bramhall campus and the 110 Free Street Office Building (Monday-Friday, 6:00 AM to 4:00 PM, every 20 minutes)
- MMC Bramhall and Brighton Medical Center (335 Brighton Avenue) (Monday-Friday, 6:00 AM to 4:00 PM)

MMC also provides shuttle service for contractors from the parking lot at 993 Congress Street to the hospital. The shuttles provide a predictable alternative to employees commuting between the three sites and serves to reduce vehicular traffic in and around MMC.

Scooters and Motorcycles

The campus provides a designated parking space for scooters and motorcycles on the first floor of the employee parking garage.

UCar

MMC currently dedicates a space in its Congress Street parking garage for a carshare vehicle, as part of the city-wide carshare program called U Car Share. The program allows members to borrow a car by the hour, providing employees who bike, walk, or ride transit to work with additional mobility for off-site meetings. Between mid-March and October of 2016, the UCar program had 96 reservations for a total of 4,105 miles.

Electric Vehicle (EV) Charging

Electric vehicle (EV) charging stations can encourage motorists to commute by electric vehicles, thereby reducing carbon emissions. MMC offers free charging stations for staff and visitors.

TDM and GoMAINE website

The current employee GOB portal is linked to the GoMAINE Commuter Connections website, which is an alternative commuting program operated by MaineDOT. GoMAINE provides commuters with additional commuting resources and benefits that supplement those provided by MMC. These benefits include a carpool ride-matching program and a rewards program for participants.

Pay for Parking

MMC charges its employees no less than $3 per paycheck to utilize MMC parking. MMC employees are paid bi-weekly. Therefore, the annual employee parking cost is $78.

$$\$3\ per\ paycheck\ \times 26\ pay\ periods\ =\ \$78$$

Enhanced Get on Board Program Elements

Program enhancements, discussed below, are anticipated to occur within 1-3 years.

Active Transportation

As part of the modernization of Bramhall, MMC will orient entrances to public streets and provide active ground floor uses where possible to encourage pedestrian activity.

MMC will continue to offer bike storage, bike repair tools, and on-site shower and locker facilities to commuters who choose to bicycle to work.

MMC will also continue its parking cash out program to incentivize current bicyclists. To support "interested but cautious" bicyclists, MMC will seek out local bicycling support organizations to host educational safety seminars and/or adult bicycling skills classes at least once per year on the Bramhall Campus. MMC will also promote rewards programs, such as GO MAINE and Bicycle Benefits, to further motivate increased bicycle commuting.

MMC is exploring additional active transportation incentives through commuter challenges, like a Bike Month Challenge (discussed in Education and Marketing section) with corporate-sponsored giveways, like gift cards to local businesses.

MMC will also consider purchasing Bicycle Benefits memberships for bicycle commuters. The memberships cost $5 (one-time fee) and include a helmet sticker, which provides discounts to dozens of local businesses in the Portland region.

MMC understands that Portland Bike Share, a non-profit organization with a goal to establish a bike share system in the City of Portland, plans to launch a bike share pilot in 2018. MMC has contacted the Executive Director of the North American Bikeshare Association regarding bike share opportunities and has conducted preliminary research on private bike share systems, which, if implemented, could help connect employees at MMC and MaineHealth, located on Free Street.

MMC also recognizes the importance of safe and accessible infrastructure to active transportation. The presence of infrastructure can provide the sense of safety and security that cautious bicyclists seek to spur a change in travel behavior. Additionally, as active modes become more widespread throughout the City of Portland, the visibility of pedestrians and bicyclists in the community can encourage greater participation among MMC employees. MMC supports the City of Portland in its work to improve public rights-of-way and expand its active transportation network.

The City of Portland has proposed a bike lane on Congress St. and a Neighborhood Byway on Bramhall St., both of which are adjacent to MMC's Bramhall campus. These improvements, among others, can help address gaps in the community's active transportation network and could help encourage more MMC employees to bike, walk, skate, and ski to work.

Carpooling/Vanpooling

Given the success of its carpooling program, MMC will continue to provide carpoolers with premium parking in the new employee parking garage. Similar to bicyclists, pedestrians, and transit riders, carpoolers will also continue to be eligible for parking "cash out" benefits. To facilitate the formation of carpools and vanpools, MMC will promote GOMAINE's carpool matching program to facilitate carpool matching.

MMC Shuttle

Once the new employee parking garage is constructed, MMC will redesign its shuttle route system to serve employees parking at the new site. The new parking garage will consolidate previously dispersed parking options for MMC employees. MMC anticipates the new route will reduce traffic congestion into and around the campus area.

UCar

Working with UHaul and the City's Parking Department, MMC will continue to monitor the use of the UCar vehicle presently located in its Congress Street parking garage. In the event an additional car is warranted, MMC will work with its partners in finding a suitable location on the main campus for the storage and use of the additional UCar.

Enhanced Transit Subsidies

To further incentivize transit use, MMC will fully cover the cost of METRO bus tickets (100% subsidy) for employees who elect to use transit as their primary mode of commuting to the campus. If METRO ticket costs change, MMC will address program participation rates and work with METRO to find the best solution to support employees who wish to ride METRO. The type and amount of subsidy will depend upon ongoing discussions with METRO to enhance partnerships (see below).

METRO's electronic fare deployment, scheduled for 2019, represents an opportune time for MMC to launch this enhanced subsidy program. MMC will explore ways in which employees can "purchase" transit passes up front, rather than on a reimbursement basis. This "payment-in-advance" option may be contingent on MMC's capacity to verify transit ridership (e.g. through electronic boarding data) in order to minimize abuse of this benefit. It also possible that electronic fare collection and/or commute management platforms (discussed in Data Collection section), if implemented, could allow staff to easily log trips, potentially helping verify transit usage.

New Program Elements

In addition to enhancements to the initiatives described above, MMC intends to initiate complementary elements to ensure the program's continued success. The strategies are prioritized based on their implementation timeframe.

Short-Term (1-5 years)

The following actions MMC will pursue immediately (some are already underway) with the intention that all programs are fully operational within the 3-year time horizon.

Get on Board! Coordinator

MMC has hired a designated resource who will work to reduce employee single-occupancy vehicles on the Bramhall campus through the implementation, facilitation, and continuing sustainability of Get on Board. The coordinator will track the progress of the TDM program, oversee operations, and identify future opportunities to reduce single-occupancy vehicles on MMC's Bramhall campus by employees. The Coordinator is responsible for program evaluation, data collection, and TDM program updates as required.

Way 2 GO MAINE

In October 2017, MMC participated in GOMAINE's Way 2 GO MAINE program for the first time. Way 2 GO MAINE is a 3-week business to business commuter challenge where employees log commute trips and earn prizes. In the first year participating, MMC ranked 2nd for large companies participating with 1,094 trips logged.

MMC will participate in the Way 2 GO MAINE challenge in the future.

Guaranteed Ride Home (GRH) Program

MMC will implement a Guaranteed Ride Home program to ensure that employees who regularly commute using alternative modes will have transportation in emergency situations.

Pay for Parking

MMC will evaluate employee parking fees in the mid-term. In evaluating future price, MMC will consider the prevailing market price for parking in the surrounding area at the time of implementation, as well as best practices in setting affordable parking prices in the region.

Improving Data Collection Capabilities

MMC will improve its data collection capabilities as described below.

Long-Term Actions (5+ years)

MMC recognizes that the following program elements require partnerships with outside partners and agencies and, as such, will take longer to achieve. MMC has already laid the groundwork for all of these elements and will continue to pursue them in the coming years.

Regional Connections Partnership

Through its TDM Coordinator, MMC will seek to form partnerships with other major employers in the city, including the City itself, to foster a holistic approach to travel management. The partnerships would enable the exchange of TDM-related information and experiences between institutions, and it would foster a community that is focused on promoting alternative transportation in the City of Portland. Such collaborations would afford the opportunity to think regionally and help guide both employer provided or sponsored benefits as well as critical external resources such as METRO transit, sidewalks, and bicycle infrastructure. Opportunities to improve existing transit infrastructure would be a focus of any regional connections partnership.

Supporting Public Transportation

MMC intends to explore a partnership with the METRO to identify strategies for increasing MMC ridership, such as service updates and/or pricing agreements. Service updates could include changes in existing routes, new routes, or alternative route schedules. The formation of a partnership could be mutually beneficial, by providing METRO with feedback for increasing ridership while maximizing the usefulness of the transit system for MMC employees. As MMC formalizes its ties to other local institutions through a regional partnership, its collaboration with METRO could also extend to other employers.

Education and Marketing Strategies

MMC has a number of approaches to raise awareness about the benefits of alternative transportation and opportunities for participating in the Get on Board program. These strategies are integrated into various aspects of the organization's engagement with employees to reinforce the importance of TDM. The new TDM Coordinator provides MMC with an unprecedented opportunity to help educate and inform employees about the hospital's TDM programs.

Sharing TDM Program Information

Information about the Get on Board program is available to all MMC employees via the MMC intranet. MMC's intranet is a place where employees routinely go for information. The Get on Board page provides information about all of MMC's TDM programs as well as links to the GOMAINE.org webpage. MMC is committed to reorganizing information on its intranet site within the first six months following the hiring of the TDM Coordinator.

MMC will develop and deliver information about the Get on Board program using communications best practices that are refined throughout the program's lifespan. Communication methods that are effective will be further refined while elements that are less effective will be reevaluated. Some examples of communication methods include:

- Introducing the program to new employees at orientation: MMC currently shares information about the Get on Board program with new employees during orientation and understands that this information can be overlooked amidst all of the materials that are provided to new employees. MMC will transform its existing TDM orientation brochure into a more graphical, eye-catching pamphlet or postcard. MMC will also consider incorporating a brief TDM presentation at orientation.
- Social media: MMC will use social media as an effective tool to communicate with employees about the Get on Board program.
- Get on Board Booths: To supplement information available on the Get on Board intranet site, MMC will explore opportunities to setup Get On Board booths to help market the program and potentially offer free giveaways, like bike lights or helmets. The booth could be installed and staffed at a high visibility location, such as the hospital's South entrance or outside the future employee parking garage.
- Leveraging Existing MMC Programs: The TDM Coordinator will explore possibilities to leverage (and learn from) other MMC employee programs, such as "Work on Wellness" and Moment to Shine. Work on Wellness (WOW!) allows employees to earn rewards for participating in various health and wellbeing programs, while Moment to Shine allows employees to recognize and reward colleagues for exemplary performance. Moment to Shine, available on the MMC intranet and on iPhone and Android apps, also allows "shining" employees to redeem their rewards through a user-friendly shopping portal. While it is important that the MMC employee programs maintain their autonomy, there could be opportunities for Get on Board to utilize some of the same features, like the rewards portal.
- Branding: There may also be opportunities to rebrand the Get on Board program as MMC looks to add new life to the program.

Get on Board Fair/Seminars

MMC will explore offering educational sessions about the importance of TDM and specific TDM methods such as walking, biking, or riding the bus. Educational sessions will rely on the expertise of local organizations specializing in alternative modes of transportation.

Get on Board Blitz

October is National Rideshare month and the same month of GOMAINE's Way 2 GOMAINE business to business challenge. In the future, MMC will explore ways to increase marketing of the Get on Board program during the month of October, potentially leveraging social media and internal communications vehicles, such as electronic newsletters.

Commuter Challenges

MMC will explore internal commuter challenges, such as a bicycle commuter challenge in the month of May, which has been nationally designated as "Bike Month" by the League of American Bicyclists. As discussed in the Data Collection section, commute management platforms could help MMC manage these friendly competitions and allow participants to log commutes and view leaderboards. MMC will contact businesses regarding potential sponsorships for the monthly commuter challenges.

Comprehensive Data and Goal Monitoring

MMC understands from its prior experience with TDM initiatives that achieving change is an iterative process that involves tracking the effectiveness of its programming and making mid-term adjustments if necessary to improve program effectiveness. MMC will collect and analyze data on a regular basis to monitor progress towards its TDM targets. The data would be collected through a range of instruments and will be used to make annual comparisons and to identify trends, and areas for growth. MMC will submit monitoring reports that include a summary of the data monitoring results, comparisons of the data to trip reduction targets, and adjustments to programs as needed.

Parking Utilization Data

MMC is exploring options to improve data collection in the new employee parking garage. The most likely option utilizes EZ-Pass technology to automatically collect information about the vehicles in the garage.

In addition, MMC plans to install a parking guidance system in the new employee garage, as well as a controlled-access parking system in the visitor parking garages. Together, these systems will allow MMC to monitor occupancy in each garage and to collect data regarding who uses the parking facilities and the temporal fluctuations in parking demand across various periods of time. These systems will provide quantifiable information to assist in determining future utilization of MMC's parking facilities. MMC will utilize this parking usage data to assess its parking arrangement twice every year.

MMC has received feedback about inappropriate use of its parking garages. MMC hopes to reduce the misuse of its garages in the future by implementing these monitoring and controlling systems.

Employee Surveys

MMC conducted an employee travel survey in 2017 to understand employee commuter preferences and intends to administer the survey once every two years going forward. The survey is administered electronically using a survey platform and produces data that MMC (or a third party) can use to identify changes and progress from one period to the next. The surveys seek information about the following topics to gauge the effectiveness of initiatives:

- TDM program participation rates
- Individual program effectiveness
- Barriers to TDM use
- Changes in commuting preferences
- Marketing effectiveness

Employee Surveys

As discussed earlier, MMC is also exploring contracts with various commute management platforms to help encourage, track, and incentivize alternative commutes. These platforms can provide robust data related to commuting patterns, trends, and changes.

Reporting Frequency

MMC will submit annual monitoring reports that will include a summary of progress toward targets established in the TDM Plan.

Conclusion

The purpose of Maine Medical Center's Transportation Demand Management program, Get on Board, is to reduce the amount of employee single-occupancy vehicles at MMC's Bramhall Campus by enabling and promoting alternative modes of transportation to and from MMC's Bramhall Campus for MMC employees. The program has aggressive short- and long-term goals. While the program's success partially relies on a cultural shift away from personal vehicles, Maine Medical Center is committed to exploring and identifying the most impactful TDM strategies to reduce single-occupancy vehicle travel and encourage alternative commuting choices.

WRITTEN SUBMISSION 18 – PRESERVATION OF SIGNIFICANT NATURAL FEATURES
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THER ARE NO SUCH FEATURES WITHIN THE PROJECT SITE.

WRITTEN SUBMISSION 20 – SITE LANDSCAPING
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE LANDSCAPE PLAN FOR THE NEW BUILDING IS DESIGNED TO COMPLIMENT THE UNIFORMITY AND SIMPLE NATURE OF THE BUILDING DESIGN.

THERE ARE FOUR LANDSCAPE ZONES WITHIN THE SITE :

1. PASSENGER ARRIVAL AND DEPARTURE PLAZA – THIS AREA WILL BE COMPLETELY IN SHADE. THE CENTER ISLAND WILL BE PLANTED WITH EUROPEAN WILD GINGER WITH ACCENTS OF TRILLIUM. THESE SELECTIONS WILL PROVIDE EVERGREEN COLOR ALL YEAR AND WILL NOT OBSTRUCT VISIBILITY IN THE PLAZA.
2. TRIANGLE PLANTER BELOW RETAINING WALL – THIS AREA INCLUDE ENGLISH IVY, PLANTED AT THE BASE OF THE RETAINING WALL, AS WELL AS EUONYMUS GROUNDCOVER (EVERGREEN), WITH VERTICAL ACCENTS OF FEATHER REED GRASS.
3. TWO TRIANGLE PLANTERS AT THE PUBLIC PLAZA – THESE AREAS REPEAT THE USE OF EUONYMUS GROUNDCOVER WITH ACCENTS OF FEATHER REED GRASS, AFFORDING A SIMPLE YET ELEGANT FOREGROUND TO THE VERTICAL BUILDING BEYOND.
4. THE GREEN ROOF WILL BE PLANTED WITH GREEN AND RED SEDUM, LOWBUSH BLUEBERRY, AND TALLER SWITCH GRASS ALONG THE PATIENT BEDROOM EDGE OF THE ROOF.

WRITTEN SUBMISSION 21 – PARKING LOT LANDSCAPING
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THIS SUBMISSION ITEM IS NOT APPLICABLE TO THIS APPLICATION.

WRITTEN SUBMISSION 22 – STREET TREES
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE LANDSCAPE PLAN INCLUDES (5) NEW HONEY LOCUST TREES ALONG CONGRESS STREET. HONEY LOCUST TREES ARE SUITED FOR THE URBAN CONDITIONS AND ARE FOUND ON MANY PORTLAND STREETS TODAY.

Att. X

SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

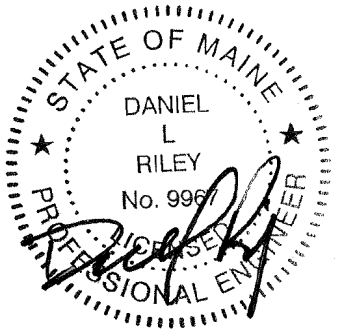
STORMWATER MANAGEMENT PLAN

Maine Medical Center
Congress Street Building
Portland, Maine

Prepared for

Maine Medical Center
22 Bramhall Street
Portland, ME 04102

October 30, 2018



10/30/2018

STORMWATER MANAGEMENT PLAN

Maine Medical Center Congress Street Building
Portland, ME

Introduction

This Stormwater Management Plan has been prepared to address the potential impacts on stormwater runoff associated with the construction of a new hospital building on Maine Medical Center's Bramhall Campus.

The Congress Street Building project will consist of a new 6 story, 264,300 square foot hospital building with an approximately 43,900 sf footprint area. The proposed building replaces the existing employee-parking garage located at the corner of Congress Street and Gilman Street and includes redevelopment of the site along Congress Street. The total area of the campus affected by the work, as shown on the exhibits attached to this report is approximately 1.95 acres.

As discussed in this report, the Stormwater analysis and treatment/detention system has been designed to detain and treat rooftop runoff from the existing Visitors Parking Garage adjacent to the new building. Providing treatment from an additional 26,400 sf of parking deck that currently drains un-detained into the combined sewer system in Congress Street.

The impact of the new building is mitigated in part by redeveloping an existing parking structure with the new building whose rooftop includes green roof components.

Development on the Maine Medical Center Bramhall Campus is subject to the Maine Department of Environmental Protection (MDEP) Site location of Development Act and Chapter 500 Stormwater standards, reviewed by the City of Portland under its delegated review authority from MDEP. Based on the proposed development, the project is subject to the MDEP Chapter 500 Basic, General, and Flooding standards, including the redevelopment standards for a Site Law project, as incorporated into the City of Portland Land Use Ordinance and Site Plan review regulations.

The site is located in an area served by a combined sewer system where the City of Portland seeks to mitigate and reduce combined sewer overflow (CSO) events. The design storm events for CSO evaluation is a 1" rainfall, 24-hour design storm (CSO Storm).

Based on discussions with the City staff, the stormwater analysis and the proposed detention/treatment system has been designed to reduce the rate of runoff from the project site including both the new Congress Street Building and the existing Visitor Garage, to the greatest extent possible during this 1" CSO Storm event.

The proposed erosion controls, inspection and maintenance criteria, and the stormwater management systems have been designed to meet MDEP and City of Portland requirements. The proposed design includes a subsurface sand filter Best Management Practice (BMP) which has been designed to meet

the system sizing and treatment requirements for the new building's and redevelopment project standard. The system has been expanded to the extent practicable and to provide treatment for runoff from the adjacent parking garage.

The proposed design meets the applicable standards for system volume, but due to the limited site area, incorporating the runoff from the Visitor Garage will require waiver of the system surface area design criteria. The waiver is simply a trade-off to allow detention of existing runoff volume to address the CSO flows reduction desired by the City.

Permitting and Analysis History

A comprehensive stormwater analysis of the Maine Medical Center Bramhall Campus was completed in January 2004 as part of the Site Location of Development review, by the City of Portland, of the Bramhall Campus Expansion project. This project constructed from 2004-2007 was significant redevelopment of the campus including the construction of the Visitors Garage, Central Utility Plant and East Tower and renovations of the Emergency Department. The 2004 project also included the reconstruction and re-alignment of Crescent Street and separation of storm drainage in Gilman Street.

The redevelopment project fully separated stormwater runoff from the combined sewers within hospital property the campus and the immediately adjacent streets. The separated runoff re-enters the City's combined system at 7 locations abutting the site to facilitate future separation projects that may be undertaken by the City as part if its CSO program.

The 2004 redevelopment project included the installation of two hydrodynamic separator treatment units and separated runoff from approximately 6.3 acres of the campus and Gilman Street (uphill of A Street) the municipal separated storm drain in A Street, fully utilizing the design capacity of the A Street Storm drain.

The 2004 analysis is presented in a Stormwater Management Report dated January 2004 attached to the Maine Medical Center's January 2004 Site Location of Development Application on file in the City of Portland Planning office.

The 2004 post-development analysis subdivided the campus and tributary offsite areas into 20 onsite and offsite sub catchment areas. These sub catchment areas are the basis of the current study's pre-development analysis. The full campus watershed plan is attached for reference, identifying the sub catchments affected by the currently proposed redevelopment.

The discussion of our current analysis focuses on those sub catchments and study points affected by the proposed project, the analysis of off site areas of the campus remains unchanged from the 2004 analysis with exception of the design rainfall events which have been updated in accordance with the design rainfall adopted by the MDEP Chapter 500 regulations in August of 2015.

Site Existing Conditions

The project site includes the area occupied by the hospital's existing employee garage at the corner of Congress Street and Gilman Street. The runoff evaluation area includes portions of Congress Street to the north and east, Gilman Street to the west and the access road between the existing garage and the LL Bean Wing of the hospital to the south.

The campus located in a densely developed urban setting consisting of hospital and office buildings with their associated parking and landscaped areas, public roadways, and multi-family residential housing. The undeveloped areas of the site consist of steeply sloped land abutting Congress Street and Gilman Street. Ground cover in this area consists primarily of grass, brush and evergreen tree growth.

The subject site is located at a high point in the west end of the Portland Peninsula. Runoff from the project site is collected through a series of roof drains and catch basins and conveyed to the combined sanitary/stormwater sewers located within public streets abutting the site. There are currently two Downstream Defender units, installed in 2005, which provide stormwater quality treatment to runoff from the site. One Downstream Defender unit is located in the Visitor Garage on Congress Street, tributary to the municipal combined sewer system that runs down Forest Street to Park Avenue. The outfall of the Visitor Garage's downstream defender will be redirected to a proposed detention and treatment system associated with new Congress Street building to provide peak flow mitigation during the CSO design storm.

The second Downstream Defender unit is located along Gilman Street, in front of the Central Utility Plant, treating stormwater before it enters the municipal separated storm drain in A Street.

Soils

Soil classifications within the project area were referenced from the Cumberland County Medium Intensity Soil Survey. The site is primarily comprised of Hinckley gravelly sand loam. The project geotechnical evaluation report indicates significant depths of granular fill overlaying glacial till. For modeling purposes of this report the soils were considered hydrologic soil group A consistent with the Cumberland County soil survey.

Proposed Development

Maine Medical Center proposes to construct a new 6 story, 264,300 square foot hospital building with an approximately 43,900 sf footprint area. The new building incorporates green roof elements and replaces the impervious surfaces associated with the existing employee-parking garage.

The Visitors Garage east of the site will remain. The drainage system from the Visitors Garage will be modified for redirect runoff to the proposed building's stormwater treatment system. The stormwater analysis was developed to consider treatment for both the proposed hospital expansion and the existing parking garage.

The site is subject to the Chapter 500 redevelopment standards as a Site Law, although the proposed development will result in the following:

Total Developed Area Subject to Treatment Standards	= 1.53 acres
Total Post Development Impervious area	= 1.19 acres
Redevelopment Impact Rating	= (- 0.5)
Redeveloped Area Requiring Treatment (50%)	= 0.77 acres
Redeveloped Area Receiving Treatment	= 1.95 acres

Regulatory Requirements

City of Portland:

The project is subject to the City of Portland's land use ordinance and Technical Standards applicable to a project with an existing Site Location of Development Permit and reviewed under the City's delegated review authority. The City's standards incorporate the MDEP Chapter 500 standards as follows.

Maine Department of Environmental Protection (MDEP)

MDEP Rule Chapters 500 and 502 describe stormwater management requirements for new development projects. These rules describe performance standards divided into five major categories: Basic Standard, General Standard, Phosphorous Standard, Urban Impaired Stream Standard, and Flooding Standard. The following sections describe how this project will address these stormwater management performance standards.

Basic Standard: A project must meet basic standards if it disturbs an area greater than one (1) acre. As this development will disturb approximately 1.53 acres, it must meet the basic standard. The standard includes various erosion and sedimentation controls, inspection and maintenance procedures, and general housekeeping requirements.

General Standard: A project is subject to the general standard if it results in the creation of one (1) or more acres of impervious area or developed areas greater than five (5) acres. As this project will include approximately 1.19 acres of impervious area, it must meet the general standard, including provisions in the General Standards for Redevelopment projects.

The redevelopment standard applicable to this project is outlined in the Chapter 500.4.C(2)(d). This standard establishes treatment requirements based on a pre and post development pollutant impact rating which establishes a sliding scale of the percentage of Developed Area which must be treated. For Site Law projects, the scale ranges from a minimum of 50% of the developed area to a maximum treatment equal to a new development.

The redevelopment calculations for the current project indicates that a minimum of 50% of the site's redevelopment must be treated. The treatment system proposed exceeds the minimum requirement

as a stand alone project including the Congress Street building and significantly exceeds the minimum standards by providing treatment for the Visitor Garage runoff.

Standard BMPs have been defined by the MDEP and are described thoroughly in their publication Stormwater Management for Maine: Best Management Practices manual, as revised March 2016.

Phosphorous Standard: A project must meet the phosphorous standards if located within a lake watershed. As this project is not tributary to a lake watershed, it is not subject to the phosphorus standard.

Urban Impaired Stream Standard: A project must meet the urban impaired stream standards if located within an urban impaired stream watershed. As this project is not tributary to an Urban Impaired Stream as defined by MDEP Chapter 502, this project is not subject to the urban impaired stream standard.

Flooding Standard: A project must meet to the flooding standards if it creates impervious areas greater than three (3) acres, or developed areas greater than twenty (20) acres. This project includes approximately 1.19 acres of impervious area; however, the City of Portland Technical Manual Section II-C states that all Level III site plans are required to meet the Maine DEP Chapter 500 flooding standard.

City of Portland Combined Sewers

In addition to the Stormwater Management provisions of the Land Use Ordinance and Technical Standards, the project is located in an area served by a combined sewer system where the City seeks to mitigate the rate of flow in the system that contribute to Combined Sewer Overflow (CSO) events. Discussions with the City Public works department in July 2018 have defined the CSO storm event to be a 1" rainfall event modeled using a 24-hour duration Type III storm distribution. The City has requested that the proposed treatment system be designed to mitigate to the extent practicable the rate of runoff from the site during this storm event, and to detain if practicable the runoff from the existing parking garage.

Quality Treatment

To meet the stormwater quality treatment requirements for the site, a subsurface sand filter BMP and a vegetated roof BMP are proposed to treat runoff from proposed development.

A subsurface sand filter utilizing a Cultec pretreatment row and ACF R-Tank detention modules is proposed to treat and store runoff generated from the roof surface of the proposed Congress Street building. Runoff from the roof will be collected in the building's roof drainage system and directed to the subsurface sand filter installed beneath the paved area of the proposed main entrance. The treated stormwater will discharge to the existing combined sewer at a new Manhole in Congress Street, tributary to Study Point C2.

The proposed subsurface sand filter has been sized based on chapter 7.3 of the Maine Department of Environmental Protection (MDEP) BMP Manual: Subsurface Sand Filters, to provide adequate treatment for the water quality volume, pretreatment of the one-year storm using an inlet control structure and isolator row, and detention for larger storm events.

Redevelopment standards apply because the proposed building will replace existing buildings and pavement areas. After completing the calculations outlined in §4.C(2)(d) of Chapter 500, the ranked impact change due to redevelopment is calculated to be -0.5. Because the project is subject to an existing Site Law Permit the minimum level of treatment required 50% of the redeveloped area.

The redevelopment impact ratings are included in Attachment A to this report.

Also included in Attachment A are tables summarizing the impervious and developed areas for the proposed development and the BMP measures treating these areas. The conclusion is a tabulation of the effective treatment percentages for the proposed development. The results of this tabulation indicate the following:

- The post-development area subject to treatment standards includes 1.53 acres of developed area on the Congress Street building site. This area is comprised of approximately 1.19 acres of impervious area (rooftop, driveway and sidewalk areas) and 0.34 acres of landscaped areas.

- The redevelopment standard requires treatment for 50% of this developed areas for a minimum of 0.77 acres.

- The total area receiving treatment is approximately 1.95 acres of developed area including the new Congress Street Building roof and entrance driveway area (1.34 acres) and the Visitor Garage (0.61 acres).

The redevelopment standard requires treatment for 50% of the new developed areas. As such, the site is required to provide treatment for a minimum of 0.77 acres. The total area receiving treatment is approximately 1.95 acres or 128% of the required area.

<u>Stormwater Treatment System</u>

A subsurface soil filter system is proposed below the Congress Street building's entrance plaza at Congress Street is proposed to provide Stormwater Quality and Quantity Treatment. The system presented on the plans is based on R-Tank chambers with Cultec chamber isolator rows for pre treatment

The system sizing criteria is provided in Attachment A to this report and summarized as follows:

Storage Volume Required	= 5,829 cf
Storage Volume Provided	= 5,949 cf
Surface Area Required (Congress Building only)	= 2,564 sf
Surface Area Required (Congress Building and Visitor Garage)	= 3,883 sf
Surface Area Provided	= 3,134 sf

Methodology:

In order to evaluate drainage characteristics as a result of the proposed development activities, a quantitative analysis was performed to determine peak runoff rates in the pre-development and post-development conditions. The evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was utilized to perform the calculations.

The peak runoff rates were calculated using a 24-hour duration storm event with a Type III rainfall distribution. The rainfall amounts for Cumberland County have recently been updated and the following 24-hour duration rainfall amounts were used for this report:

Storm Frequency	24-hr Duration Rainfall (in.)
CSO Storm	1.0
2-yr	3.1
10-yr	4.6
25-yr	5.8

Twenty sub catchments were analyzed in the pre-development condition, and twenty-two watersheds in the post-development condition. The pre development sub catchment delineations are based the 2004 study post-development watersheds modified to reflect site improvements constructed as part of the 2004-2007 Bramhall Campus Expansion project construction along with record drawings, and field surveys of the drainage infrastructure.

Sub catchment delineations along the hospital building rooftops are based on visible roof drain locations and record design drawings. Due to the age of a number of buildings, records indicating the locations of roof drain connections to the surrounding sewer system are not available. In these cases, the assumed watershed delineations were made based observations of the rooflines and the surrounding topography and sewer infrastructure.

Five Study Points, identified on the attached watershed plans and hydrologic model output as points SP-C1 through SP-C5 have historically been used to evaluate pre and post-developed runoff conditions from the campus. The Study Points represent locations where stormwater runoff, from the project site, enters the public drainage infrastructure system. In most cases, the capacity of the existing combined sewers is small relative the area draining to them under existing conditions. In these cases,

the study points represent the total stormwater discharge at the study point including both gutter flow and flow into the sewer.

Of these study points only two SP-C2 and SP-C3 are affected by the proposed redevelopment.

Study Point SP-C1 represents the point where stormwater runoff from the site enters a combined sewer at the intersection of Wescott Street and Crescent Street. The study point represents runoff at a manhole identified as DMH-25868 on the project plans. The sewer outlet from this manhole is a 12" cement line that drains in a westerly direction along Crescent Street, eventually draining to Park Avenue via sewers in Ellsworth Street, Congress Street and Weymouth Street.

Study Point SP-C2 represents the point where runoff from the existing Maine Medical Center parking garage, enters a combined sewer at the intersection of Congress Street and Forest Street. The study point represents runoff at a manhole SMH-13952 on the project plans. The sewer outlet from this manhole is an 18" reinforced concrete pipe that drains in a northerly direction along Forest Street to Park Avenue.

Study Point SP-C3 represents the point where runoff from areas of the project site east of the existing visitor garage enters the combined sewer system at the intersection of Gilman Street and Congress Street. At this point runoff within the sewer system discharges in a northerly direction along Gilman Street to Park Avenue. Runoff in the roadway that bypasses the catch basins at the intersection discharges in a westerly direction along Congress Street to St. John Street.

Study Point SP-C4 represents at the intersection of Gilman Street and A Street where runoff from areas of the site including the existing emergency room parking area, L.L. Bean wing, and service areas abutting the central utility plant is directed to the A Street storm drain. A Downstream Defender stormwater treatment system was installed in 2005.

Study Point SP-C5 represents runoff at the intersection of Ellsworth Street and Wescott Street. Runoff currently enters the combined sewer system via manholes in Ellsworth Street and drains in an easterly direction along Ellsworth Street towards its intersection with Congress Street.

The areas and times of concentration of the post-development watersheds vary from the existing conditions based on the proposed site development. Due to the highly-developed nature of the site, the time of concentration in some watersheds is less than six minutes. A minimum time of concentration of six minutes was used in these cases.

Table 1 summarizes the results of the hydrologic analysis of the project under pre-development and post-development conditions.

Table 1 Stormwater Peak Discharge Summary Table									
Study Point	2-Year Storm			10-Year Storm			25-Year Storm		
	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)	Pre (cfs)	Post (cfs)	Diff. (cfs)
SP-C1	1.28	1.28	0.00	2.39	2.39	0.00	3.31	3.31	0.00
SP-C2	6.45	3. 59	-2.87	9.14	6.73	-2.41	11.23	10.91	-0.32
SP-C3	1.72	1.53	-0.19	4.28	4.05	-0.23	5.76	5.21	-0.55
SP-C4	14.04	13.78	-0.26	25.22	24.94	-0.28	34.61	34.33	-0.28
SP-C5	1.60	1.60	0.00	3.01	3.01	0.00	4.07	4.07	0.00

The results of the stormwater modeling at Study Point SP-C1 to SP-C5 indicate that the peak rates of runoff in the post-development condition will be less than the pre-developed condition for the 2-year, 10-year, and 25-year storm events.

Study points SP-C2 and SP-C3 were further evaluated to determine the impact on peak flow rate and runoff duration from the project site during the 1" CSO Storm event. The proposed subsurface sand filter has been expanded in size to allow for the detention of runoff from the Congress building and the Parking Garage. The system outlets have been designed to maximize the detention of runoff generated from a 1" rainfall to reduce the peak rate of runoff during this storm and to extend the duration of that runoff as long as practicable to mitigate and reduce the site's contribution to offsite CSO events. The results during this event are summarized in Table 2 below.

The modeling node used to evaluate the connection point to the City system is node SMH-1 representing ESMH-13952.

Table 2 CSO Event Summary Table			
Study Point	1"- 24 Hour Type III Storm		
	Peak Runoff		
	Pre (cfs)	Post (cfs)	Diff. (cfs)
ESMH-13952	1.61	0.28	-1.33 (83%)

The results of the analysis indicates that the proposed system reduces the rate of runoff at the connection to the City's combined sewer by approximately 83%.

To further evaluate the attenuation of flow from the project site during smaller storm events, Table 3 below summarized the performance of the proposed subsurface sand filter detention system identified as Node 1P+G(R-Tank System with Garage) in the model. The table below evaluates the inflow

hydrograph into the system and the outflow hydrograph to the City system during a 1" storm event. This summary most closely represents the contribution of the project site runoff, without the influence of offsite runoff.

The proposed design will reduce the peak rate of runoff from a 1" storm event by 97% compared to the un detained discharge

Table 3 CSO Event Summary Table

Study Point	1"- 24 Hour Type III Storm		
	Peak Runoff		
	Pre (cfs)	Post (cfs)	Diff. (cfs)
R-Tank System	1.48	0.04	-1.44 (97%)

Conclusion

Erosion and sedimentation controls, inspection and maintenance procedures and general housekeeping requirements have been outlined to prevent unreasonable impacts on the site and to the surrounding environment.

By utilizing Best Management practices, stormwater quality treatment has been provided for at least 50% of the total impervious area and at least 50% of the total developed area. Based on the modeling data, the post-development peak rates of runoff for the 2-year, 10-year, and 25-year storm events demonstrate decreases in the peak rates of runoff when compared to the pre-development peak rates of runoff.

The proposed detention and treatment system meets all of the applicable sizing criteria for minimum surface area, channel protection volume, sediment pretreatment volume to address the requirements for the Congress Street Building project. At the City's request, the system has been expanded to accept runoff from the adjacent Visitor Garage for the purpose of detaining runoff from the existing development during a CSO event storm.

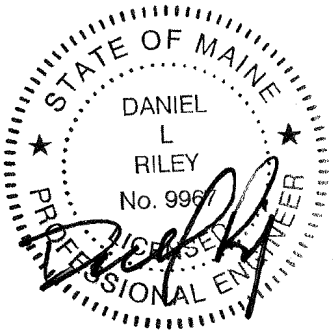
With the addition of this area, the system continues to meet the applicable sizing criteria with the exception of the minimum surface area criteria. The proposed system provides approximately 120% of the required area for the Congress Street Building alone. The proposed system provides 80% of the required area for the combined Congress Building and parking garage footprint. Meeting the full area requirement would require an additional 800 sf of system area which is not available on this site.

With the incorporation of the above referenced erosion control, treatment and detention measures, the project has been designed in conformance with the Maine Department of Environmental Protection Chapter 500 Stormwater Law and City of Portland Stormwater Management Standards.

Accordingly, it is anticipated that stormwater runoff from the proposed development will not cause a significant adverse effect to off-site receiving channels or downstream properties.

Prepared by,

SEBAGO TECHNICS, INC.



Daniel L. Riley, P.E.
Vice President, Engineering

10/30/2018

October 30, 2018

Attachment A

STORWATER QUALITY CALCULATIONS

Table 4: MDEP REDEVELOPMENT STANDARD CALCULATIONS: MMC Congress Street Building, Portland, Maine

Existing Areas by Pollutant Ranking (S.F.)							Proposed Areas by Pollutant Ranking (S.F.)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0	6,538	17,424	1,739	43,699	0	69,400	0	328	22,153	46,919	0	0	69,400

Existing Areas by Pollutant Ranking (acres)							Proposed Areas by Pollutant Ranking (acres)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0.000	0.150	0.400	0.040	1.003	0.000	1.593	0.000	0.008	0.509	1.077	0.000	0.000	1.593

Existing Weighted Average (Item C)	Proposed Weighted Average (Item D)
5.083	**4.256**

Total Development Area (acres)	Total Redevelopment Area (acres)
1.593	**1.593**

Ranked Impact Change Due to Redevelopment (Item E)
-0.5

Percent Increase in Developed Area
0.00%

Treatment Levels for Redevelopment Projects

Ranked Impact Change Due to Redevelopment (Item E)	Percentage of Developed Area that Must be Treated
0.0 or less	**0% (Stormwater projects)** **50% (Site projects)**
≤ 0.0 to ≥ 1.0	**60%**
> 1.0 to ≥ 2.0	**70%**
> 2.0 to ≥ 3.0	**80%**
> 3.0	**Same treatment level as for new development**

Table 3: MDEP GENERAL STANDARD CALCULATIONS: MMC Congress Street Building, Portland, Maine

AREA ID	WATERSHED SIZE (S.F.)	EXISTING IMPERVIOUS AREA (To Remain) (S.F.)	NEW IMPERVIOUS AREA (S.F.)	EXISTING LANDSCAPED AREA (To Remain) (S.F.)	NEW LANDSCAPED AREA (S.F.)	NEW DEVELOPED AREA (S.F.)	UNDEVELOPED AREAS (S.F.)	TREATMENT PROVIDED?	NEW IMPERVIOUS AREA TREATED* (S.F.)	NEW LANDSCAPED AREA TREATED* (S.F.)	NEW DEVELOPED AREA TREATED* (S.F.)	TREATMENT BMP
3.1	10,051	8,335	0	1,716	0	0	0	NO	0	0	0	NONE
3.2	4,089	4,089	0	0	0	0	0	NO	0	0	0	NONE
14.1	22,477	14,929	5,018	0	2,530	7,548	0	NO	0	0	0	NONE
15.1	18,644	10,163	443	8,038	0	443	0	NO	0	0	0	NONE
17.1A	43,616	0	43,616	0	0	43,616	0	YES	43,616	0	43,616	SSSF
17.1B	14,879	0	2,836	0	12,043	14,879	0	YES	2,836	12,043	14,879	Green Roof
18	26,386	26,386	0	0	0	0	0	YES	26,386	0	26,386	SSSF
SUM	**140,142**	**63,902**	**51,913**	**9,754**	**14,573**	**66,486**	**0**	-	**72,838**	**12,043**	**84,881**	-

Designations: SSSF=Subsurface Sand Filter

TOTAL NEW IMPERVIOUS AREA (S.F.)	**51,913**	**TOTAL NEW DEVELOPED AREA (S.F.)**	**66,486**
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT (S.F.)	**72,838**	**TOTAL DEV. AREA RECEIVING TREATMENT (S.F.)**	**84,881**
% OF IMPERVIOUS AREA RECEIVING TREATMENT	**140.3%**	**% OF DEV. AREA RECEIVING TREATMENT**	**127.7%**

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South Portland, Maine 04106
Tel. (207) 200-2100

JOB	15466 - Congress Street Building		
SHEET NO.	1	OF	3
CALCULATED BY	DLR	DATE	10/25/2018
FILE NAME	15466 - Stormwater calcs Congre:	PRNT DATE	10/30/2018

UNDERDRAINED SUBSURFACE SAND FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References 1. Maine DEP Chapter 500, Section 4.B.(2)(b)

a. "must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"

Proposed Congress Building

Tributary to Subsurface Sand Filter #1

Landscaped Area	12,043	SF							
Impervious Area	46,452	SF							

Minimum Surface Area for sand filter and chamber system

Required (2% X Landscaped + 5% X Impervious)

Total Landscaped Area	12,043	SF	Area	240.9	SF			
Total Impervious Area	46,452	SF	Area	2,322.6	SF			
Required Minimum Surface Area				2,563.5	SF			
Provided Surface Area				3,134.0	SF			

Channel Protection Volume (CPV)

Required (0.4" X Landscaped + 1.0" X Impervious)

Landscaped Area	12,043	SF	Volume	401.4				
Impervious Area	46,452	SF	Volume	3,871.0				
CPV Required				4,272.4	CF	0.098	AF	
Provided CPV				5,949.0	CF	@ Elev 51.2		

Sediment Pre-Treatment

Per Reference 2.c above

One year flow rate out put from Hydrocad:	3.32	cfs		
Iso Row sizing for: 902HD	**0.2**	cfs		
Total number of Isolator Row Chambers required:	17		25	Provided

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JOB	15466 - Congress Street Building		
SHEET NO.	2	OF	3
CALCULATED BY	DLR	DATE	10/25/2018
FILE NAME	15466 - Stormwater calcs Congre	PRNT DATE	10/30/2018

UNDERDRAINED SUBSURFACE SAND FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References 1. Maine DEP Chapter 500, Section 4.B.(2)(b)

a. "must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"

Existing Visitor Garage

Tributary to Subsurface Sand Filter #1

Landscaped Area	0	SF					
Impervious Area	26,386	SF					

Minimum Surface Area for sand filter and chamber system

Required	(2% X Landscaped + 5% X Impervious)					
Total Landscaped Area	0	SF	Area	0.0	SF	
Total Impervious Area	26,386	SF	Area	1,319.3	SF	
Required Minimum Surface Area				1,319.3	SF	
Provided Surface Area				*	SF	

Channel Protection Volume (CPV)

Required	(0.4" X Landscaped + 1.0" X Impervious)							
Landscaped Area	0	SF	Volume	0.0				
Impervious Area	26,386	SF	Volume	2,198.8				
CPV Required				2,198.8	CF	0.050	AF	
Provided CPV				*	CF			

Sediment Pre-Treatment

Per Reference 2.c above

One year flow rate out put from Hydrocad:	1.53	cfs	
Iso Row sizing for:	902HD	**0.2**	cfs
Total number of Isolator Row Chambers required:	8		

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JOB	15466 - Congress Street Building		
SHEET NO.	3	OF	3
CALCULATED BY	DLR	DATE	10/25/2018
FILE NAME	15466 - Stormwater calcs Congre:	PRNT DATE	10/30/2018

UNDERDRAINED SUBSURFACE SAND FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References 1. Maine DEP Chapter 500, Section 4.B.(2)(b)

a. "must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"

Congress Building and Visitor Garage

Tributary to Subsurface Sand Filter #1

Landscaped Area	12,073	SF				
Impervious Area	72,838	SF				

Minimum Surface Area for sand filter and chamber system

Required (2% X Landscaped + 5% X Impervious)

Total Landscaped Area	12,073	SF	Area	241	SF	
Total Impervious Area	72,838	SF	Area	3,642	SF	
Required Minimum Surface Area				3,883	SF	
Provided Surface Area				3,134	SF	

Channel Protection Volume (CPV)

Required (0.4" X Landscaped + 1.0" X Impervious)

Landscaped Area	12,073	SF	Volume	402				
Impervious Area (Bldg)	43,558	SF	Volume	3,630				
Site Pavement	2,894							
Impervious Area (Garage)	26,386			2,199				
				0		(ASSUMES 25% Pretreament Credit for HIL Unit)		
CPV Required				5,829	CF	0.134	AF	
Provided CPV				5,949	CF	@ Elev 51.2		

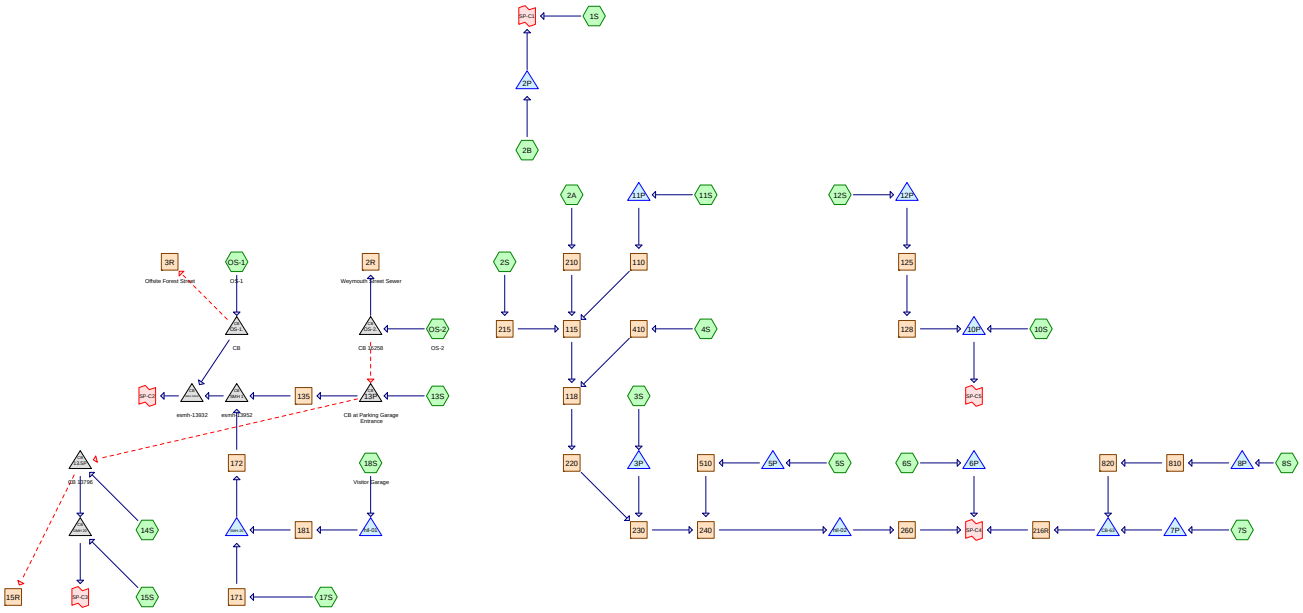
Sediment Pre-Treatment

Per Reference 2.c above

One year flow rate out put from Hydrocad:	4.50	cfs	
Iso Row sizing for: 902HD	**0.2**	cfs	
Total number of Isolator Row Chambers required:	23	25	

Attachment B

HYDROCAD OUTPUT



Subcat Reach Pond Link

Routing Diagram for 15466 - Congress CD PRE

Prepared by Sebago Technics, Inc., Printed 9/24/2018

HydroCAD® 10.00-15 s/n 01856 © 2015 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.354	39	>75% Grass cover, Good, HSG A (1S, 2B, 3S, 5S, 6S, 8S, 10S, 14S, 15S)
7.080	98	Paved parking (1S, 2A, 2B, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 10S, 11S, 12S, 13S, 14S, 15S, 17S)
2.834	98	Roofs (5S, 6S, 8S, 10S, 18S)
1.998	89	Urban commercial, 85% imp, HSG A (13S, OS-1, OS-2)
1.517	43	Woods/grass comb., Fair, HSG A (7S, 8S, 13S)
15.783	**83**	**TOTAL AREA**

Summary for Subcatchment 1S:

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 0.004 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	14,272	98	Paved parking
	5,174	39	>75% Grass cover, Good, HSG A
	19,446	82	Weighted Average
	5,174		26.61% Pervious Area
	14,272		73.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	40	0.0500	0.20		**Sheet Flow, SHEET A TO B** Grass: Short n= 0.150 P2= 3.00"
0.2	33	0.0500	3.35		**Shallow Concentrated Flow, SHALLOW B TO C** Grassed Waterway Kv= 15.0 fps
0.3	82	0.0420	4.16		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
0.1	74	0.0500	10.99	8.63	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.0					**Direct Entry, DIRECT**
6.0	229	Total			

Summary for Subcatchment 2A:

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	25,217	98	Paved parking
	25,217		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.60		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
1.3	112	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
3.9					**Direct Entry, DIRECT**
6.0	142	Total			

Summary for Subcatchment 2B:

Runoff = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	10,133	98	Paved parking
	3,735	39	>75% Grass cover, Good, HSG A
	13,868	82	Weighted Average
	3,735		26.93% Pervious Area
	10,133		73.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.79		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	123	0.0380	3.96		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
2.0	131	0.0005	1.10	0.86	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.9					**Direct Entry, DIRECT**
6.0	284	Total			

Summary for Subcatchment 2S:

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.024 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	16,157	98	Paved parking
	16,157		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0180	1.00		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	78	0.0370	3.90		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.4	136	0.0107	5.08	3.99	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
4.8					**Direct Entry, DIRECT**
6.0	244	Total			

Summary for Subcatchment 3S:

Runoff = 0.06 cfs @ 12.11 hrs, Volume= 0.006 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	3,076	39	>75% Grass cover, Good, HSG A
*	11,898	98	Paved parking
	14,974	86	Weighted Average
	3,076		20.54% Pervious Area
	11,898		79.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0250	1.14		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	106	0.0810	5.78		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.2	222	0.0530	14.83	26.20	**Pipe Channel, PIPE C TO D** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012
5.1					**Direct Entry, DIRECT**
6.0	358	Total			

Summary for Subcatchment 4S:

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	23,249	98	Paved parking
	23,249		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	50	0.0050	0.67		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
1.3	110	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
3.4					**Direct Entry, DIRECT**
6.0	160	Total			

Summary for Subcatchment 5S:

Runoff = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	25,085	98	Paved parking
	26,415	39	>75% Grass cover, Good, HSG A
*	73,528	98	Roofs
	125,028	86	Weighted Average
	26,415		21.13% Pervious Area
	98,613		78.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	35	0.0050	0.62		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
2.2	355	0.0050	2.65	0.93	**Pipe Channel, PIPE B TO C** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.1	35	0.0300	8.51	6.69	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.2	85	0.0160	6.22	4.88	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.6					**Direct Entry, DIRECT**
6.0	510	Total			

Summary for Subcatchment 6S:

Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	2,282	39	>75% Grass cover, Good, HSG A
*	501	98	Paved parking
*	8,302	98	Roofs
	11,085	86	Weighted Average
	2,282		20.59% Pervious Area
	8,803		79.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.79		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	64	0.0100	3.75	1.31	**Pipe Channel, PIPE B TO C (ROOF DRAIN)** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.0	27	0.0740	10.20	3.56	**Pipe Channel, PIPE C TO D** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
5.1					**Direct Entry, DIRECT**
6.0	121	Total			

Summary for Subcatchment 7S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	56,212	43	Woods/grass comb., Fair, HSG A
*	36,084	98	Paved parking
	92,296	65	Weighted Average
	56,212		60.90% Pervious Area
	36,084		39.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	78	0.0180	2.72		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.7	219	0.0590	4.93		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
0.2	72	0.0970	6.32		**Shallow Concentrated Flow, SHALLOW D TO E** Paved Kv= 20.3 fps
0.2	190	0.1020	15.70	12.33	**Pipe Channel, PIPE E TO F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.6					**Direct Entry, DIRECT**
6.0	634	Total			

Summary for Subcatchment 8S:

Runoff = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	16,895	98	Paved parking
	7,542	43	Woods/grass comb., Fair, HSG A
	8,958	39	>75% Grass cover, Good, HSG A
*	12,138	98	Roofs
	45,533	77	Weighted Average
	16,500		36.24% Pervious Area
	29,033		63.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.64		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	93	0.0100	4.91	3.86	**Pipe Channel, PIPE B TO C** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.5	135	0.0100	4.91	3.86	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.4	131	0.0100	4.91	3.86	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.8					**Direct Entry, DIRECT**
6.0	399	Total			

Summary for Subcatchment 10S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	25,937	39	>75% Grass cover, Good, HSG A
*	9,276	98	Paved parking
*	2,034	98	Roofs
	37,247	57	Weighted Average
	25,937		69.64% Pervious Area
	11,310		30.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0400	1.38		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.1	37	0.0540	4.72		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.4	75	0.0200	2.87		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
0.3	113	0.0210	7.12	5.59	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.3	71	0.0050	3.47	2.73	**Pipe Channel, PIPE E TO F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
4.5					**Direct Entry, DIRECT**
6.0	326	Total			

Summary for Subcatchment 11S:

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	11,050	98	Paved parking
	11,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.60		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.7	60	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
4.5					**Direct Entry, DIRECT**
6.0	90	Total			

Summary for Subcatchment 12S:

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	23,268	98	Paved parking
	23,268		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.60		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.9	80	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.4	90	0.0100	3.75	1.31	**Pipe Channel, PIPE C TO D** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
3.9					**Direct Entry, DIRECT**
6.0	200	Total			

Summary for Subcatchment 13S:

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	14,571	98	Paved parking
	2,309	43	Woods/grass comb., Fair, HSG A
	19,134	89	Urban commercial, 85% imp, HSG A
	36,014	90	Weighted Average
	5,179		14.38% Pervious Area
	30,835		85.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	40	0.1000	0.12		**Sheet Flow, SHEET A TO B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.2	51	0.6400	4.00		**Shallow Concentrated Flow, SHALLOW B TO C** Woodland Kv= 5.0 fps
0.4	105	0.0420	4.16		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
6.2	196	Total			

Summary for Subcatchment 14S:

Runoff = 0.00 cfs @ 23.95 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	14,684	98	Paved parking
	15,059	39	>75% Grass cover, Good, HSG A
	29,743	68	Weighted Average
	15,059		50.63% Pervious Area
	14,684		49.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	45	0.0680	0.23		**Sheet Flow, SHEET A TO B** Grass: Short n= 0.150 P2= 3.00"
1.0	217	0.0320	3.63		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
1.7					**Direct Entry, DIRECT**
6.0	262	Total			

Summary for Subcatchment 15S:

Runoff = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	11,909	39	>75% Grass cover, Good, HSG A
*	15,681	98	Paved parking
	27,590	73	Weighted Average
	11,909		43.16% Pervious Area
	15,681		56.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	18	0.2770	0.33		**Sheet Flow, SHEET A TO B** Grass: Short n= 0.150 P2= 3.00"
0.5	190	0.1920	6.57		**Shallow Concentrated Flow, SHALLOW B TO C** Grassed Waterway Kv= 15.0 fps
0.5	176	0.0760	5.60		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
4.1					**Direct Entry, DIRECT**
6.0	384	Total			

Summary for Subcatchment 17S:

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.061 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	40,392	98	Paved parking
	40,392		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.1	14	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.1	134	0.1600	15.00	5.24	**Pipe Channel, PIPE C TO D** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
5.0					**Direct Entry, DIRECT**
6.0	188	Total			

Summary for Subcatchment 18S: Visitor Garage

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.042 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	27,443	98	Roofs
	27,443		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	141	0.2000	9.08		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.4	135	0.0110	5.15	4.05	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
4.5					**Direct Entry, DIRECT**
6.0	316	Total			

Summary for Subcatchment OS-1: OS-1

Runoff = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

Area (sf)	CN	Description
17,031	89	Urban commercial, 85% imp, HSG A
2,555		15.00% Pervious Area
14,476		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	60	0.0400	0.20		**Sheet Flow, Sheet flow A-B** Grass: Short n= 0.150 P2= 3.00"
0.9	180	0.0250	3.21		**Shallow Concentrated Flow, Gutter Flow B-C (Russell Street)** Paved Kv= 20.3 fps
0.7	80	0.0100	2.03		**Shallow Concentrated Flow, Gutter Flow C-D (Hill Street)** Paved Kv= 20.3 fps
1.1	375	0.0800	5.74		**Shallow Concentrated Flow, Gutter Flow D-E (Ellsworth Street)** Paved Kv= 20.3 fps
2.2	605	0.0500	4.54		**Shallow Concentrated Flow, Gutter Flow E-F (Congress Street)** Paved Kv= 20.3 fps
10.0	1,300	Total			

Summary for Subcatchment OS-2: OS-2

Runoff = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

Area (sf)	CN	Description
50,885	89	Urban commercial, 85% imp, HSG A
7,633		15.00% Pervious Area
43,252		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	60	0.0400	0.20		**Sheet Flow, Sheet flow A-B** Grass: Short n= 0.150 P2= 3.00"
0.9	180	0.0250	3.21		**Shallow Concentrated Flow, Gutter Flow B-C (Russell Street)** Paved Kv= 20.3 fps
0.7	80	0.0100	2.03		**Shallow Concentrated Flow, Gutter Flow C-D (Hill Street)** Paved Kv= 20.3 fps
1.1	375	0.0800	5.74		**Shallow Concentrated Flow, Gutter Flow D-E (Ellsworth Street)** Paved Kv= 20.3 fps
2.2	605	0.0500	4.54		**Shallow Concentrated Flow, Gutter Flow E-F (Congress Street)** Paved Kv= 20.3 fps
10.0	1,300	Total			

Summary for Reach 2R: Weymouth Street Sewer

Inflow Area = 1.168 ac, 85.00% Impervious, Inflow Depth = 0.28" for 1-Inch event
Inflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af
Outflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Offsite Forest Street

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 15R:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

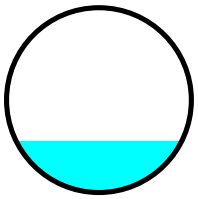
Summary for Reach 110:

Inflow Area = 0.254 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af
Outflow = 0.22 cfs @ 12.10 hrs, Volume= 0.017 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.79 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 0.9 min

Peak Storage= 4 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012
Length= 51.0' Slope= 0.0100 '/'
Inlet Invert= 110.51', Outlet Invert= 110.00'



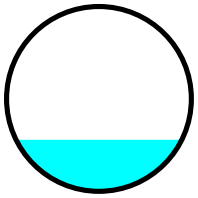
Summary for Reach 115:

Inflow Area = 1.203 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 1.04 cfs @ 12.10 hrs, Volume= 0.079 af
Outflow = 1.02 cfs @ 12.10 hrs, Volume= 0.079 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.73 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 0.9 min

Peak Storage= 19 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.17 cfs

15.0" Round Pipe
n= 0.012
Length= 67.0' Slope= 0.0078 '/'
Inlet Invert= 110.11', Outlet Invert= 109.59'



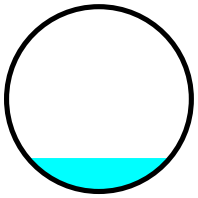
Summary for Reach 118:

Inflow Area = 1.737 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 1.48 cfs @ 12.10 hrs, Volume= 0.114 af
Outflow = 1.47 cfs @ 12.11 hrs, Volume= 0.114 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.86 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.26 fps, Avg. Travel Time= 0.7 min

Peak Storage= 19 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 20.98 cfs

18.0" Round Pipe
n= 0.012
Length= 90.0' Slope= 0.0340 '/'
Inlet Invert= 109.44', Outlet Invert= 106.38'



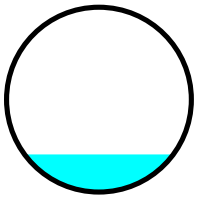
Summary for Reach 125:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.46 cfs @ 12.10 hrs, Volume= 0.035 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.10 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 1.0 min

Peak Storage= 9 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.21 cfs

12.0" Round Pipe
n= 0.012
Length= 79.0' Slope= 0.0182 '/'
Inlet Invert= 131.87', Outlet Invert= 130.43'



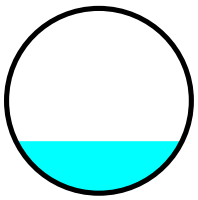
Summary for Reach 128:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.10 hrs, Volume= 0.035 af
Outflow = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.54 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 1.4 min

Peak Storage= 13 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.67 cfs

12.0" Round Pipe
n= 0.012
Length= 71.0' Slope= 0.0048 '/'
Inlet Invert= 130.40', Outlet Invert= 130.06'



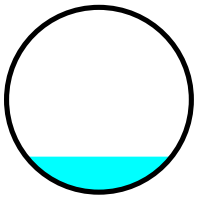
Summary for Reach 135:

Inflow Area = 0.827 ac, 85.62% Impervious, Inflow Depth = 0.32" for 1-Inch event
Inflow = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af
Outflow = 0.28 cfs @ 12.12 hrs, Volume= 0.022 af, Atten= 3%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.13 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.40 fps, Avg. Travel Time= 1.6 min

Peak Storage= 11 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 3.58 cfs

8.0" Round Pipe
n= 0.012
Length= 225.0' Slope= 0.0747 '/'
Inlet Invert= 62.69', Outlet Invert= 45.89'



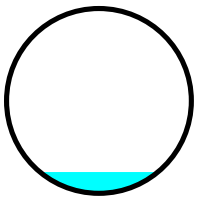
Summary for Reach 171:

Inflow Area = 0.927 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.061 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.40 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.51 fps, Avg. Travel Time= 0.1 min

Peak Storage= 2 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 29.32 cfs

15.0" Round Pipe
n= 0.012
Length= 31.0' Slope= 0.1755 '/'
Inlet Invert= 57.44', Outlet Invert= 52.00'



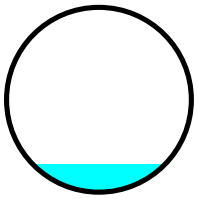
Summary for Reach 172:

Inflow Area = 1.557 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 1.35 cfs @ 12.09 hrs, Volume= 0.103 af
Outflow = 1.34 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.53 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.82 fps, Avg. Travel Time= 0.2 min

Peak Storage= 4 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 27.27 cfs

15.0" Round Pipe
n= 0.012
Length= 38.0' Slope= 0.1518 '/'
Inlet Invert= 51.66', Outlet Invert= 45.89'



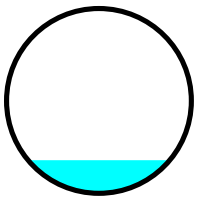
Summary for Reach 181:

Inflow Area = 0.630 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.042 af
Outflow = 0.54 cfs @ 12.10 hrs, Volume= 0.042 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.81 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.91 fps, Avg. Travel Time= 0.9 min

Peak Storage= 10 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.96 cfs

12.0" Round Pipe
n= 0.012
Length= 104.0' Slope= 0.0425 '/'
Inlet Invert= 56.28', Outlet Invert= 51.86'



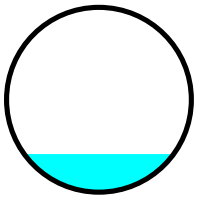
Summary for Reach 210:

Inflow Area = 0.579 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 0.038 af
Outflow = 0.50 cfs @ 12.10 hrs, Volume= 0.038 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.34 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.43 fps, Avg. Travel Time= 0.8 min

Peak Storage= 8 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 66.0' Slope= 0.0200 '/'
Inlet Invert= 122.35', Outlet Invert= 121.03'



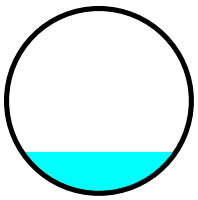
Summary for Reach 215:

Inflow Area = 0.371 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.32 cfs @ 12.09 hrs, Volume= 0.024 af
Outflow = 0.32 cfs @ 12.10 hrs, Volume= 0.024 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.47 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 1.1 min

Peak Storage= 7 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 52.0' Slope= 0.0069 '/'
Inlet Invert= 121.67', Outlet Invert= 121.31'



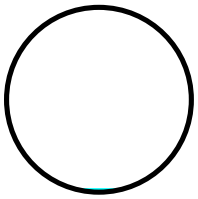
Summary for Reach 216R:

Inflow Area = 3.164 ac, 47.24% Impervious, Inflow Depth = 0.02" for 1-Inch event
Inflow = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.12 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 0.1 min

Peak Storage= 0 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 16.96 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.2267 '/'
Inlet Invert= 60.11', Outlet Invert= 57.39'



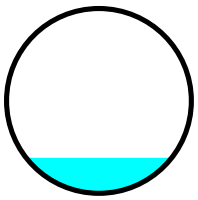
Summary for Reach 220:

Inflow Area = 1.737 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 1.47 cfs @ 12.11 hrs, Volume= 0.114 af
Outflow = 1.42 cfs @ 12.12 hrs, Volume= 0.114 af, Atten= 3%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.18 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.05 fps, Avg. Travel Time= 1.8 min

Peak Storage= 51 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 18.30 cfs

18.0" Round Pipe
n= 0.012
Length= 218.0' Slope= 0.0259 '/'
Inlet Invert= 105.99', Outlet Invert= 100.35'



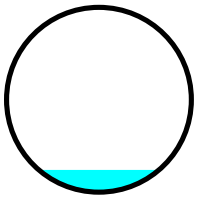
Summary for Reach 230:

Inflow Area = 2.081 ac, 96.61% Impervious, Inflow Depth = 0.69" for 1-Inch event
Inflow = 1.48 cfs @ 12.12 hrs, Volume= 0.120 af
Outflow = 1.47 cfs @ 12.13 hrs, Volume= 0.120 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.41 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.27 fps, Avg. Travel Time= 0.3 min

Peak Storage= 10 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 49.39 cfs

18.0" Round Pipe
n= 0.012
Length= 87.0' Slope= 0.1884 '/'
Inlet Invert= 100.16', Outlet Invert= 83.77'



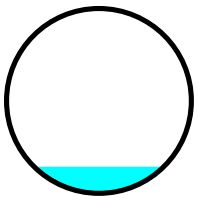
Summary for Reach 240:

Inflow Area = 4.951 ac, 86.33% Impervious, Inflow Depth = 0.41" for 1-Inch event
Inflow = 2.00 cfs @ 12.12 hrs, Volume= 0.167 af
Outflow = 1.97 cfs @ 12.13 hrs, Volume= 0.167 af, Atten= 2%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.83 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.43 fps, Avg. Travel Time= 0.4 min

Peak Storage= 15 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 45.69 cfs

18.0" Round Pipe
n= 0.012
Length= 100.0' Slope= 0.1612 '/'
Inlet Invert= 67.96', Outlet Invert= 51.84'



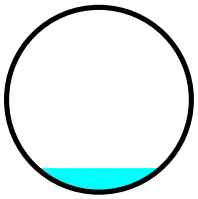
Summary for Reach 260:

Inflow Area = 4.951 ac, 86.33% Impervious, Inflow Depth = 0.41" for 1-Inch event
Inflow = 1.97 cfs @ 12.13 hrs, Volume= 0.167 af
Outflow = 1.96 cfs @ 12.13 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.28 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.87 fps, Avg. Travel Time= 0.3 min

Peak Storage= 11 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 55.59 cfs

24.0" Round Pipe
n= 0.012
Length= 48.0' Slope= 0.0515 '/'
Inlet Invert= 51.84', Outlet Invert= 49.37'



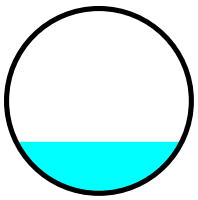
Summary for Reach 410:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.62 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 0.7 min

Peak Storage= 6 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.77 cfs

12.0" Round Pipe
n= 0.012
Length= 35.0' Slope= 0.0051 '/'
Inlet Invert= 110.68', Outlet Invert= 110.50'



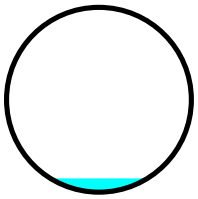
Summary for Reach 510:

Inflow Area = 2.870 ac, 78.87% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af
Outflow = 0.52 cfs @ 12.11 hrs, Volume= 0.047 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.95 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.94 fps, Avg. Travel Time= 0.3 min

Peak Storage= 4 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 47.85 cfs

18.0" Round Pipe
n= 0.012
Length= 62.0' Slope= 0.1768 '/'
Inlet Invert= 95.90', Outlet Invert= 84.94'



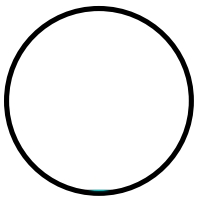
Summary for Reach 810:

Inflow Area = 1.045 ac, 63.76% Impervious, Inflow Depth = 0.05" for 1-Inch event
Inflow = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.47 hrs, Volume= 0.004 af, Atten= 1%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.26 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 1.5 min

Peak Storage= 1 cf @ 12.45 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 17.81 cfs

12.0" Round Pipe
n= 0.012
Length= 210.0' Slope= 0.2129 '/'
Inlet Invert= 120.21', Outlet Invert= 75.50'



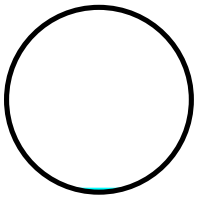
Summary for Reach 820:

Inflow Area = 1.045 ac, 63.76% Impervious, Inflow Depth = 0.05" for 1-Inch event
Inflow = 0.01 cfs @ 12.47 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.50 hrs, Volume= 0.004 af, Atten= 2%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.55 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 1.5 min

Peak Storage= 1 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 12.32 cfs

12.0" Round Pipe
n= 0.012
Length= 164.0' Slope= 0.1020 '/'
Inlet Invert= 75.58', Outlet Invert= 58.86'



Summary for Pond 2P:

Inflow Area = 0.318 ac, 73.07% Impervious, Inflow Depth = 0.11" for 1-Inch event
Inflow = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af
Outflow = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.2 min
Primary = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 107.03' @ 12.16 hrs Surf.Area= 13 sf Storage= 0 cf

Plug-Flow detention time= 0.3 min calculated for 0.003 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (928.3 - 928.0)

Volume	Invert	Avail.Storage	Storage Description
#1	107.00'	169 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	13	0	0
120.00	13	169	169

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500

Inlet / Outlet Invert= 107.00' / 106.50' S= 0.0100 '/' Cc= 0.900
n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 12.16 hrs HW=107.03' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.00 cfs @ 0.81 fps)

Summary for Pond 3P:

Inflow Area = 0.344 ac, 79.46% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.06 cfs @ 12.11 hrs, Volume= 0.006 af
Primary = 0.06 cfs @ 12.11 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 5P:

Inflow Area = 2.870 ac, 78.87% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af
Primary = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 6P:

Inflow Area = 0.254 ac, 79.41% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af
Primary = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 7P:

Inflow Area = 2.119 ac, 39.10% Impervious, Inflow Depth = 0.00" for 1-Inch event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 8P:

Inflow Area = 1.045 ac, 63.76% Impervious, Inflow Depth = 0.05" for 1-Inch event
Inflow = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af
Primary = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 10P:

Inflow Area = 1.389 ac, 57.14% Impervious, Inflow Depth = 0.30" for 1-Inch event
Inflow = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af
Primary = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 11P:

Inflow Area = 0.254 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 12P:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af
Primary = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 13.5P: CB 13796

Inflow Area = 0.683 ac, 49.37% Impervious, Inflow Depth = 0.00" for 1-Inch event
Inflow = 0.00 cfs @ 23.95 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 23.95 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 23.95 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 42.50' @ 23.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.86'	**10.0" Round 12" SD** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.86' / 37.64' S= 0.0813 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#2	Device 1	42.50'	**2.0' long Curb Inlet** 2 End Contraction(s)
#3	Secondary	43.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 23.95 hrs HW=42.50' (Free Discharge)
└**1=12" SD** (Passes 0.00 cfs of 4.72 cfs potential flow)
└**2=Curb Inlet** (Weir Controls 0.00 cfs @ 0.06 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.86' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 13P: CB at Parking Garage Entrance

Inflow Area = 0.827 ac, 85.62% Impervious, Inflow Depth = 0.32" for 1-Inch event
Inflow = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af
Outflow = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 66.03' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**1.0" x 3.0" Horiz. Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	66.20'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.28 cfs @ 12.10 hrs HW=66.03' (Free Discharge)
└**1=Grate** (Weir Controls 0.28 cfs @ 0.58 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=66.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB-63:

Inflow Area = 3.164 ac, 47.24% Impervious, Inflow Depth = 0.02" for 1-Inch event
Inflow = 0.01 cfs @ 12.50 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.8 min
Primary = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 59.84' @ 12.52 hrs Surf.Area= 13 sf Storage= 1 cf

Plug-Flow detention time= 0.8 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (1,000.9 - 1,000.1)

Volume	Invert	Avail.Storage	Storage Description
#1	59.80'	81 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.80	13	0	0
66.00	13	81	81

Device	Routing	Invert	Outlet Devices
#1	Primary	59.80'	**12.0" Round Culvert** L= 10.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 59.80' / 58.46' S= 0.1340 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.52 hrs HW=59.84' (Free Discharge)
1=Culvert (Inlet Controls 0.01 cfs @ 0.71 fps)

Summary for Pond DMH 20:

Inflow Area = 1.316 ac, 52.96% Impervious, Inflow Depth = 0.01" for 1-Inch event
Inflow = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 37.61' @ 15.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.59'	**12.0" Round 12" SD** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.59' / 35.00' S= 0.1295 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.12 hrs HW=37.61' (Free Discharge)
1=12" SD (Inlet Controls 0.00 cfs @ 0.45 fps)

Summary for Pond hil-01:

Inflow Area = 0.630 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.042 af
Primary = 0.55 cfs @ 12.09 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond hil-02:

Inflow Area = 4.951 ac, 86.33% Impervious, Inflow Depth = 0.41" for 1-Inch event
Inflow = 1.97 cfs @ 12.13 hrs, Volume= 0.167 af
Primary = 1.97 cfs @ 12.13 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond OS-1.: CB

Inflow Area = 0.391 ac, 85.00% Impervious, Inflow Depth = 0.28" for 1-Inch event
Inflow = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af
Outflow = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 55.05' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	45.00'	**8.0" Round Stormdrain** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.00' / 44.44' S= 0.0373 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	55.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	55.20'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.07 cfs @ 12.16 hrs HW=55.05' (Free Discharge)
↑└**1=Stormdrain** (Passes 0.07 cfs of 5.24 cfs potential flow)
↑└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.07 cfs @ 0.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)
↑└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond OS-2.: CB 16258

Inflow Area = 1.168 ac, 85.00% Impervious, Inflow Depth = 0.28" for 1-Inch event
Inflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af
Outflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 83.13' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	79.02'	**8.0" Round Stormdrain** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 79.02' / 78.25' S= 0.0220 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	83.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	83.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.30 cfs @ 12.16 hrs HW=83.13' (Free Discharge)
└**1=Stormdrain** (Passes 0.30 cfs of 3.12 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.30 cfs @ 1.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=79.02' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SMH 1: esmh-13952

Inflow Area = 2.384 ac, 95.01% Impervious, Inflow Depth = 0.63" for 1-Inch event
Inflow = 1.61 cfs @ 12.10 hrs, Volume= 0.125 af
Outflow = 1.61 cfs @ 12.10 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.10 hrs, Volume= 0.125 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 45.19' @ 12.10 hrs
Flood Elev= 52.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.61'	**18.0" Round Sewer** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.61' / 41.64' S= 0.0660 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=1.60 cfs @ 12.10 hrs HW=45.18' (Free Discharge)
└**1=Sewer** (Inlet Controls 1.60 cfs @ 2.58 fps)

Summary for Pond SMH-13932: esmh-13932

Inflow Area = 2.775 ac, 93.60% Impervious, Inflow Depth = 0.58" for 1-Inch event
Inflow = 1.70 cfs @ 12.10 hrs, Volume= 0.134 af
Outflow = 1.70 cfs @ 12.10 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Primary = 1.70 cfs @ 12.10 hrs, Volume= 0.134 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.23' @ 12.10 hrs
Flood Elev= 52.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	40.64'	**18.0" Round Sewer** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.64' / 38.00' S= 0.0587 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=1.70 cfs @ 12.10 hrs HW=41.23' (Free Discharge)
└**1=Sewer** (Inlet Controls 1.70 cfs @ 2.62 fps)

Summary for Pond SMH-20:

Inflow Area = 1.557 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 1.35 cfs @ 12.09 hrs, Volume= 0.103 af
Primary = 1.35 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C1:

Inflow Area = 0.765 ac, 73.26% Impervious, Inflow Depth = 0.11" for 1-Inch event
Inflow = 0.05 cfs @ 12.16 hrs, Volume= 0.007 af
Primary = 0.05 cfs @ 12.16 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C2:

Inflow Area = 2.775 ac, 93.60% Impervious, Inflow Depth = 0.58" for 1-Inch event
Inflow = 1.70 cfs @ 12.10 hrs, Volume= 0.134 af
Primary = 1.70 cfs @ 12.10 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C3:

Inflow Area = 1.316 ac, 52.96% Impervious, Inflow Depth = 0.01" for 1-Inch event
Inflow = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af
Primary = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C4:

Inflow Area = 8.370 ac, 71.34% Impervious, Inflow Depth = 0.25" for 1-Inch event
Inflow = 2.00 cfs @ 12.13 hrs, Volume= 0.176 af
Primary = 2.00 cfs @ 12.13 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C5:

Inflow Area = 1.389 ac, 57.14% Impervious, Inflow Depth = 0.30" for 1-Inch event
Inflow = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af
Primary = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=19,446 sf 73.39% Impervious Runoff Depth=1.46"
Flow Length=229' Tc=6.0 min CN=82 Runoff=0.75 cfs 0.054 af

Subcatchment2A: Runoff Area=25,217 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=142' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.70 cfs 0.138 af

Subcatchment2B: Runoff Area=13,868 sf 73.07% Impervious Runoff Depth=1.46"
Flow Length=284' Tc=6.0 min CN=82 Runoff=0.53 cfs 0.039 af

Subcatchment2S: Runoff Area=16,157 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=244' Tc=6.0 min CN=98 Runoff=1.09 cfs 0.089 af

Subcatchment3S: Runoff Area=14,974 sf 79.46% Impervious Runoff Depth=1.75"
Flow Length=358' Tc=6.0 min CN=86 Runoff=0.69 cfs 0.050 af

Subcatchment4S: Runoff Area=23,249 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=160' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.57 cfs 0.128 af

Subcatchment5S: Runoff Area=125,028 sf 78.87% Impervious Runoff Depth=1.75"
Flow Length=510' Tc=6.0 min CN=86 Runoff=5.77 cfs 0.418 af

Subcatchment6S: Runoff Area=11,085 sf 79.41% Impervious Runoff Depth=1.75"
Flow Length=121' Tc=6.0 min CN=86 Runoff=0.51 cfs 0.037 af

Subcatchment7S: Runoff Area=92,296 sf 39.10% Impervious Runoff Depth=0.55"
Flow Length=634' Tc=6.0 min CN=65 Runoff=1.03 cfs 0.098 af

Subcatchment8S: Runoff Area=45,533 sf 63.76% Impervious Runoff Depth=1.14"
Flow Length=399' Tc=6.0 min CN=77 Runoff=1.33 cfs 0.099 af

Subcatchment10S: Runoff Area=37,247 sf 30.36% Impervious Runoff Depth=0.28"
Flow Length=326' Tc=6.0 min CN=57 Runoff=0.11 cfs 0.020 af

Subcatchment11S: Runoff Area=11,050 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=90' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=0.74 cfs 0.061 af

Subcatchment12S: Runoff Area=23,268 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=200' Tc=6.0 min CN=98 Runoff=1.57 cfs 0.128 af

Subcatchment13S: Runoff Area=36,014 sf 85.62% Impervious Runoff Depth=2.08"
Flow Length=196' Tc=6.2 min CN=90 Runoff=1.94 cfs 0.143 af

Subcatchment14S: Runoff Area=29,743 sf 49.37% Impervious Runoff Depth=0.68"
Flow Length=262' Tc=6.0 min CN=68 Runoff=0.45 cfs 0.039 af

Subcatchment15S: Runoff Area=27,590 sf 56.84% Impervious Runoff Depth=0.92"
Flow Length=384' Tc=6.0 min CN=73 Runoff=0.62 cfs 0.049 af

Subcatchment 17S: Runoff Area=40,392 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=188' Tc=6.0 min CN=98 Runoff=2.72 cfs 0.222 af

Subcatchment 18S: Visitor Garage Runoff Area=27,443 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=316' Tc=6.0 min CN=98 Runoff=1.85 cfs 0.151 af

Subcatchment OS-1: OS-1 Runoff Area=17,031 sf 85.00% Impervious Runoff Depth=1.99"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=0.78 cfs 0.065 af

Subcatchment OS-2: OS-2 Runoff Area=50,885 sf 85.00% Impervious Runoff Depth=1.99"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=2.34 cfs 0.194 af

Reach 2R: Weymouth Street Sewer Inflow=2.28 cfs 0.194 af
Outflow=2.28 cfs 0.194 af

Reach 3R: Offsite Forest Street Inflow=0.13 cfs 0.001 af
Outflow=0.13 cfs 0.001 af

Reach 15R: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 110: Avg. Flow Depth=0.36' Max Vel=3.87 fps Inflow=0.74 cfs 0.061 af
8.0" Round Pipe n=0.012 L=51.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.74 cfs 0.061 af

Reach 115: Avg. Flow Depth=0.68' Max Vel=5.19 fps Inflow=3.51 cfs 0.288 af
15.0" Round Pipe n=0.012 L=67.0' S=0.0078 '/' Capacity=6.17 cfs Outflow=3.48 cfs 0.288 af

Reach 118: Avg. Flow Depth=0.50' Max Vel=9.76 fps Inflow=5.04 cfs 0.415 af
18.0" Round Pipe n=0.012 L=90.0' S=0.0340 '/' Capacity=20.98 cfs Outflow=5.01 cfs 0.415 af

Reach 125: Avg. Flow Depth=0.38' Max Vel=5.80 fps Inflow=1.57 cfs 0.128 af
12.0" Round Pipe n=0.012 L=79.0' S=0.0182 '/' Capacity=5.21 cfs Outflow=1.56 cfs 0.128 af

Reach 128: Avg. Flow Depth=0.55' Max Vel=3.53 fps Inflow=1.56 cfs 0.128 af
12.0" Round Pipe n=0.012 L=71.0' S=0.0048 '/' Capacity=2.67 cfs Outflow=1.54 cfs 0.128 af

Reach 135: Avg. Flow Depth=0.28' Max Vel=9.40 fps Inflow=1.29 cfs 0.136 af
8.0" Round Pipe n=0.012 L=225.0' S=0.0747 '/' Capacity=3.58 cfs Outflow=1.28 cfs 0.136 af

Reach 171: Avg. Flow Depth=0.26' Max Vel=14.91 fps Inflow=2.72 cfs 0.222 af
15.0" Round Pipe n=0.012 L=31.0' S=0.1755 '/' Capacity=29.32 cfs Outflow=2.72 cfs 0.222 af

Reach 172: Avg. Flow Depth=0.35' Max Vel=16.46 fps Inflow=4.56 cfs 0.372 af
15.0" Round Pipe n=0.012 L=38.0' S=0.1518 '/' Capacity=27.27 cfs Outflow=4.55 cfs 0.372 af

Reach 181: Avg. Flow Depth=0.33' Max Vel=8.24 fps Inflow=1.85 cfs 0.151 af
12.0" Round Pipe n=0.012 L=104.0' S=0.0425 '/' Capacity=7.96 cfs Outflow=1.84 cfs 0.151 af

Reach 210: Avg. Flow Depth=0.38' Max Vel=6.13 fps Inflow=1.70 cfs 0.138 af
12.0" Round Pipe n=0.012 L=66.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=1.69 cfs 0.138 af

Reach 215: Avg. Flow Depth=0.42' Max Vel=3.48 fps Inflow=1.09 cfs 0.089 af
12.0" Round Pipe n=0.013 L=52.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=1.08 cfs 0.089 af

Reach 216R: Avg. Flow Depth=0.25' Max Vel=15.09 fps Inflow=2.33 cfs 0.197 af
12.0" Round Pipe n=0.013 L=12.0' S=0.2267 '/' Capacity=16.96 cfs Outflow=2.33 cfs 0.197 af

Reach 220: Avg. Flow Depth=0.54' Max Vel=8.82 fps Inflow=5.01 cfs 0.415 af
18.0" Round Pipe n=0.012 L=218.0' S=0.0259 '/' Capacity=18.30 cfs Outflow=4.91 cfs 0.415 af

Reach 230: Avg. Flow Depth=0.34' Max Vel=18.51 fps Inflow=5.59 cfs 0.465 af
18.0" Round Pipe n=0.012 L=87.0' S=0.1884 '/' Capacity=49.39 cfs Outflow=5.57 cfs 0.465 af

Reach 240: Avg. Flow Depth=0.51' Max Vel=21.42 fps Inflow=11.29 cfs 0.883 af
18.0" Round Pipe n=0.012 L=100.0' S=0.1612 '/' Capacity=45.69 cfs Outflow=11.25 cfs 0.883 af

Reach 260: Avg. Flow Depth=0.61' Max Vel=13.86 fps Inflow=11.25 cfs 0.883 af
24.0" Round Pipe n=0.012 L=48.0' S=0.0515 '/' Capacity=55.59 cfs Outflow=11.22 cfs 0.883 af

Reach 410: Avg. Flow Depth=0.54' Max Vel=3.63 fps Inflow=1.57 cfs 0.128 af
12.0" Round Pipe n=0.012 L=35.0' S=0.0051 '/' Capacity=2.77 cfs Outflow=1.56 cfs 0.128 af

Reach 510: Avg. Flow Depth=0.35' Max Vel=18.27 fps Inflow=5.77 cfs 0.418 af
18.0" Round Pipe n=0.012 L=62.0' S=0.1768 '/' Capacity=47.85 cfs Outflow=5.76 cfs 0.418 af

Reach 810: Avg. Flow Depth=0.19' Max Vel=13.33 fps Inflow=1.33 cfs 0.099 af
12.0" Round Pipe n=0.012 L=210.0' S=0.2129 '/' Capacity=17.81 cfs Outflow=1.32 cfs 0.099 af

Reach 820: Avg. Flow Depth=0.22' Max Vel=10.22 fps Inflow=1.32 cfs 0.099 af
12.0" Round Pipe n=0.012 L=164.0' S=0.1020 '/' Capacity=12.32 cfs Outflow=1.30 cfs 0.099 af

Pond 2P: Peak Elev=107.31' Storage=4 cf Inflow=0.53 cfs 0.039 af
18.0" Round Culvert n=0.011 L=50.0' S=0.0100 '/' Outflow=0.53 cfs 0.039 af

Pond 3P: Inflow=0.69 cfs 0.050 af
Primary=0.69 cfs 0.050 af

Pond 5P: Inflow=5.77 cfs 0.418 af
Primary=5.77 cfs 0.418 af

Pond 6P: Inflow=0.51 cfs 0.037 af
Primary=0.51 cfs 0.037 af

Pond 7P: Inflow=1.03 cfs 0.098 af
Primary=1.03 cfs 0.098 af

Pond 8P: Inflow=1.33 cfs 0.099 af
Primary=1.33 cfs 0.099 af

Pond 10P: Inflow=1.60 cfs 0.147 af
Primary=1.60 cfs 0.147 af

Pond 11P: Inflow=0.74 cfs 0.061 af
Primary=0.74 cfs 0.061 af

Pond 12P: Inflow=1.57 cfs 0.128 af
Primary=1.57 cfs 0.128 af

Pond 13.5P: CB 13796 Peak Elev=42.81' Inflow=1.10 cfs 0.045 af
Primary=1.10 cfs 0.045 af Secondary=0.00 cfs 0.000 af Outflow=1.10 cfs 0.045 af

Pond 13P: CB at Parking Garage Entrance Peak Elev=66.29' Inflow=1.94 cfs 0.143 af
Primary=1.29 cfs 0.136 af Secondary=0.65 cfs 0.007 af Outflow=1.94 cfs 0.143 af

Pond CB-63: Peak Elev=60.68' Storage=11 cf Inflow=2.33 cfs 0.197 af
12.0" Round Culvert n=0.012 L=10.0' S=0.1340 '/' Outflow=2.33 cfs 0.197 af

Pond DMH 20: Peak Elev=38.30' Inflow=1.72 cfs 0.094 af
12.0" Round Culvert n=0.010 L=20.0' S=0.1295 '/' Outflow=1.72 cfs 0.094 af

Pond hil-01: Inflow=1.85 cfs 0.151 af
Primary=1.85 cfs 0.151 af

Pond hil-02: Inflow=11.25 cfs 0.883 af
Primary=11.25 cfs 0.883 af

Pond OS-1.: CB Peak Elev=55.22' Inflow=0.78 cfs 0.065 af
Primary=0.65 cfs 0.064 af Secondary=0.13 cfs 0.001 af Outflow=0.78 cfs 0.065 af

Pond OS-2.: CB 16258 Peak Elev=83.51' Inflow=2.34 cfs 0.194 af
Primary=2.28 cfs 0.194 af Secondary=0.06 cfs 0.000 af Outflow=2.34 cfs 0.194 af

Pond SMH 1: esmh-13952 Peak Elev=45.84' Inflow=5.83 cfs 0.509 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0660 '/' Outflow=5.83 cfs 0.509 af

Pond SMH-13932: esmh-13932 Peak Elev=41.96' Inflow=6.45 cfs 0.572 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0587 '/' Outflow=6.45 cfs 0.572 af

Pond SMH-20: Inflow=4.56 cfs 0.372 af
Primary=4.56 cfs 0.372 af

Link SP-C1: Inflow=1.28 cfs 0.093 af
Primary=1.28 cfs 0.093 af

Link SP-C2: Inflow=6.45 cfs 0.572 af
Primary=6.45 cfs 0.572 af

Link SP-C3: Inflow=1.72 cfs 0.094 af
Primary=1.72 cfs 0.094 af

Link SP-C4: Inflow=14.04 cfs 1.117 af
Primary=14.04 cfs 1.117 af

Link SP-C5: Inflow=1.60 cfs 0.147 af
Primary=1.60 cfs 0.147 af

Total Runoff Area = 15.783 ac Runoff Volume = 2.219 af Average Runoff Depth = 1.69"
26.42% Pervious = 4.170 ac 73.58% Impervious = 11.613 ac

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=19,446 sf 73.39% Impervious Runoff Depth=2.72"
Flow Length=229' Tc=6.0 min CN=82 Runoff=1.40 cfs 0.101 af

Subcatchment2A: Runoff Area=25,217 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=142' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=2.54 cfs 0.211 af

Subcatchment2B: Runoff Area=13,868 sf 73.07% Impervious Runoff Depth=2.72"
Flow Length=284' Tc=6.0 min CN=82 Runoff=1.00 cfs 0.072 af

Subcatchment2S: Runoff Area=16,157 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=244' Tc=6.0 min CN=98 Runoff=1.63 cfs 0.135 af

Subcatchment3S: Runoff Area=14,974 sf 79.46% Impervious Runoff Depth=3.10"
Flow Length=358' Tc=6.0 min CN=86 Runoff=1.21 cfs 0.089 af

Subcatchment4S: Runoff Area=23,249 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=160' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=2.34 cfs 0.194 af

Subcatchment5S: Runoff Area=125,028 sf 78.87% Impervious Runoff Depth=3.10"
Flow Length=510' Tc=6.0 min CN=86 Runoff=10.09 cfs 0.740 af

Subcatchment6S: Runoff Area=11,085 sf 79.41% Impervious Runoff Depth=3.10"
Flow Length=121' Tc=6.0 min CN=86 Runoff=0.89 cfs 0.066 af

Subcatchment7S: Runoff Area=92,296 sf 39.10% Impervious Runoff Depth=1.39"
Flow Length=634' Tc=6.0 min CN=65 Runoff=3.18 cfs 0.246 af

Subcatchment8S: Runoff Area=45,533 sf 63.76% Impervious Runoff Depth=2.29"
Flow Length=399' Tc=6.0 min CN=77 Runoff=2.75 cfs 0.200 af

Subcatchment10S: Runoff Area=37,247 sf 30.36% Impervious Runoff Depth=0.90"
Flow Length=326' Tc=6.0 min CN=57 Runoff=0.71 cfs 0.064 af

Subcatchment11S: Runoff Area=11,050 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=90' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.11 cfs 0.092 af

Subcatchment12S: Runoff Area=23,268 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=200' Tc=6.0 min CN=98 Runoff=2.34 cfs 0.194 af

Subcatchment13S: Runoff Area=36,014 sf 85.62% Impervious Runoff Depth=3.49"
Flow Length=196' Tc=6.2 min CN=90 Runoff=3.19 cfs 0.241 af

Subcatchment14S: Runoff Area=29,743 sf 49.37% Impervious Runoff Depth=1.60"
Flow Length=262' Tc=6.0 min CN=68 Runoff=1.21 cfs 0.091 af

Subcatchment15S: Runoff Area=27,590 sf 56.84% Impervious Runoff Depth=1.97"
Flow Length=384' Tc=6.0 min CN=73 Runoff=1.42 cfs 0.104 af

Subcatchment 17S: Runoff Area=40,392 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=188' Tc=6.0 min CN=98 Runoff=4.07 cfs 0.337 af

Subcatchment 18S: Visitor Garage Runoff Area=27,443 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=316' Tc=6.0 min CN=98 Runoff=2.77 cfs 0.229 af

Subcatchment OS-1: OS-1 Runoff Area=17,031 sf 85.00% Impervious Runoff Depth=3.39"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=1.31 cfs 0.110 af

Subcatchment OS-2: OS-2 Runoff Area=50,885 sf 85.00% Impervious Runoff Depth=3.39"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=3.92 cfs 0.330 af

Reach 2R: Weymouth Street Sewer Inflow=2.95 cfs 0.318 af
Outflow=2.95 cfs 0.318 af

Reach 3R: Offsite Forest Street Inflow=0.46 cfs 0.008 af
Outflow=0.46 cfs 0.008 af

Reach 15R: Inflow=0.81 cfs 0.006 af
Outflow=0.81 cfs 0.006 af

Reach 110: Avg. Flow Depth=0.47' Max Vel=4.21 fps Inflow=1.11 cfs 0.092 af
8.0" Round Pipe n=0.012 L=51.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=1.11 cfs 0.092 af

Reach 115: Avg. Flow Depth=0.89' Max Vel=5.64 fps Inflow=5.25 cfs 0.438 af
15.0" Round Pipe n=0.012 L=67.0' S=0.0078 '/' Capacity=6.17 cfs Outflow=5.21 cfs 0.438 af

Reach 118: Avg. Flow Depth=0.62' Max Vel=10.90 fps Inflow=7.54 cfs 0.632 af
18.0" Round Pipe n=0.012 L=90.0' S=0.0340 '/' Capacity=20.98 cfs Outflow=7.50 cfs 0.632 af

Reach 125: Avg. Flow Depth=0.47' Max Vel=6.45 fps Inflow=2.34 cfs 0.194 af
12.0" Round Pipe n=0.012 L=79.0' S=0.0182 '/' Capacity=5.21 cfs Outflow=2.33 cfs 0.194 af

Reach 128: Avg. Flow Depth=0.72' Max Vel=3.83 fps Inflow=2.33 cfs 0.194 af
12.0" Round Pipe n=0.012 L=71.0' S=0.0048 '/' Capacity=2.67 cfs Outflow=2.30 cfs 0.194 af

Reach 135: Avg. Flow Depth=0.31' Max Vel=9.87 fps Inflow=1.55 cfs 0.215 af
8.0" Round Pipe n=0.012 L=225.0' S=0.0747 '/' Capacity=3.58 cfs Outflow=1.54 cfs 0.215 af

Reach 171: Avg. Flow Depth=0.31' Max Vel=16.76 fps Inflow=4.07 cfs 0.337 af
15.0" Round Pipe n=0.012 L=31.0' S=0.1755 '/' Capacity=29.32 cfs Outflow=4.07 cfs 0.337 af

Reach 172: Avg. Flow Depth=0.43' Max Vel=18.44 fps Inflow=6.81 cfs 0.566 af
15.0" Round Pipe n=0.012 L=38.0' S=0.1518 '/' Capacity=27.27 cfs Outflow=6.81 cfs 0.566 af

Reach 181: Avg. Flow Depth=0.41' Max Vel=9.21 fps Inflow=2.77 cfs 0.229 af
12.0" Round Pipe n=0.012 L=104.0' S=0.0425 '/' Capacity=7.96 cfs Outflow=2.75 cfs 0.229 af

Reach 210: Avg. Flow Depth=0.48' Max Vel=6.82 fps Inflow=2.54 cfs 0.211 af
12.0" Round Pipe n=0.012 L=66.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=2.53 cfs 0.211 af

Reach 215: Avg. Flow Depth=0.53' Max Vel=3.86 fps Inflow=1.63 cfs 0.135 af
12.0" Round Pipe n=0.013 L=52.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=1.62 cfs 0.135 af

Reach 216R: Avg. Flow Depth=0.41' Max Vel=19.62 fps Inflow=5.88 cfs 0.446 af
12.0" Round Pipe n=0.013 L=12.0' S=0.2267 '/' Capacity=16.96 cfs Outflow=5.87 cfs 0.446 af

Reach 220: Avg. Flow Depth=0.67' Max Vel=9.84 fps Inflow=7.50 cfs 0.632 af
18.0" Round Pipe n=0.012 L=218.0' S=0.0259 '/' Capacity=18.30 cfs Outflow=7.37 cfs 0.632 af

Reach 230: Avg. Flow Depth=0.42' Max Vel=20.94 fps Inflow=8.56 cfs 0.720 af
18.0" Round Pipe n=0.012 L=87.0' S=0.1884 '/' Capacity=49.39 cfs Outflow=8.53 cfs 0.720 af

Reach 240: Avg. Flow Depth=0.67' Max Vel=24.51 fps Inflow=18.55 cfs 1.461 af
18.0" Round Pipe n=0.012 L=100.0' S=0.1612 '/' Capacity=45.69 cfs Outflow=18.50 cfs 1.461 af

Reach 260: Avg. Flow Depth=0.79' Max Vel=15.91 fps Inflow=18.50 cfs 1.461 af
24.0" Round Pipe n=0.012 L=48.0' S=0.0515 '/' Capacity=55.59 cfs Outflow=18.46 cfs 1.461 af

Reach 410: Avg. Flow Depth=0.71' Max Vel=3.95 fps Inflow=2.34 cfs 0.194 af
12.0" Round Pipe n=0.012 L=35.0' S=0.0051 '/' Capacity=2.77 cfs Outflow=2.33 cfs 0.194 af

Reach 510: Avg. Flow Depth=0.47' Max Vel=21.44 fps Inflow=10.09 cfs 0.740 af
18.0" Round Pipe n=0.012 L=62.0' S=0.1768 '/' Capacity=47.85 cfs Outflow=10.08 cfs 0.740 af

Reach 810: Avg. Flow Depth=0.27' Max Vel=16.46 fps Inflow=2.75 cfs 0.200 af
12.0" Round Pipe n=0.012 L=210.0' S=0.2129 '/' Capacity=17.81 cfs Outflow=2.73 cfs 0.200 af

Reach 820: Avg. Flow Depth=0.32' Max Vel=12.61 fps Inflow=2.73 cfs 0.200 af
12.0" Round Pipe n=0.012 L=164.0' S=0.1020 '/' Capacity=12.32 cfs Outflow=2.70 cfs 0.200 af

Pond 2P: Peak Elev=107.44' Storage=6 cf Inflow=1.00 cfs 0.072 af
18.0" Round Culvert n=0.011 L=50.0' S=0.0100 '/' Outflow=1.00 cfs 0.072 af

Pond 3P: Inflow=1.21 cfs 0.089 af
Primary=1.21 cfs 0.089 af

Pond 5P: Inflow=10.09 cfs 0.740 af
Primary=10.09 cfs 0.740 af

Pond 6P: Inflow=0.89 cfs 0.066 af
Primary=0.89 cfs 0.066 af

Pond 7P: Inflow=3.18 cfs 0.246 af
Primary=3.18 cfs 0.246 af

Pond 8P: Inflow=2.75 cfs 0.200 af
Primary=2.75 cfs 0.200 af

Pond 10P: Inflow=3.01 cfs 0.258 af
Primary=3.01 cfs 0.258 af

Pond 11P: Inflow=1.11 cfs 0.092 af
Primary=1.11 cfs 0.092 af

Pond 12P: Inflow=2.34 cfs 0.194 af
Primary=2.34 cfs 0.194 af

Pond 13.5P: CB 13796 Peak Elev=43.10' Inflow=3.67 cfs 0.129 af
Primary=2.86 cfs 0.123 af Secondary=0.81 cfs 0.006 af Outflow=3.67 cfs 0.129 af

Pond 13P: CB at Parking Garage Entrance Peak Elev=66.41' Inflow=4.01 cfs 0.253 af
Primary=1.55 cfs 0.215 af Secondary=2.47 cfs 0.038 af Outflow=4.01 cfs 0.253 af

Pond CB-63: Peak Elev=62.71' Storage=38 cf Inflow=5.88 cfs 0.446 af
12.0" Round Culvert n=0.012 L=10.0' S=0.1340 '/' Outflow=5.88 cfs 0.446 af

Pond DMH 20: Peak Elev=39.37' Inflow=4.28 cfs 0.227 af
12.0" Round Culvert n=0.010 L=20.0' S=0.1295 '/' Outflow=4.28 cfs 0.227 af

Pond hil-01: Inflow=2.77 cfs 0.229 af
Primary=2.77 cfs 0.229 af

Pond hil-02: Inflow=18.50 cfs 1.461 af
Primary=18.50 cfs 1.461 af

Pond OS-1.: CB Peak Elev=55.26' Inflow=1.31 cfs 0.110 af
Primary=0.85 cfs 0.102 af Secondary=0.46 cfs 0.008 af Outflow=1.31 cfs 0.110 af

Pond OS-2.: CB 16258 Peak Elev=83.61' Inflow=3.92 cfs 0.330 af
Primary=2.95 cfs 0.318 af Secondary=0.97 cfs 0.013 af Outflow=3.92 cfs 0.330 af

Pond SMH 1: esmh-13952 Peak Elev=46.32' Inflow=8.33 cfs 0.781 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0660 '/' Outflow=8.33 cfs 0.781 af

Pond SMH-13932: esmh-13932 Peak Elev=42.54' Inflow=9.14 cfs 0.884 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0587 '/' Outflow=9.14 cfs 0.884 af

Pond SMH-20: Inflow=6.81 cfs 0.566 af
Primary=6.81 cfs 0.566 af

Link SP-C1: Inflow=2.39 cfs 0.174 af
Primary=2.39 cfs 0.174 af

Link SP-C2: Inflow=9.14 cfs 0.884 af
Primary=9.14 cfs 0.884 af

Link SP-C3: Inflow=4.28 cfs 0.227 af
Primary=4.28 cfs 0.227 af

Link SP-C4: Inflow=25.22 cfs 1.972 af
Primary=25.22 cfs 1.972 af

Link SP-C5: Inflow=3.01 cfs 0.258 af
Primary=3.01 cfs 0.258 af

Total Runoff Area = 15.783 ac Runoff Volume = 3.847 af Average Runoff Depth = 2.92"
26.42% Pervious = 4.170 ac 73.58% Impervious = 11.613 ac

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=19,446 sf 73.39% Impervious Runoff Depth=3.80"
Flow Length=229' Tc=6.0 min CN=82 Runoff=1.93 cfs 0.141 af

Subcatchment2A: Runoff Area=25,217 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=142' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=3.21 cfs 0.268 af

Subcatchment2B: Runoff Area=13,868 sf 73.07% Impervious Runoff Depth=3.80"
Flow Length=284' Tc=6.0 min CN=82 Runoff=1.38 cfs 0.101 af

Subcatchment2S: Runoff Area=16,157 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=244' Tc=6.0 min CN=98 Runoff=2.06 cfs 0.172 af

Subcatchment3S: Runoff Area=14,974 sf 79.46% Impervious Runoff Depth=4.22"
Flow Length=358' Tc=6.0 min CN=86 Runoff=1.63 cfs 0.121 af

Subcatchment4S: Runoff Area=23,249 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=160' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=2.96 cfs 0.247 af

Subcatchment5S: Runoff Area=125,028 sf 78.87% Impervious Runoff Depth=4.22"
Flow Length=510' Tc=6.0 min CN=86 Runoff=13.59 cfs 1.009 af

Subcatchment6S: Runoff Area=11,085 sf 79.41% Impervious Runoff Depth=4.22"
Flow Length=121' Tc=6.0 min CN=86 Runoff=1.20 cfs 0.089 af

Subcatchment7S: Runoff Area=92,296 sf 39.10% Impervious Runoff Depth=2.21"
Flow Length=634' Tc=6.0 min CN=65 Runoff=5.25 cfs 0.390 af

Subcatchment8S: Runoff Area=45,533 sf 63.76% Impervious Runoff Depth=3.31"
Flow Length=399' Tc=6.0 min CN=77 Runoff=3.97 cfs 0.288 af

Subcatchment10S: Runoff Area=37,247 sf 30.36% Impervious Runoff Depth=1.56"
Flow Length=326' Tc=6.0 min CN=57 Runoff=1.39 cfs 0.111 af

Subcatchment11S: Runoff Area=11,050 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=90' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.41 cfs 0.118 af

Subcatchment12S: Runoff Area=23,268 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=200' Tc=6.0 min CN=98 Runoff=2.96 cfs 0.248 af

Subcatchment13S: Runoff Area=36,014 sf 85.62% Impervious Runoff Depth=4.65"
Flow Length=196' Tc=6.2 min CN=90 Runoff=4.19 cfs 0.320 af

Subcatchment14S: Runoff Area=29,743 sf 49.37% Impervious Runoff Depth=2.47"
Flow Length=262' Tc=6.0 min CN=68 Runoff=1.92 cfs 0.140 af

Subcatchment15S: Runoff Area=27,590 sf 56.84% Impervious Runoff Depth=2.92"
Flow Length=384' Tc=6.0 min CN=73 Runoff=2.13 cfs 0.154 af

Subcatchment 17S: Runoff Area=40,392 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=188' Tc=6.0 min CN=98 Runoff=5.15 cfs 0.430 af

Subcatchment 18S: Visitor Garage Runoff Area=27,443 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=316' Tc=6.0 min CN=98 Runoff=3.50 cfs 0.292 af

Subcatchment OS-1: OS-1 Runoff Area=17,031 sf 85.00% Impervious Runoff Depth=4.54"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=1.73 cfs 0.148 af

Subcatchment OS-2: OS-2 Runoff Area=50,885 sf 85.00% Impervious Runoff Depth=4.54"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=5.17 cfs 0.442 af

Reach 2R: Weymouth Street Sewer Inflow=3.31 cfs 0.412 af
Outflow=3.31 cfs 0.412 af

Reach 3R: Offsite Forest Street Inflow=0.73 cfs 0.016 af
Outflow=0.73 cfs 0.016 af

Reach 15R: Inflow=2.41 cfs 0.027 af
Outflow=2.41 cfs 0.027 af

Reach 110: Avg. Flow Depth=0.61' Max Vel=4.27 fps Inflow=1.41 cfs 0.118 af
8.0" Round Pipe n=0.012 L=51.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=1.39 cfs 0.118 af

Reach 115: Avg. Flow Depth=1.15' Max Vel=5.72 fps Inflow=6.64 cfs 0.558 af
15.0" Round Pipe n=0.012 L=67.0' S=0.0078 '/' Capacity=6.17 cfs Outflow=6.57 cfs 0.558 af

Reach 118: Avg. Flow Depth=0.71' Max Vel=11.58 fps Inflow=9.50 cfs 0.805 af
18.0" Round Pipe n=0.012 L=90.0' S=0.0340 '/' Capacity=20.98 cfs Outflow=9.46 cfs 0.805 af

Reach 125: Avg. Flow Depth=0.54' Max Vel=6.84 fps Inflow=2.96 cfs 0.248 af
12.0" Round Pipe n=0.012 L=79.0' S=0.0182 '/' Capacity=5.21 cfs Outflow=2.95 cfs 0.248 af

Reach 128: Avg. Flow Depth=1.00' Max Vel=3.87 fps Inflow=2.95 cfs 0.248 af
12.0" Round Pipe n=0.012 L=71.0' S=0.0048 '/' Capacity=2.67 cfs Outflow=2.79 cfs 0.248 af

Reach 135: Avg. Flow Depth=0.32' Max Vel=10.11 fps Inflow=1.70 cfs 0.273 af
8.0" Round Pipe n=0.012 L=225.0' S=0.0747 '/' Capacity=3.58 cfs Outflow=1.69 cfs 0.273 af

Reach 171: Avg. Flow Depth=0.35' Max Vel=17.93 fps Inflow=5.15 cfs 0.430 af
15.0" Round Pipe n=0.012 L=31.0' S=0.1755 '/' Capacity=29.32 cfs Outflow=5.14 cfs 0.430 af

Reach 172: Avg. Flow Depth=0.48' Max Vel=19.67 fps Inflow=8.62 cfs 0.722 af
15.0" Round Pipe n=0.012 L=38.0' S=0.1518 '/' Capacity=27.27 cfs Outflow=8.61 cfs 0.722 af

Reach 181: Avg. Flow Depth=0.46' Max Vel=9.79 fps Inflow=3.50 cfs 0.292 af
12.0" Round Pipe n=0.012 L=104.0' S=0.0425 '/' Capacity=7.96 cfs Outflow=3.48 cfs 0.292 af

Reach 210: Avg. Flow Depth=0.55' Max Vel=7.22 fps Inflow=3.21 cfs 0.268 af
12.0" Round Pipe n=0.012 L=66.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=3.20 cfs 0.268 af

Reach 215: Avg. Flow Depth=0.61' Max Vel=4.07 fps Inflow=2.06 cfs 0.172 af
12.0" Round Pipe n=0.013 L=52.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=2.04 cfs 0.172 af

Reach 216R: Avg. Flow Depth=0.52' Max Vel=22.00 fps Inflow=9.15 cfs 0.678 af
12.0" Round Pipe n=0.013 L=12.0' S=0.2267 '/' Capacity=16.96 cfs Outflow=9.15 cfs 0.678 af

Reach 220: Avg. Flow Depth=0.76' Max Vel=10.44 fps Inflow=9.46 cfs 0.805 af
18.0" Round Pipe n=0.012 L=218.0' S=0.0259 '/' Capacity=18.30 cfs Outflow=9.32 cfs 0.805 af

Reach 230: Avg. Flow Depth=0.48' Max Vel=22.44 fps Inflow=10.92 cfs 0.926 af
18.0" Round Pipe n=0.012 L=87.0' S=0.1884 '/' Capacity=49.39 cfs Outflow=10.89 cfs 0.926 af

Reach 240: Avg. Flow Depth=0.78' Max Vel=26.27 fps Inflow=24.37 cfs 1.935 af
18.0" Round Pipe n=0.012 L=100.0' S=0.1612 '/' Capacity=45.69 cfs Outflow=24.31 cfs 1.935 af

Reach 260: Avg. Flow Depth=0.93' Max Vel=17.11 fps Inflow=24.31 cfs 1.935 af
24.0" Round Pipe n=0.012 L=48.0' S=0.0515 '/' Capacity=55.59 cfs Outflow=24.27 cfs 1.935 af

Reach 410: Avg. Flow Depth=0.90' Max Vel=4.02 fps Inflow=2.96 cfs 0.247 af
12.0" Round Pipe n=0.012 L=35.0' S=0.0051 '/' Capacity=2.77 cfs Outflow=2.94 cfs 0.247 af

Reach 510: Avg. Flow Depth=0.55' Max Vel=23.28 fps Inflow=13.59 cfs 1.009 af
18.0" Round Pipe n=0.012 L=62.0' S=0.1768 '/' Capacity=47.85 cfs Outflow=13.57 cfs 1.009 af

Reach 810: Avg. Flow Depth=0.32' Max Vel=18.26 fps Inflow=3.97 cfs 0.288 af
12.0" Round Pipe n=0.012 L=210.0' S=0.2129 '/' Capacity=17.81 cfs Outflow=3.94 cfs 0.288 af

Reach 820: Avg. Flow Depth=0.39' Max Vel=13.96 fps Inflow=3.94 cfs 0.288 af
12.0" Round Pipe n=0.012 L=164.0' S=0.1020 '/' Capacity=12.32 cfs Outflow=3.91 cfs 0.288 af

Pond 2P: Peak Elev=107.53' Storage=7 cf Inflow=1.38 cfs 0.101 af
18.0" Round Culvert n=0.011 L=50.0' S=0.0100 '/' Outflow=1.38 cfs 0.101 af

Pond 3P: Inflow=1.63 cfs 0.121 af
Primary=1.63 cfs 0.121 af

Pond 5P: Inflow=13.59 cfs 1.009 af
Primary=13.59 cfs 1.009 af

Pond 6P: Inflow=1.20 cfs 0.089 af
Primary=1.20 cfs 0.089 af

Pond 7P: Inflow=5.25 cfs 0.390 af
Primary=5.25 cfs 0.390 af

Pond 8P: Inflow=3.97 cfs 0.288 af
Primary=3.97 cfs 0.288 af

Pond 10P: Inflow=4.07 cfs 0.358 af
Primary=4.07 cfs 0.358 af

Pond 11P: Inflow=1.41 cfs 0.118 af
Primary=1.41 cfs 0.118 af

Pond 12P: Inflow=2.96 cfs 0.248 af
Primary=2.96 cfs 0.248 af

Pond 13.5P: CB 13796 Peak Elev=43.21' Inflow=6.05 cfs 0.218 af
Primary=3.64 cfs 0.190 af Secondary=2.41 cfs 0.027 af Outflow=6.05 cfs 0.218 af

Pond 13P: CB at Parking Garage Entrance Peak Elev=66.50' Inflow=5.84 cfs 0.351 af
Primary=1.70 cfs 0.273 af Secondary=4.14 cfs 0.077 af Outflow=5.84 cfs 0.351 af

Pond CB-63: Peak Elev=66.15' Storage=81 cf Inflow=9.16 cfs 0.678 af
12.0" Round Culvert n=0.012 L=10.0' S=0.1340 '/' Outflow=9.15 cfs 0.678 af

Pond DMH 20: Peak Elev=40.41' Inflow=5.76 cfs 0.345 af
12.0" Round Culvert n=0.010 L=20.0' S=0.1295 '/' Outflow=5.76 cfs 0.345 af

Pond hil-01: Inflow=3.50 cfs 0.292 af
Primary=3.50 cfs 0.292 af

Pond hil-02: Inflow=24.31 cfs 1.935 af
Primary=24.31 cfs 1.935 af

Pond OS-1.: CB Peak Elev=55.29' Inflow=1.73 cfs 0.148 af
Primary=1.00 cfs 0.132 af Secondary=0.73 cfs 0.016 af Outflow=1.73 cfs 0.148 af

Pond OS-2.: CB 16258 Peak Elev=83.68' Inflow=5.17 cfs 0.442 af
Primary=3.31 cfs 0.412 af Secondary=1.86 cfs 0.030 af Outflow=5.17 cfs 0.442 af

Pond SMH 1: esmh-13952 Peak Elev=46.82' Inflow=10.28 cfs 0.995 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0660 '/' Outflow=10.28 cfs 0.995 af

Pond SMH-13932: esmh-13932 Peak Elev=43.13' Inflow=11.23 cfs 1.128 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0587 '/' Outflow=11.23 cfs 1.128 af

Pond SMH-20: Inflow=8.62 cfs 0.722 af
Primary=8.62 cfs 0.722 af

Link SP-C1: Inflow=3.31 cfs 0.242 af
Primary=3.31 cfs 0.242 af

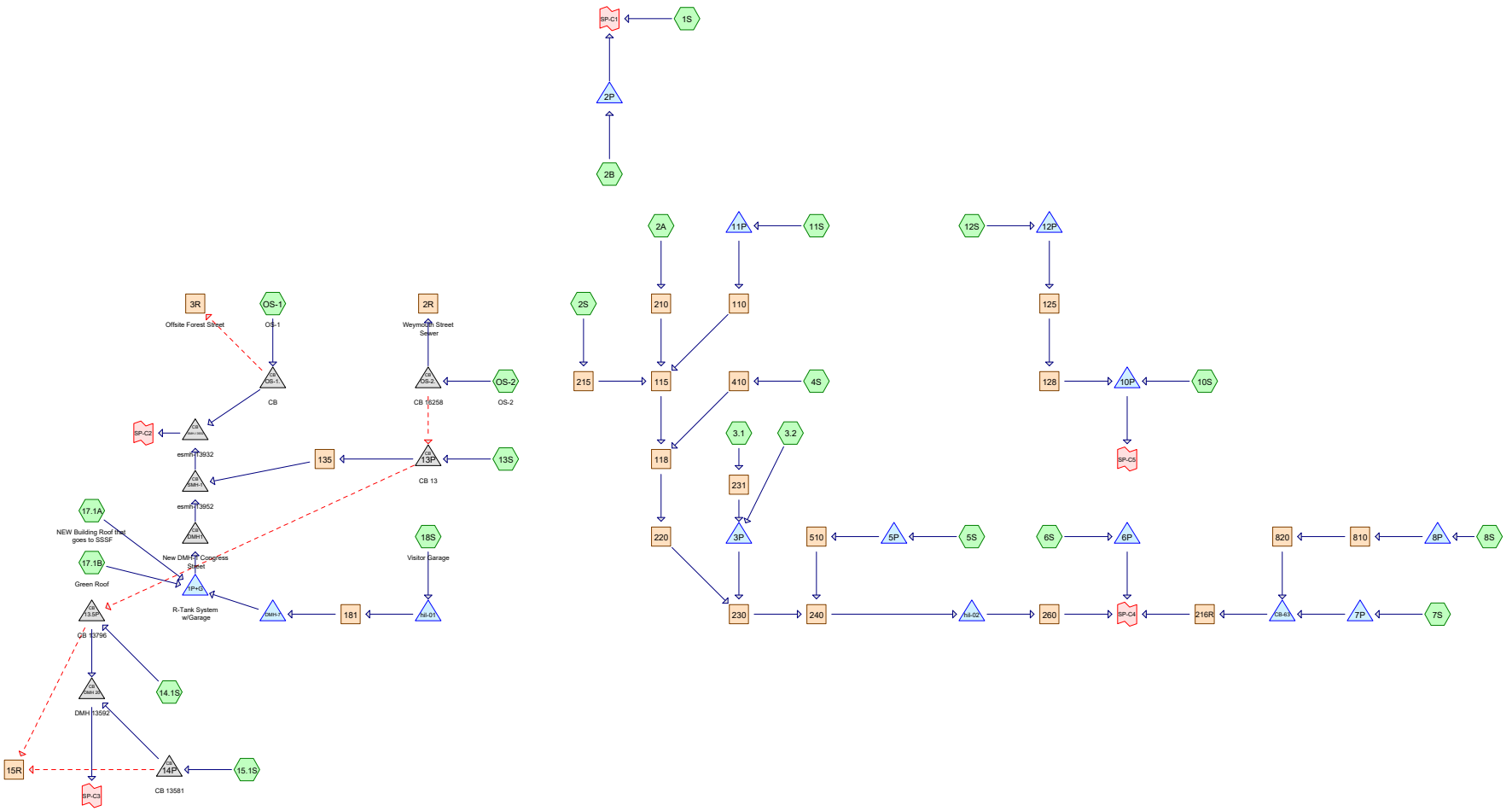
Link SP-C2: Inflow=11.23 cfs 1.128 af
Primary=11.23 cfs 1.128 af

Link SP-C3: Inflow=5.76 cfs 0.345 af
Primary=5.76 cfs 0.345 af

Link SP-C4: Inflow=34.61 cfs 2.702 af
Primary=34.61 cfs 2.702 af

Link SP-C5: Inflow=4.07 cfs 0.358 af
Primary=4.07 cfs 0.358 af

Total Runoff Area = 15.783 ac Runoff Volume = 5.230 af Average Runoff Depth = 3.98"
26.42% Pervious = 4.170 ac 73.58% Impervious = 11.613 ac



Subcat Reach Pond Link

Routing Diagram for 15466 - Congress CD Post Dev 20181025

Prepared by {enter your company name here}, Printed 10/30/2018

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.026	39	>75% Grass cover, Good, HSG A (1S, 2B, 2S, 3.1, 3.2, 5S, 6S, 8S, 10S, 14.1S, 15.1S)
0.276	86	Green roof (no Walkways) (17.1B)
6.639	98	Paved parking (1S, 2A, 2B, 2S, 3.1, 3.2, 4S, 5S, 6S, 7S, 8S, 10S, 11S, 12S, 13S, 14.1S, 15.1S, 18S)
0.028	98	Paved parking & roofs (17.1A)
3.260	98	Roofs (2S, 5S, 6S, 8S, 10S, 17.1A, 17.1B)
1.998	89	Urban commercial, 85% imp, HSG A (13S, OS-1, OS-2)
0.039	98	Walkways (17.1B)
1.517	43	Woods/grass comb., Fair, HSG A (7S, 8S, 13S)
15.783	**84**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=19,446 sf 73.39% Impervious Runoff Depth=0.11"
Flow Length=229' Tc=6.0 min CN=82 Runoff=0.03 cfs 0.004 af

Subcatchment2A: Runoff Area=25,217 sf 100.00% Impervious Runoff Depth=0.79"
Flow Length=142' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=0.50 cfs 0.038 af

Subcatchment2B: Runoff Area=13,868 sf 73.07% Impervious Runoff Depth=0.11"
Flow Length=284' Tc=6.0 min CN=82 Runoff=0.02 cfs 0.003 af

Subcatchment2S: Runoff Area=16,157 sf 86.26% Impervious Runoff Depth=0.32"
Flow Length=244' Tc=6.0 min CN=90 Runoff=0.13 cfs 0.010 af

Subcatchment3.1: Runoff Area=10,051 sf 83.47% Impervious Runoff Depth=0.25"
Flow Length=250' Tc=6.0 min CN=88 Runoff=0.06 cfs 0.005 af

Subcatchment3.2: Runoff Area=4,089 sf 68.18% Impervious Runoff Depth=0.07"
Flow Length=66' Slope=0.0250 '/' Tc=6.0 min CN=79 Runoff=0.00 cfs 0.001 af

Subcatchment4S: Runoff Area=23,249 sf 100.00% Impervious Runoff Depth=0.79"
Flow Length=160' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=0.46 cfs 0.035 af

Subcatchment5S: Runoff Area=125,028 sf 78.87% Impervious Runoff Depth=0.20"
Flow Length=510' Tc=6.0 min CN=86 Runoff=0.53 cfs 0.047 af

Subcatchment6S: Runoff Area=11,085 sf 79.41% Impervious Runoff Depth=0.20"
Flow Length=121' Tc=6.0 min CN=86 Runoff=0.05 cfs 0.004 af

Subcatchment7S: Runoff Area=92,296 sf 39.10% Impervious Runoff Depth=0.00"
Flow Length=634' Tc=6.0 min CN=65 Runoff=0.00 cfs 0.000 af

Subcatchment8S: Runoff Area=45,533 sf 63.76% Impervious Runoff Depth=0.05"
Flow Length=399' Tc=6.0 min CN=77 Runoff=0.01 cfs 0.004 af

Subcatchment10S: Runoff Area=37,247 sf 30.36% Impervious Runoff Depth=0.00"
Flow Length=326' Tc=6.0 min CN=57 Runoff=0.00 cfs 0.000 af

Subcatchment11S: Runoff Area=11,050 sf 100.00% Impervious Runoff Depth=0.79"
Flow Length=90' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment12S: Runoff Area=23,268 sf 100.00% Impervious Runoff Depth=0.79"
Flow Length=200' Tc=6.0 min CN=98 Runoff=0.46 cfs 0.035 af

Subcatchment13S: Runoff Area=36,014 sf 85.62% Impervious Runoff Depth=0.32"
Flow Length=196' Tc=6.2 min CN=90 Runoff=0.29 cfs 0.022 af

Subcatchment14.1S: Runoff Area=22,477 sf 88.74% Impervious Runoff Depth=0.36"
Flow Length=325' Tc=6.0 min CN=91 Runoff=0.21 cfs 0.015 af

Subcatchment 15.1S: Runoff Area=18,644 sf 56.89% Impervious Runoff Depth=0.02"
Flow Length=383' Tc=6.0 min CN=73 Runoff=0.00 cfs 0.001 af

Subcatchment 17.1A: NEW Building Roof Runoff Area=43,616 sf 100.00% Impervious Runoff Depth=0.79"
Tc=6.0 min CN=98 Runoff=0.87 cfs 0.066 af

Subcatchment 17.1B: Green Roof Runoff Area=14,879 sf 19.06% Impervious Runoff Depth=0.25"
Flow Length=188' Tc=6.0 min CN=88 Runoff=0.09 cfs 0.007 af

Subcatchment 18S: Visitor Garage Runoff Area=26,386 sf 100.00% Impervious Runoff Depth=0.79"
Flow Length=264' Tc=6.0 min CN=98 Runoff=0.53 cfs 0.040 af

Subcatchment OS-1: OS-1 Runoff Area=17,031 sf 85.00% Impervious Runoff Depth=0.28"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=0.10 cfs 0.009 af

Subcatchment OS-2: OS-2 Runoff Area=50,885 sf 85.00% Impervious Runoff Depth=0.28"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=0.31 cfs 0.028 af

Reach 2R: Weymouth Street Sewer Inflow=0.31 cfs 0.028 af
Outflow=0.31 cfs 0.028 af

Reach 3R: Offsite Forest Street Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 15R: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 110: Avg. Flow Depth=0.19' Max Vel=2.79 fps Inflow=0.22 cfs 0.017 af
8.0" Round Pipe n=0.012 L=51.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.22 cfs 0.017 af

Reach 115: Avg. Flow Depth=0.31' Max Vel=3.52 fps Inflow=0.84 cfs 0.065 af
15.0" Round Pipe n=0.012 L=67.0' S=0.0078 '/' Capacity=6.17 cfs Outflow=0.83 cfs 0.065 af

Reach 118: Avg. Flow Depth=0.25' Max Vel=6.58 fps Inflow=1.29 cfs 0.100 af
18.0" Round Pipe n=0.012 L=90.0' S=0.0340 '/' Capacity=20.98 cfs Outflow=1.28 cfs 0.100 af

Reach 125: Avg. Flow Depth=0.20' Max Vel=4.10 fps Inflow=0.46 cfs 0.035 af
12.0" Round Pipe n=0.012 L=79.0' S=0.0182 '/' Capacity=5.21 cfs Outflow=0.46 cfs 0.035 af

Reach 128: Avg. Flow Depth=0.28' Max Vel=2.54 fps Inflow=0.46 cfs 0.035 af
12.0" Round Pipe n=0.012 L=71.0' S=0.0048 '/' Capacity=2.67 cfs Outflow=0.45 cfs 0.035 af

Reach 135: Avg. Flow Depth=0.13' Max Vel=6.13 fps Inflow=0.29 cfs 0.022 af
8.0" Round Pipe n=0.012 L=225.0' S=0.0747 '/' Capacity=3.58 cfs Outflow=0.28 cfs 0.022 af

Reach 181: Avg. Flow Depth=0.30' Max Vel=2.69 fps Inflow=0.53 cfs 0.040 af
12.0" Round Pipe n=0.012 L=60.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=0.52 cfs 0.040 af

Reach 210: Avg. Flow Depth=0.21' Max Vel=4.34 fps Inflow=0.50 cfs 0.038 af
12.0" Round Pipe n=0.012 L=66.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=0.50 cfs 0.038 af

Reach 215: Avg. Flow Depth=0.14' Max Vel=1.89 fps Inflow=0.13 cfs 0.010 af
12.0" Round Pipe n=0.013 L=52.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=0.13 cfs 0.010 af

Reach 216R: Avg. Flow Depth=0.02' Max Vel=3.12 fps Inflow=0.01 cfs 0.004 af
12.0" Round Pipe n=0.013 L=12.0' S=0.2267 '/' Capacity=16.96 cfs Outflow=0.01 cfs 0.004 af

Reach 220: Avg. Flow Depth=0.27' Max Vel=5.93 fps Inflow=1.28 cfs 0.100 af
18.0" Round Pipe n=0.012 L=218.0' S=0.0259 '/' Capacity=18.30 cfs Outflow=1.23 cfs 0.100 af

Reach 230: Avg. Flow Depth=0.17' Max Vel=11.91 fps Inflow=1.29 cfs 0.105 af
18.0" Round Pipe n=0.012 L=87.0' S=0.1884 '/' Capacity=49.39 cfs Outflow=1.28 cfs 0.105 af

Reach 231: Inflow=0.06 cfs 0.005 af
Outflow=0.06 cfs 0.005 af

Reach 240: Avg. Flow Depth=0.20' Max Vel=12.45 fps Inflow=1.80 cfs 0.153 af
18.0" Round Pipe n=0.012 L=100.0' S=0.1612 '/' Capacity=45.69 cfs Outflow=1.78 cfs 0.153 af

Reach 260: Avg. Flow Depth=0.25' Max Vel=8.04 fps Inflow=1.78 cfs 0.153 af
24.0" Round Pipe n=0.012 L=48.0' S=0.0515 '/' Capacity=55.59 cfs Outflow=1.77 cfs 0.153 af

Reach 410: Avg. Flow Depth=0.28' Max Vel=2.62 fps Inflow=0.46 cfs 0.035 af
12.0" Round Pipe n=0.012 L=35.0' S=0.0051 '/' Capacity=2.77 cfs Outflow=0.46 cfs 0.035 af

Reach 510: Avg. Flow Depth=0.11' Max Vel=8.95 fps Inflow=0.53 cfs 0.047 af
18.0" Round Pipe n=0.012 L=62.0' S=0.1768 '/' Capacity=47.85 cfs Outflow=0.52 cfs 0.047 af

Reach 810: Avg. Flow Depth=0.02' Max Vel=3.26 fps Inflow=0.01 cfs 0.004 af
12.0" Round Pipe n=0.012 L=210.0' S=0.2129 '/' Capacity=17.81 cfs Outflow=0.01 cfs 0.004 af

Reach 820: Avg. Flow Depth=0.02' Max Vel=2.55 fps Inflow=0.01 cfs 0.004 af
12.0" Round Pipe n=0.012 L=164.0' S=0.1020 '/' Capacity=12.32 cfs Outflow=0.01 cfs 0.004 af

Pond 1P+G: R-Tank System w/Garage Peak Elev=50.62' Storage=4,017 cf Inflow=1.48 cfs 0.113 af
Outflow=0.04 cfs 0.027 af

Pond 2P: Peak Elev=107.03' Storage=0 cf Inflow=0.02 cfs 0.003 af
18.0" Round Culvert n=0.011 L=50.0' S=0.0100 '/' Outflow=0.02 cfs 0.003 af

Pond 3P: Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af

Pond 5P: Inflow=0.53 cfs 0.047 af
Primary=0.53 cfs 0.047 af

Pond 6P: Inflow=0.05 cfs 0.004 af
Primary=0.05 cfs 0.004 af

Pond 7P: Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Pond 8P: Inflow=0.01 cfs 0.004 af
Primary=0.01 cfs 0.004 af

Pond 10P: Inflow=0.45 cfs 0.035 af
Primary=0.45 cfs 0.035 af

Pond 11P: Inflow=0.22 cfs 0.017 af
Primary=0.22 cfs 0.017 af

Pond 12P: Inflow=0.46 cfs 0.035 af
Primary=0.46 cfs 0.035 af

Pond 13.5P: CB 13796 Peak Elev=42.60' Inflow=0.21 cfs 0.015 af
Primary=0.21 cfs 0.015 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.015 af

Pond 13P: CB 13 Peak Elev=66.03' Inflow=0.29 cfs 0.022 af
Primary=0.29 cfs 0.022 af Secondary=0.00 cfs 0.000 af Outflow=0.29 cfs 0.022 af

Pond 14P: CB 13581 Peak Elev=42.50' Inflow=0.00 cfs 0.001 af
Primary=0.00 cfs 0.001 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

Pond CB-63: Peak Elev=59.84' Storage=1 cf Inflow=0.01 cfs 0.004 af
12.0" Round Culvert n=0.012 L=10.0' S=0.1340 '/' Outflow=0.01 cfs 0.004 af

Pond DMH 20: DMH 13592 Peak Elev=37.81' Inflow=0.21 cfs 0.016 af
12.0" Round Culvert n=0.010 L=20.0' S=0.1295 '/' Outflow=0.21 cfs 0.016 af

Pond DMH-7: Inflow=0.52 cfs 0.040 af
Primary=0.52 cfs 0.040 af

Pond DMH1: New DMH-1 Congress Street Peak Elev=45.77' Inflow=0.04 cfs 0.027 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=0.04 cfs 0.027 af

Pond hil-01: Inflow=0.53 cfs 0.040 af
Primary=0.53 cfs 0.040 af

Pond hil-02: Inflow=1.78 cfs 0.153 af
Primary=1.78 cfs 0.153 af

Pond OS-1.: CB Peak Elev=55.05' Inflow=0.10 cfs 0.009 af
Primary=0.10 cfs 0.009 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.009 af

Pond OS-2.: CB 16258 Peak Elev=83.13' Inflow=0.31 cfs 0.028 af
Primary=0.31 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.028 af

Pond SMH-1: esmh-13952 Peak Elev=44.84' Inflow=0.28 cfs 0.049 af
18.0" Round Culvert n=0.012 L=41.0' S=0.0724 '/' Outflow=0.28 cfs 0.049 af

Pond SMH-13932: esmh-13932 Peak Elev=40.90' Inflow=0.37 cfs 0.059 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0587 '/' Outflow=0.37 cfs 0.059 af

Link SP-C1: Inflow=0.05 cfs 0.007 af
Primary=0.05 cfs 0.007 af

Link SP-C2: Inflow=0.37 cfs 0.059 af
Primary=0.37 cfs 0.059 af

Link SP-C3: Inflow=0.21 cfs 0.016 af
Primary=0.21 cfs 0.016 af

Link SP-C4: Inflow=1.82 cfs 0.161 af
Primary=1.82 cfs 0.161 af

Link SP-C5: Inflow=0.45 cfs 0.035 af
Primary=0.45 cfs 0.035 af

Total Runoff Area = 15.783 ac Runoff Volume = 0.392 af Average Runoff Depth = 0.30"
26.10% Pervious = 4.119 ac 73.90% Impervious = 11.664 ac

Summary for Subcatchment 1S:

Runoff = 0.03 cfs @ 12.16 hrs, Volume= 0.004 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	14,272	98	Paved parking
	5,174	39	>75% Grass cover, Good, HSG A
	19,446	82	Weighted Average
	5,174		26.61% Pervious Area
	14,272		73.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	40	0.0500	0.20		**Sheet Flow, SHEET A TO B** Grass: Short n= 0.150 P2= 3.00"
0.2	33	0.0500	3.35		**Shallow Concentrated Flow, SHALLOW B TO C** Grassed Waterway Kv= 15.0 fps
0.3	82	0.0420	4.16		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
0.1	74	0.0500	10.99	8.63	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.0					**Direct Entry, DIRECT**
6.0	229	Total			

Summary for Subcatchment 2A:

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	25,217	98	Paved parking
	25,217		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.60		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
1.3	112	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
3.9					**Direct Entry, DIRECT**
6.0	142	Total			

Summary for Subcatchment 2B:

Runoff = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	10,133	98	Paved parking
	3,735	39	>75% Grass cover, Good, HSG A
	13,868	82	Weighted Average
	3,735		26.93% Pervious Area
	10,133		73.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.79		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	123	0.0380	3.96		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
2.0	131	0.0005	1.10	0.86	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.9					**Direct Entry, DIRECT**
6.0	284	Total			

Summary for Subcatchment 2S:

Runoff = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	11,481	98	Paved parking
	2,220	39	>75% Grass cover, Good, HSG A
*	2,456	98	Roofs
	16,157	90	Weighted Average
	2,220		13.74% Pervious Area
	13,937		86.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	30	0.0180	1.00		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	78	0.0370	3.90		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.4	136	0.0107	5.08	3.99	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
4.8					**Direct Entry, DIRECT**
6.0	244	Total			

Summary for Subcatchment 3.1:

Runoff = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	1,661	39	>75% Grass cover, Good, HSG A
*	8,390	98	Paved parking
	10,051	88	Weighted Average
	1,661		16.53% Pervious Area
	8,390		83.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0250	1.14		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.6	220	0.0810	5.78		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
5.0					**Direct Entry, DIRECT**
6.0	250	Total			

Summary for Subcatchment 3.2:

Runoff = 0.00 cfs @ 12.36 hrs, Volume= 0.001 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	2,788	98	Paved parking
	1,301	39	>75% Grass cover, Good, HSG A
	4,089	79	Weighted Average
	1,301		31.82% Pervious Area
	2,788		68.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	66	0.0250	1.34		**Sheet Flow, SHEET A TO B**
					Smooth surfaces n= 0.011 P2= 3.00"
5.2					**Direct Entry, DIRECT**
6.0	66	Total			

Summary for Subcatchment 4S:

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	23,249	98	Paved parking
	23,249		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	50	0.0050	0.67		**Sheet Flow, SHEET A TO B**
					Smooth surfaces n= 0.011 P2= 3.00"
1.3	110	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C**
					Paved Kv= 20.3 fps
3.4					**Direct Entry, DIRECT**
6.0	160	Total			

Summary for Subcatchment 5S:

Runoff = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	25,085	98	Paved parking
	26,415	39	>75% Grass cover, Good, HSG A
*	73,528	98	Roofs
	125,028	86	Weighted Average
	26,415		21.13% Pervious Area
	98,613		78.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	35	0.0050	0.62		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
2.2	355	0.0050	2.65	0.93	**Pipe Channel, PIPE B TO C** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.1	35	0.0300	8.51	6.69	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.2	85	0.0160	6.22	4.88	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
2.6					**Direct Entry, DIRECT**
6.0	510	Total			

Summary for Subcatchment 6S:

Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af, Depth= 0.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	2,282	39	>75% Grass cover, Good, HSG A
*	501	98	Paved parking
*	8,302	98	Roofs
	11,085	86	Weighted Average
	2,282		20.59% Pervious Area
	8,803		79.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	30	0.0100	0.79		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	64	0.0100	3.75	1.31	**Pipe Channel, PIPE B TO C (ROOF DRAIN)** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
0.0	27	0.0740	10.20	3.56	**Pipe Channel, PIPE C TO D** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
5.1					**Direct Entry, DIRECT**
6.0	121	Total			

Summary for Subcatchment 7S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	36,084	98	Paved parking
	56,212	43	Woods/grass comb., Fair, HSG A
	92,296	65	Weighted Average
	56,212		60.90% Pervious Area
	36,084		39.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	75	0.0400	1.66		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	78	0.0180	2.72		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.7	219	0.0590	4.93		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
0.2	72	0.0970	6.32		**Shallow Concentrated Flow, SHALLOW D TO E** Paved Kv= 20.3 fps
0.2	190	0.1020	15.70	12.33	**Pipe Channel, PIPE E TO F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.6					**Direct Entry, DIRECT**
6.0	634	Total			

Summary for Subcatchment 8S:

Runoff = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	16,895	98	Paved parking
	7,542	43	Woods/grass comb., Fair, HSG A
	8,958	39	>75% Grass cover, Good, HSG A
*	12,138	98	Roofs
	45,533	77	Weighted Average
	16,500		36.24% Pervious Area
	29,033		63.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	40	0.0050	0.64		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	93	0.0100	4.91	3.86	**Pipe Channel, PIPE B TO C** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.5	135	0.0100	4.91	3.86	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.4	131	0.0100	4.91	3.86	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
3.8					**Direct Entry, DIRECT**
6.0	399	Total			

Summary for Subcatchment 10S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	25,937	39	>75% Grass cover, Good, HSG A
*	9,276	98	Paved parking
*	2,034	98	Roofs
	37,247	57	Weighted Average
	25,937		69.64% Pervious Area
	11,310		30.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0400	1.38		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.1	37	0.0540	4.72		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.4	75	0.0200	2.87		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
0.3	113	0.0210	7.12	5.59	**Pipe Channel, PIPE D TO E** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
0.3	71	0.0050	3.47	2.73	**Pipe Channel, PIPE E TO F** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
4.5					**Direct Entry, DIRECT**
6.0	326	Total			

Summary for Subcatchment 11S:

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	11,050	98	Paved parking
	11,050		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.60		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.7	60	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
4.5					**Direct Entry, DIRECT**
6.0	90	Total			

Summary for Subcatchment 12S:

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	23,268	98	Paved parking
	23,268		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	30	0.0050	0.60		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.9	80	0.0050	1.44		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.4	90	0.0100	3.75	1.31	**Pipe Channel, PIPE C TO D** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
3.9					**Direct Entry, DIRECT**
6.0	200	Total			

Summary for Subcatchment 13S:

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	14,571	98	Paved parking
	2,309	43	Woods/grass comb., Fair, HSG A
	19,134	89	Urban commercial, 85% imp, HSG A
	36,014	90	Weighted Average
	5,179		14.38% Pervious Area
	30,835		85.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	40	0.1000	0.12		**Sheet Flow, SHEET A TO B** Woods: Light underbrush n= 0.400 P2= 3.00"
0.2	51	0.6400	4.00		**Shallow Concentrated Flow, SHALLOW B TO C** Woodland Kv= 5.0 fps
0.4	105	0.0420	4.16		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
6.2	196	Total			

Summary for Subcatchment 14.1S:

Runoff = 0.21 cfs @ 12.10 hrs, Volume= 0.015 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	19,947	98	Paved parking
	2,530	39	>75% Grass cover, Good, HSG A
	22,477	91	Weighted Average
	2,530		11.26% Pervious Area
	19,947		88.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	30	0.0500	1.51		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
1.4	295	0.0320	3.63		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
4.3					**Direct Entry, DIRECT ENTRY**
6.0	325	Total			

Summary for Subcatchment 15.1S:

Runoff = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
	8,038	39	>75% Grass cover, Good, HSG A
*	10,606	98	Paved parking
	18,644	73	Weighted Average
	8,038		43.11% Pervious Area
	10,606		56.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	18	0.2770	0.33		**Sheet Flow, SHEET A TO B** Grass: Short n= 0.150 P2= 3.00"
0.4	170	0.1920	6.57		**Shallow Concentrated Flow, SHALLOW B TO C** Grassed Waterway Kv= 15.0 fps
0.6	195	0.0760	5.60		**Shallow Concentrated Flow, SHALLOW C TO D** Paved Kv= 20.3 fps
4.1					**Direct Entry, DIRECT**
6.0	383	Total			

Summary for Subcatchment 17.1A: NEW Building Roof that goes to SSSF

Runoff = 0.87 cfs @ 12.09 hrs, Volume= 0.066 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	1,202	98	Paved parking & roofs
*	42,414	98	Roofs
	43,616	98	Weighted Average
	43,616		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17.1B: Green Roof

Runoff = 0.09 cfs @ 12.10 hrs, Volume= 0.007 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	12,043	86	Green roof (no Walkways)
*	1,692	98	Walkways
*	1,144	98	Roofs
	14,879	88	Weighted Average
	12,043		80.94% Pervious Area
	2,836		19.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.1	14	0.0100	2.03		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.1	134	0.1600	15.00	5.24	**Pipe Channel, PIPE C TO D** 8.0" Round Area= 0.3 sf Perim= 2.1' r= 0.17' n= 0.012
5.0					**Direct Entry, DIRECT**
6.0	188	Total			

Summary for Subcatchment 18S: Visitor Garage

Runoff = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

	Area (sf)	CN	Description
*	26,386	98	Paved parking
	26,386		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	40	0.0100	0.84		**Sheet Flow, SHEET A TO B** Smooth surfaces n= 0.011 P2= 3.00"
0.3	141	0.2000	9.08		**Shallow Concentrated Flow, SHALLOW B TO C** Paved Kv= 20.3 fps
0.3	83	0.0110	5.15	4.05	**Pipe Channel, PIPE C TO D** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
4.6					**Direct Entry, DIRECT**
6.0	264	Total			

Summary for Subcatchment OS-1: OS-1

Runoff = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

Area (sf)	CN	Description
17,031	89	Urban commercial, 85% imp, HSG A
2,555		15.00% Pervious Area
14,476		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	60	0.0400	0.20		**Sheet Flow, Sheet flow A-B** Grass: Short n= 0.150 P2= 3.00"
0.9	180	0.0250	3.21		**Shallow Concentrated Flow, Gutter Flow B-C (Russell Street)** Paved Kv= 20.3 fps
0.7	80	0.0100	2.03		**Shallow Concentrated Flow, Gutter Flow C-D (Hill Street)** Paved Kv= 20.3 fps
1.1	375	0.0800	5.74		**Shallow Concentrated Flow, Gutter Flow D-E (Ellsworth Street)** Paved Kv= 20.3 fps
2.2	605	0.0500	4.54		**Shallow Concentrated Flow, Gutter Flow E-F (Congress Street)** Paved Kv= 20.3 fps
10.0	1,300	Total			

Summary for Subcatchment OS-2: OS-2

Runoff = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Inch Rainfall=1.00"

Area (sf)	CN	Description
50,885	89	Urban commercial, 85% imp, HSG A
7,633		15.00% Pervious Area
43,252		85.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.1	60	0.0400	0.20		**Sheet Flow, Sheet flow A-B** Grass: Short n= 0.150 P2= 3.00"
0.9	180	0.0250	3.21		**Shallow Concentrated Flow, Gutter Flow B-C (Russell Street)** Paved Kv= 20.3 fps
0.7	80	0.0100	2.03		**Shallow Concentrated Flow, Gutter Flow C-D (Hill Street)** Paved Kv= 20.3 fps
1.1	375	0.0800	5.74		**Shallow Concentrated Flow, Gutter Flow D-E (Ellsworth Street)** Paved Kv= 20.3 fps
2.2	605	0.0500	4.54		**Shallow Concentrated Flow, Gutter Flow E-F (Congress Street)** Paved Kv= 20.3 fps
10.0	1,300	Total			

Summary for Reach 2R: Weymouth Street Sewer

Inflow Area = 1.168 ac, 85.00% Impervious, Inflow Depth = 0.28" for 1-Inch event
Inflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af
Outflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Offsite Forest Street

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach 15R:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

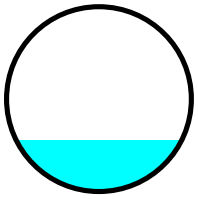
Summary for Reach 110:

Inflow Area = 0.254 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af
Outflow = 0.22 cfs @ 12.10 hrs, Volume= 0.017 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.79 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 0.9 min

Peak Storage= 4 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.31 cfs

8.0" Round Pipe
n= 0.012
Length= 51.0' Slope= 0.0100 '/'
Inlet Invert= 110.51', Outlet Invert= 110.00'



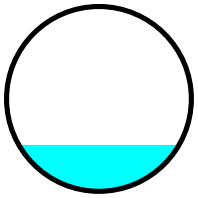
Summary for Reach 115:

Inflow Area = 1.203 ac, 95.77% Impervious, Inflow Depth = 0.65" for 1-Inch event
Inflow = 0.84 cfs @ 12.10 hrs, Volume= 0.065 af
Outflow = 0.83 cfs @ 12.11 hrs, Volume= 0.065 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.52 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.16 fps, Avg. Travel Time= 1.0 min

Peak Storage= 16 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 6.17 cfs

15.0" Round Pipe
n= 0.012
Length= 67.0' Slope= 0.0078 '/'
Inlet Invert= 110.11', Outlet Invert= 109.59'



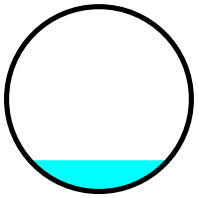
Summary for Reach 118:

Inflow Area = 1.737 ac, 97.07% Impervious, Inflow Depth = 0.69" for 1-Inch event
Inflow = 1.29 cfs @ 12.10 hrs, Volume= 0.100 af
Outflow = 1.28 cfs @ 12.11 hrs, Volume= 0.100 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.58 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.18 fps, Avg. Travel Time= 0.7 min

Peak Storage= 18 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 20.98 cfs

18.0" Round Pipe
n= 0.012
Length= 90.0' Slope= 0.0340 '/'
Inlet Invert= 109.44', Outlet Invert= 106.38'



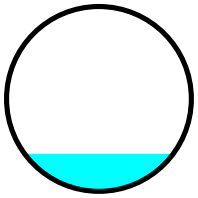
Summary for Reach 125:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.46 cfs @ 12.10 hrs, Volume= 0.035 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.10 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 1.0 min

Peak Storage= 9 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.21 cfs

12.0" Round Pipe
n= 0.012
Length= 79.0' Slope= 0.0182 '/'
Inlet Invert= 131.87', Outlet Invert= 130.43'



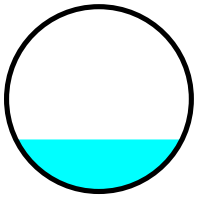
Summary for Reach 128:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.10 hrs, Volume= 0.035 af
Outflow = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.54 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 1.4 min

Peak Storage= 13 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.67 cfs

12.0" Round Pipe
n= 0.012
Length= 71.0' Slope= 0.0048 '/'
Inlet Invert= 130.40', Outlet Invert= 130.06'



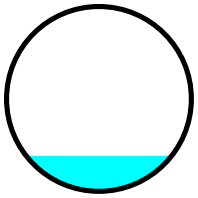
Summary for Reach 135:

Inflow Area = 0.827 ac, 85.62% Impervious, Inflow Depth = 0.32" for 1-Inch event
Inflow = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af
Outflow = 0.28 cfs @ 12.12 hrs, Volume= 0.022 af, Atten= 3%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.13 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.40 fps, Avg. Travel Time= 1.6 min

Peak Storage= 11 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 3.58 cfs

8.0" Round Pipe
n= 0.012
Length= 225.0' Slope= 0.0747 '/'
Inlet Invert= 62.69', Outlet Invert= 45.89'



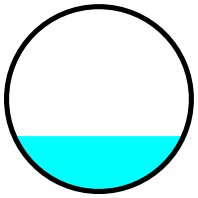
Summary for Reach 181:

Inflow Area = 0.606 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af
Outflow = 0.52 cfs @ 12.10 hrs, Volume= 0.040 af, Atten= 1%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.69 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 1.1 min

Peak Storage= 12 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012
Length= 60.0' Slope= 0.0050 '/'
Inlet Invert= 54.46', Outlet Invert= 54.16'



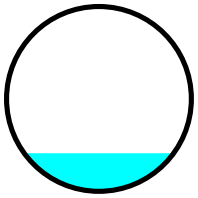
Summary for Reach 210:

Inflow Area = 0.579 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.50 cfs @ 12.09 hrs, Volume= 0.038 af
Outflow = 0.50 cfs @ 12.10 hrs, Volume= 0.038 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.34 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.43 fps, Avg. Travel Time= 0.8 min

Peak Storage= 8 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 66.0' Slope= 0.0200 '/'
Inlet Invert= 122.35', Outlet Invert= 121.03'



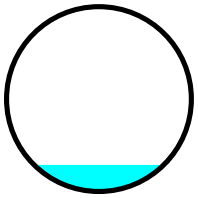
Summary for Reach 215:

Inflow Area = 0.371 ac, 86.26% Impervious, Inflow Depth = 0.32" for 1-Inch event
Inflow = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af
Outflow = 0.13 cfs @ 12.11 hrs, Volume= 0.010 af, Atten= 2%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.89 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.74 fps, Avg. Travel Time= 1.2 min

Peak Storage= 4 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.96 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 52.0' Slope= 0.0069 '/'
Inlet Invert= 121.67', Outlet Invert= 121.31'



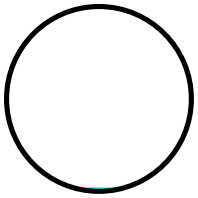
Summary for Reach 216R:

Inflow Area = 3.164 ac, 47.24% Impervious, Inflow Depth = 0.02" for 1-Inch event
Inflow = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.12 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 0.1 min

Peak Storage= 0 cf @ 12.52 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 16.96 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 12.0' Slope= 0.2267 '/'
Inlet Invert= 60.11', Outlet Invert= 57.39'



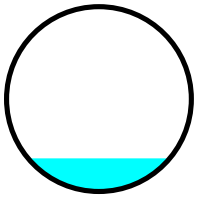
Summary for Reach 220:

Inflow Area = 1.737 ac, 97.07% Impervious, Inflow Depth = 0.69" for 1-Inch event
Inflow = 1.28 cfs @ 12.11 hrs, Volume= 0.100 af
Outflow = 1.23 cfs @ 12.13 hrs, Volume= 0.100 af, Atten= 4%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.93 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.97 fps, Avg. Travel Time= 1.8 min

Peak Storage= 47 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 18.30 cfs

18.0" Round Pipe
n= 0.012
Length= 218.0' Slope= 0.0259 '/'
Inlet Invert= 105.99', Outlet Invert= 100.35'



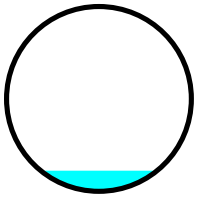
Summary for Reach 230:

Inflow Area = 2.062 ac, 94.23% Impervious, Inflow Depth = 0.61" for 1-Inch event
Inflow = 1.29 cfs @ 12.12 hrs, Volume= 0.105 af
Outflow = 1.28 cfs @ 12.13 hrs, Volume= 0.105 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.91 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.13 fps, Avg. Travel Time= 0.4 min

Peak Storage= 9 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 49.39 cfs

18.0" Round Pipe
n= 0.012
Length= 87.0' Slope= 0.1884 '/'
Inlet Invert= 100.16', Outlet Invert= 83.77'



Summary for Reach 231:

Inflow Area = 0.231 ac, 83.47% Impervious, Inflow Depth = 0.25" for 1-Inch event
Inflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af
Outflow = 0.06 cfs @ 12.10 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

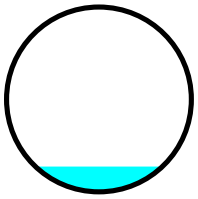
Summary for Reach 240:

Inflow Area = 4.932 ac, 85.29% Impervious, Inflow Depth = 0.37" for 1-Inch event
Inflow = 1.80 cfs @ 12.12 hrs, Volume= 0.153 af
Outflow = 1.78 cfs @ 12.13 hrs, Volume= 0.153 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.45 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.31 fps, Avg. Travel Time= 0.4 min

Peak Storage= 14 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 45.69 cfs

18.0" Round Pipe
n= 0.012
Length= 100.0' Slope= 0.1612 '/'
Inlet Invert= 67.96', Outlet Invert= 51.84'



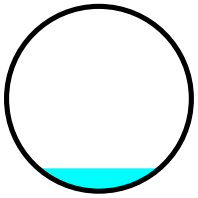
Summary for Reach 260:

Inflow Area = 4.932 ac, 85.29% Impervious, Inflow Depth = 0.37" for 1-Inch event
Inflow = 1.78 cfs @ 12.13 hrs, Volume= 0.153 af
Outflow = 1.77 cfs @ 12.13 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.04 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.79 fps, Avg. Travel Time= 0.3 min

Peak Storage= 11 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 55.59 cfs

24.0" Round Pipe
n= 0.012
Length= 48.0' Slope= 0.0515 '/'
Inlet Invert= 51.84', Outlet Invert= 49.37'



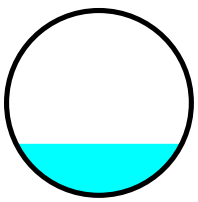
Summary for Reach 410:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.62 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 0.7 min

Peak Storage= 6 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.77 cfs

12.0" Round Pipe
n= 0.012
Length= 35.0' Slope= 0.0051 '/'
Inlet Invert= 110.68', Outlet Invert= 110.50'



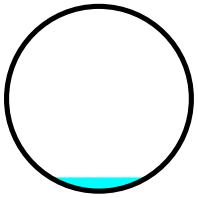
Summary for Reach 510:

Inflow Area = 2.870 ac, 78.87% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af
Outflow = 0.52 cfs @ 12.11 hrs, Volume= 0.047 af, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.95 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.94 fps, Avg. Travel Time= 0.3 min

Peak Storage= 4 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 47.85 cfs

18.0" Round Pipe
n= 0.012
Length= 62.0' Slope= 0.1768 '/'
Inlet Invert= 95.90', Outlet Invert= 84.94'



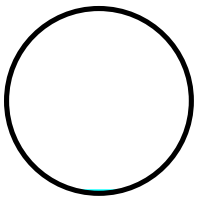
Summary for Reach 810:

Inflow Area = 1.045 ac, 63.76% Impervious, Inflow Depth = 0.05" for 1-Inch event
Inflow = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.47 hrs, Volume= 0.004 af, Atten= 1%, Lag= 1.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.26 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 1.5 min

Peak Storage= 1 cf @ 12.45 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 17.81 cfs

12.0" Round Pipe
n= 0.012
Length= 210.0' Slope= 0.2129 '/'
Inlet Invert= 120.21', Outlet Invert= 75.50'



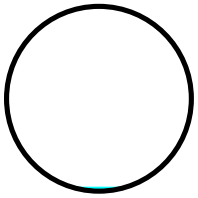
Summary for Reach 820:

Inflow Area = 1.045 ac, 63.76% Impervious, Inflow Depth = 0.05" for 1-Inch event
Inflow = 0.01 cfs @ 12.47 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.50 hrs, Volume= 0.004 af, Atten= 2%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.55 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 1.5 min

Peak Storage= 1 cf @ 12.48 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 12.32 cfs

12.0" Round Pipe
n= 0.012
Length= 164.0' Slope= 0.1020 '/'
Inlet Invert= 75.58', Outlet Invert= 58.86'



Summary for Pond 1P+G: R-Tank System w/Garage

Inflow Area = 1.949 ac, 85.81% Impervious, Inflow Depth = 0.70" for 1-Inch event
Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.113 af
Outflow = 0.04 cfs @ 15.15 hrs, Volume= 0.027 af, Atten= 98%, Lag= 183.4 min
Primary = 0.04 cfs @ 15.15 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 50.62' @ 17.15 hrs Surf.Area= 3,087 sf Storage= 4,017 cf
Flood Elev= 60.04' Surf.Area= 3,269 sf Storage= 17,041 cf

Plug-Flow detention time= 535.9 min calculated for 0.027 af (24% of inflow)
Center-of-Mass det. time= 369.5 min (1,163.5 - 794.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	50.58'	973 cf	**8.50'W x 76.37'L x 5.75'H Field A** 3,732 cf Overall - 1,300 cf Embedded = 2,432 cf x 40.0% Voids
#2A	51.33'	1,300 cf	**Cultec R-902HD** x 20 Inside #1 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
#3B	48.37'	3,779 cf	**10.56'W x 189.32'L x 8.96'H Field B** 17,906 cf Overall - 8,458 cf Embedded = 9,449 cf x 40.0% Voids
#4B	48.37'	8,035 cf	**ACF R-Tank HD 5.0** x 395 Inside #3 Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf 5 Rows of 79 Chambers
#5C	50.83'	286 cf	**8.50'W x 21.37'L x 5.75'H Field C** 1,044 cf Overall - 329 cf Embedded = 715 cf x 40.0% Voids
#6C	51.58'	329 cf	**Cultec R-902HD** x 5 Inside #5 Effective Size= 69.8"W x 48.0"H => 17.65 sf x 3.67'L = 64.7 cf Overall Size= 78.0"W x 48.0"H x 4.10'L with 0.44' Overlap Cap Storage= +2.8 cf x 2 x 1 rows = 5.5 cf
#7D	48.37'	711 cf	**10.56'W x 41.53'L x 7.96'H Field D** 3,490 cf Overall - 1,713 cf Embedded = 1,777 cf x 40.0% Voids
#8D	48.37'	1,627 cf	**ACF R-Tank HD 5.0** x 80 Inside #7 Inside= 15.7"W x 83.5"H => 8.67 sf x 2.35'L = 20.3 cf Outside= 15.7"W x 83.5"H => 9.13 sf x 2.35'L = 21.4 cf 5 Rows of 16 Chambers
		17,041 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard
Storage Group C created with Chamber Wizard
Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	45.94'	**12.0" Round Stromdrain** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.94' / 45.76' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	46.04'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Device 2	48.37'	**2.410 in/hr Filtration over Surface area above 48.37'** Excluded Surface area = 2,438 sf
#4	Device 1	51.20'	**6.0" Vert. Orifice** C= 0.600
#5	Primary	52.20'	**0.4' long x 2.00' rise Sharp-Crested Vee/Trap Weir** Cv= 2.62 (C= 3.28)
#6	Device 1	53.95'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.04 cfs @ 15.15 hrs HW=50.58' (Free Discharge)
- **1=Stromdrain** (Passes 0.04 cfs of 7.55 cfs potential flow)
  - **2=Orifice/Grate** (Passes 0.04 cfs of 0.13 cfs potential flow)
    - **3=Filtration** (Exfiltration Controls 0.04 cfs)
  - **4=Orifice** (Controls 0.00 cfs)
  - **6=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
- **5=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Summary for Pond 2P:

Inflow Area = 0.318 ac, 73.07% Impervious, Inflow Depth = 0.11" for 1-Inch event
Inflow = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af
Outflow = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.2 min
Primary = 0.02 cfs @ 12.16 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 107.03' @ 12.16 hrs Surf.Area= 13 sf Storage= 0 cf

Plug-Flow detention time= 0.3 min calculated for 0.003 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (928.3 - 928.0)

Volume	Invert	Avail.Storage	Storage Description
#1	107.00'	169 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
107.00	13	0	0
120.00	13	169	169

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 107.00' / 106.50' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 12.16 hrs HW=107.03' (Free Discharge)
1=Culvert (Barrel Controls 0.00 cfs @ 0.81 fps)

Summary for Pond 3P:

Inflow Area = 0.325 ac, 79.05% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.06 cfs @ 12.11 hrs, Volume= 0.005 af
Primary = 0.06 cfs @ 12.11 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 5P:

Inflow Area = 2.870 ac, 78.87% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af
Primary = 0.53 cfs @ 12.11 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 6P:

Inflow Area = 0.254 ac, 79.41% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af
Primary = 0.05 cfs @ 12.11 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 7P:

Inflow Area = 2.119 ac, 39.10% Impervious, Inflow Depth = 0.00" for 1-Inch event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 8P:

Inflow Area = 1.045 ac, 63.76% Impervious, Inflow Depth = 0.05" for 1-Inch event
Inflow = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af
Primary = 0.01 cfs @ 12.44 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 10P:

Inflow Area = 1.389 ac, 57.14% Impervious, Inflow Depth = 0.30" for 1-Inch event
Inflow = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af
Primary = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 11P:

Inflow Area = 0.254 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 12P:

Inflow Area = 0.534 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af
Primary = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond 13.5P: CB 13796

Inflow Area = 0.516 ac, 88.74% Impervious, Inflow Depth = 0.36" for 1-Inch event
Inflow = 0.21 cfs @ 12.10 hrs, Volume= 0.015 af
Outflow = 0.21 cfs @ 12.10 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.10 hrs, Volume= 0.015 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 42.60' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	38.86'	**10.0" Round 12" SD** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.86' / 37.64' S= 0.0813 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#2	Device 1	42.50'	**2.0' long Curb Inlet** 2 End Contraction(s)
#3	Secondary	43.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.20 cfs @ 12.10 hrs HW=42.60' (Free Discharge)
↑└**1=12" SD** (Passes 0.20 cfs of 4.79 cfs potential flow)
↑└**2=Curb Inlet** (Weir Controls 0.20 cfs @ 1.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.86' (Free Discharge)
↑└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 13P: CB 13

Inflow Area = 0.827 ac, 85.62% Impervious, Inflow Depth = 0.32" for 1-Inch event
Inflow = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af
Outflow = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.29 cfs @ 12.10 hrs, Volume= 0.022 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 66.03' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	**1.0" x 3.0" Horiz. Grate X 24.00** C= 0.600 Limited to weir flow at low heads
#2	Secondary	66.20'	**5.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.28 cfs @ 12.10 hrs HW=66.03' (Free Discharge)
└**1=Grate** (Weir Controls 0.28 cfs @ 0.58 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=66.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 14P: CB 13581

Inflow Area = 0.428 ac, 56.89% Impervious, Inflow Depth = 0.02" for 1-Inch event
Inflow = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 15.12 hrs, Volume= 0.001 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 42.50' @ 15.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	40.62'	**8.0" Round 12" SD** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.62' / 39.00' S= 0.1080 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	42.50'	**2.0' long Curb Inlet** 2 End Contraction(s)
#3	Secondary	43.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 15.12 hrs HW=42.50' (Free Discharge)
└**1=12" SD** (Passes 0.00 cfs of 2.09 cfs potential flow)
└**2=Curb Inlet** (Weir Controls 0.00 cfs @ 0.11 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=40.62' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond CB-63:

Inflow Area = 3.164 ac, 47.24% Impervious, Inflow Depth = 0.02" for 1-Inch event
Inflow = 0.01 cfs @ 12.50 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.8 min
Primary = 0.01 cfs @ 12.52 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 59.84' @ 12.52 hrs Surf.Area= 13 sf Storage= 1 cf

Plug-Flow detention time= 0.8 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (1,000.9 - 1,000.1)

Volume	Invert	Avail.Storage	Storage Description
#1	59.80'	81 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.80	13	0	0
66.00	13	81	81

Device	Routing	Invert	Outlet Devices
#1	Primary	59.80'	**12.0" Round Culvert** L= 10.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 59.80' / 58.46' S= 0.1340 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.52 hrs HW=59.84' (Free Discharge)
1=Culvert (Inlet Controls 0.01 cfs @ 0.71 fps)

Summary for Pond DMH 20: DMH 13592

Inflow Area = 0.944 ac, 74.30% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.21 cfs @ 12.10 hrs, Volume= 0.016 af
Outflow = 0.21 cfs @ 12.10 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
Primary = 0.21 cfs @ 12.10 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 37.81' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.59'	**12.0" Round 12" SD** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.59' / 35.00' S= 0.1295 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 12.10 hrs HW=37.81' (Free Discharge)
1=12" SD (Inlet Controls 0.21 cfs @ 1.60 fps)

Summary for Pond DMH-7:

Inflow Area = 0.606 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.52 cfs @ 12.10 hrs, Volume= 0.040 af
Primary = 0.52 cfs @ 12.10 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond DMH1: New DMH-1 Congress Street

Inflow Area = 1.949 ac, 85.81% Impervious, Inflow Depth = 0.17" for 1-Inch event
Inflow = 0.04 cfs @ 15.15 hrs, Volume= 0.027 af
Outflow = 0.04 cfs @ 15.15 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 15.15 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 45.77' @ 15.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	45.66'	**15.0" Round Stormdrain** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.66' / 45.64' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.04 cfs @ 15.15 hrs HW=45.77' (Free Discharge)
↑—**1=Stormdrain** (Barrel Controls 0.04 cfs @ 1.09 fps)

Summary for Pond hil-01:

Inflow Area = 0.606 ac,100.00% Impervious, Inflow Depth = 0.79" for 1-Inch event
Inflow = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af
Primary = 0.53 cfs @ 12.09 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond hil-02:

Inflow Area = 4.932 ac, 85.29% Impervious, Inflow Depth = 0.37" for 1-Inch event
Inflow = 1.78 cfs @ 12.13 hrs, Volume= 0.153 af
Primary = 1.78 cfs @ 12.13 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond OS-1.: CB

Inflow Area = 0.391 ac, 85.00% Impervious, Inflow Depth = 0.28" for 1-Inch event
Inflow = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af
Outflow = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.10 cfs @ 12.16 hrs, Volume= 0.009 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 55.05' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	45.00'	**8.0" Round Stormdrain** L= 15.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.00' / 44.44' S= 0.0373 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	55.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	55.20'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.07 cfs @ 12.16 hrs HW=55.05' (Free Discharge)
└**1=Stormdrain** (Passes 0.07 cfs of 5.24 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.07 cfs @ 0.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond OS-2.: CB 16258

Inflow Area = 1.168 ac, 85.00% Impervious, Inflow Depth = 0.28" for 1-Inch event
Inflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af
Outflow = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.16 hrs, Volume= 0.028 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 83.13' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	79.02'	**8.0" Round Stormdrain** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 79.02' / 78.25' S= 0.0220 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Device 1	83.00'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Secondary	83.50'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.30 cfs @ 12.16 hrs HW=83.13' (Free Discharge)
└**1=Stormdrain** (Passes 0.30 cfs of 3.12 cfs potential flow)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.30 cfs @ 1.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=79.02' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SMH-1: esmh-13952

Inflow Area = 2.775 ac, 85.75% Impervious, Inflow Depth = 0.21" for 1-Inch event
Inflow = 0.28 cfs @ 12.12 hrs, Volume= 0.049 af
Outflow = 0.28 cfs @ 12.12 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.28 cfs @ 12.12 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 44.84' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	44.61'	**18.0" Round Culvert** L= 41.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.61' / 41.64' S= 0.0724 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=0.27 cfs @ 12.12 hrs HW=44.84' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.27 cfs @ 1.62 fps)

Summary for Pond SMH-13932: esmh-13932

Inflow Area = 3.166 ac, 85.66% Impervious, Inflow Depth = 0.22" for 1-Inch event
Inflow = 0.37 cfs @ 12.13 hrs, Volume= 0.059 af
Outflow = 0.37 cfs @ 12.13 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 0.37 cfs @ 12.13 hrs, Volume= 0.059 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 40.90' @ 12.13 hrs
Flood Elev= 52.64'

Device	Routing	Invert	Outlet Devices
#1	Primary	40.64'	**18.0" Round Sewer** L= 45.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 40.64' / 38.00' S= 0.0587 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=0.36 cfs @ 12.13 hrs HW=40.90' (Free Discharge)
└**1=Sewer** (Inlet Controls 0.36 cfs @ 1.74 fps)

Summary for Link SP-C1:

Inflow Area = 0.765 ac, 73.26% Impervious, Inflow Depth = 0.11" for 1-Inch event
Inflow = 0.05 cfs @ 12.16 hrs, Volume= 0.007 af
Primary = 0.05 cfs @ 12.16 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C2:

Inflow Area = 3.166 ac, 85.66% Impervious, Inflow Depth = 0.22" for 1-Inch event
Inflow = 0.37 cfs @ 12.13 hrs, Volume= 0.059 af
Primary = 0.37 cfs @ 12.13 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C3:

Inflow Area = 0.944 ac, 74.30% Impervious, Inflow Depth = 0.20" for 1-Inch event
Inflow = 0.21 cfs @ 12.10 hrs, Volume= 0.016 af
Primary = 0.21 cfs @ 12.10 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C4:

Inflow Area = 8.351 ac, 70.70% Impervious, Inflow Depth = 0.23" for 1-Inch event
Inflow = 1.82 cfs @ 12.13 hrs, Volume= 0.161 af
Primary = 1.82 cfs @ 12.13 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-C5:

Inflow Area = 1.389 ac, 57.14% Impervious, Inflow Depth = 0.30" for 1-Inch event
Inflow = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af
Primary = 0.45 cfs @ 12.11 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=19,446 sf 73.39% Impervious Runoff Depth=1.46"
Flow Length=229' Tc=6.0 min CN=82 Runoff=0.75 cfs 0.054 af

Subcatchment2A: Runoff Area=25,217 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=142' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.70 cfs 0.138 af

Subcatchment2B: Runoff Area=13,868 sf 73.07% Impervious Runoff Depth=1.46"
Flow Length=284' Tc=6.0 min CN=82 Runoff=0.53 cfs 0.039 af

Subcatchment2S: Runoff Area=16,157 sf 86.26% Impervious Runoff Depth=2.08"
Flow Length=244' Tc=6.0 min CN=90 Runoff=0.88 cfs 0.064 af

Subcatchment3.1: Runoff Area=10,051 sf 83.47% Impervious Runoff Depth=1.91"
Flow Length=250' Tc=6.0 min CN=88 Runoff=0.50 cfs 0.037 af

Subcatchment3.2: Runoff Area=4,089 sf 68.18% Impervious Runoff Depth=1.26"
Flow Length=66' Slope=0.0250 '/' Tc=6.0 min CN=79 Runoff=0.13 cfs 0.010 af

Subcatchment4S: Runoff Area=23,249 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=160' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.57 cfs 0.128 af

Subcatchment5S: Runoff Area=125,028 sf 78.87% Impervious Runoff Depth=1.75"
Flow Length=510' Tc=6.0 min CN=86 Runoff=5.77 cfs 0.418 af

Subcatchment6S: Runoff Area=11,085 sf 79.41% Impervious Runoff Depth=1.75"
Flow Length=121' Tc=6.0 min CN=86 Runoff=0.51 cfs 0.037 af

Subcatchment7S: Runoff Area=92,296 sf 39.10% Impervious Runoff Depth=0.55"
Flow Length=634' Tc=6.0 min CN=65 Runoff=1.03 cfs 0.098 af

Subcatchment8S: Runoff Area=45,533 sf 63.76% Impervious Runoff Depth=1.14"
Flow Length=399' Tc=6.0 min CN=77 Runoff=1.33 cfs 0.099 af

Subcatchment10S: Runoff Area=37,247 sf 30.36% Impervious Runoff Depth=0.28"
Flow Length=326' Tc=6.0 min CN=57 Runoff=0.11 cfs 0.020 af

Subcatchment11S: Runoff Area=11,050 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=90' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=0.74 cfs 0.061 af

Subcatchment12S: Runoff Area=23,268 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=200' Tc=6.0 min CN=98 Runoff=1.57 cfs 0.128 af

Subcatchment13S: Runoff Area=36,014 sf 85.62% Impervious Runoff Depth=2.08"
Flow Length=196' Tc=6.2 min CN=90 Runoff=1.94 cfs 0.143 af

Subcatchment14.1S: Runoff Area=22,477 sf 88.74% Impervious Runoff Depth=2.16"
Flow Length=325' Tc=6.0 min CN=91 Runoff=1.26 cfs 0.093 af

Subcatchment 15.1S: Runoff Area=18,644 sf 56.89% Impervious Runoff Depth=0.92"
Flow Length=383' Tc=6.0 min CN=73 Runoff=0.42 cfs 0.033 af

Subcatchment 17.1A: NEW Building Roof Runoff Area=43,616 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=2.94 cfs 0.239 af

Subcatchment 17.1B: Green Roof Runoff Area=14,879 sf 19.06% Impervious Runoff Depth=1.91"
Flow Length=188' Tc=6.0 min CN=88 Runoff=0.75 cfs 0.054 af

Subcatchment 18S: Visitor Garage Runoff Area=26,386 sf 100.00% Impervious Runoff Depth=2.87"
Flow Length=264' Tc=6.0 min CN=98 Runoff=1.78 cfs 0.145 af

Subcatchment OS-1: OS-1 Runoff Area=17,031 sf 85.00% Impervious Runoff Depth=1.99"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=0.78 cfs 0.065 af

Subcatchment OS-2: OS-2 Runoff Area=50,885 sf 85.00% Impervious Runoff Depth=1.99"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=2.34 cfs 0.194 af

Reach 2R: Weymouth Street Sewer Inflow=2.28 cfs 0.194 af
Outflow=2.28 cfs 0.194 af

Reach 3R: Offsite Forest Street Inflow=0.13 cfs 0.001 af
Outflow=0.13 cfs 0.001 af

Reach 15R: Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 110: Avg. Flow Depth=0.36' Max Vel=3.87 fps Inflow=0.74 cfs 0.061 af
8.0" Round Pipe n=0.012 L=51.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=0.74 cfs 0.061 af

Reach 115: Avg. Flow Depth=0.65' Max Vel=5.11 fps Inflow=3.30 cfs 0.263 af
15.0" Round Pipe n=0.012 L=67.0' S=0.0078 '/' Capacity=6.17 cfs Outflow=3.27 cfs 0.263 af

Reach 118: Avg. Flow Depth=0.49' Max Vel=9.65 fps Inflow=4.83 cfs 0.391 af
18.0" Round Pipe n=0.012 L=90.0' S=0.0340 '/' Capacity=20.98 cfs Outflow=4.80 cfs 0.391 af

Reach 125: Avg. Flow Depth=0.38' Max Vel=5.80 fps Inflow=1.57 cfs 0.128 af
12.0" Round Pipe n=0.012 L=79.0' S=0.0182 '/' Capacity=5.21 cfs Outflow=1.56 cfs 0.128 af

Reach 128: Avg. Flow Depth=0.55' Max Vel=3.53 fps Inflow=1.56 cfs 0.128 af
12.0" Round Pipe n=0.012 L=71.0' S=0.0048 '/' Capacity=2.67 cfs Outflow=1.54 cfs 0.128 af

Reach 135: Avg. Flow Depth=0.29' Max Vel=9.56 fps Inflow=1.37 cfs 0.137 af
8.0" Round Pipe n=0.012 L=225.0' S=0.0747 '/' Capacity=3.58 cfs Outflow=1.36 cfs 0.137 af

Reach 181: Avg. Flow Depth=0.59' Max Vel=3.70 fps Inflow=1.78 cfs 0.145 af
12.0" Round Pipe n=0.012 L=60.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=1.76 cfs 0.145 af

Reach 210: Avg. Flow Depth=0.38' Max Vel=6.13 fps Inflow=1.70 cfs 0.138 af
12.0" Round Pipe n=0.012 L=66.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=1.69 cfs 0.138 af

Reach 215: Avg. Flow Depth=0.37' Max Vel=3.29 fps Inflow=0.88 cfs 0.064 af
12.0" Round Pipe n=0.013 L=52.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=0.87 cfs 0.064 af

Reach 216R: Avg. Flow Depth=0.25' Max Vel=15.09 fps Inflow=2.33 cfs 0.197 af
12.0" Round Pipe n=0.013 L=12.0' S=0.2267 '/' Capacity=16.96 cfs Outflow=2.33 cfs 0.197 af

Reach 220: Avg. Flow Depth=0.52' Max Vel=8.72 fps Inflow=4.80 cfs 0.391 af
18.0" Round Pipe n=0.012 L=218.0' S=0.0259 '/' Capacity=18.30 cfs Outflow=4.70 cfs 0.391 af

Reach 230: Avg. Flow Depth=0.33' Max Vel=18.24 fps Inflow=5.32 cfs 0.437 af
18.0" Round Pipe n=0.012 L=87.0' S=0.1884 '/' Capacity=49.39 cfs Outflow=5.30 cfs 0.437 af

Reach 231: Inflow=0.50 cfs 0.037 af
Outflow=0.50 cfs 0.037 af

Reach 240: Avg. Flow Depth=0.50' Max Vel=21.28 fps Inflow=11.02 cfs 0.855 af
18.0" Round Pipe n=0.012 L=100.0' S=0.1612 '/' Capacity=45.69 cfs Outflow=10.98 cfs 0.855 af

Reach 260: Avg. Flow Depth=0.60' Max Vel=13.77 fps Inflow=10.98 cfs 0.855 af
24.0" Round Pipe n=0.012 L=48.0' S=0.0515 '/' Capacity=55.59 cfs Outflow=10.95 cfs 0.855 af

Reach 410: Avg. Flow Depth=0.54' Max Vel=3.63 fps Inflow=1.57 cfs 0.128 af
12.0" Round Pipe n=0.012 L=35.0' S=0.0051 '/' Capacity=2.77 cfs Outflow=1.56 cfs 0.128 af

Reach 510: Avg. Flow Depth=0.35' Max Vel=18.27 fps Inflow=5.77 cfs 0.418 af
18.0" Round Pipe n=0.012 L=62.0' S=0.1768 '/' Capacity=47.85 cfs Outflow=5.76 cfs 0.418 af

Reach 810: Avg. Flow Depth=0.19' Max Vel=13.33 fps Inflow=1.33 cfs 0.099 af
12.0" Round Pipe n=0.012 L=210.0' S=0.2129 '/' Capacity=17.81 cfs Outflow=1.32 cfs 0.099 af

Reach 820: Avg. Flow Depth=0.22' Max Vel=10.22 fps Inflow=1.32 cfs 0.099 af
12.0" Round Pipe n=0.012 L=164.0' S=0.1020 '/' Capacity=12.32 cfs Outflow=1.30 cfs 0.099 af

Pond 1P+G: R-Tank System w/Garage Peak Elev=52.94' Storage=9,376 cf Inflow=5.45 cfs 0.438 af
Outflow=2.03 cfs 0.353 af

Pond 2P: Peak Elev=107.31' Storage=4 cf Inflow=0.53 cfs 0.039 af
18.0" Round Culvert n=0.011 L=50.0' S=0.0100 '/' Outflow=0.53 cfs 0.039 af

Pond 3P: Inflow=0.64 cfs 0.047 af
Primary=0.64 cfs 0.047 af

Pond 5P: Inflow=5.77 cfs 0.418 af
Primary=5.77 cfs 0.418 af

Pond 6P: Inflow=0.51 cfs 0.037 af
Primary=0.51 cfs 0.037 af

Pond 7P: Inflow=1.03 cfs 0.098 af
Primary=1.03 cfs 0.098 af

Pond 8P: Inflow=1.33 cfs 0.099 af
Primary=1.33 cfs 0.099 af

Pond 10P: Inflow=1.60 cfs 0.147 af
Primary=1.60 cfs 0.147 af

Pond 11P: Inflow=0.74 cfs 0.061 af
Primary=0.74 cfs 0.061 af

Pond 12P: Inflow=1.57 cfs 0.128 af
Primary=1.57 cfs 0.128 af

Pond 13.5P: CB 13796 Peak Elev=42.94' Inflow=1.83 cfs 0.099 af
Primary=1.83 cfs 0.099 af Secondary=0.00 cfs 0.000 af Outflow=1.83 cfs 0.099 af

Pond 13P: CB 13 Peak Elev=66.33' Inflow=1.94 cfs 0.143 af
Primary=1.37 cfs 0.137 af Secondary=0.56 cfs 0.006 af Outflow=1.94 cfs 0.143 af

Pond 14P: CB 13581 Peak Elev=42.66' Inflow=0.42 cfs 0.033 af
Primary=0.42 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.42 cfs 0.033 af

Pond CB-63: Peak Elev=60.68' Storage=11 cf Inflow=2.33 cfs 0.197 af
12.0" Round Culvert n=0.012 L=10.0' S=0.1340 '/' Outflow=2.33 cfs 0.197 af

Pond DMH 20: DMH 13592 Peak Elev=38.44' Inflow=2.25 cfs 0.132 af
12.0" Round Culvert n=0.010 L=20.0' S=0.1295 '/' Outflow=2.25 cfs 0.132 af

Pond DMH-7: Inflow=1.76 cfs 0.145 af
Primary=1.76 cfs 0.145 af

Pond DMH1: New DMH-1 Congress Street Peak Elev=46.54' Inflow=2.03 cfs 0.353 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=2.03 cfs 0.353 af

Pond hil-01: Inflow=1.78 cfs 0.145 af
Primary=1.78 cfs 0.145 af

Pond hil-02: Inflow=10.98 cfs 0.855 af
Primary=10.98 cfs 0.855 af

Pond OS-1.: CB Peak Elev=55.22' Inflow=0.78 cfs 0.065 af
Primary=0.65 cfs 0.064 af Secondary=0.13 cfs 0.001 af Outflow=0.78 cfs 0.065 af

Pond OS-2.: CB 16258 Peak Elev=83.51' Inflow=2.34 cfs 0.194 af
Primary=2.28 cfs 0.194 af Secondary=0.06 cfs 0.000 af Outflow=2.34 cfs 0.194 af

Pond SMH-1: esmh-13952 Peak Elev=45.42' Inflow=2.99 cfs 0.490 af
18.0" Round Culvert n=0.012 L=41.0' S=0.0724 '/' Outflow=2.99 cfs 0.490 af

Pond SMH-13932: esmh-13932 Peak Elev=41.54' Inflow=3.59 cfs 0.554 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0587 '/' Outflow=3.59 cfs 0.554 af

Link SP-C1: Inflow=1.28 cfs 0.093 af
Primary=1.28 cfs 0.093 af

Link SP-C2: Inflow=3.59 cfs 0.554 af
Primary=3.59 cfs 0.554 af

Link SP-C3: Inflow=2.25 cfs 0.132 af
Primary=2.25 cfs 0.132 af

Link SP-C4: Inflow=13.78 cfs 1.089 af
Primary=13.78 cfs 1.089 af

Link SP-C5: Inflow=1.60 cfs 0.147 af
Primary=1.60 cfs 0.147 af

Total Runoff Area = 15.783 ac Runoff Volume = 2.296 af Average Runoff Depth = 1.75"
26.10% Pervious = 4.119 ac 73.90% Impervious = 11.664 ac

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=19,446 sf 73.39% Impervious Runoff Depth=2.72"
Flow Length=229' Tc=6.0 min CN=82 Runoff=1.40 cfs 0.101 af

Subcatchment2A: Runoff Area=25,217 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=142' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=2.54 cfs 0.211 af

Subcatchment2B: Runoff Area=13,868 sf 73.07% Impervious Runoff Depth=2.72"
Flow Length=284' Tc=6.0 min CN=82 Runoff=1.00 cfs 0.072 af

Subcatchment2S: Runoff Area=16,157 sf 86.26% Impervious Runoff Depth=3.49"
Flow Length=244' Tc=6.0 min CN=90 Runoff=1.44 cfs 0.108 af

Subcatchment3.1: Runoff Area=10,051 sf 83.47% Impervious Runoff Depth=3.29"
Flow Length=250' Tc=6.0 min CN=88 Runoff=0.85 cfs 0.063 af

Subcatchment3.2: Runoff Area=4,089 sf 68.18% Impervious Runoff Depth=2.46"
Flow Length=66' Slope=0.0250 '/' Tc=6.0 min CN=79 Runoff=0.27 cfs 0.019 af

Subcatchment4S: Runoff Area=23,249 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=160' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=2.34 cfs 0.194 af

Subcatchment5S: Runoff Area=125,028 sf 78.87% Impervious Runoff Depth=3.10"
Flow Length=510' Tc=6.0 min CN=86 Runoff=10.09 cfs 0.740 af

Subcatchment6S: Runoff Area=11,085 sf 79.41% Impervious Runoff Depth=3.10"
Flow Length=121' Tc=6.0 min CN=86 Runoff=0.89 cfs 0.066 af

Subcatchment7S: Runoff Area=92,296 sf 39.10% Impervious Runoff Depth=1.39"
Flow Length=634' Tc=6.0 min CN=65 Runoff=3.18 cfs 0.246 af

Subcatchment8S: Runoff Area=45,533 sf 63.76% Impervious Runoff Depth=2.29"
Flow Length=399' Tc=6.0 min CN=77 Runoff=2.75 cfs 0.200 af

Subcatchment10S: Runoff Area=37,247 sf 30.36% Impervious Runoff Depth=0.90"
Flow Length=326' Tc=6.0 min CN=57 Runoff=0.71 cfs 0.064 af

Subcatchment11S: Runoff Area=11,050 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=90' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.11 cfs 0.092 af

Subcatchment12S: Runoff Area=23,268 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=200' Tc=6.0 min CN=98 Runoff=2.34 cfs 0.194 af

Subcatchment13S: Runoff Area=36,014 sf 85.62% Impervious Runoff Depth=3.49"
Flow Length=196' Tc=6.2 min CN=90 Runoff=3.19 cfs 0.241 af

Subcatchment14.1S: Runoff Area=22,477 sf 88.74% Impervious Runoff Depth=3.59"
Flow Length=325' Tc=6.0 min CN=91 Runoff=2.05 cfs 0.155 af

Subcatchment 15.1S: Runoff Area=18,644 sf 56.89% Impervious Runoff Depth=1.97"
Flow Length=383' Tc=6.0 min CN=73 Runoff=0.96 cfs 0.070 af

Subcatchment 17.1A: NEW Building Roof Runoff Area=43,616 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=4.40 cfs 0.364 af

Subcatchment 17.1B: Green Roof Runoff Area=14,879 sf 19.06% Impervious Runoff Depth=3.29"
Flow Length=188' Tc=6.0 min CN=88 Runoff=1.26 cfs 0.094 af

Subcatchment 18S: Visitor Garage Runoff Area=26,386 sf 100.00% Impervious Runoff Depth=4.36"
Flow Length=264' Tc=6.0 min CN=98 Runoff=2.66 cfs 0.220 af

Subcatchment OS-1: OS-1 Runoff Area=17,031 sf 85.00% Impervious Runoff Depth=3.39"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=1.31 cfs 0.110 af

Subcatchment OS-2: OS-2 Runoff Area=50,885 sf 85.00% Impervious Runoff Depth=3.39"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=3.92 cfs 0.330 af

Reach 2R: Weymouth Street Sewer Inflow=2.95 cfs 0.318 af
Outflow=2.95 cfs 0.318 af

Reach 3R: Offsite Forest Street Inflow=0.46 cfs 0.008 af
Outflow=0.46 cfs 0.008 af

Reach 15R: Inflow=1.22 cfs 0.011 af
Outflow=1.22 cfs 0.011 af

Reach 110: Avg. Flow Depth=0.47' Max Vel=4.21 fps Inflow=1.11 cfs 0.092 af
8.0" Round Pipe n=0.012 L=51.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=1.11 cfs 0.092 af

Reach 115: Avg. Flow Depth=0.86' Max Vel=5.61 fps Inflow=5.06 cfs 0.411 af
15.0" Round Pipe n=0.012 L=67.0' S=0.0078 '/' Capacity=6.17 cfs Outflow=5.03 cfs 0.411 af

Reach 118: Avg. Flow Depth=0.61' Max Vel=10.83 fps Inflow=7.35 cfs 0.605 af
18.0" Round Pipe n=0.012 L=90.0' S=0.0340 '/' Capacity=20.98 cfs Outflow=7.31 cfs 0.605 af

Reach 125: Avg. Flow Depth=0.47' Max Vel=6.45 fps Inflow=2.34 cfs 0.194 af
12.0" Round Pipe n=0.012 L=79.0' S=0.0182 '/' Capacity=5.21 cfs Outflow=2.33 cfs 0.194 af

Reach 128: Avg. Flow Depth=0.72' Max Vel=3.83 fps Inflow=2.33 cfs 0.194 af
12.0" Round Pipe n=0.012 L=71.0' S=0.0048 '/' Capacity=2.67 cfs Outflow=2.30 cfs 0.194 af

Reach 135: Avg. Flow Depth=0.33' Max Vel=10.15 fps Inflow=1.73 cfs 0.219 af
8.0" Round Pipe n=0.012 L=225.0' S=0.0747 '/' Capacity=3.58 cfs Outflow=1.72 cfs 0.219 af

Reach 181: Avg. Flow Depth=0.80' Max Vel=3.96 fps Inflow=2.66 cfs 0.220 af
12.0" Round Pipe n=0.012 L=60.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=2.64 cfs 0.220 af

Reach 210: Avg. Flow Depth=0.48' Max Vel=6.82 fps Inflow=2.54 cfs 0.211 af
12.0" Round Pipe n=0.012 L=66.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=2.53 cfs 0.211 af

Reach 215: Avg. Flow Depth=0.49' Max Vel=3.75 fps Inflow=1.44 cfs 0.108 af
12.0" Round Pipe n=0.013 L=52.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=1.43 cfs 0.108 af

Reach 216R: Avg. Flow Depth=0.41' Max Vel=19.62 fps Inflow=5.88 cfs 0.446 af
12.0" Round Pipe n=0.013 L=12.0' S=0.2267 '/' Capacity=16.96 cfs Outflow=5.87 cfs 0.446 af

Reach 220: Avg. Flow Depth=0.66' Max Vel=9.78 fps Inflow=7.31 cfs 0.605 af
18.0" Round Pipe n=0.012 L=218.0' S=0.0259 '/' Capacity=18.30 cfs Outflow=7.19 cfs 0.605 af

Reach 230: Avg. Flow Depth=0.42' Max Vel=20.75 fps Inflow=8.29 cfs 0.687 af
18.0" Round Pipe n=0.012 L=87.0' S=0.1884 '/' Capacity=49.39 cfs Outflow=8.26 cfs 0.687 af

Reach 231: Inflow=0.85 cfs 0.063 af
Outflow=0.85 cfs 0.063 af

Reach 240: Avg. Flow Depth=0.66' Max Vel=24.42 fps Inflow=18.27 cfs 1.428 af
18.0" Round Pipe n=0.012 L=100.0' S=0.1612 '/' Capacity=45.69 cfs Outflow=18.22 cfs 1.428 af

Reach 260: Avg. Flow Depth=0.79' Max Vel=15.85 fps Inflow=18.22 cfs 1.428 af
24.0" Round Pipe n=0.012 L=48.0' S=0.0515 '/' Capacity=55.59 cfs Outflow=18.19 cfs 1.428 af

Reach 410: Avg. Flow Depth=0.71' Max Vel=3.95 fps Inflow=2.34 cfs 0.194 af
12.0" Round Pipe n=0.012 L=35.0' S=0.0051 '/' Capacity=2.77 cfs Outflow=2.33 cfs 0.194 af

Reach 510: Avg. Flow Depth=0.47' Max Vel=21.44 fps Inflow=10.09 cfs 0.740 af
18.0" Round Pipe n=0.012 L=62.0' S=0.1768 '/' Capacity=47.85 cfs Outflow=10.08 cfs 0.740 af

Reach 810: Avg. Flow Depth=0.27' Max Vel=16.46 fps Inflow=2.75 cfs 0.200 af
12.0" Round Pipe n=0.012 L=210.0' S=0.2129 '/' Capacity=17.81 cfs Outflow=2.73 cfs 0.200 af

Reach 820: Avg. Flow Depth=0.32' Max Vel=12.61 fps Inflow=2.73 cfs 0.200 af
12.0" Round Pipe n=0.012 L=164.0' S=0.1020 '/' Capacity=12.32 cfs Outflow=2.70 cfs 0.200 af

Pond 1P+G: R-Tank System w/Garage Peak Elev=53.90' Storage=11,657 cf Inflow=8.29 cfs 0.678 af
Outflow=4.42 cfs 0.592 af

Pond 2P: Peak Elev=107.44' Storage=6 cf Inflow=1.00 cfs 0.072 af
18.0" Round Culvert n=0.011 L=50.0' S=0.0100 '/' Outflow=1.00 cfs 0.072 af

Pond 3P: Inflow=1.12 cfs 0.083 af
Primary=1.12 cfs 0.083 af

Pond 5P: Inflow=10.09 cfs 0.740 af
Primary=10.09 cfs 0.740 af

Pond 6P: Inflow=0.89 cfs 0.066 af
Primary=0.89 cfs 0.066 af

Pond 7P: Inflow=3.18 cfs 0.246 af
Primary=3.18 cfs 0.246 af

Pond 8P: Inflow=2.75 cfs 0.200 af
Primary=2.75 cfs 0.200 af

Pond 10P: Inflow=3.01 cfs 0.258 af
Primary=3.01 cfs 0.258 af

Pond 11P: Inflow=1.11 cfs 0.092 af
Primary=1.11 cfs 0.092 af

Pond 12P: Inflow=2.34 cfs 0.194 af
Primary=2.34 cfs 0.194 af

Pond 13.5P: CB 13796 Peak Elev=43.13' Inflow=4.31 cfs 0.189 af
Primary=3.09 cfs 0.178 af Secondary=1.22 cfs 0.011 af Outflow=4.31 cfs 0.189 af

Pond 13P: CB 13 Peak Elev=66.52' Inflow=4.01 cfs 0.253 af
Primary=1.73 cfs 0.219 af Secondary=2.29 cfs 0.034 af Outflow=4.01 cfs 0.253 af

Pond 14P: CB 13581 Peak Elev=42.78' Inflow=0.96 cfs 0.070 af
Primary=0.96 cfs 0.070 af Secondary=0.00 cfs 0.000 af Outflow=0.96 cfs 0.070 af

Pond CB-63: Peak Elev=62.71' Storage=38 cf Inflow=5.88 cfs 0.446 af
12.0" Round Culvert n=0.012 L=10.0' S=0.1340 '/' Outflow=5.88 cfs 0.446 af

Pond DMH 20: DMH 13592 Peak Elev=39.23' Inflow=4.05 cfs 0.249 af
12.0" Round Culvert n=0.010 L=20.0' S=0.1295 '/' Outflow=4.05 cfs 0.249 af

Pond DMH-7: Inflow=2.64 cfs 0.220 af
Primary=2.64 cfs 0.220 af

Pond DMH1: New DMH-1 Congress Street Peak Elev=47.09' Inflow=4.42 cfs 0.592 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=4.42 cfs 0.592 af

Pond hil-01: Inflow=2.66 cfs 0.220 af
Primary=2.66 cfs 0.220 af

Pond hil-02: Inflow=18.22 cfs 1.428 af
Primary=18.22 cfs 1.428 af

Pond OS-1.: CB Peak Elev=55.26' Inflow=1.31 cfs 0.110 af
Primary=0.85 cfs 0.102 af Secondary=0.46 cfs 0.008 af Outflow=1.31 cfs 0.110 af

Pond OS-2.: CB 16258 Peak Elev=83.61' Inflow=3.92 cfs 0.330 af
Primary=2.95 cfs 0.318 af Secondary=0.97 cfs 0.013 af Outflow=3.92 cfs 0.330 af

Pond SMH-1: esmh-13952 Peak Elev=45.85' Inflow=5.94 cfs 0.811 af
18.0" Round Culvert n=0.012 L=41.0' S=0.0724 '/' Outflow=5.94 cfs 0.811 af

Pond SMH-13932: esmh-13932 Peak Elev=42.01' Inflow=6.73 cfs 0.913 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0587 '/' Outflow=6.73 cfs 0.913 af

Link SP-C1: Inflow=2.39 cfs 0.174 af
Primary=2.39 cfs 0.174 af

Link SP-C2: Inflow=6.73 cfs 0.913 af
Primary=6.73 cfs 0.913 af

Link SP-C3: Inflow=4.05 cfs 0.249 af
Primary=4.05 cfs 0.249 af

Link SP-C4: Inflow=24.94 cfs 1.939 af
Primary=24.94 cfs 1.939 af

Link SP-C5: Inflow=3.01 cfs 0.258 af
Primary=3.01 cfs 0.258 af

Total Runoff Area = 15.783 ac Runoff Volume = 3.955 af Average Runoff Depth = 3.01"
26.10% Pervious = 4.119 ac 73.90% Impervious = 11.664 ac

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Runoff Area=19,446 sf 73.39% Impervious Runoff Depth=3.80"
Flow Length=229' Tc=6.0 min CN=82 Runoff=1.93 cfs 0.141 af

Subcatchment2A: Runoff Area=25,217 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=142' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=3.21 cfs 0.268 af

Subcatchment2B: Runoff Area=13,868 sf 73.07% Impervious Runoff Depth=3.80"
Flow Length=284' Tc=6.0 min CN=82 Runoff=1.38 cfs 0.101 af

Subcatchment2S: Runoff Area=16,157 sf 86.26% Impervious Runoff Depth=4.65"
Flow Length=244' Tc=6.0 min CN=90 Runoff=1.89 cfs 0.144 af

Subcatchment3.1: Runoff Area=10,051 sf 83.47% Impervious Runoff Depth=4.43"
Flow Length=250' Tc=6.0 min CN=88 Runoff=1.14 cfs 0.085 af

Subcatchment3.2: Runoff Area=4,089 sf 68.18% Impervious Runoff Depth=3.50"
Flow Length=66' Slope=0.0250 '/' Tc=6.0 min CN=79 Runoff=0.38 cfs 0.027 af

Subcatchment4S: Runoff Area=23,249 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=160' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=2.96 cfs 0.247 af

Subcatchment5S: Runoff Area=125,028 sf 78.87% Impervious Runoff Depth=4.22"
Flow Length=510' Tc=6.0 min CN=86 Runoff=13.59 cfs 1.009 af

Subcatchment6S: Runoff Area=11,085 sf 79.41% Impervious Runoff Depth=4.22"
Flow Length=121' Tc=6.0 min CN=86 Runoff=1.20 cfs 0.089 af

Subcatchment7S: Runoff Area=92,296 sf 39.10% Impervious Runoff Depth=2.21"
Flow Length=634' Tc=6.0 min CN=65 Runoff=5.25 cfs 0.390 af

Subcatchment8S: Runoff Area=45,533 sf 63.76% Impervious Runoff Depth=3.31"
Flow Length=399' Tc=6.0 min CN=77 Runoff=3.97 cfs 0.288 af

Subcatchment10S: Runoff Area=37,247 sf 30.36% Impervious Runoff Depth=1.56"
Flow Length=326' Tc=6.0 min CN=57 Runoff=1.39 cfs 0.111 af

Subcatchment11S: Runoff Area=11,050 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=90' Slope=0.0050 '/' Tc=6.0 min CN=98 Runoff=1.41 cfs 0.118 af

Subcatchment12S: Runoff Area=23,268 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=200' Tc=6.0 min CN=98 Runoff=2.96 cfs 0.248 af

Subcatchment13S: Runoff Area=36,014 sf 85.62% Impervious Runoff Depth=4.65"
Flow Length=196' Tc=6.2 min CN=90 Runoff=4.19 cfs 0.320 af

Subcatchment14.1S: Runoff Area=22,477 sf 88.74% Impervious Runoff Depth=4.76"
Flow Length=325' Tc=6.0 min CN=91 Runoff=2.67 cfs 0.205 af

Subcatchment 15.1S: Runoff Area=18,644 sf 56.89% Impervious Runoff Depth=2.92"
Flow Length=383' Tc=6.0 min CN=73 Runoff=1.44 cfs 0.104 af

Subcatchment 17.1A: NEW Building Roof Runoff Area=43,616 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=5.56 cfs 0.464 af

Subcatchment 17.1B: Green Roof Runoff Area=14,879 sf 19.06% Impervious Runoff Depth=4.43"
Flow Length=188' Tc=6.0 min CN=88 Runoff=1.68 cfs 0.126 af

Subcatchment 18S: Visitor Garage Runoff Area=26,386 sf 100.00% Impervious Runoff Depth=5.56"
Flow Length=264' Tc=6.0 min CN=98 Runoff=3.36 cfs 0.281 af

Subcatchment OS-1: OS-1 Runoff Area=17,031 sf 85.00% Impervious Runoff Depth=4.54"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=1.73 cfs 0.148 af

Subcatchment OS-2: OS-2 Runoff Area=50,885 sf 85.00% Impervious Runoff Depth=4.54"
Flow Length=1,300' Tc=10.0 min CN=89 Runoff=5.17 cfs 0.442 af

Reach 2R: Weymouth Street Sewer Inflow=3.31 cfs 0.412 af
Outflow=3.31 cfs 0.412 af

Reach 3R: Offsite Forest Street Inflow=0.73 cfs 0.016 af
Outflow=0.73 cfs 0.016 af

Reach 15R: Inflow=2.76 cfs 0.033 af
Outflow=2.76 cfs 0.033 af

Reach 110: Avg. Flow Depth=0.61' Max Vel=4.27 fps Inflow=1.41 cfs 0.118 af
8.0" Round Pipe n=0.012 L=51.0' S=0.0100 '/' Capacity=1.31 cfs Outflow=1.39 cfs 0.118 af

Reach 115: Avg. Flow Depth=1.09' Max Vel=5.70 fps Inflow=6.47 cfs 0.530 af
15.0" Round Pipe n=0.012 L=67.0' S=0.0078 '/' Capacity=6.17 cfs Outflow=6.41 cfs 0.530 af

Reach 118: Avg. Flow Depth=0.70' Max Vel=11.53 fps Inflow=9.35 cfs 0.777 af
18.0" Round Pipe n=0.012 L=90.0' S=0.0340 '/' Capacity=20.98 cfs Outflow=9.30 cfs 0.777 af

Reach 125: Avg. Flow Depth=0.54' Max Vel=6.84 fps Inflow=2.96 cfs 0.248 af
12.0" Round Pipe n=0.012 L=79.0' S=0.0182 '/' Capacity=5.21 cfs Outflow=2.95 cfs 0.248 af

Reach 128: Avg. Flow Depth=1.00' Max Vel=3.87 fps Inflow=2.95 cfs 0.248 af
12.0" Round Pipe n=0.012 L=71.0' S=0.0048 '/' Capacity=2.67 cfs Outflow=2.79 cfs 0.248 af

Reach 135: Avg. Flow Depth=0.35' Max Vel=10.44 fps Inflow=1.94 cfs 0.280 af
8.0" Round Pipe n=0.012 L=225.0' S=0.0747 '/' Capacity=3.58 cfs Outflow=1.93 cfs 0.280 af

Reach 181: Avg. Flow Depth=1.00' Max Vel=3.94 fps Inflow=3.36 cfs 0.281 af
12.0" Round Pipe n=0.012 L=60.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=2.94 cfs 0.281 af

Reach 210: Avg. Flow Depth=0.55' Max Vel=7.22 fps Inflow=3.21 cfs 0.268 af
12.0" Round Pipe n=0.012 L=66.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=3.20 cfs 0.268 af

Reach 215: Avg. Flow Depth=0.58' Max Vel=4.00 fps Inflow=1.89 cfs 0.144 af
12.0" Round Pipe n=0.013 L=52.0' S=0.0069 '/' Capacity=2.96 cfs Outflow=1.88 cfs 0.144 af

Reach 216R: Avg. Flow Depth=0.52' Max Vel=22.00 fps Inflow=9.15 cfs 0.678 af
12.0" Round Pipe n=0.013 L=12.0' S=0.2267 '/' Capacity=16.96 cfs Outflow=9.15 cfs 0.678 af

Reach 220: Avg. Flow Depth=0.76' Max Vel=10.40 fps Inflow=9.30 cfs 0.777 af
18.0" Round Pipe n=0.012 L=218.0' S=0.0259 '/' Capacity=18.30 cfs Outflow=9.15 cfs 0.777 af

Reach 230: Avg. Flow Depth=0.47' Max Vel=22.28 fps Inflow=10.64 cfs 0.890 af
18.0" Round Pipe n=0.012 L=87.0' S=0.1884 '/' Capacity=49.39 cfs Outflow=10.61 cfs 0.890 af

Reach 231: Inflow=1.14 cfs 0.085 af
Outflow=1.14 cfs 0.085 af

Reach 240: Avg. Flow Depth=0.77' Max Vel=26.20 fps Inflow=24.09 cfs 1.899 af
18.0" Round Pipe n=0.012 L=100.0' S=0.1612 '/' Capacity=45.69 cfs Outflow=24.04 cfs 1.899 af

Reach 260: Avg. Flow Depth=0.92' Max Vel=17.05 fps Inflow=24.04 cfs 1.899 af
24.0" Round Pipe n=0.012 L=48.0' S=0.0515 '/' Capacity=55.59 cfs Outflow=23.99 cfs 1.899 af

Reach 410: Avg. Flow Depth=0.90' Max Vel=4.02 fps Inflow=2.96 cfs 0.247 af
12.0" Round Pipe n=0.012 L=35.0' S=0.0051 '/' Capacity=2.77 cfs Outflow=2.94 cfs 0.247 af

Reach 510: Avg. Flow Depth=0.55' Max Vel=23.28 fps Inflow=13.59 cfs 1.009 af
18.0" Round Pipe n=0.012 L=62.0' S=0.1768 '/' Capacity=47.85 cfs Outflow=13.57 cfs 1.009 af

Reach 810: Avg. Flow Depth=0.32' Max Vel=18.26 fps Inflow=3.97 cfs 0.288 af
12.0" Round Pipe n=0.012 L=210.0' S=0.2129 '/' Capacity=17.81 cfs Outflow=3.94 cfs 0.288 af

Reach 820: Avg. Flow Depth=0.39' Max Vel=13.96 fps Inflow=3.94 cfs 0.288 af
12.0" Round Pipe n=0.012 L=164.0' S=0.1020 '/' Capacity=12.32 cfs Outflow=3.91 cfs 0.288 af

Pond 1P+G: R-Tank System w/Garage Peak Elev=54.25' Storage=12,492 cf Inflow=9.96 cfs 0.871 af
Outflow=8.08 cfs 0.785 af

Pond 2P: Peak Elev=107.53' Storage=7 cf Inflow=1.38 cfs 0.101 af
18.0" Round Culvert n=0.011 L=50.0' S=0.0100 '/' Outflow=1.38 cfs 0.101 af

Pond 3P: Inflow=1.51 cfs 0.113 af
Primary=1.51 cfs 0.113 af

Pond 5P: Inflow=13.59 cfs 1.009 af
Primary=13.59 cfs 1.009 af

Pond 6P: Inflow=1.20 cfs 0.089 af
Primary=1.20 cfs 0.089 af

Pond 7P: Inflow=5.25 cfs 0.390 af
Primary=5.25 cfs 0.390 af

Pond 8P: Inflow=3.97 cfs 0.288 af
Primary=3.97 cfs 0.288 af

Pond 10P: Inflow=4.07 cfs 0.358 af
Primary=4.07 cfs 0.358 af

Pond 11P: Inflow=1.41 cfs 0.118 af
Primary=1.41 cfs 0.118 af

Pond 12P: Inflow=2.96 cfs 0.248 af
Primary=2.96 cfs 0.248 af

Pond 13.5P: CB 13796 Peak Elev=43.23' Inflow=6.54 cfs 0.276 af
Primary=3.78 cfs 0.243 af Secondary=2.76 cfs 0.033 af Outflow=6.54 cfs 0.276 af

Pond 13P: CB 13 Peak Elev=66.65' Inflow=5.84 cfs 0.351 af
Primary=1.94 cfs 0.280 af Secondary=3.91 cfs 0.071 af Outflow=5.84 cfs 0.351 af

Pond 14P: CB 13581 Peak Elev=42.87' Inflow=1.44 cfs 0.104 af
Primary=1.44 cfs 0.104 af Secondary=0.00 cfs 0.000 af Outflow=1.44 cfs 0.104 af

Pond CB-63: Peak Elev=66.15' Storage=81 cf Inflow=9.16 cfs 0.678 af
12.0" Round Culvert n=0.012 L=10.0' S=0.1340 '/' Outflow=9.15 cfs 0.678 af

Pond DMH 20: DMH 13592 Peak Elev=39.99' Inflow=5.21 cfs 0.347 af
12.0" Round Culvert n=0.010 L=20.0' S=0.1295 '/' Outflow=5.21 cfs 0.347 af

Pond DMH-7: Inflow=2.94 cfs 0.281 af
Primary=2.94 cfs 0.281 af

Pond DMH1: New DMH-1 Congress Street Peak Elev=48.09' Inflow=8.08 cfs 0.785 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0050 '/' Outflow=8.08 cfs 0.785 af

Pond hil-01: Inflow=3.36 cfs 0.281 af
Primary=3.36 cfs 0.281 af

Pond hil-02: Inflow=24.04 cfs 1.899 af
Primary=24.04 cfs 1.899 af

Pond OS-1.: CB Peak Elev=55.29' Inflow=1.73 cfs 0.148 af
Primary=1.00 cfs 0.132 af Secondary=0.73 cfs 0.016 af Outflow=1.73 cfs 0.148 af

Pond OS-2.: CB 16258 Peak Elev=83.68' Inflow=5.17 cfs 0.442 af
Primary=3.31 cfs 0.412 af Secondary=1.86 cfs 0.030 af Outflow=5.17 cfs 0.442 af

Pond SMH-1: esmh-13952 Peak Elev=46.71' Inflow=9.92 cfs 1.065 af
18.0" Round Culvert n=0.012 L=41.0' S=0.0724 '/' Outflow=9.92 cfs 1.065 af

Pond SMH-13932: esmh-13932 Peak Elev=43.02' Inflow=10.90 cfs 1.197 af
18.0" Round Culvert n=0.025 L=45.0' S=0.0587 '/' Outflow=10.90 cfs 1.197 af

Link SP-C1: Inflow=3.31 cfs 0.242 af
Primary=3.31 cfs 0.242 af

Link SP-C2: Inflow=10.90 cfs 1.197 af
Primary=10.90 cfs 1.197 af

Link SP-C3: Inflow=5.21 cfs 0.347 af
Primary=5.21 cfs 0.347 af

Link SP-C4: Inflow=34.33 cfs 2.666 af
Primary=34.33 cfs 2.666 af

Link SP-C5: Inflow=4.07 cfs 0.358 af
Primary=4.07 cfs 0.358 af

Total Runoff Area = 15.783 ac Runoff Volume = 5.358 af Average Runoff Depth = 4.07"
26.10% Pervious = 4.119 ac 73.90% Impervious = 11.664 ac

Attachment C

INSPECTION, MAINTENANCE, AND HOUSEKEEPING

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

Maine Medical Center
Portland, ME

Introduction

The owner of the development is Maine Medical Center. The owner's address is 22 Bramhall Street, Portland, Maine 04102. The owner of the proposed project will be responsible for the maintenance of all stormwater management structures, the establishment of any contract services required to implement the program, and the keeping of records and maintenance logbook. The owner will assure that the following maintenance program will be adhered.

Records of all inspections and maintenance work accomplished must be kept on file and retained for a minimum 5-year time span. The maintenance logbook will be made available to the Maine Department of Environmental Protection (MDEP) and the City of Portland upon request. At a minimum, the appropriate and relevant activities for each of the stormwater management systems will be performed on the prescribed schedule.

The following plan outlines the anticipated inspection, maintenance, and housekeeping procedures for the erosion and sedimentation controls as well as stormwater management devices for the project site. Also, this plan outlines several housekeeping requirements that shall be followed during and after construction. These procedures should be followed in order to ensure the intended function of the designed measures and to prevent unreasonable adverse impacts to the surrounding environment.

The procedures outlined in the Inspection, Maintenance, and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional details on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the MDEP.

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within seven (7) calendar days and prior to any storm event (rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

   The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three (3) years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

   A. <u>Sediment Barriers:</u>

   - Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
   - If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
   - Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
   - Filter berms shall be reshaped as needed.
   - Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

   B. <u>Riprap Materials:</u>

   - Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

C. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to this plan.

D. Temporary Storm Drain Inlet Protection:

- The inlet protection structure shall be inspected before each rain event and repaired as necessary.
- Sediment shall be removed and the storm drain sediment barrier restored to its original dimensions when the sediment has accumulated to half of the design depth of the trap.
- Structures shall be removed upon permanent stabilization of the tributary area.
- Upon removal of the structure, all accumulated sediments downstream of the structure shall be cleaned from the storm drain system.

E. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

F. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

   A. Spill Prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

   B. Groundwater Protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

   C. Fugitive Sediment and Dust: Actions must be taken to insure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

   D. Debris and Other Materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

   E. Trench or Foundation Dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

After Construction

1. **Inspection:** After construction, the owner or operator shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

2. **Maintenance, and repair:** If a BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator shall take corrective actions to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective actions to the Department of Public Works (DPW). The following is a list of permanent erosion control and stormwater management measures and the inspection, maintenance, and housekeeping tasks to be performed after construction.

A. Vegetated Areas:

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems.
- Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

B. Winter Sanding:

- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

C. Catch Basins:

- Inspect and, if required, clean-out catch basins at least once a year, preferably in early spring.
- Clean out must include the removal and legal disposal of accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins.

D. ACF R-Tank System:

- Refer to R-Tank – Operation, Inspection & Maintenance manual for guidance on required maintenance and inspection.

E. Cultec Stormwater Chamber System:

- Refer to Cultec – Operation & Maintenance Guidelines for guidance on required maintenance and inspection.

3. **Annual Report:** The owner or operator or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification that the person has inspected the BMPs and that they are adequately maintained

and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective actions taken.

4. **Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Attachments

Attachment 1 – Sample Stormwater Inspection and Maintenance Form

Attachment 1 - Sample Stormwater Inspection and Maintenance Form

Maine Medical Center
Portland, ME

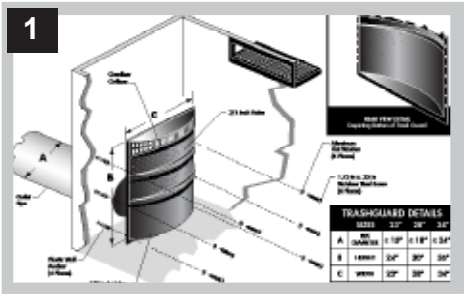
This log is intended to accompany the stormwater Inspection, Maintenance and Housekeeping Plan for Maine Medical Center. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

Item	Maintenance Required & Frequency	Date Completed	Maintenance Personnel	Comments
Ditches and Swales	Inspect after major rainfall event producing greater than 3" of rain in 2 hours.			
	Repair erosion or damage immediately.			
Catch Basins	Remove accumulated sediment and debris			
	Sump depth			
Vegetated Areas	Inspect Slopes			
	Replant Bare Areas			
	Check after Major Storms			
Winter Sanding	Clean annually (Spring)			
	Remove sand and sediment from roadway shoulders			
ACF R-Tanks	Inspect quarterly through first year of use, with yearly inspections thereafter			
Cultec Stormwater Chambers	Inspect monthly in first year, with yearly inspections thereafter and every third year following			

R-TANK MAINTENANCE

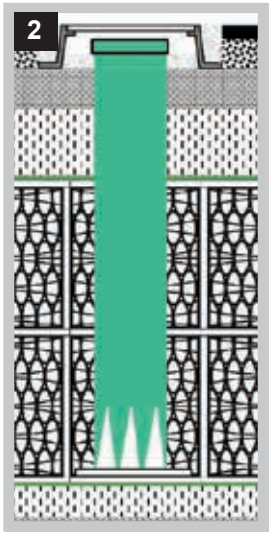
With adequate pre-treatment of stormwater before it enters the ACF R-Tank, heavy sediments, trash, and other debris will not enter the system. Systems like the TrashGuard (see image 1) are simple and inexpensive, but also highly effective. Therefore, most maintenance efforts should be directed at the pre-treatment structures to ensure they are functioning properly.

To monitor the accumulation of fine sediments that may enter the detention/ retention area, ACF R-Tank systems should include maintanance ports.



Maintenance

Running from the bottom of the ACF R-Tank up to ground level, Maintenance Ports are made from solid PVC Pipe with notches cut into the bottom. As water is pumped into the port the notches will direct water throughout the bottom of the system to create turbulence, thereby re-suspending accumulated sediments.



After pumping water into the tanks, flushing is completed by vacuuming sediment laden water out of the system either through the outlet structure or through the flush port.

The diameter of the flush port is determined by a number of factors including the rate at which water will be pumped into the system, the number of flush ports incorporated, and the possible requirement of vacuuming through the port. Experience has shown that a 12” port is more than adequate for virtually any required use, with 6” ports more common when vacuuming will be performed at the outlet structure.

Installing the Maintenance System

To install the PCV Pipe, remove the center small plate and cut the top large plate between the remaining interior small plates. Before inserting the port into the Tank, install an anti-scour plate in the bottom of the Tank to prevent disturbance of the base materials.

Maintenance ports should be capped at the surface. In landscaped areas, this may be accomplished with a simple pipe cap or plastic valve box (see image 4 lower inset). In paved areas, metal lids are more appropriate (see image 4).

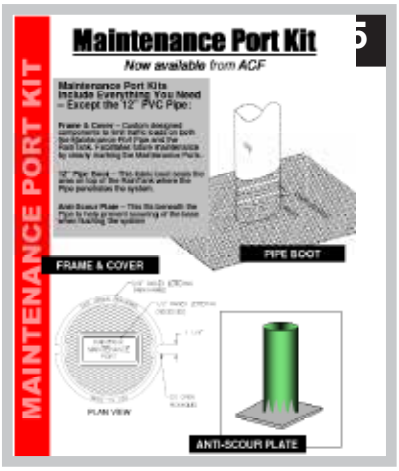
R-TANK MAINTENANCE

Maintenance Intervals

Maintenance Schedules for the ACF R-Tank System are a function of the contributing area and the type of pre-treatment specified. A standard maintenance schedule may include quarterly inspections through the first year of use, with yearly inspections thereafter. Flushing should be performed if sediment should the lesser of 6" or 15% of the system height.

Availability

All system components, including caps, lids, anti-scour plates, frames and covers are available from ACF. In fact, we've created Maintenance Port Kids (see image 5) that include everything needed except for the pipe itself. Contact your local sales representative or our Sales Office at 800-448-3636 for assistance.



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R-TANK OPERATION, INSPECTION & MAINTENANCE

Operation

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspection frequency for your system must be determined based on the contributing drainage area, but should never exceed one year between inspections (six months during the first year of operation).

Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment your inspection and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you MUST follow all local/regional requirements as well as OSHA standards.

R-Tank Systems may incorporate Inspection Ports, Maintenance Ports, and/or adjoining manholes. Each of these features are easily accessed by removing the lid at the surface. With the cover removed, a visual inspection can be performed to identify sediment deposits within the structure. Using a flashlight, ALL access points should be examined to complete a thorough inspection.

Inspection Ports
Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

Maintenance Ports
Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

Manholes
Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does NOT necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

R-TANK OPERATION INSPECTION & MAINTENANCE

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
Single	17"	3"
Double	34"	5"
Triple	50"	6"
Quad	67"	6"
Pent	84"	6"

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

Once removed, sediment-laden water may be captured for disposal or pumped through a Dirtbag™ (if permitted by the locality).

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Step-By-Step Inspection & Maintenance Routine

1) **Inspection**
    a. Inspection Port
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
    b. Maintenance Port/s
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
        vi. Repeat for ALL Maintenance Ports
    c. Adjacent Manholes
        i. Remove Cover
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
        iv. Inspect pipes connecting to R-Tank
        v. Record results on Maintenance Log
        vi. Replace Cover
        vii. Repeat for ALL Manholes that connect to the R-Tank

2) **Maintenance**
    a. Plug system outlet to prevent discharge of back-flush water
    b. Determine best location to pump out back-flush water
    c. Remove Cap from Maintenance Port
    d. Pump water as rapidly as possible (without over-topping port) into system until at least 1”
    of water covers system bottom
    e. Replace Cap
    f. Repeat at ALL Maintenance Ports
    g. Pump out back-flush water to complete back-flushing
    h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
    i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
    j. Replace any remaining Caps or Covers
    k. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank Maintenance Log

Site Name:_____

Location:_____

System Owner:_____

Company Responsible for Maintenance:_____

Contact:_____

Phone Numer:_____

Date	Location	Depth to Bottom	Depth to Sediment	Sediment Depth	Observations/Notes	Initials

Contactor® & Recharger®
Stormwater Chambers

Operation and Maintenance Guidelines
for CULTEC Stormwater Management Systems

The Founder of Plastic Chamber Technology

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Contact Information:
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For technical support, please call (203)775-4416 ext. 203 or e-mail tech@cultec.com.

Visit www.cultec.com/downloads.html for Product Downloads and CAD details.

Doc ID: CULG008 05-17
May 2017

These instructions are for single-layer traffic applications only. For multi-layer applications, contact CULTEC.
All illustrations and photos shown herein are examples of typical situations. Be sure to follow the engineer's drawings.
Actual designs may vary.

This manual contains guidelines recommended by CULTEC, Inc. and may be used in conjunction with, but not to supersede, local regulations or regulatory authorities. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Introduction

The CULTEC Subsurface Stormwater Management System is a high-density polyethylene (HDPE) chamber system arranged in parallel rows surrounded by washed stone. The CULTEC chambers create arch-shaped voids within the washed stone to provide stormwater detention, retention, infiltration, and reclamation. Filter fabric is placed between the native soil and stone interface to prevent the intrusion of fines into the system. In order to minimize the amount of sediment which may enter the CULTEC system, a sediment collection device (stormwater pretreatment device) is recommended upstream from the CULTEC chamber system. Examples of pretreatment devices include, but are not limited to, an appropriately sized catch basin with sump, pretreatment catchment device, oil grit separator, or baffled distribution box. Manufactured pretreatment devices may also be used in accordance with CULTEC chambers. Installation, operation, and maintenance of these devices shall be in accordance with manufacturer's recommendations. Almost all of the sediment entering the stormwater management system will be collected within the pretreatment device.

Best Management Practices allow for the maintenance of the preliminary collection systems prior to feeding the CULTEC chambers. The pretreatment structures shall be inspected for any debris that will restrict inlet flow rates. Outfall structures, if any, such as outlet control must also be inspected for any obstructions that would restrict outlet flow rates. OSHA Guidelines must be followed when inspecting or cleaning any structure.

Operation and Maintenance Requirements

I. Operation

CULTEC stormwater management systems shall be operated to receive only stormwater run-off in accordance with applicable local regulations. CULTEC subsurface stormwater management chambers operate at peak performance when installed in series with pretreatment. Pretreatment of suspended solids is superior to treatment of solids once they have been introduced into the system. The use of pretreatment is adequate as long as the structure is maintained and the site remains stable with finished impervious surfaces such as parking lots, walkways, and pervious areas are properly maintained. If there is to be an unstable condition, such as improvements to buildings or parking areas, all proper silt control measures shall be implemented according to local regulations.

II. Inspection and Maintenance Options

A. The CULTEC system may be equipped with an inspection port located on the inlet row. The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the CULTEC Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment if any in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream manhole or through the CULTEC StormFilter Unit (or other pretreatment device). CCTV inspection of this row can be deployed through this access port to deter mine if any sediment has accumulated in the inlet row.

B. If the CULTEC bed is not equipped with an inspection port, then access to the inlet row will be through an upstream manhole or the CULTEC StormFilter.

1. Manhole Access
This inspection should only be carried out by persons trained in confined space entry and sewer inspection services. After the manhole cover has been removed a gas detector must be lowered into the manhole to ensure that there are not high concentrations of toxic gases present. The inspector should be lowered into the manhole with the proper safety equipment as per OSHA requirements. The inspector may be able to observe sediment from this location. If this is not possible, the inspector will need to deploy a CCTV robot to permit viewing of the sediment.

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2. StormFilter Access
Remove the manhole cover to allow access to the unit. Typically a 30-inch (750 mm) pipe is used as a riser from the StormFilter to the surface. As in the case with manhole access, this access point requires a technician trained in confined space entry with proper gas detection equipment. This individual must be equipped with the proper safety equipment for entry into the StormFilter. The technician will be lowered onto the StormFilter unit. The hatch on the unit must be removed. Inside the unit are two filters which may be removed according to StormFilter maintenance guidelines. Once these filters are removed the inspector can enter the StormFilter unit to launch the CCTV camera robot.

C. The inlet row of the CULTEC system is placed on a polyethylene liner to prevent scouring of the washed stone beneath this row. This also facilitates the flushing of this row with high pressure water through a culvert cleaning nozzle. The nozzle is deployed through a manhole or the StormFilter and extended to the end of the row. The water is turned on and the inlet row is back-flushed into the manhole or StormFilter. This water is to be removed from the manhole or StormFilter using a vacuum truck.

III. Maintenance Guidelines

The following guidelines shall be adhered to for the operation and maintenance of the CULTEC stormwater management system:

A. The owner shall keep a maintenance log which shall include details of any events which would have an effect on the system's operational capacity.

B. The operation and maintenance procedure shall be reviewed periodically and changed to meet site conditions.

C. Maintenance of the stormwater management system shall be performed by qualified workers and shall follow applicable occupational health and safety requirements.

D. Debris removed from the stormwater management system shall be disposed of in accordance with applicable laws and regulations.

IV. Suggested Maintenance Schedules

A. Minor Maintenance
The following suggested schedule shall be followed for routine maintenance during the regular operation of the stormwater system:

Frequency	Action
Monthly in first year	Check inlets and outlets for clogging and remove any debris, as required.
Spring and Fall	Check inlets and outlets for clogging and remove any debris, as required.
One year after commissioning and every third year following	Check inlets and outlets for clogging and remove any debris, as required.

B. Major Maintenance
The following suggested maintenance schedule shall be followed to maintain the performance of the CULTEC stormwater management chambers. Additional work may be necessary due to insufficient performance and other issues that might be found during the inspection of the stormwater management chambers. (See table on next page)

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	Frequency	Action
Inlets and Outlets	Every 3 years	• Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
	Spring and Fall	• Check inlet and outlets for clogging and remove any debris as required.
CULTEC Stormwater Chambers	2 years after commissioning	• Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
	9 years after commissioning every 9 years following	• Clean stormwater management chambers and feed connectors of any debris. • Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. • Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
	45 years after commissioning	• Clean stormwater management chambers and feed connectors of any debris. • Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. • Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. • Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. • Attain the appropriate approvals as required. • Establish a new operation and maintenance schedule.
Surrounding Site	Monthly in 1st year	• Check for depressions in areas over and surrounding the stormwater management system.
	Spring and Fall	• Check for depressions in areas over and surrounding the stormwater management system.
	Yearly	• Confirm that no unauthorized modifications have been performed to the site.

For additional information concerning the maintenance of CULTEC Subsurface Stormwater Management Chambers, please contact CULTEC, Inc. at 1-800-428-5832.

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WQMP
Operation & Maintenance (O&M) Plan

Project Name:_____

Prepared for:

Project Name: _____

Address:_____

City, State Zip:_____

Prepared on:

Date:_____

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This O&M Plan describes the designated responsible party for implementation of this WQMP, including: operation and maintenance of all the structural BMP(s), conducting the training/educational program and duties, and any other necessary activities. The O&M Plan includes detailed inspection and maintenance requirements for all structural BMPs, including copies of any maintenance contract agreements, manufacturer's maintenance requirements, permits, etc.

8.1.1 Project Information

Project name	
Address	
City, State Zip	
Site size	
List of structural BMPs, number of each	
Other notes	

8.1.2 Responsible Party

The responsible party for implementation of this WQMP is:

Name of Person or HOA Property Manager	
Address	
City, State Zip	
Phone number	
24-Hour Emergency Contact number	
Email	

8.1.3 Record Keeping

Parties responsible for the O&M plan shall retain records for at least 5 years.

All training and educational activities and BMP operation and maintenance shall be documented to verify compliance with this O&M Plan. A sample Training Log and Inspection and Maintenance Log are included in this document.

8.1.4 Electronic Data Submittal

This document along with the Site Plan and Attachments shall be provided in PDF format. AutoCAD files and/or GIS coordinates of BMPs shall also be submitted to the City.

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Appendix ____

BMP SITE PLAN

Site plan is preferred on minimum 11” by 17” colored sheets, as long as legible.

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BMP OPERATION & MAINTENANCE LOG

Project Name: _____

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

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Minor Maintenance

Frequency		Action
Monthly in first year		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Month 1	Date:	
□ Month 2	Date:	
□ Month 3	Date:	
□ Month 4	Date	
□ Month 5	Date:	
□ Month 6	Date:	
□ Month 7	Date:	
□ Month 8	Date:	
□ Month 9	Date:	
□ Month 10	Date:	
□ Month 11	Date:	
□ Month 12	Date:	
Spring and Fall		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
□ Spring	Date:	
□ Fall	Date:	
One year after commissioning and every third year following		Check inlets and outlets for clogging and remove any debris, as required.
		Notes
□ Year 1	Date:	
□ Year 4	Date:	
□ Year 7	Date:	
□ Year 10	Date:	
□ Year 13	Date:	
□ Year 16	Date:	
□ Year 19	Date:	
□ Year 22	Date:	

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Major Maintenance

	Frequency		Action
Inlets and Outlets	**Every 3 years**		Obtain documentation that the inlets, outlets and vents have been cleaned and will function as intended.
			Notes
	□ Year 1	Date:	
	□ Year 4	Date:	
	□ Year 7	Date:	
	□ Year 10	Date:	
	□ Year 13	Date:	
	□ Year 16	Date:	
	□ Year 19	Date:	
	□ Year 22	Date:	
	Spring and Fall		Check inlet and outlets for clogging and remove any debris, as required.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
CULTEC Stormwater Chambers	**2 years after commissioning**		□ Inspect the interior of the stormwater management chambers through inspection port for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors will function as anticipated.
			Notes
	□ Year 2	Date:	

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Major Maintenance

	Frequency		Action
CULTEC Stormwater Chambers	**9 years after commissioning every 9 years following**		□ Clean stormwater management chambers and feed connectors of any debris. □ Inspect the interior of the stormwater management structures for deficiencies using CCTV or comparable technique. □ Obtain documentation that the stormwater management chambers and feed connectors have been cleaned and will function as intended.
			Notes
	□ Year 9	Date:	
	□ Year 18	Date:	
	□ Year 27	Date:	
	□ Year 36	Date:	
	45 years after commissioning		□ Clean stormwater management chambers and feed connectors of any debris. □ Determine the remaining life expectancy of the stormwater management chambers and recommended schedule and actions to rehabilitate the stormwater management chambers as required. □ Inspect the interior of the stormwater management chambers for deficiencies using CCTV or comparable technique. □ Replace or restore the stormwater management chambers in accordance with the schedule determined at the 45-year inspection. □ Attain the appropriate approvals as required. □ Establish a new operation and maintenance schedule.
			Notes
	□ Year 45	Date:	

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Major Maintenance

	Frequency		Action
Surrounding Site	**Monthly in 1st year**		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Month 1	Date:	
	□ Month 2	Date:	
	□ Month 3	Date:	
	□ Month 4	Date:	
	□ Month 5	Date:	
	□ Month 6	Date:	
	□ Month 7	Date:	
	□ Month 8	Date:	
	□ Month 9	Date:	
	□ Month 10	Date:	
	□ Month 11	Date:	
	□ Month 12	Date:	
	Spring and Fall		□ Check for depressions in areas over and surrounding the stormwater management system.
			Notes
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	□ Spring	Date:	
	□ Fall	Date:	
	Yearly		□ Confirm that no unauthorized modifications have been performed to the site.
			Notes
	□ Year 1	Date:	
	□ Year 2	Date:	
	□ Year 3	Date:	
	□ Year 4	Date:	
	□ Year 5	Date:	
	□ Year 6	Date:	
	□ Year 7	Date:	

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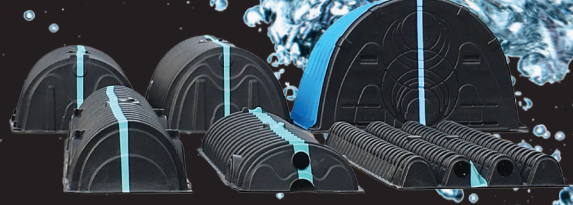


Attachment D

SOILS MAP

Soil Map—Cumberland County and Part of Oxford County, Maine
(Maine Medical Center area)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 15, Sep 6, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Au	Au Gres loamy sand	6.9	1.5%
BgB	Belgrade very fine sandy loam, 0 to 8 percent slopes	8.1	1.8%
Cu	Cut and fill land	39.7	8.6%
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	60.4	13.1%
Gp	Gravel pits	5.5	1.2%
HfD2	Hartland very fine sandy loam, 15 to 25 percent slopes, eroded	3.1	0.7%
HlB	Hinckley loamy sand, 3 to 8 percent slopes	261.8	57.0%
HlC	Hinckley loamy sand, 8 to 15 percent slopes	13.4	2.9%
HlD	Hinckley loamy sand, 15 to 25 percent slopes	33.9	7.4%
Sz	Swanton fine sandy loam	0.4	0.1%
W	Water	4.7	1.0%
Wa	Walpole fine sandy loam	4.1	0.9%
WmB	Windsor loamy sand, 0 to 8 percent slopes	17.2	3.7%
Totals for Area of Interest		**459.3**	**100.0%**

Att. Y

WRITTEN SUBMISSION 24 – CONSISTENCY WITH CITY MASTER PLANS
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

PAGES 24 – 27 OF MMC'S INSTITUTIONAL DEVELOPMENT PLAN DESCRIBES HOW MMC'S PLAN IS CONSISTENT WITH THE CITY OF PORTLAND'S COMPREHENSIVE PLAN. THOSE PAGES ARE ATTACHED TO THIS DOCUMENT.

COMPLIANCE WITH THE COMPREHENSIVE PLAN

MMC, being a long term member of the Portland community, recognizes the Comprehensive Plan contains the City's overall goals for growth and change through the articulation of a variety of policy directives and goals for the development. Among other things, the Plan addresses the City's infrastructure, commercial/business development, transportation resources, industry, and commerce and residential housing plans.

The MMC IDP and Regulatory Framework are in basic harmony with the City's overarching goals and policies. With its IDP and Regulatory Framework, MMC has balanced and accommodated the many City goals and policies in a way that advances the City's overall best interests while at the same time addresses the high priority healthcare needs of Portland's residents and the people of the State of Maine. This balancing is exactly the type of flexibility that the City's recently drafted IOZ ordinance is meant to facilitate.

The Comprehensive Plan challenges the City to "support the vision of large, transformative projects [such as the MMC modernization project] through strategic, cost effective, and incremental actions" (*Comprehensive Plan*, p.74).

MMC IDP: COMPLIANCE WITH THE COMPREHENSIVE PLAN

In this IDP, MMC conveys the need to modernize its facility in order to meet the healthcare needs of the people of northern New England. This includes not only upgrading clinical space and providing for the needs of patients and families, but also continuing its investment in its personnel and their ability to travel to and from the workplace and secure needed parking. The adopted 2035 Comprehensive Plan "promotes the orderly expansion of institutional uses, such as educational and hospital campuses, which are central to workforce development, employment, and the health of the local and regional economies" (*Comprehensive Plan*, p.45).

<u>Economic Growth</u>

Employee engagement indicators reveal that one of the issues of greatest importance to current and future employees, in addition to compensation, is parking availability. In order to attract a high quality, highly educated workforce, MMC factors into its operations these two important considerations. Following the completion of its short-term modernization project, MMC projects a growth in its employment base into the future in part because of its status as an excellent academic medical center. Portland's Comprehensive Plan promotes the growth in employment base and supports sustainable growth in education and medical institutions (*Comprehensive Plan*, pp. 44 and 88)

Transportation

MMC has considered its transportation needs holistically, factoring into its future development alternative means of transportation. Since 2009, MMC has implemented a Transportation Demand Management (TDM) plan called "Get on Board!". MMC is updating that plan and considering enhancements to encourage more walking, cycling, and public transportation by its employees.

MMC's ability to promote alternative modes of transportation and success in TDM relies on the availability of a regional system of safe and reliable alternative modes of transportation. Therefore, MMC supports the City's effort to 'explore the technical and financial feasibility of a Transportation Management Association (TMA) as a means of improving access to, and mobility around, downtown, and the waterfront.' (Comprehensive plan, p.76)".

MMC has been, and continues to be, committed to the process and has often been cited by the City of Portland Planning Department as a TDM role model in the City.

Environment

A clean environment is important for healing and health. MMC is environmentally conscious and engages in recycling to minimize the generation and environmental impacts of solid waste. The Hospital conserves water when possible, and has switched away from pesticides to more organic landscape solutions reflecting Portland's goal of "model[ling] environmentally sound landscape management practices, such as planting native species, and limiting the use of pesticides and fertilizers" (*Comprehensive Plan*, p. 20). Buildings are built with energy efficiency standards in mind. Local farmers visit the campus weekly during harvest months and employees are encouraged to support the local food movement. The Comprehensive Plan also notes the need to "support a healthy, resilient, and sustainable food system by collaborating with local and regional stakeholders" (*Comprehensive Plan*, p.20).

MMC REGULATORY FRAMEWORK: COMPLIANCE WITH THE COMPREHENSIVE PLAN

In keeping with the goals of the Comprehensive Plan, MMC has projected its future expansion needs, taking into account the neighborhood context in which it is situated. MMC has minimized future expansion into residential areas adjacent to its campus, thereby preserving housing stock in the City (*Comprehensive Plan*, pp. 48-50). It has appreciated the neighborhood involvement in

its zoning process and has been responsive to the concerns raised.

MMC is taking the bold step of reorienting its front entrance to Congress St, which serves as a gateway corridor to the City of Portland. The area presently is commercial in nature and in need of investment and activation as is recognized by the City's *Comprehensive Plan* (pp. 84, 86). Welcoming the public at the new entrance accomplishes a number of land use goals: it adds tremendous activity to the streetscape, with people coming and going. It also eliminates traffic in the residential neighborhoods of the West End and Western Promenade by providing clear wayfinding directly off of Interstate 295 and the major arterials entering the City. Further, investment in this area will transform the area with the expectation that other properties in the vicinity will likewise invest. In fact, the owners of Union Plaza, located at the junction of Congress St and St John St, testified before the Portland Planning Board that they have been waiting for such investment before they took the step of redesigning and investing further in that property. MMC expects, and is excited about, a transformation of the area into a more vibrant, active and clean area, good for local merchants, hospitality businesses, restaurants and residents.

The *Comprehensive Plan* identifies the St John St / Congress St area as a "priority node, an area that has seen disinvestment, grown in sprawling patterns, simply have the potential to serve as focal points for change in the forms of increased density or, height, streetscape improvements, or diversification of uses to better serve neighborhood needs" (*Comprehensive Plan* p. 84, see **Fig.1.8 on page 27**). MMC's IDP will serve as the catalyst to stimulate new development, investment and reinvestment in this area of the City.

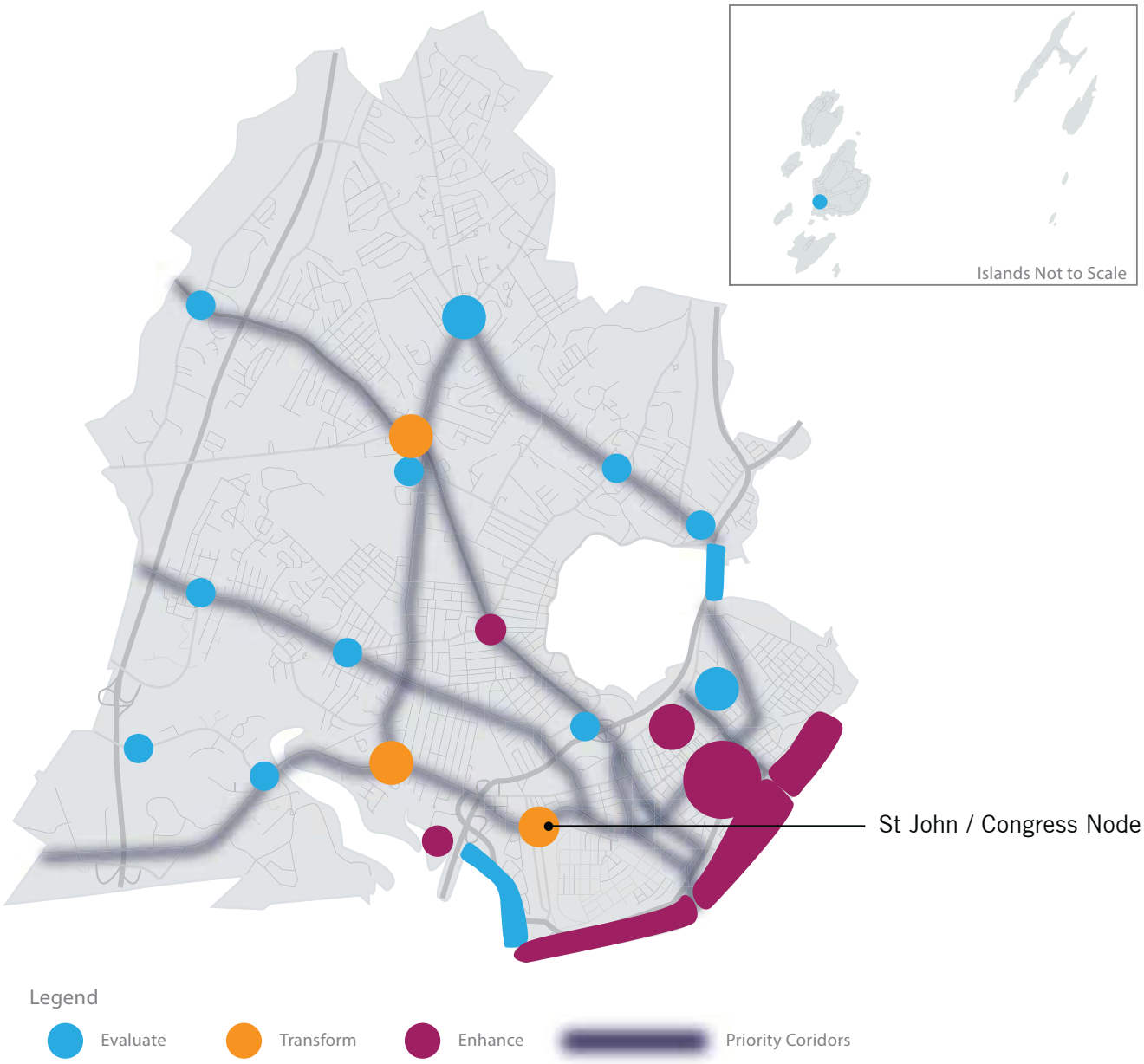
MMC's IOZ Regulatory Framework provides the mechanism for thoughtful, future development to transform the priority corridor identified by the City into an area of "additional mixed uses, higher density growth to take advantage of the transit benefits and services that well-designed, diverse corridors can offer" (*Comprehensive Plan*, p.84).

CONCLUSION

From an analysis of MMC's IDP, it becomes clear that the IDP is consistent with the City's Comprehensive Plan and the purposes contained within the City's IOZ ordinance.

From an analysis of the Regulatory Framework that accompanies MMC's IDP, it becomes clear that the Regulatory Framework is consistent with the City's Comprehensive Plan and with MMC's IDP.

Fig.1.8 Diagram Showing Priority Nodes and Corridors, City of Portland Comprehensive Plan (2017)



Att. Z

Maine Medical Center
Congress Street
New Construction Code Report
February 14, 2018

Prepared By:

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INTRODUCTION

Perkins + Will has retained AKF Group LLC to prepare this narrative code report for the proposed Congress Street building on the Maine Medical Center (MMC) campus in Portland, ME. The seven-story high-rise building will have operating rooms, patient sleeping/recovery rooms, storage areas, offices, and staff facilities including locker rooms and lounges. The building will be constructed directly adjacent to the Visitor Garage and the Bean Building. A fire wall will be constructed between the Congress Street building and the Visitor Garage. A fire wall will not be constructed between the Congress Street building and the Bean Building since these buildings will be considered part of the same building. This report summarizes the code requirements for the Congress Street building.

QUICK FACTS

- Aggregate Area: Approximately 234,300 SF
- Height: 7 stories above grade; basement below grade
- Sprinkler Status: To be fully sprinklered
- Standpipe System: Class I standpipe system to be installed
- Occupancy: Use Groups A-3, B, I-2 (Condition 2), S-1, & S-2
- Construction Type: Modified Type IA (i.e. Type IB)

1. APPLICABLE CODES & STANDARDS

The State of Maine requires municipalities with more than 4,000 residents to adopt and enforce the Maine Uniform Building and Energy Code (MUBEC). The next edition of MUBEC became effective on January 23, 2018. The following codes and standards are applicable to the project.

- International Building Code (IBC), 2015 Edition with ME Amendments
- International Energy Conservation Code (IECC), 2009 Edition with ME Amendments
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1, Standard for Ventilation and Indoor Air Quality, 2013 edition

In addition to the codes identified above, the State Fire Marshal's Office promulgates the Rules of the State Fire Marshal, which adopt numerous NFPA codes and standards, including the following:

- NFPA 1, Uniform Fire Code, 2006 Edition with ME Amendments
- NFPA 13, Standard for Installation of Sprinkler Systems, 2016 Edition

The Plumbers' Examining Board promulgates the Maine Plumbing Code, which includes the following:

- International Association of Plumbing and Mechanical Officials (IAPMO), 2015 Uniform Plumbing Code (UPC), with ME amendments

The Electricians' Examining Board adopts and amends the following electrical code:

- NFPA 70, National Electrical Code, 2017 Edition

The following federal regulation also applies to the project (as referenced by the Maine Human Rights Commission – 5 M.R.S. §4594-G):

- Americans with Disabilities Act (ADA), 2010 Standards for Accessible Design

The Joint Commission also requires compliance with the following:

- NFPA 101, Life Safety Code, 2012 Edition
- NFPA 99, Health Care Facilities Code, 2012 Edition

The following design standards will also be used for the project:

- Facilities Guidelines Institute (FGI), Guidelines for Design and Construction of Hospitals and Outpatient Facilities, 2014 Edition

- ASHRAE Standard 170, Ventilation of Healthcare Facilities, 2013 edition

2. PROPOSED SCOPE OF WORK & USE

The proposed project involves the new construction of a seven story clinical building on Congress Street in Portland, Maine. The building will have operating rooms, patient sleeping/recovery rooms, storage areas, offices, and staff facilities including locker rooms and lounges.

The building will include the following use groups and occupancies:

Group A-3/ assembly:	Conference rooms, lounges, and multi-purpose spaces exceeding 750 SF and 50 people.
Group B/ business:	Office areas, staff lockers, conference/meeting space less than 750 SF or 50 people
Group I-2 (Condition 2)/ healthcare:	Inpatient hospital care
Group S-1/ ordinary hazard storage:	Linen storage
Group S-2/ low hazard storage:	Storage/utility spaces

As indicated in the list above, the building contains Use Groups A-3, B, I-2, S-1, and S-2. These occupancies are permitted as mixed, nonseparated occupancies per the height and area analysis located in Section 4 of this report.

3. HIGH-RISE BUILDING FEATURES

The building is considered a high-rise structure since it contains an occupied floor that is located more than 75 feet above the lowest level of fire department vehicle access (IBC 202 and NFPA 101 Section 3.3.32.7). High-rise buildings must comply with IBC 403 and NFPA 101 Section 11.8. The applicable provisions for high-rise buildings are summarized below.

3.1 Structural

Since the building is considered Risk Category IV per IBC Table 1604.5, the structural integrity requirements of IBC 403.2.3 apply. Section 403.2.3 requires interior exit stairway and elevator hoistway wall assemblies to comply with impact classifications of ASTM C 1629/ C 1629M. Spray fire-resistant materials (SFRM) must have a minimum bond strength of 430 psf (IBC Table 403.2.4).

3.2 Fire Protection Systems

The following fire protection systems are required within the building as noted. Refer to Section 8 of this report for further details regarding fire protection systems.

Automatic Sprinkler System

An automatic sprinkler system is required throughout the building per IBC Sections 403.3 & 903.2.6 and NFPA 101 Sections 11.8.3.1 & 18.3.5.1. A secondary onsite water supply is required if the building is located in seismic design category C, D, E, or F (IBC 403.3). The seismic design category should be confirmed with the geotechnical or structural engineer of record.

Standpipe System

Class I standpipes must be provided (IBC 905.3 & 403.4.3 and NFPA 101 Section 11.8.4.1).

Fire Alarm System

A manual fire alarm system with an emergency voice/alarm communication system must be provided in accordance with IBC 907.2.13 (IBC 403.4.2 & 403.4.4 and NFPA 101 Section 11.8.4.1).

Smoke Detection System

An automatic smoke detection system must be provided in accordance with IBC 907.2.13.1 (IBC 403.4.1).

Emergency Responder Radio Coverage

Emergency responder radio coverage or a two-way telephone communication system must be provided (IBC 403.4.5, NFPA 1 Section 13.7.2.27.2.2, and NFPA 101 Section 11.8.4.2).

Fire Command Center

A fire command center (FCC) complying with IBC 911 must be provided in a location approved by the fire department (IBC 403.4.6 & NFPA 101 Section 11.8.6). The fire command center will be located on Level CG adjacent to Stair 1. The FCC must comply with the following requirements and contain the following features.

1. Location, layout, and features must be approved by the fire chief
2. Must be separated by 1-hr rated construction
3. Must be 200 sf with minimum dimension of 10 ft
4. Unrelated storage is prohibited in the FCC
5. Emergency voice/alarm communication system control unit
6. Fire department communications system
7. Fire detection and alarm system annunciator
8. Annunciator unit visually indicating the location of the elevators and whether they are operational

9. System indicators and controls for air distribution systems

10. Fire fighter's control panel for smoke control systems

11. Controls for unlocking interior exit stairway doors simultaneously

12. Sprinkler valve and waterflow detector display panels

13. Emergency and standby power status indicators

14. Telephone for fire department use with controlled access to the public telephone system

15. Fire pump status indicators

16. Schematic building plans

17. Building Information Card

Smoke Removal

A means of smoke removal in post-fire salvage operations must be provided in accordance with IBC 403.4.7. The means of smoke removal may be provided by natural or mechanical ventilation. Post-fire smoke purge can be achieved through natural or mechanical ventilation. Natural ventilation must consist of operable windows /panels distributed at 50-foot intervals (maximum) and with a total area of at least 40 SF per 50 linear feet of perimeter. Mechanical ventilation must provide one air change every 15 minutes with return and exhaust air moved directly to the outside.

3.3 Standby and Emergency Power

Standby power must be provided for the following (IBC 403.4.8.3 and NFPA 101 Section 11.8.5.2.4):

1. Power and lighting for the fire command center
2. Ventilation and automatic fire detection equipment for smokeproof enclosures
3. Elevators, including elevators provided for accessible means of egress and fire service access, where applicable
4. Mechanical equipment for smoke control systems
5. Electric fire pump
6. Jockey pump
7. Air compressor serving dry-pipe and pre-action systems

Emergency power must be provided for the following (IBC 403.4.8.4):

1. Exit signs and means of egress illumination
2. Elevator car lighting
3. Automatic fire detection systems
4. Fire alarm systems

5. Electrically powered fire pumps

Standby and emergency power must comply with IBC 2702 and 3003. In addition, standby power for elevators serving as accessible means of egress must comply with IBC 1009.4. Generator sets and fuel line piping located inside the building must be protected in accordance with IBC 403.4.8.1 and 403.4.8.2.

3.4 Means of Egress

Means of egress in high-rise buildings must comply with the additional provisions of IBC 403.5. These provisions include the following.

Remoteness

Required interior exit stairways in the high-rise portions of the building must be separated by a distance of at least 30 feet or at least one quarter of the length of the maximum overall diagonal of the building or area served (whichever is less). This separation distance is measured in a straight line between the closest points of the stairway enclosures. Where three or more interior exit stairways exist, at least two must be separated in accordance with IBC 403.5.1. The proposed stairs comply with the remoteness criteria.

Stairwell Re-entry & Communication System

Since the stairs serve more than four stories, re-entry to other floors from inside the stairwells must be provided in accordance with NFPA 101 Section 7.2.1.5.8 (NFPA 101 Section 18.2.2.2.9). Per this section, all stair enclosure doors must meet one of the following conditions:

1) Re-entry from the stair enclosure to the interior of the building must be provided.
2) An automatic release that is actuated with the initiation of the building fire alarm system must be provided to unlock all stair enclosure door assemblies to allow re-entry.
3) Selected re-entry must be provided and must satisfy all of the following criteria:
    a. There shall be not less than two levels where it is possible to leave the stair enclosure to access another exit.
    b. There shall be not more than four stories intervening between stories where it is possible to leave the stair enclosure to access another exit.
    c. Re-entry shall be possible on the top story or next-to-top story served by the stair enclosure, and such story shall allow access to another exit.
    d. Door assemblies allowing re-entry shall be identified as such on the stair side of the door leaf.
    e. Door assemblies not allowing re-entry shall be provided with a sign on the stair side indicating the location of the nearest door opening, in each direction of travel, that allows re-entry or exit.

In addition, stairway doors other than the discharge doors cannot be locked from the stairway side unless they can be unlocked simultaneously from the fire command center (IBC 403.5.3). This requires a stairwell communication system provided on at

least every fifth floor. The communication system must connect to an approved constantly attended station (IBC 403.5.3.1).

Smokeproof Enclosures

Every required exit stairway serving high-rise portions of the building must comply with the smokeproof enclosure requirements of IBC 909.20 and 1023.11 (IBC 403.5.4). The most common method for providing smokeproof enclosures in sprinklered buildings is through stair pressurization complying with IBC 909.20.5. A ventilated vestibule is not required using this method, provided that the pressure difference between the stair shaft and the balance of the building is a minimum of 0.10 inch of water and a maximum of 0.35 inch of water. The pressure difference must be measured with the stairway doors closed and under maximum anticipated conditions of stack effect and wind effect (IBC 909.20.5).

Luminous Egress Path Markings

Luminous egress path markings must be provided in accordance with IBC 1058.

3.5 Elevators

The following sections provide information regarding the elevator requirements.

Fire Service Access Elevators

A minimum of two fire service access elevators are required in buildings with an occupied floor greater than 120 feet above the lowest level of fire department vehicle access where at least two elevators are provided (IBC 403.6.1). Based on the plans provided to AKF on February 12, 2018 the highest occupied floor (i.e. Level G) is less than 120 feet above the lowest level of fire department vehicle access. Therefore, fire service access elevators are not required at this time. However, since future growth is expected to include a vertical expansion to the building, the current design includes two fire service access elevators. The fire service access elevator requirements of IBC 3007 include the following:

Every floor must be served by fire service access elevators (IBC 3007.1).

Fire service access elevators must be provided with a lobby complying with IBC 3007.6 (note that multiple fire service access elevators are permitted to be served by the same lobby). Per IBC 3007.6, the fire service access elevator lobbies must meet the following requirements:

- Enclosed with a smoke barrier having a minimum 1-hour fire-resistance rating and ¾-hour fire door assemblies
  - Enclosed fire service access elevator lobbies are not required on the level of exit discharge
- Have access to an interior exit stairway either directly from the lobby or through a protected path travel
  - The protected path of travel must have the same level of fire protection as the elevator lobby

- The protected path of travel must be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly complying with IBC 716.5.3

- Must have a minimum area of 150 SF with a minimum dimension of 8 feet, regardless of how many fire service access elevators are served
- Symbols complying with 780 CMR 3007.6.5 must be installed on each side of the hoistway door frame of each fire service access elevators
- A Class I standpipe hose connection must be provided in the exit stairway adjacent to the lobby. Access to this stairway is also required from each floor without passing through the FSAE lobby. It is our understanding that the design team is seeking a variance for relief from this requirement.
- Fire service access elevators must be provided with an approved method to prevent the infiltration of water into the hoistway enclosure caused by the operation of the automatic sprinkler system outside of the enclosure (IBC 3007.3).

As indicated in Section 3.3 of this report, fire service access elevators are required to be provided with standby power.

Other Elevator Lobbies

Enclosed elevator lobbies are required for all other elevators that serve high-rise levels within the building (IBC 3006.2(5)). These lobbies are required to consist of smoke partitions complying with IBC 710. Doors penetrating the enclosed elevator lobby must comply with IBC 710.5.2.2, 710.5.2.3, and 716.5.9. Ducts and air transfer openings must comply with IBC 717.5.4.1.

Number of Elevator Cars per Hoistway

Where four or more elevator cars serve all or the same portion of a building, the elevators must be located in at least two separate hoistways. A maximum of four elevator cars can be located in a single hoistway (IBC 3002.2).

Two-Way Communication

A two-way communication system must be provided at the landing serving each elevator or bank of elevators on each accessible floor that is one or more stories above or below the level of exit discharge. The two-way communication system must provide communication between the required location and the fire command center or a central control point location approved by the fire department. The system must include both audible and visible signals. Directions for the use of the system and written identification of the location must be posted adjacent to the system (IBC 1009.8).

4. HEIGHT & AREA

The building must comply with the building height and area limitations of IBC 504 and 506 based on the most restrictive occupancy classification of the building. The height and area limitations have been evaluated based on non-separated mixed uses including Use Groups A-3, B, I-2, S-1, and S-2. Since the building exceeds 5 stories in height, Type IA

construction (i.e. noncombustible, 3-hour rated) is required (IBC 503.3 and 504.4). Type IA construction is not limited in building height, number of stories, or floor area.

High-rise buildings are permitted a reduction in the required fire-resistance ratings for building elements where sprinkler control valves are provided with supervisory initiating devices and water-flow initiating deices on each floor (IBC 403.2.1.1). Since the building is less than 420 feet in height, the fire-resistance ratings required for Type IB construction (with the exception of columns) may be used while granting unlimited height and area allowances per Type IA construction (IBC 403.2.1). Although NFPA 101 does not contain a similar allowance, NFPA 101 Table 18.1.6.1 permits sprinklered healthcare buildings of Type IB (222) construction to be an unlimited in number of stories. Therefore, the building can be constructed using the required ratings for Type IB construction (except that columns must be 3-hour rated), while still utilizing the height and area limits applicable to Type IA construction.

Note that any future vertical expansion projects cannot extend the height of the building to above 420 feet since the reduction permitted by IBC 403.2.1 does not apply to buildings over 420 feet in height.

5. TYPE OF CONSTRUCTION

The following table summarizes the required ratings for modified Type IA construction (i.e. Type IB) in accordance with IBC Table 601 and NFPA 1 Table A.12.2.1.

IBC Table 601 & NFPA 101 Table A.8.2.1.2
Fire-Resistance Rating Requirements for Building Elements (Hours)

Element	Modified Type IA (i.e. Type IB) Rating (hours)
Primary structural frame (see Section 202) Columns Other	 3[A] 2[A]
Bearing walls Exterior Interior	 2[A] 2[A]
Nonbearing walls and partitions Exterior	See Table 602 discussion below.
Nonbearing walls and partitions Interior	0
Floor construction and secondary members (see Section 202)	2[A]
Roof construction and secondary members (see Section 202)	1

[A] Not less than the rating of the assemblies supported, i.e. shaft enclosures, etc.

The non-bearing exterior wall requirements are based on the fire separation distance (FSD) of each wall. The FSD is measured perpendicularly from the face of each exterior wall to the closest interior lot line, the centerline of a street, alley, or public way, or an imaginary lot line between two buildings on the same lot. Where the FSD is greater than or equal to 30 feet, the non-bearing exterior walls do not require a fire-resistance rating.

Where Table 601 or 602 requires an exterior wall to be fire-resistance rated and the FSD is less than or equal to 10 feet, the wall must be rated for exposure to fire from both sides (IBC 705.5). The exterior walls are required to maintain their structural stability for the duration of the time indicated by the fire-resistance rating.

IBC Table 602 Fire-Resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance Type IA Construction

Fire Separation Distance = X (feet)	Required Fire Resistance Rating
$X < 5$	1-hr
$5 \leq X < 10$	1-hr
$10 \leq X < 20$	1-hr
$X \geq 20$	0

Since the Congress Street building and Bean building are considered part of the same building, exterior wall protection is not required for the walls facing the Bean building. In addition, the entire north and west walls of the Congress Street building have a FSD of more than 20 feet, thus allowing unrated exterior walls in these areas. A 3-hour fire wall will be provided between the Congress Street and Visitor Garage buildings. Any exterior walls facing the Visitor Garage (other than the fire wall) must have a 1-hour rating due to the distance between the Visitor Garage and the Congress Street building.

6. FIRE AND SMOKE PROTECTED FEATURES

6.1 Exterior Walls & Opening Protectives

Openings in the exterior walls must comply with IBC 406.5.2 based on the FSD of each wall. The opening limitations are summarized below for Type IA construction.

IBC Table 705.8 Maximum Area of Exterior Wall Openings Based on Fire Separation Distance and Degree of Opening Protection

Fire Separation Distance (feet)	Degree of Opening Protection	Allowable Area
$X < 3$	Unprotected, Sprinklered	Not Permitted
$3 \leq X < 5$	Unprotected, Sprinklered	15%
$5 \leq X < 10$	Unprotected, Sprinklered	25%
$10 \leq X < 15$	Unprotected, Sprinklered	45%
$15 \leq X < 20$	Unprotected, Sprinklered	75%
$20 \leq X$	Unprotected, Sprinklered	No Limit

Since the north and west walls of the Congress Street building have a FSD of more than 20 feet, these walls are permitted to have unlimited unprotected openings. Due to the separation distance between the Congress Street and Visitor Garage buildings, no openings are permitted in the exterior walls facing Visitor Garage.

6.2 Shaft Enclosures

Vertical openings must be enclosed with shaft construction unless an alternative provision in IBC 712 and NFPA 101 Section 8.6 is met. Shafts connecting four stories or more must be enclosed with at least 2-hour fire-resistance rated construction. Shafts connecting three stories or less must be enclosed with 1-hour rated construction (IBC 713.4 and NFPA 101 Section 8.6.5).

Where the exterior wall of an exit enclosure is exposed to adjacent exterior walls by an angle less than 180 degrees, the adjacent exterior wall, or the exit enclosure wall must be rated. Whichever wall is rated must have a rating of at least 1-hour with ¾-hour opening protectives. The rating must extend at least 10 feet horizontally from the nonrated wall. The protection must extend from the ground to a level 10 feet above the highest landing of the stair, or the roofline, whichever is lower (IBC 1023.7).

6.3 Atrium

A 7-story atrium is proposed within the building. Atriums must comply the IBC 404 and NFPA 101 Section 8.6.7. In general, atriums must be enclosed with 1-hour fire barriers, with exceptions permitted for sprinkler-protected glass and glass-block walls. AKF is conducting perform a fire modeling analysis for the design of the atrium smoke control system to be reviewed with the local AHJ and State Fire Marshal's office.

Note that the atrium is not required to be included in the smoke compartment area since it is separated by sprinkler-protected glass in accordance with IBC 404.6(1.1) and NFPA 101 8.6.7 (NFPA 101 Section 18.3.7.1(3)).

6.4 Corridors

In Group I-2 occupancies, corridors must be continuous to exits and separated from other areas with walls that comply with the requirements for smoke partitions (IBC 407.2 & 407.3 and NFPA 101 Section 18.3.6.1). Doors within corridor walls are not required to be fire-resistance rated; however they must be self-latching, be provided with positive latching hardware, and must provide an effective barrier to limit smoke spread (IBC 407.3.1 and NFPA 101 Sections 18.3.6.2.2, 18.3.6.3.1, & 18.3.6.3.5). Note that there are some spaces that are permitted to be open to corridors as outlined below.

Waiting Areas

Waiting areas that are open to corridors must comply with the following requirements (IBC 407.2.1 and NFPA 101 Section 18.3.6.1(2)).

1. Must be constructed as required for corridors (i.e. smoke partitions);
2. Does not contain sleeping rooms, treatment rooms, incidental uses, or hazardous uses;
3. The space is protected by an automatic fire detection system complying with IBC 907;

4. The corridor into which the space opens is protected by an automatic fire detection system that complies with IBC 907 or the smoke compartment is protected by quick-response sprinklers;
5. The space does not obstruct access to required exits;
6. The aggregate waiting area open to the corridor in each smoke compartment is no more than 600 SF.

Care Providers' Stations

Corridors may be open to spaces for care providers, supervisory staff, doctors' and nurses' charting, communications, and related clerical areas so long as such spaces are constructed as required for corridors (i.e. smoke partitions) per IBC 407.2.2.

6.5 Smoke Compartments

Smoke barriers must be used to subdivide every story having an occupant load of 50 or more persons or used by persons receiving care, treatment or sleeping into at least two smoke compartments, each with a maximum area of 22,500 SF (as limited by NFPA 101 Section 18.3.7.1). Smoke compartments are not required on Level CB, B, or G since these spaces do not contain a healthcare occupancy and are located above or below the healthcare occupancy (NFPA 101 Section 18.3.7.2). Similarly, a smoke compartment and corresponding refuge area are not required for the lobby area of Level CG since the area does not contain a healthcare occupancy and the space is separated from the healthcare occupancy by a 2-hour horizontal exit (NFPA 101 Section 18.3.7.2 (2)). The following requirements apply to the smoke compartments.

Fire-Resistance

The smoke compartments must be separated by 1-hour rated smoke barriers with 20-minute opening protections complying with IBC 709 and NFPA 101 Section 8.5 (IBC 407.5 and NFPA 101 Section 18.3.7.3).

The smoke barrier walls will serve as horizontal exits on Level CG through C4 in order to provide additional capacity and/or reduce travel distances. Horizontal exit walls must have a 2-hour fire-resistance rating and must be constructed as fire barriers. The requirements for horizontal exits are found in Section 1.1 of this report.

Travel Distance

The travel distance from the most remote point in each smoke compartment to the smoke barrier door must be a maximum of 200 feet (IBC 407.5 and NFPA 101 Section 18.3.7.1(4)). Refer to associated Life Safety Plans for measurements of travel distances to the smoke barriers.

Refuge Area

Each smoke compartment must contain a refuge area sized to accommodate the inpatient care occupants from adjacent smoke compartments. The refuge areas must be sized using a factor of 30 SF per patient. Where the refuge area serves ambulatory occupants, the area must be sized using a factor of 6 SF per occupant. Refuge areas may consist of corridors, sleeping areas, treatment rooms, lounges, dining areas, and

other low-hazard areas (IBC 407.5.1 and NFPA 101 Section 18.3.7.5.1). Refer to the associated Life Safety Plans for illustrations of refuge areas.

Independent Egress
Means of egress from each smoke compartment must be arranged such that once occupants egress from a smoke compartment they are not required to return through the smoke compartment to evacuate the building (IBC 407.5.2 and NFPA 101 Section 18.2.4.4).

Horizontal Assemblies
Where horizontal assemblies support smoke barriers that are part of smoke compartments, such horizontal assemblies must be designed to resist the passage of smoke (IBC 407.5.3).

Smoke Dampers
Smoke dampers are required for duct penetrations through a smoke barrier wall; however there is an exception for Group I-2, Condition 2 occupancies. If the HVAC system is fully ducted and the building is equipped throughout with quick-response sprinklers in accordance with IBC 903.3.2, smoke dampers are not required (IBC 717.5.5(2).

6.6 Care Suites

Care suites are provided on Level CG and C1. Care suites are permitted in lieu of providing patient sleeping rooms with direct access to a corridor (IBC 407.4.1 and NFPA 101 Section 18.2.5.6.4). The following requirements apply to the proposed care suites. Since the post-op patients may require up to 23-hour stays in these suites, the suites are considered "patient care sleeping suites" as defined by NFPA 101 Section 3.3.272.4).

Exit Access
Spaces not classified as care suites are not permitted to exit through a care suite. In care suites required to have more than one means of egress, on exit access path is permitted to pass through an adjacent care suite (IBC 407.4.4.1 and NFPA 101 Section 18.2.5.7.2.2(C)). One means of egress from the suite must be directly to a corridor (NFPA 101 Section 18.2.5.7.2.2(B)).

Separation
Care suites must be separated from other portions of the building by smoke partitions (IBC 407.4.4.2 and NFPA 101 Section 18.2.5.7.1.2).

Protection
Patient sleeping rooms must be provided with at least one of the following (IBC 407.4.4.5 and NFPA 101 Section 18.2.5.7.2.1(D)):

- Direct visual supervision from a normally attended location within the suite (glass walls and cubicle curtains are permitted) and any sleeping rooms not provided with direct visual supervision are provided with automatic smoke detection; or
- The entire suite is provided with automatic smoke detection.

Access to Corridor

Movement from habitable rooms within the care suite to a corridor door must not require passage through more than three doors and 100 feet of travel distance (IBC 407.4.4.3 and NFPA 101 Section 18.2.5.7.2.4(A)).

Number of Means of Egress

Care suites containing sleeping rooms must have two remote exit access doors from the suite where the suite is more than 1,000 SF (IBC 407.4.4.5.2 and NFPA 101 Section 18.2.5.7.2.2(A)).

Maximum Size

Care suites containing sleeping rooms must not exceed 7,500 SF. However, the maximum area of such care suites is permitted to be increased to 10,000 SF where both direct visual supervision and smoke detection are provided throughout the suite (IBC 407.4.4.5.1 and NFPA 101 Section 18.2.5.7.2.3).

All care suites included in the current design comply with the above requirements.

6.7 Incidental Uses

IBC Table 509 and NFPA 101 Table 8.5 prescribe requirements for the protection of several incidental uses in Group I-2/healthcare occupancies. The requirements of these tables are provided below.

Incidental Uses

Room or Area	Separation and/or Protection	Code Section
Boiler and fuel-fired heater rooms	1 hour	NFPA 101 Table 18.3.2.1
Laboratories not classified as Group H	1-hour and provide automatic sprinkler system	IBC Table 509
Laundry rooms over 100 SF	1 hour	IBC Table 509 & Section 509.4.2
Physical plant maintenance shops	1 hour	IBC Table 509 & NFPA 101 Table 18.3.2.1
In Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 64 gallons (8.6 ft^3) or more	1 hour	NFPA 101 Table 18.3.2.1
In Group I-2 occupancies, storage rooms greater than 100 SF	1 hour	IBC Table 509
In Group I-2 occupancies, storage rooms less than 100 SF but greater than 50 SF and storing combustible material	Smoke partition	NFPA 101 Table 18.3.2.1 & Section 8.7.1.2

Room or Area	Separation and/or Protection	Code Section
Fire Command Center	1 hour	IBC 403.4.6 & NFPA 101 Section 11.8.6
Fire Service Access Elevator Lobby	1-hour smoke barrier	IBC 3007.4.2
Other Elevator Lobbies	Smoke partition	IBC 3006.2(5)
Emergency Electrical Rooms	2-hours or sprinkler protection	NEC 700.10(D)(2)
Emergency Feeder Circuit Wiring	2-hours or sprinkler protection	NEC 700.10(D)(1)

Note that the 2-hour floor assembly between Level CB and Level CG will serve as the separation between the storage rooms located on Level CB and the Group I-2 occupancy located on Level CG. This arrangement is consistent with the approach for separated occupancies in both IBC 508.4 and NFPA 101 Section 6.1.14.4.

6.8 Fire Walls

The Congress Street building will be connected to two other buildings on the MMC site: the Bean Building and the Visitor Garage. A fire wall will be provided between the Congress Street Building and the Visitor Garage due to the difference in construction type between these two buildings. It is our understanding that the Congress Street building and Bean Building are considered part of the same building. Therefore, both the Congress Street and Bean buildings must be consistent with Type I construction. The requirements and implications for fire walls are identified in this section.

Fire-Resistance Rating

A 3-hour fire-resistance rating is required for fire walls in Group I occupancies (IBC 706.4).

Openings

The aggregate width of openings through a fire wall at any floor level cannot exceed 25% of the length of the wall (IBC 706.8). Doors or fire shutters in the fire wall must also have a 3-hour rating (IBC Table 716.5). Doors within the fire walls must be self- or automatic-closing (IBC 716.5.9). If doors are automatic-closing, they must be automatic-closing by the actuation of smoke detectors or by loss of power to the smoke detector or hold-open device. The doors must begin to close within 10 seconds of smoke detector activation or power failure (IBC 716.5.9.3).

Horizontal Continuity

Per IBC 706.5, fire walls must be continuous from exterior wall to exterior wall and must extend at least 18 inches beyond the exterior surface of exterior walls. However there are exceptions as follows:

1. The fire wall may terminate at combustible exterior sheathing or siding if the exterior walls within 4 feet of the fire wall on each side are 1-hour rated with ¾-hour opening protectives.
2. The fire wall may terminate at noncombustible exterior sheathing, siding, or other finish if such noncombustible finishes are extended a distance of at least 4 feet on each side of the fire wall.

Per IBC 706.5.2, fire walls must extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, marquees, and similar projections that are within 4 feet of the fire wall. Note however there are some exceptions to this requirement. The applicability of the exceptions depends on whether the projections contain concealed openings. If the projections do not contain concealed spaces, the fire wall is not required to extend to the edge of the projection if the exterior wall behind and below the projection is 1-hour fire-resistance rated for a distance at least equal to the depth of the projection. Exterior openings within this rated wall must be protected with ¾-hour opening protectives (IBC 706.5.2(1)).

Vertical Continuity

Per IBC 706.6, fire walls must have vertical continuity such that they extend from the foundation to a termination point at least 30 inches above both adjacent roofs unless one of the exceptions to Section 706.6 is met, as follows.

1. The buildings comply with the requirements for stepped buildings in IBC 706.6.1.
2. Two-hour fire-resistance rated fire walls may terminate at the underside of the roof sheathing, deck, or slab if the following provisions are met:
    a. The lower roof assembly within 4 feet of the fire wall is at least 1-hour fire-resistance rated and the entire length of the span of supporting elements for the rated roof assembly are1-hour rated as well.
    b. There are no openings in the roof within 4 feet of the fire wall.
    c. Each building has at least a Class B roof covering.
3. Where both buildings have at least a Class B roof covering, fire walls may terminate at the underside of noncombustible roof sheathing, deck or slabs. Openings in the roof within 4 feet of the fire wall are prohibited.
4. The buildings have sloped roofs complying with IBC 706.6.2.

Exterior Wall Exposure

Where the fire wall intersects the exterior walls and exterior walls form an angle of less than 180 degrees, protection must be provided by one of the following methods (IBC 706.5.1).

1. The exterior walls on both sides of the fire wall must have a 1-hour fire-resistance rating and ¾-hour opening protectives for a distance of 4 feet from the intersection with the fire wall.
2. An imaginary lot line must extend beyond the fire wall and the required fire-resistance rating and opening protection for the exterior walls on either side of the fire wall must be based on the FSD to this imaginary lot line.

7. INTERIOR FINISH

The interior finishes of the walls, ceilings, and floors of the building are governed by IBC Chapter 8 and NFPA 101 Chapter 10. These chapters outline the testing requirements for the different surfaces. The required tests and finish classifications are summarized in the tables below.

Finish Characteristics

Element	Test Method	Criteria
Wall & Ceiling Finishes	ASTM E84 or UL 723	Class A = FSI 0-25; SDI 0-450
		Class B = FSI 26-75; SDI 0-450
		Class C = FSI 76-200; SDI 0-450
Floor Finish	NFPA 253	Class I = 0.45 W/cm^2 or greater
		Class II = 0.22 W/cm^2 up to 0.45 W/cm^2
	DOC FF-1	Pass

Notes:
FSI = flame spread index
SDI = smoke-developed index

Interior Wall and Ceiling Finish Requirements by Occupancy (Fully Sprinklered Building)

Use Group	Walls & Ceilings			Floors	
	Exit enclosures and exit passageways	Corridors	Rooms and enclosed spaces	Exits and corridors	Other spaces
A-3	B	B	C	DOC FF-1	DOC FF-1
B	B	C	C	DOC FF-1	DOC FF-1
I-2	B	B	B[A]	Class II	Class II
S-1 & S-2	C	C	C	DOC FF-1	DOC FF-1

[A] Class C interior finish materials are permitted in rooms with a capacity of four persons or less.

The tables above show the required interior finish classes throughout the building based on the most restrictive requirements of IBC Table 803.11 and NFPA 101 Table A.10.2.2. Note that where corridors are shared by both occupancies, the most restrictive finish must be used (i.e. Class B). All floors throughout the building must pass the DOC FF-1 "pill test".

8. FIRE PROTECTION SYSTEMS

In addition to the systems discussed in Section 3 of this report, the following fire protection requirements also apply.

8.1 Automatic Sprinkler System

Since the smoke compartments contain patient sleeping rooms, listed quick-response or listed residential sprinklers must be used (NFPA 101 Section 18.3.5.6).

8.2 Fire Alarm and Detection System

In addition to the manual fire alarm system, an automatic smoke detection system must be provided in the inpatient corridors and in any areas open to the corridors (i.e. not separated by smoke partitions). Based on the plans provided to AKF on February 12, 2018, the proposed waiting areas are not open to the inpatient corridors.

The fire alarm system must transmit an alarm automatically to the municipal fire department (NFPA 101 Section 9.6.4 & 18.3.4.3.2.1).

8.3 Standpipe System

A standpipe system is required throughout the building since the floor level of the highest story is located more than 30 feet above the lowest level of fire department vehicle access. Class I standpipes must be provided in sprinklered high-rise buildings per IBC 905.3.1 and NFPA 101 Section 11.8.3.2.

Class I standpipes must be installed in the following locations in accordance with IBC 905.4:

- In every required interior exit stairway. Class I standpipe hose connections must be provided for each story above and below grade and must be located at an intermediate landing between stories, unless otherwise approved by the authority having jurisdiction (AHJ).

- At each horizontal exit. Class I standpipe hose connections must be provided on each side of the wall adjacent to the exit opening, unless the floor areas adjacent to the horizontal exit are reachable from an interior exit stairway hose connection by a 30-foot hose stream from a nozzle attached to 100 feet of hose.

- In every exit passageway. Class I standpipe hose connections must be provided at the entrance from the exit passageway to other areas of the building, unless the floor areas adjacent to the exit passageway are reachable from an interior exit stairway hose connection by a 30-foot hose stream from a nozzle attached to 100 feet of hose.

- In remote portions of the floor. Where the most remote portion of a sprinklered floor is more than 200 feet from a hose connection, the fire code official is authorized to require that additional hose connections be provided in approved locations.

8.4 Portable Fire Extinguishers

Portable fire extinguishers must be provided in accordance with NFPA 10 (IBC 906 and NFPA 101 Section 18.3.5.12).

8.5 Electrical Systems

The essential electrical system for electrical components, equipment, and systems must be designed and constructed in accordance with IBC Chapter 27 and NFPA 99 (IBC 407.10 and NFPA 101 Section 18.5.1.2).

9. MEANS OF EGRESS

The applicable means of egress requirements for the building are described below.

9.1 Egress Summary

See the associated Life Safety Plans for the calculated occupant loads throughout the building. The occupant loads of the building were calculated based on the occupant load factors in accordance with IBC Table 1004.1.2 and NFPA 101 Table 7.3.1.2. The capacities of the exits are calculated in accordance with IBC 1005.1 and NFPA 101 Table 7.3.3.1.

9.2 Exit Access Travel Distance

The exits are required to be arranged such that the maximum exit access travel distance is as follows (IBC 1017.2 and NFPA 101 Sections 12.2.6.2(1), 18.2.6.2.1, 38.2.6.3, & 42.2.6).

Occupancy	With Sprinkler System (feet)
A-3	250
B	300
I-2	200
S-1	250
S-2	400

The maximum travel distance allowed from a Group I-2 sleeping room to an exit access door in that room is 50 feet (IBC 407.4.2 and NFPA 101 Section 18.2.6.2.3).

Refer to the associated Life Safety Plans to note travel distance compliance.

9.3 Corridor Width

Corridors must provide the following minimum clear widths (IBC 1020.2 and NFPA 101 Section 18.2.3.4 & 38.2.3.2):

- 96 inches where serving bed movement areas;
- 44 inches in other areas where the occupant load is 50 or more; and
- 36 inches in other areas where the occupant load is less than 50 people.

Where corridors are required to be 96 inches, the following projections are permitted by NFPA 101 Section 18.2.3.4:

- Projections into the required width are permitted for wheeled equipment, provided all of the following conditions are met:
  - The wheeled equipment does not reduce the required clear unobstructed corridor width to less than 60 inches
  - The health care occupancy fire safety plan and training program address the relocation of the wheeled equipment during a fire or similar emergency
  - The wheeled equipment is limited to the following: equipment in use and carts in use, medical emergency equipment not in use, and patient lift and transport equipment

- Projections into the required width are permitted for fixed furniture, provided all of the following conditions are met:
  - The fixed furniture is securely attached to the floor or to the wall
  - The fixed furniture does not reduce the clear unobstructed corridor width to less than 6 feet
  - The fixed furniture is located only on one side of the corridor
  - The fixed furniture is grouped such that each grouping does not exceed an area of 50 sf
  - The fixed furniture groupings are separated from each other by a distance of at least 10 ft
  - The fixed furniture is located so as to not obstruct access to building service and fire protection equipment
  - Corridors throughout the smoke compartment are protected by an electrically supervised automatic smoke detection system, or the fixed furniture spaces are arranged and located to allow direct supervision by the facility staff from a nurses' station or similar space.

Since the IBC does not address corridor projections for I-2 Condition 2 occupancies, we recommend reviewing any proposed projections with the building official for approval.

The exit access must be arranged such that dead ends do not exceed 20 feet in corridors serving Group I-2 and A-3 occupancies and do not exceed 50 feet in corridors serving other occupancies (IBC 1020.4 and NFPA 101 Sections 38.2.5.2.1 & 42.2.5).

9.4 Number of Exits and Continuity

Two means of egress must be provided from individual spaces where the occupant load and/or common path of travel distance exceeds the limitations of IBC Table 1006.2.1 and NFPA 101 Sections 12.2.5.1.2, 38.2.5.3.1 & 42.2.5.

Spaces with One Means of Egress

Use Group	Maximum Occupant Load	Maximum Common Path of Travel Distance (ft)
A-3	49	75[A]
B	49	100
I-2	10	75
S-1, S-2	29	100

[A] The common path of travel in assembly occupancies is permitted to be 75 feet where the path serves not more than 50 occupants. Where the path serves more than 50 occupants, the common path of travel is limited to 20 feet; however, an occupant load exceeding 50 will require a second means of egress.

In addition, habitable spaces must have an exit access door leading directly to a corridor unless an exit door is provided directly to the exterior at ground level (IBC 407.4.1 and NFPA 101 Section 18.2.5.6.1).

All spaces within each story must have access to the minimum number of independent exits from the story as required by IBC Table 1006.3.1 and NFPA 101 Section 7.4.1.2 below.

Minimum Number of Exits Per Story

Occupant Load (persons per story)	Minimum Number of Exits (per story)
1-500	2
501-1,000	3
More than 1,000	4

Where more than one means of egress is required, the exits must be separated by ⅓ of the overall diagonal distance of the space served (IBC 1007.1.1 and NFPA 101 Section 7.5.1.3.2). This separation distance is measured between the doors to Stair 1 and 2. See Section 3.4 of this report for the required separation between the closest points of the stairway enclosures.

Where more than one means of egress is required, at least two accessible means of egress must be provided. Where one means of egress is permitted, at least one means of egress must be accessible (IBC 1009.1 and NFPA 101 Section 7.5.4).

9.5 Exterior Stairs

An exterior stair is proposed for Level CG, C1, and C2 and the stair will be at or very near grade. The stair provides access from the building to Gilman Street. The use of the exterior stair as a means of egress from Level CG, C1, and the green roof on C2 will likely require a compliance alternative or variance.

There are two types of exterior stairs: exterior exit stairs and exterior exit discharge stairs. Exterior exit discharge stairs are generally considered stairs that provide occupants access to grade, but only require travel on the stair for less than a story.

Exterior exit stairs are those outside stairs that require occupants to travel a story or more to reach grade. The proposed stair falls into a gray area of the code because while occupants would travel more than a story to reach street level, the stair itself would be at grade or very near grade due to the sloped site.

Since exterior exit stairs require travel for a story or more, greater protection measures are required for such stairs. Typically these stairs are not permitted in Group I-2 occupancies and/or in buildings more than six stories in height or high-rise buildings (IBC 1027.2). That being said, the height limitation is to prevent occupants from experiencing vertigo or from being afraid to use the stair. Since the stair only connects the first through third story and will be at or near grade, it complies with the intent of the code and aligns with the intent of an exit discharge stair. In addition, NFPA 101 permits the use of exterior exit stairs in hospitals (Section 18.2.2.3). Therefore, in our opinion this is a reasonable compliance alternative approach to be reviewed with the building official.

Exterior stairs must comply with the following requirements. While the stair could be considered an exit discharge stair, we recommend complying with the following as part of the compliance alternative or variance approach.

- Exterior exit stairs must be open on at least one side, except as required for structural columns, beams, handrails, and guards (IBC 1027.3 and NFPA 101 Section 7.2.2.6.6).
    - Open sides must be at least 50% open and have an aggregate open area of at least 35 SF adjacent to each floor level and the level of each intermediate landing.
    - The required open area must be located at least 42 inches above the adjacent floor or landing level.
    - The stair must be arranged to avoid impediments to its use by persons having fear of high places. Stairs more than 36 feet above the finished ground level must be provided with an opaque visual obstruction not less than 48 inches in height (NFPA 101 Section 7.2.2.6.2).
- The open areas adjoining the stair must be either yards, courts, or public ways. The remaining sides may be enclosed by the exterior walls of the building (IBC 1027.4).
- The stair must have a minimum FSD of 10 feet measured at right angles from the exterior edge of the stair to adjacent lot lines, other portions of the building, and other buildings (IBC 1027.5).
- The exterior stairway must be separated from the interior of the building as required for interior stairs. Since the proposed stair connects less than 4 stories, a 1-hour separation is required (IBC 1027.6 & 1023.2 and NFPA 101 Section 7.2.2.6.3.1).
    - The 1-hour separation must extend horizontally for at least 10 feet beyond the stair and vertically from finished ground level to a point 10 feet above the topmost landing of the stair, or to the roofline (whichever is less) (NFPA 101 Section 7.2.2.6.3.2).
    - Roof construction must provide protection beneath the stairs and must extend horizontally at least 10 feet to each side of the stair (NFPA 101 Section 7.2.2.6.3.3).

- Where a vertical plane projecting from the edge of the stair and stair landing is exposed by other parts of the building by an angle less than 180 degrees, the exterior wall must be rated in accordance with IBC 1023.7. See section 6.2 of this report.
- All openings below the stair must have a ¾-hour rating where the stair is located as follows (NFPA 101 Section 7.2.2.6.4):
    - In an enclosed court with a smallest dimension that does not exceed ⅓ its height; or
    - In an alcove having a width that does not exceed ⅓ its height and a depth that does not exceed ¼ its height.
- The stair must be designed to minimize water accumulation on the walking surface (IBC 1011.7.2 and NFPA 101 Section 7.2.2.6.5).

9.6 Horizontal Exits

Horizontal exits will be provided on various levels of the building. In addition to the inpatient floors, horizontal exits will also be provided at the connection to the Bean Building for Levels B and G. Requirements for horizontal exits are as follows.

Separation

The separation between buildings or portions thereof connected by a horizontal exit must be provided by a fire wall or fire barrier (IBC 1026.1). The minimum fire-resistance rating of the separation is 2 hours, but the separation cannot be less than required by other sections of the code. The fire wall between the Congress Street building and the Visitor Garage must have a minimum 3-hour fire-resistance rating per IBC 706.4.

Horizontal exits constructed as fire barriers must be continuous from exterior wall to exterior wall so as to divide completely the floor served by the horizontal exit. In addition, where the fire barrier serving as a horizontal exit intersects exterior walls at an angle of less than 180 degrees, the exterior walls must have a 1-hour fire-resistance rating with ¾-hour rated opening protectives for a distance of at least 10 feet on both sides of the horizontal exit (IBC 1026.2 and NFPA 101 Section 7.2.4.3.). The smoke barrier/horizontal exit wall on Level C2 through C4 intersects exterior walls that are at an angle of less than 180 degrees. Therefore, exterior wall protection is required. Refer to the associated life safety plans for further details.

Opening Protectives

Fire doors in horizontal exits must be self-closing or automatic-closing when activated by a smoke detector. Doors, where located in a cross-corridor condition, must be automatic closing by smoke detector activation (IBC 2026.3 and NFPA 101 Sections 7.2.4.3.10 & 7.2.4.3.11). Doors in horizontal exits must provide a minimum 1½-hour fire-resistance rating. However, doors in 3-hour fire walls must provide a minimum 3-hour rating (IBC Table 716.5 and NFPA Table 101 8.3.4.2)

Refuge Areas & Capacity

The refuge area of a horizontal exit must be a space occupied by the same tenant or a public area. Each refuge area must be adequate to accommodate the original occupant load of the refuge area plus the occupant load anticipated from the

adjoining compartment. The anticipated occupant load from the adjoining compartment must be based on the capacity of the horizontal exit doors entering the refuge area (IBC 1026.4).

The capacity of the refuge area should be computed based on a net floor area allowance of 3 SF per occupant. The capacity of refuge areas serving Group I-2 occupants must be calculated at 15 SF per occupant for ambulatory occupancies and 30 SF per occupant for nonambulatory occupancies (IBC 1026.4.1 and NFPA 101 Section 7.2.4.2.4).

Not less than one means of egress from the area of refuge must lead directly to the exterior or to an interior exit stairway or ramp (IBC 1026.4.2).

9.7 Doors

Cross-corridor door openings in corridors required to be at least 96 inches wide must have a clear width as follows (NFPA 101 Section 18.2.3.4(6)):

- 6 feet, 11 inches for pairs of doors; and
- 41 ½ inches for a single door.

The above provisions also apply to any doors in the means of egress from the patient rooms (NFPA 101 Section 18.2.3.6). However, exit stair enclosure doors are only required to provide a minimum clear width of 32 inches (NFPA 101 Section 18.2.3.7). Since the proposed exterior stair will be serving as an exit stair, it is our opinion that the doors serving this stair are also only required to provide a minimum of 32 inches in clear width. Doors not serving bed-traffic must have a minimum clear width of 32 inches (IBC 1010.1.1 and NFPA 101 Section 7.2.1.2.3.2). All doors serving an occupant load of 50 or more people must swing in the direction of egress travel (IBC 1010.1.2 and NFPA 101 Section 7.2.1.4.2).

9.8 Locking Devices

Unless complying with IBC 1010.1.9.6 and NFPA 101 Section 18.2.2.2.5, locking devices that restrict access to a care recipient's room from the corridor and that are operable only by staff from the corridor side must not restrict the means of egress from the care recipient's room (IBC 407.4.1.1 and NFPA 101 Section 18.1.3.2(1)).

9.9 Aisles and Aisle Accessways

In assembly areas such as the Interprofessional Lounges on Level C2 and C3, aisles and aisle accessways must provide a minimum clear width between seating as summarized below.

Aisles

Aisles serving table seating on one side must have a clear width of at least 55 inches. Where seating is provided on both sides of the aisle, the aisle must have a clear width of 74 inches when serving less than 50 seats, and 80 inches when serving 50 or more

seats. The clear aisle width must be measured from the edge of the tables (IBC 1029.9.6 & 1029.12.1).

Aisle Accessways

Aisle accessways serving seating on one side must have a minimum clear width of 31 inches. Aisle accessways serving seating on both sides must have a minimum clear width of 50 inches. The clear width must be increased ½-inch for each additional foot, or fraction thereof, beyond 12 feet of aisle accessway length. No minimum width for aisle accessways having a length not exceeding 6 feet and used by a maximum of four people. The clear aisle accessway width must be measured from the edge of the tables (IBC 1029.12.1).

10. ACCESSIBILITY

Accessibility requirements for medical facilities are provided in the American's with Disabilities Act Standards (ADA). All of the patient sleeping rooms must comply with ADA 805 (ADA 223.2.2).

11. MECHANICAL

The building must be provided with mechanical ventilation in accordance with ASHRAE 62.1, 2013 edition.

12. ENERGY CONSERVATION

The building is subject to with the requirements of IECC 502, 503, and C504 or ASHRAE 90.1 – 2013 (IECC 501.2).

13. PLUMBING FIXTURES

The following table summarizes the plumbing fixtures provided in the Congress Street building. The subsequent sections discuss the analysis for each of the floors. The plumbing fixture analysis is based on the requirements of the 2015 IAPMO UPC as adopted and amended by Maine.

Floor Level[A]	Occupancy	Toilets Provided		Urinals	Lavatories Provided		Max Occupant Load Supported			Maximum Expected Occupant Load
		Male	Female		Male	Female	Male	Female	Total	
CB	Group B	1	1	0	1	1	50	15	30	11
CG	Group A-3	2	3	0	2	3	200	100	200	181
	Group I-2 - Employee	1	2	0	1	2	15	15	30	25
	Group I-2 - Patient	4 Unisex					32 patients			41[B]
C1	Group I-2 - Employee	2	3	0	2	3	35	35	70	4
C2	Group I-2 - Employee	1	2	0	1	2	15	15	30	16
	Group I-2 - Public	1	1	0	1	1	1 waiting room			1 waiting room
	Group I-2 - Patient	1 per room					32 patient rooms			32 patient rooms
C3	Group I-2 - Employee	1	2	0	1	2	15	15	30	16
	Group I-2 - Public	1	1	0	1	1	1 waiting room			1 waiting room
	Group I-2 - Patient	1 per room					32 patient rooms			32 patient rooms
B	Group I-2 - Employee	3	5	2	3	3	135	95	190	190
G	Group B	2	3	1	3	3	200	50	100	49

[A] Level C4 is not included in the table since the space is shell space and will be fit-out at a future date. Bathroom fixtures will be provided once the space is fit-out for occupancy.

[B] While the post-op suite includes 41 beds, full occupancy is not expected at one time. The toilet fixtures provided for patients have a capacity of 32 patients, which is approximately 78% of the number of beds.

13.1 LEVEL CB

On Level CB, bathrooms are provided for the IT offices located on this level as well as potential transient staff. The IT office has 11 work stations. Although the floor plans show two toilets and lavatories for each sex, it is our understanding that the number of fixtures may be reduced to one toilet per sex. Therefore, the table above only includes one toilet and lavatory per sex. These fixtures support a total staff population of 30 people. This proves sufficient to support the IT staff as well as additional capacity for transient workers. It is also our understanding that additional staff bathrooms may be provided at or near the employee entrance on Gilman Street. Since staff members are accommodated with bathrooms on other floors, these additional staff toilet rooms are not required but provided for convenience purposes for staff arriving/leaving through the staff entrance at this location. The number of plumbing fixtures provided here is subject to the design team's consideration.

13.2 LEVEL CG

A combination of staff, public, and patient restrooms are provided on this floor. The following sections discuss each population.

Staff
A total of 3 unisex staff bathrooms are provided on Level CG. These fixtures can support a maximum of 30 staff members. Approximately 25 staff workstations are shown on the plans. Therefore, the proposed fixtures provide sufficient capacity.

Public
A total of 3 unisex bathrooms and one set of individual bathrooms for each sex are provided for public use. These fixtures can support a maximum of 200 people. Approximately 181 seats are shown in the CG waiting area. Therefore, the fixtures provide sufficient capacity for the expected occupant load.

Patients
A total of 4 unisex patient bathrooms are provided on Level CG. These fixtures can support a maximum of 32 patients.

While the post op suites contains 41 patient beds, we do not expect all beds to be occupied at one time and therefore the 4 patient toilet rooms are considered sufficient since they provide for 78% of the beds to be occupied. If all beds could be occupied at one time, two additional patient bathrooms are required. We recommend reviewing the proposed layout with MMC the local plumbing inspector for approval.

13.3 LEVEL C1

Level C1 is provided with 5 unisex staff toilets that are intended to serve staff in the PACU suite. The 5 staff toilets can support a maximum of 70 employees. A total of 4 staff workstations are shown in the PACU suite. Therefore, the proposed fixtures provide sufficient capacity.

Due to the de-gowning process for operating room (OR) staff, the OR employees are expected to use the bathrooms in the locker rooms located on Level B. No patient bathrooms are provided on this floor since patients in the PACU suite and ORs will be unconscious and unable to use the restroom. Once patients become conscious, they are moved to a different floor (i.e. Stage 2) where they will have access to restrooms. Stage 2 will be either Level CG post op suite to await discharge or relocation to an inpatient room.

13.4 LEVEL C2 & C3

A combination of staff, public, and patient restrooms are provided on Level C2 and C3. The following sections discuss each population.

Staff
A total of 3 unisex staff toilet rooms are provided on each floor. These toilet rooms can support a maximum of 30 employees. Levels C2 and C3 will contain a staff to patient ratio of 1:2. Since there are 32 beds on each floor, approximately 16 employees are expected on each floor. Therefore, the proposed staff fixtures can accommodate the expected staff population as well as additional transient staff who may be on the floors temporarily such as doctors, nutritionists, etc.

Public

A total of 2 unisex toilet fixtures are provided for the waiting rooms on each floor. These fixtures provide sufficient capacity in accordance with UPC Table 422.1.

Patient

Each patient room is provided with an individual toilet room in accordance with UPC Table 422.1.

13.5 Level C4

Level C4 is not included in the plumbing fixture analysis since the space is being constructed as shell space for future fit-out. Plumbing fixtures will be provided on Level C4 at a later date as needed for the future program.

13.6 LEVEL B

Locker rooms are provided on Level B for use by OR staff. There are 19 ORs provided on Level C1 with a maximum of 6-10 employees expected in each OR. This staff count totals a maximum of 190 people. With the ORs operating at 80% capacity, the typical OR staff population is approximately 152 people. As shown in the attached summary table, proposed locker room fixtures can support both the typical (i.e. 152) and maximum (i.e. 190) expected occupant loads for the OR staff.

13.7 LEVEL G

Level G contains a staff lounge as well as serves as a public entrance to the building from the Visitor Garage. Therefore, public restrooms have been provided at this level. As shown in the table on page 26, sufficient restrooms have been provided on other floors for both the public and staff populations. Therefore, the fixtures provided on Level G are for convenience only.

The staff lounge on Level G has a calculated occupant load of 49 people and therefore qualifies as a Group B occupancy. Using the factors applicable to Group B occupancies, the proposed fixtures can support 100 people (UPC Table 422.1). This capacity is sufficient for the population of the staff lounge and provides excess capacity for transient staff and/or members of the public.

WRITTEN SUBMISSION 26 – AVAILABILITY AND ADEQUACY OF PUBLIC UTILITIES
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

ATTACHED ARE AN ABILITY TO SERVE CONFIRMATION FROM CENTRAL MAINE POWER REGARDING ELECTRICAL SERVICE, AND AN EMAIL TO PORTLAND WATER DISTRICT REQUESTING AN ABILITY TO SERVE CONFIRMATION. THE RESPONSE FROM PORTLAND WATER DISTRICT WILL BE SUBMITTED UPON RECEIPT.

REGARDING SOLID WASTE MANAGEMENT, THE APPLICANT HAS A CONTRACT WITH TROIANO WASTE MANAGEMENT WHO WILL CONTINUE TO PROVIDE THIS SERVICE FOR THE CONGRESS STRET BUILDING.

From:	Cough, Jamie
To:	Troidl, Adam
Subject:	CMP Three Phase Ability to Serve Request and Three Phase Service Process
Date:	Monday, September 24, 2018 8:12:00 AM
Attachments:	Easement Information Worksheet.doc Standard Easement Sample.pdf 2July 2018 EDET.XLSX

9/24/18

Adam Troidl, LEED AP
Vice President | Development & Consulting Services
Colliers International

Sent via email to: adam.troidl@colliers.com

RE: CMP Ability to Serve Letter for Maine Medical Center Expansion

Project Description: Maine Medical Center 263,000 sf clinical building at the corner of Congress & Gilman. This will be a redevelopment of an existing 1,200 car +/- parking garage site on the existing primary metered campus on Congress Street.

Dear Mr. Troidl:

CMP has the ability to serve the proposed project in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Standards Handbook. If you have any questions on the process, or need help in completion of the documents, **please contact me at 207-629-1489.**

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let me know. The underlined links will redirect you to the appropriate site for additional information.

Service Milestones for Three Phase Services and CT Rated Single Phase Services. Please refer to CMP Installation Checklists for other installations.

- Call 1-800-S6S-3181 to establish a new account (if needed) and an SAP work order. Please provide both of these to me.
- Submit Load information. Please complete the attached EDET (excel file) using load information. . Please complete this and email back to me.
- Submit the easement information worksheet. Please complete this form and either email or fax back to me.
- Submit any electronic drawings (PDF (preferred) or DWG files) of the site layout and proposed electrical connections if you have them.

- Preliminary meetings with CMP Advisor and Engineer to determine details of job (I will need to schedule with your electrician/contractor-please let me know who this is)
- Field planner design appointment to cost out job and develop CMP invoice. The invoice is typically generated 5-6 weeks after the design appointment. This expires after 90 days from the invoice date.
- CMP submits invoice to the customer for payment (typically via email). Payment received from customer.
- Easements (based on easement information worksheet) sent out, signed and originals returned to CMP.
- Job scheduled for completion after the electrical inspection has been received.

This process can take several months, depending upon several factors including transformer or materials delivery, return of completed paperwork, and other jobs in the system that may be ahead of yours. In addition, contact with the other utilities, including telephone and cable, should be commenced as soon as practical. They may have additional work or charges in addition to the CMP work required to bring your project on line.

Please complete the attached forms (the specific instructions are on each form) and email them back to me at your earliest convenience.

For your convenience, here is a link to the CMP Website which contains our Handbook with details on most service requirements: CMP Handbook of Standard Requirements

You will be responsible for installing the customer connections, conduits, and metering in accordance with the CMP Handbook of Standard Requirements. The transformer will be sized based on your submitted load sheets.

Your deposit amount will be typically based on an estimated two month bill, calculated from your completed load sheet unless otherwise determined by CMP.

Metering:

All metering (including locations) must be preapproved by CMP.

Chapter 324 Interconnections:

Please be advised that if you plan to install solar/wind/hydro generation, you must complete an application under the MPUC mandated Chapter 324 Interconnection Standards. If you go to Chapter 324 Interconnection Standards and follow the instructions for the Small Generator Interconnection Procedures, CMP can do this work in parallel to your service request that will be handled by me. If you project is under 660 KW You will be able to have a Customer Net Energy Billing contract. Information concerning Customer Net Energy Billing can be accessed thru the Chapter 324 website or by clicking here: Net Energy Billing

Reallocation/Line Extensions:

Recently, changes were made to the three-phase construction policy, which require CMP to reallocate construction costs paid by customers. If applicable, those projects identified as "developments" do not qualify for reallocation of funds. Please see this document at our website for details about the reallocation conditions. Any reallocation charges will be specifically denoted on your invoice. The website address for this is: PolyphaseLineExtension .

This line extension will be part of Central Maine Power's distribution system. In the event the property served under this Agreement is sold or otherwise conveyed, all rights and obligations of the Agreement shall stay with the property. Please note that if you rent or lease this property to another and you want to receive the reimbursement payments, you must make special arrangements with the Central Maine Power Company. Otherwise, any reimbursement payments will be sent to the "Customer" taking service at the service location.

Electricity Supplier Information:

Central Maine Power Company (CMP) will provide your facility with electric delivery service. If you don't already have a provider, you will need to make arrangements with a competitive electricity provider in order to receive electricity supply for your facility. In the event you fail to choose a competitive electricity provider, you will receive Standard Offer service arranged by the Maine Public Utilities Commission. If you wish to be served by a competitive electricity provider immediately upon establishment of delivery service, you must arrange for this service directly through your chosen competitive electricity provider, who must enroll your account no later than 5 PM on the business day prior initiation of delivery service by CMP. An up-to-date list of competitive suppliers can be found at the:

1) Maine Public Utilities Commission (MPUC) web site- **Maine PUC**
2) By calling the MPUC at (207) 287-3831

Attachments:

Excel Load Sheet (EDET)
Easement Worksheet and Sample Standard Easement

Regards,

Jamie

Jamie Cough
Energy Services Advisor
Central Maine Power Company
162 Canco Road

Portland, ME 04103
207-842-2367 office

CENTRAL MAINE
POWER

==========

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Will Conway

From: Dylan Stuart
Sent: Monday, September 24, 2018 11:22 AM
To: rbartels@pwd.org
Cc: Will Conway; 15466
Subject: Maine Medical Center Ability to Serve Request
Attachments: 15466U2-U-CONGRESS.pdf

Robert,

I am writing to request an ability to serve letter for the Maine Medical Center Expansion project following our meeting from last week. We have updated the locations for the domestic and fire services coming from Gilman and Congress Street. Please see the attached Utility plan as well as the most updated Peak Flow Based on Fixture Count form that was filled out by our MEP engineer.
Please let me know if you have any questions or require any additional information.

Thank you,

Dylan Stuart *Civil Engineer*
Office: 207.200.2100 | Direct: 207.200.2093
75 John Roberts Rd., Suite 4A, South Portland, ME 04106
dstuart@sebagotechnics.com | www.sebagotechnics.com
An Employee-Owned Company

SEBAGO
TECHNICS

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Peak Flow Based on Fixture Count

Customer	Maine Medical Center
Street Address	22 Bramhall Street
City	Portland

Fixture		Fixture Value 60 psi		No. of Fixtures		Fixture Value
Bathtub		8	x	0	=	0
Bedpan Washers		10	x	5	=	50
Bidet		2	x	0	=	0
Dental Unit		2	x	0	=	0
Drinking Fountain - Public		2	x	0	=	0
Kitchen Sink		2.2	x	95	=	209
Lavatory		1.5	x	141	=	211.5
Showerhead (Shower Only)		2.5	x	100	=	250
Service Sink		4	x	10	=	40
Toilet	-Flush Valve	35	x	142	=	4970
	-Tank Type	4	x	0	=	0
Urinal	-Pedestal Flush Valve	35	x	0	=	0
	-Wall Flush Valve	16	x	17	=	272
Wash Sink (Each Set of Faucets)		4	x	8	=	32
Dishwasher		2	x	0	=	0
Washing Machine		6	x	0	=	0
Hose (50 ft. Wash Down)	-1/2 in.	5	x	0	=	0
	-5/8 in.	9	x	0	=	0
	-3/4 in.	12	x	0	=	0

Combined Fixture Value Total: 6034.5

Customer Peak Demand From Fig. 4-2 or 4-3	175
Pressure Factor From Table 4-1	1.17

No. of Irrigation Sections (Areas of 100 sq. ft.)	0
Irrigation Factor (1.16-Spray Systems, 0.40-Rotary Systems)	

Hose Bibs for Irrigation:

Size	Fixture Value	No. of Fixtures
1/2"		
5/8"		
3/4"		

Total Fixed Demand (Peak Flow) **204.75** gpm

Table 4-1 Pressure Adjustment Factors

Working Pressure at Meter Discharge (psi)	Pressure Adjustment Factor
35	0.74
40	0.80
50	0.90
60	1.00
70	1.09
80	1.17
90	1.25
100	1.34

Adapted from AWWA Manual M22 table 4-1

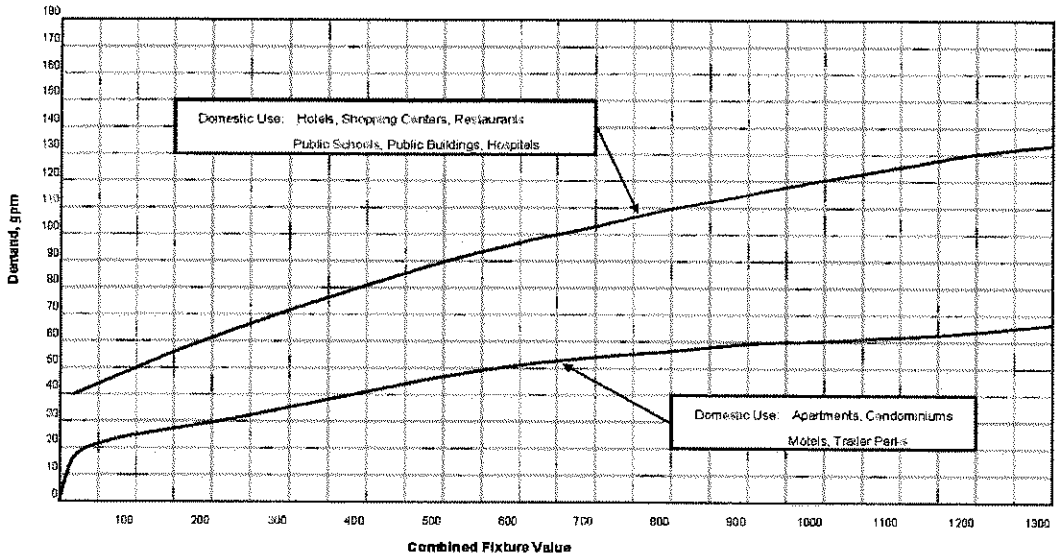

Figure 4-2 Water flow demand per fixture value - low range

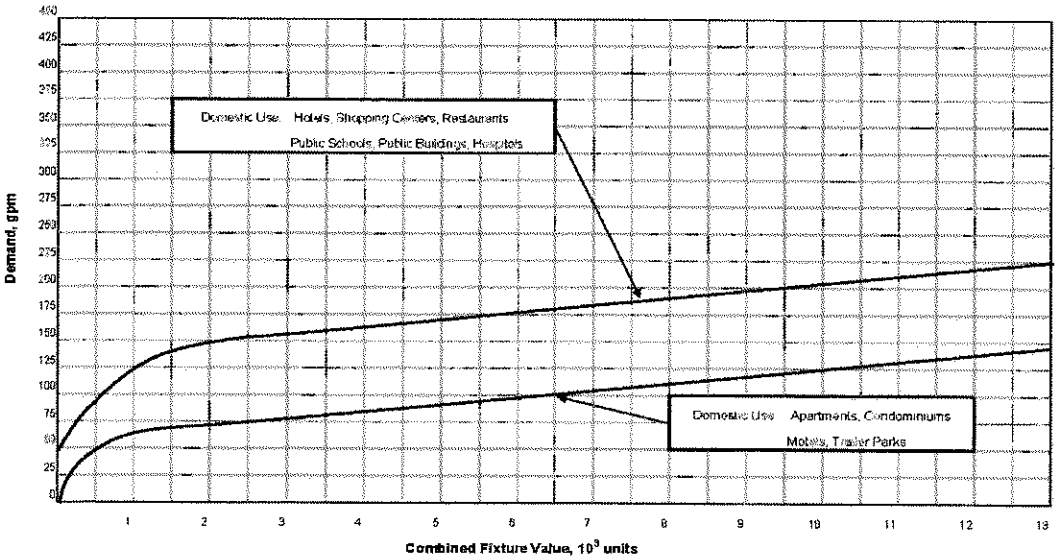

Figure 4-3 Water flow demand per fixture value - High range

Att. BB

WRITTEN SUBMISSION 27 – MASSING, VENTILATIONS AND WIND IMPACT
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE PROPOSED BUILDING CONFORMS TO TNE MASSING OF THE CAMPUS AS SET FORTH IN THE IDP. THE TALLER SECTION OF THE CONGRESS STREET BUILDINABUTS THE TALL ELEVATOR/ STAIR TOWER PORTION OF THER VISITOR GARAGE, WHILE THE REMAINDER OF THE BUILDING STEPS DOWN TOWARD THE EDGE OF THE CAMPUS.

IN ADDITION TO THE VISUAL EFFECT OF THIS MASSING, THE BUILDING WILL NOT CREATE ANY ADVERSE EFFECTS FROM WIND PATTERNS.

THE MAJORITY OF THE HVAC EQUIPMENT WILL BE WITHIN THE BASEMENT LEVEL OF THE BUILDING, HOWEVER , THERE WILL BE LIMITED HVAC UNITYS ON THE ROOF OF THE TALL SECTION OF THE BUILDING

CONGRESS ST. FIRST PHASE
SUMMER / JUNE 21
BOYNTON ST
WEYMOUTH ST
CONGRESS ST
CRESCENT ST
WESCOTT ST
ELLSWORTH ST
BRAMHALL PL
HILL ST
RUSSELL ST
BRACKETT ST
ST JOHN ST
VALLEY ST
GILMAN ST
FOREST ST
CONGRESS ST
MMC
A ST
VALLEY ST
GILMAN ST
BRAMHALL ST
CHADWICK ST
VAUGHAN ST
C ST
WEST ST
WESTERN
PROMENADE
ST JOHN ST
D ST
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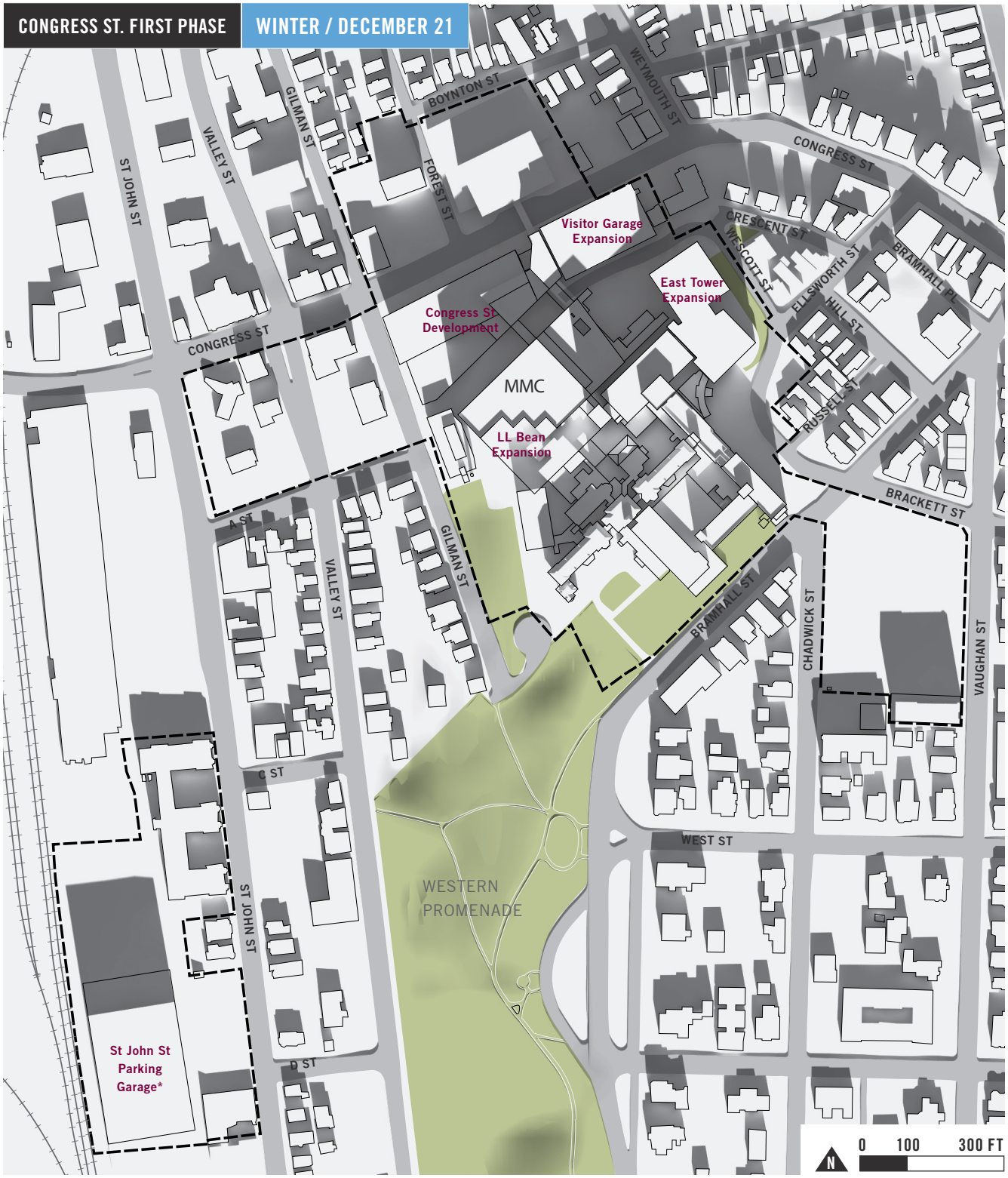
0
100
300 FT



* NOTE: Exact garage location and footprint to be determined during detailed design.

Att. DD

WRITTEN SUBMISSION 29– SNOW AND ICE LOADING
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THE BUILDING IS DESIGNED WITH A FLAT ROOF AND WILL BE STRUCTURALLY DESIGNED TO ACCOMMODATE THE WEIGHT OF SNOW. NO SNOW WILL FALL ONTO ADJACENT PROPERTIES NOR PUBLIC WAYS.

WRITTEN SUBMISSION 30 – VIEW CORRIDORS
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

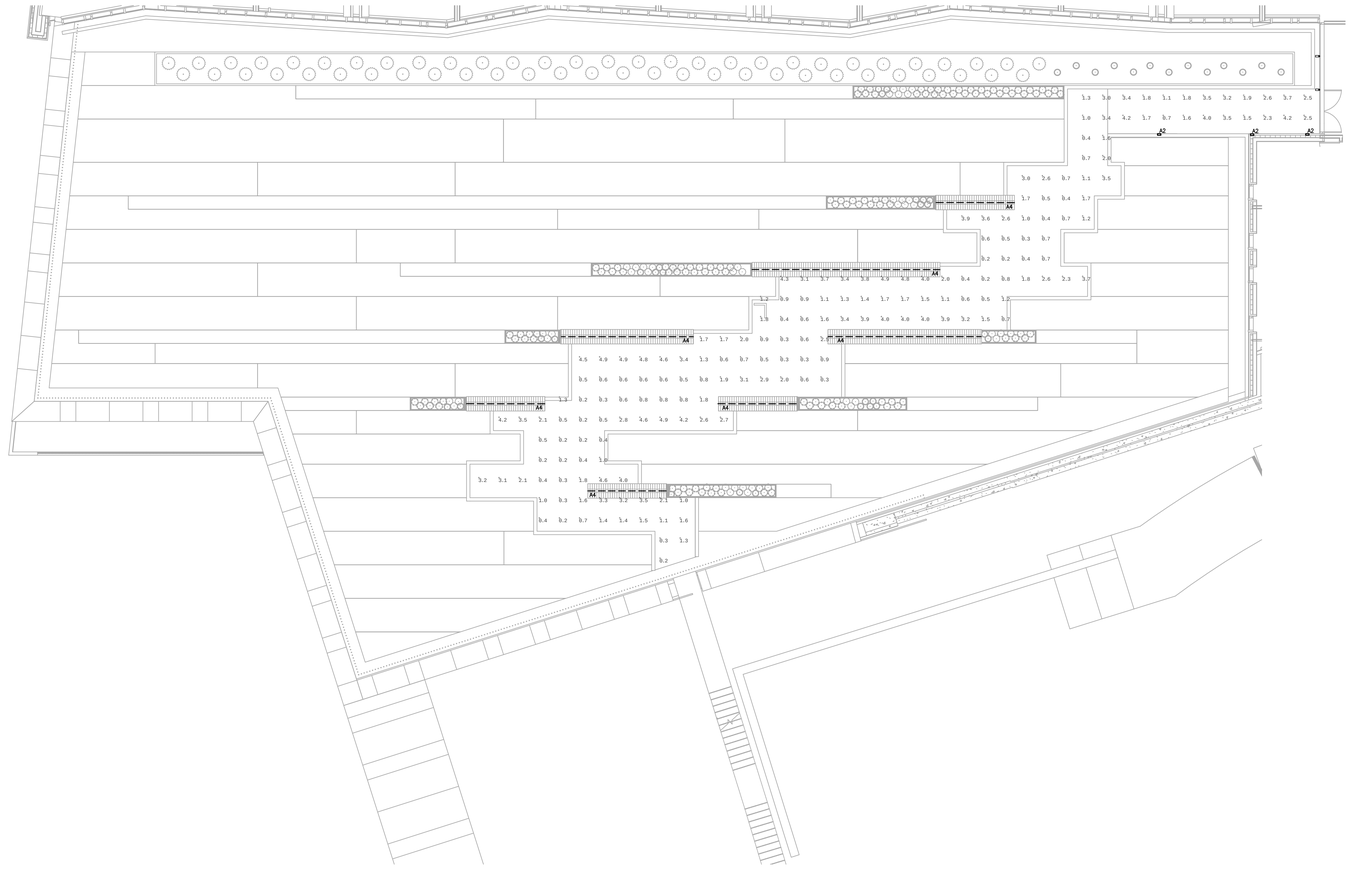
THERE ARE NO DESIGNATED VIEW CORRIDORS WITHIN THE PROJECT SITE.

WRITTEN SUBMISSION 31 – HISTORIC RESOURCES
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THIS SUBMISSION ITEM IS NOT APPLICABLE TO THIS APPLICATION.

A1	STREET PEDESTRIAN LIGHTING POLE - CITY OF PORTLAND, MAINE	HALOPHANE PEDESTRIAM ESPLANADE SERIES
A2	RECESSED LINEAR WALL MOUNTED FIXTURE	BEGA 33054
A3	LINEAR COVE MOUNTED FIXTURE IN PERFORATED CEILING	LUMENPULSE LUMENFACADE
A4	LINEAR LED TAPE LIGHT IN CHANNEL BELOW BENCH SEATING	LED LINEAR, ADONIS HYDRA WHITE

Illuminance (Fc)
Average = 1.84
Maximum = 4.9
Minimum = 0.2



1 LEVEL 3 TERRACE (GARDEN ROOF)
SCALE: 1/8"=1'-0"

PERKINS
+WILL
225 Franklin Street, Suite 1100
Boston, MA 02110
t 617.478.0300
f 617.478.0321
www.perkinswill.com

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Segabo Technics
75 John Roberts Road , Suite 1A, South
Portland, ME 04106

STRUCTURAL ENGINEER/ BUILDING ENVELOPE
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500, Waltham,
Massachusetts 02453

MEP/FP ENGINEER/ CODE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston MA 02111

LIGHTING CONSULTANT
Lightcraft
99 Bedford Street, 2nd Floor, Boston MA 02111

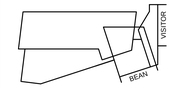
PROJECT

Congress St.
22 Bramhall St.
Portland, ME 04102

Maine Medical Center
MaineHealth

Maine Medical Center
22 Bramhall St.
Portland, ME 04102

KEYPLAN



ISSUE CHART

Exterior Photometric Submission to the City of Portland Maine
10.30.2018

MARK	ISSUE	DATE
Job Number	B160234-000	
Drawn		
Checked		
Approved		

TITLE

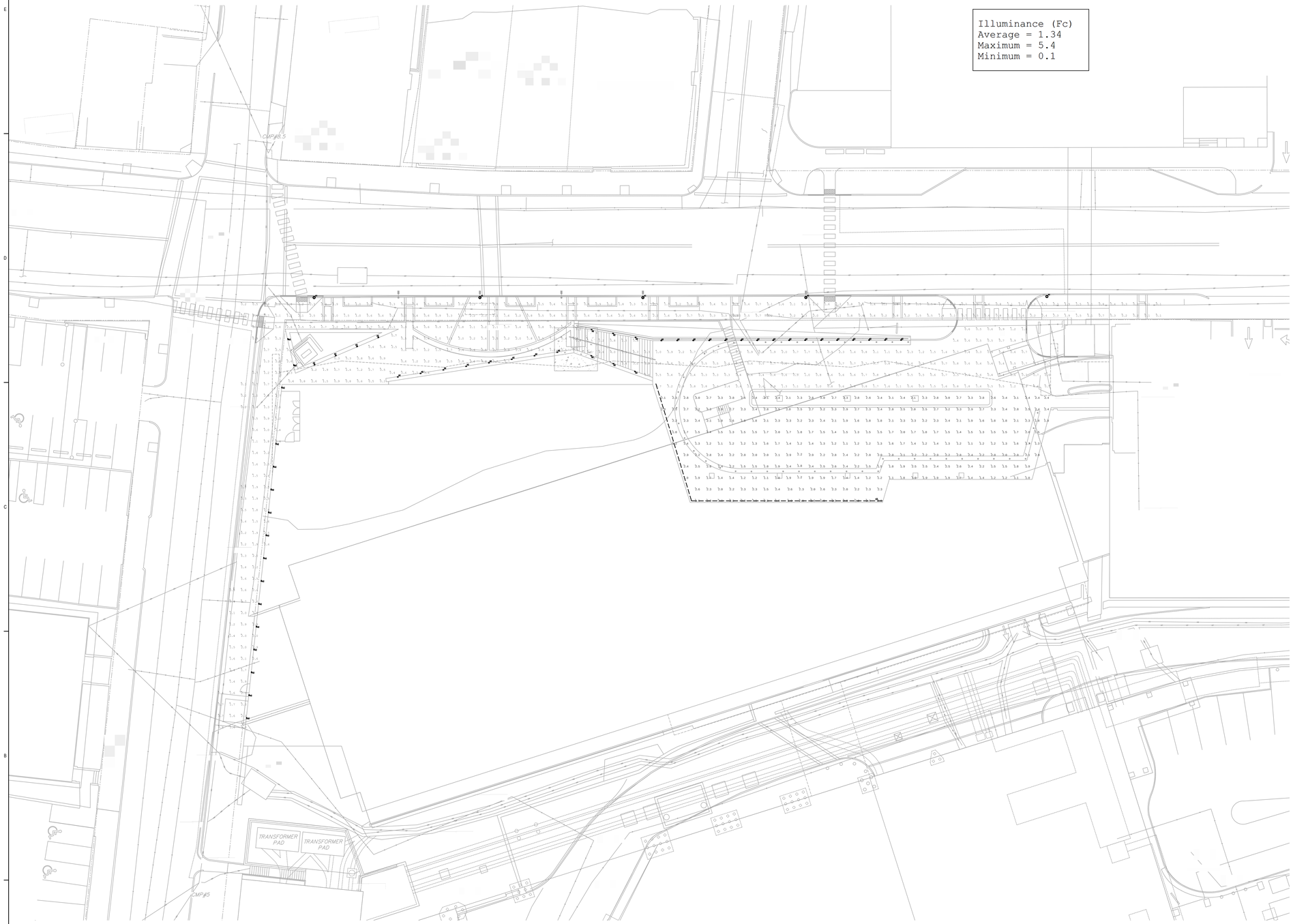
PHOTOMETRIC LEVEL 3 TERRACE ROOF GARDEN

SHEET NUMBER

L-200

A1	STREET PEDESTRIAN LIGHTING POLE - CITY OF PORTLAND, MAINE	HALOPHANE PEDESTRIAM ESPLANADE SERIES
A2	RECESSED LINEAR WALL MOUNTED FIXTURE	BEGA 33054
A3	LINEAR COVE MOUNTED FIXTURE IN PERFORATED CEILING	LUMENPULSE LUMENFACADE
A4	LINEAR LED TAPE LIGHT IN CHANNEL BELOW BENCH SEATING	LED LINEAR, ADONIS HYDRA WHITE

Illuminance (Fc)
Average = 1.34
Maximum = 5.4
Minimum = 0.1



1 EXTERIOR SITE PLAN
SCALE: 1/16"=1'-0"

PERKINS
+WILL
225 Franklin Street, Suite 1100
Boston, MA 02110
t 617.478.0300
f 617.478.0321
www.perkinswill.com

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Segabo Technics
75 John Roberts Road , Suite 1A, South Portland, ME 04106

STRUCTURAL ENGINEER/ BUILDING ENVELOPE
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500, Waltham, Massachusetts 02453

MEPFP ENGINEER/ CODE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston MA 02111

LIGHTING CONSULTANT
Lightcraft
99 Bedford Street, 2nd Floor, Boston MA 02111

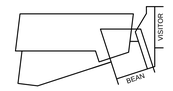
PROJECT

Congress St.
22 Bramhall St.
Portland, ME 04102

Maine Medical Center
MaineHealth

Maine Medical Center
22 Bramhall St.
Portland, ME 04102

KEYPLAN



ISSUE CHART

Exterior Photometric Submission to the City of Portland Maine
10.30.2018

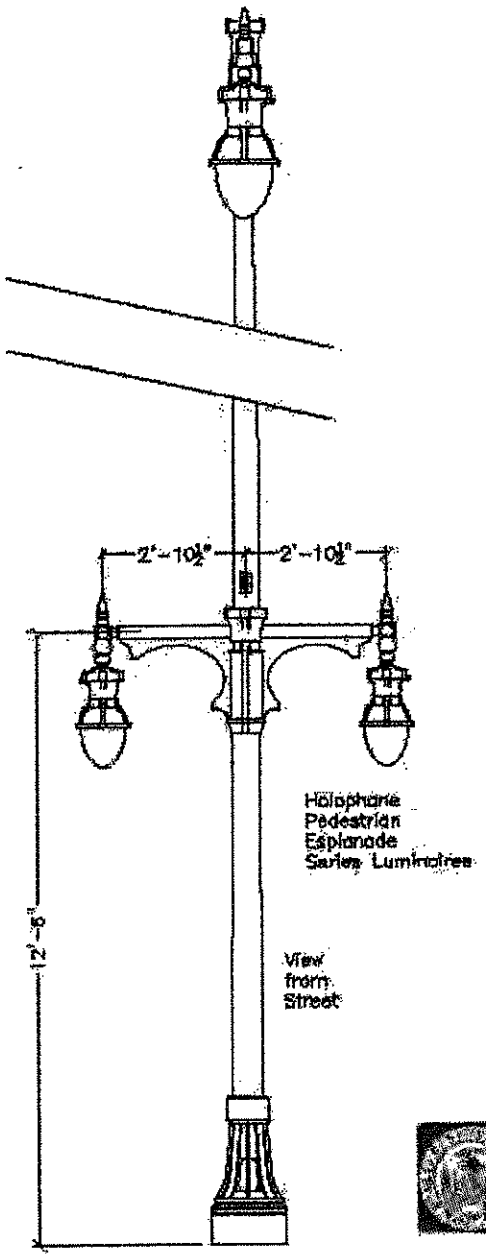
ISSUE	DATE
Job Number	B160234-000
Drawn	
Checked	
Approved	

TITLE

PHOTOMETRIC

SHEET NUMBER

L-100



APPLICATION
Street/Sidewalk lighting for two-way streets with parking on both sides.
Suggested layout:
90–100 ft on center (one side only)
175–225 ft on center (staggered pattern both sides)

72' OK as long as maximum fc is not exceeded.

City of Portland, Maine
Street & Sidewalk Lighting
CONGRESS STREET DISTRICT
Street/Pedestrian Lighting Pole
Sheet 8 of 8 08/05/97

Fixture A1

Type:
BEGA Product:
Project:
Modified: Fixture A2

Application
LED recessed wall luminaire with asymmetrical light distribution for the illumination of ground surfaces, building entrances, stairs and footpaths.

Materials
Luminaire housing and faceplate constructed of die-cast aluminum marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Clear safety glass
Silicone applied robotically to casting, plasma treated for increased adhesion
High temperature silicone gasket
Mechanically captive stainless steel fasteners
Stainless steel screw clamps
Composite installation housing

NRTL listed to North American Standards, suitable for wet locations
Protection class IP65
Weight: 1.8 lbs

Electrical

Operating voltage	120-277V AC
Minimum start temperature	-40° C
LED module wattage	5.9W
System wattage	8.0W
Controlability	0-10V, TRIAC, and ELV dimmable
Color rendering index	Ra≥80
Luminaire lumens	342 lumens (3000K)
Lifetime at Ta=15°C	>500,000 h (L70)
Lifetime at Ta=35°C	185,000 h (L70)

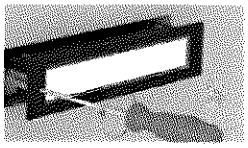
LED color temperature

2700K - Product number + **K27**
3000K - Product number + **K3**
3500K - Product number + **K35**
4000K - Product number + **K4**

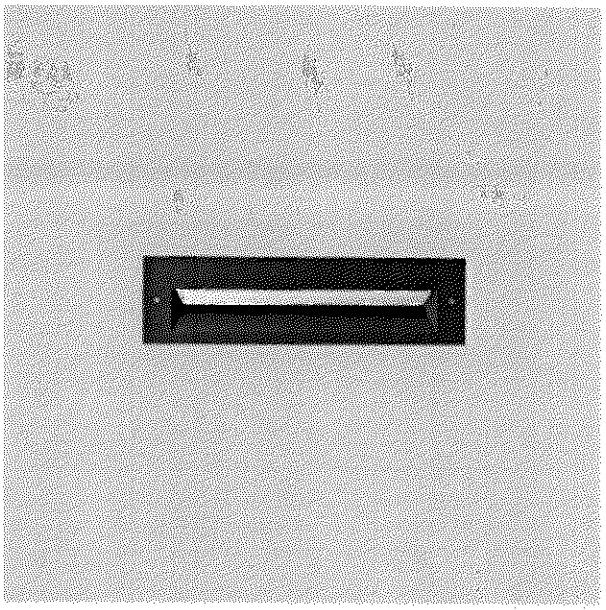
BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

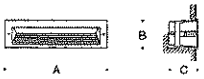
Finish
All BEGA standard finishes are matte, textured polyester powder coat with minimum 3 mil thickness.

Available colors	Black (BLK)	White (WHT)	RAL:
	Bronze (BRZ)	Silver (SLV)	CUS:



Fully enclosed luminaire with installation housing ensures seamless integration and weathertight operation.





LED recessed wall luminaires asymmetrical

	LED	A	B	C
33054	5.9W	10⅛	2¾	5

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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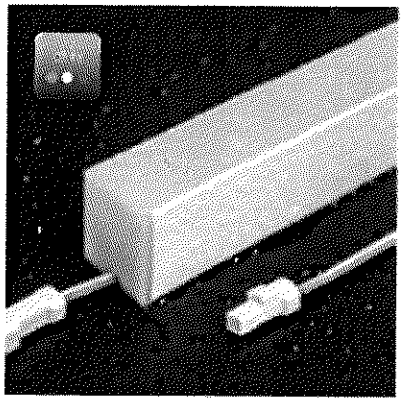
ADONIS HYDRA White IP67



24 V, IP67 protected and IK10 certified, linear LED luminaire with small form factor and opal encapsulation with a homogeneous light emission. "One Bin Only" within 3 MacAdam guarantees constant color temperature and high light quality with a lifetime of > 60,000 hrs (L80/B10). It is IP67 protected against water, salt water, solvents and UV radiation by an opal polyurethane encapsulation. Furthermore, it is IK10 certified and therefore particularly robust against environmental impacts. It is available in 5 standard lengths and is supplied ready to plug in with a IP67 mini-connector. Engineered in Germany.

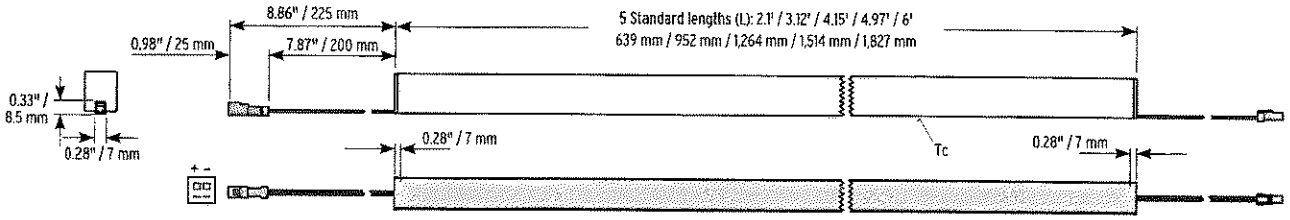
Fixture A3

Project name

Fixture type | Phase

Specifier | Date

Dimensions & available lengths



Opal encapsulated LED light line
Finish: White powder coated

Tc-point (Case temp.) on the rear side of the module

Electrical & output data

Voltage	24 Volt (23 V_{min}, 25 V_{max})
Temperature[2]	Tc_{min} = -13°F / -25°C, Tc_{max} (Table below)
Storage temperature	Ts_{min} = -22°F / -30°C, Ts_{max} = 185°F / 85°C
Ambient temperature	Ta_{min} = -13°F / -25°C, Ta_{max} = 104°F / 40°C
CRI	up to 95
R9	up to 65

ADONIS HYDRA	HD6	HD10	HD15	HD25
Power (W/ft / W/m)[1]	1.8 / 6	3.1 / 10	4.6 / 15	7.6 / 25
Efficacy (lm / W)[1] @ W850	62	62	67	65
max. serial run length (ft / m)	16.4 / 5	16.4 / 5	13.1 / 4	9.8 / 3
Temperature Tc-point (Tc_{max})[2]	158°F / 70°C	158°F / 70°C	158°F / 70°C	167°F / 75°C

Color temperature LED tape used[3]			Color temperature delivered finished fixture		HD6 low output	HD10	HD15	HD25 high output
					lumen/feet (lm/ft)[1] lumen/meter (lm/m)[1]			
W820		2000 K	2400 K		66 / 220	109 / 360	176 / 580	286 / 940
W822		2200 K	2700 K		75 / 250	124 / 410	200 / 660	325 / 1070
W825		2500 K	3000 K		84 / 280	142 / 470	228 / 750	374 / 1230
W827	W927	2700 K	3500 K	3400 K	75 / [illegible]	127 / [illegible]	243 / 800	395 / 1300
W830	W930	3000 K	3900 K	3800 K	78 / [illegible]	130 / [illegible]	258 / 850	420 / 1380
W835	W935	3500 K	4600 K	4400 K	78 / [illegible]	133 / [illegible]	270 / 890	441 / 1450
W840	W940	4000 K	5500 K	5600 K	81 / [illegible]	136 / [illegible]	276 / 910	450 / 1480
W850		5000 K	7200 K		112 / 370	188 / 620	304 / 1000	493 / 1620

ONE BIN ONLY

Lifetime
L80/B10 > 60,000 h

LM 79 compliant

LM 80 compliant

UV protected

Resistant to solvents

Saltwater resistant

Temporary immersion protection

Impact resistant (suitable for walk over)

[1] The given data are typical values. Due to tolerances of the production process and the electrical components, values for light output and electrical power can vary up to 10%.

[2] The Tc-point should be measured in thermal equilibrium according to IEC EN 60598-1.

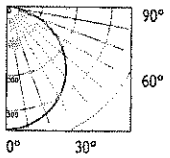
[3] In case of IP67 products, tolerances in the color temperature can occur. For further explantation, please see specification catalogue 2016/2017.

Safety and assembly information please see specification catalogue 2016/2017.

Order code

Please click here to configure your fixture online

Your order code	ADONIS HYDRA	HD__	W_	__	____	IP67
Order code example	ADONIS HYDRA	HD10	W9	27	1514	IP67



DIN 5040:A40
cd/1.000 lumen
C0/C180 ——
C90/C270 •••••••

LED tape
HYDRA HD6 ..... HD6
HYDRA HD10 ..... HD10
HYDRA HD15 ..... HD15
HYDRA HD25 ..... HD25

Color rendering
> 80 8
> 90 (only HD6, HD10) 9

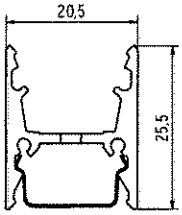
Color temperature delivered finished fixture	Color temperature LED tape used	
2400 K	2000 K	20
2700 K	2200 K	22
3000 K	2500 K	25
3500 K 3400 K	2700 K	27
3900 K 3800 K	3000 K	30
4600 K 4400 K	3500 K	35
5500 K 5600 K	4000 K	40
7200 K	5000 K	50

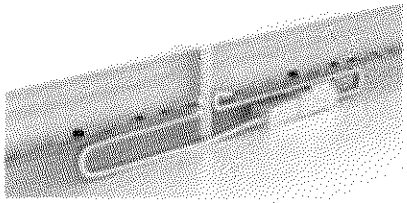
Length
2.1' (639 mm) (2 clips recommended) 0639
3.12' (952 mm) (2 clips recommended) 0952
4.15' (1,264 mm) (3 clips recommended) 1264
4.97' (1,514 mm) (3 clips recommended) 1514
6' (1,827 mm) (4 clips recommended) 1827

Ingress protection
IP67 ..... IP67

Please choose your accessories

Mounting	Art.-#
☐ Mounting clip for VarioContour 010 (required every 1.31' / 40 cm)	13000104
☐ Contour 010 Adjustable Wall Mount Set	13000165
☐ Mounting Lock[4] (for vertical mounting)	13000192





Easy and clean installation due to internal mounting clips. ADONIS / KALYPSO H-channel also acts as cable raceway. Therefore you do not see any clips or cables from the outside.

[4] The mounting lock is used to fix the sliding mounting clips, thus allowing a vertical wall mounting.

[5] Required for IP67 connector sealing at end of runs.

Extensions / Jumpers (optional)	Art.-#
☐ VarioCon Female Mini 2 x 0.0005 sqin / 0.34 mm² 6.56' / 2 m IP67	15000142
☐ VarioCon Extension Mini 2 x 0.0005 sqin / 0.34 mm² 0.33' / 0.1 m IP67	15000143
☐ VarioCon Female Mini Protection Cap Mono IP67[5]	15000218

Recommended driver

☐ MEAN WELL HLG-100H-24A

Recommended control

☐ EldoLED LINEARdrive DC 180D

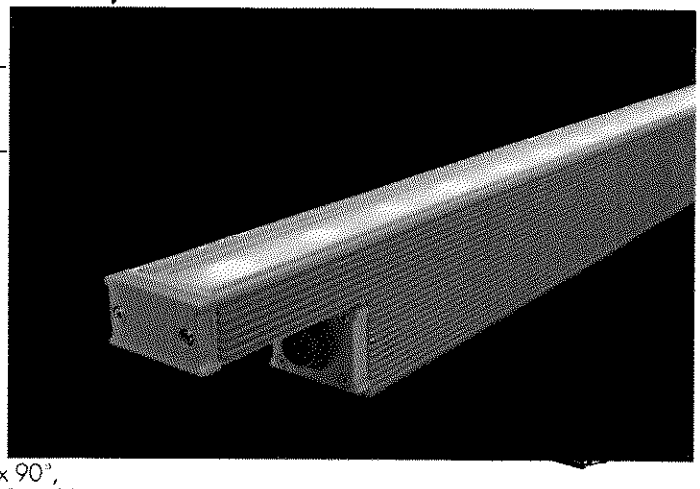
For further driver options including LUTRON click here.

Specification Sheet

lumenfacade™

WHITE & STATIC COLORS

Fixture A4



Client _____

Order#_____ **Type** _____

FEATURES AND BENEFITS

Physical :

- Low copper content extruded aluminum housing
- Available in 1', 2', 3' or 4' sections
- Electro-statically applied polyester powder coat finish
- Machined aluminum end caps and silicone gaskets
- Stainless steel hardware
- Clear tempered glass lens
- Asymmetric wallwash, 8° x 8°, 10° x 10°, 10° x 30°, 10° x 60°, 10° x 90°, 15° x 25°, 30° x 30°, 30° x 60°, 35° x 35°, 50° x 80°, 60° x 60°, 80° x 80°, or 90° x 90° optics
- IP66
- IK07 rated (asymmetric wallwash lens is IK06 rated)
- Meets 3G ANSI C136.31 Vibration standard for bridge applications
- Corrosion-resistant coating for hostile environments[2]

Performance :

- 2200K, 2700K, 3000K, 3500K, 4000K, Red, Green, Blue static colors available
- CRI value: 80+
- Minimum 1fc (10.7 lux) @ 140ft (43m) distance (HO 4000K, 4' unit, 10° x 60° optic)
- Lumen maintenance: 120,000 hrs [L70 @ 25°C]
- Lumen measurements comply with LM - 79 - 08 standard
- Resolution per foot or per fixture (configured with LumenID V3 software & DMX/RDM)
- Operating temperatures: -25° C to 50° C [-13F to 122F]

Electrical :

- Line voltage luminaire for 100 to 277V
- Power and data in 1 cable (#16-5)
- End-to-end option (ETE): 16" black input cable, no jumper cable needed
- 252ft [77m] maximum cable and fixture run length, non-dimming, 277V, RO version
- 164ft [50m] maximum cable and fixture run length, non-dimming, 277V, HO version
- 5W/ft version meets ASHRAE standards for linear lighting on building facades[3]
- 8.5W/ft Regular Output version[3]
- 15.25W/ft High Output version[3]
- Dimming options: Lumentalk, 0-10 volt, DALI, Lutron® EcoSystem® or DMX/RDM enabled

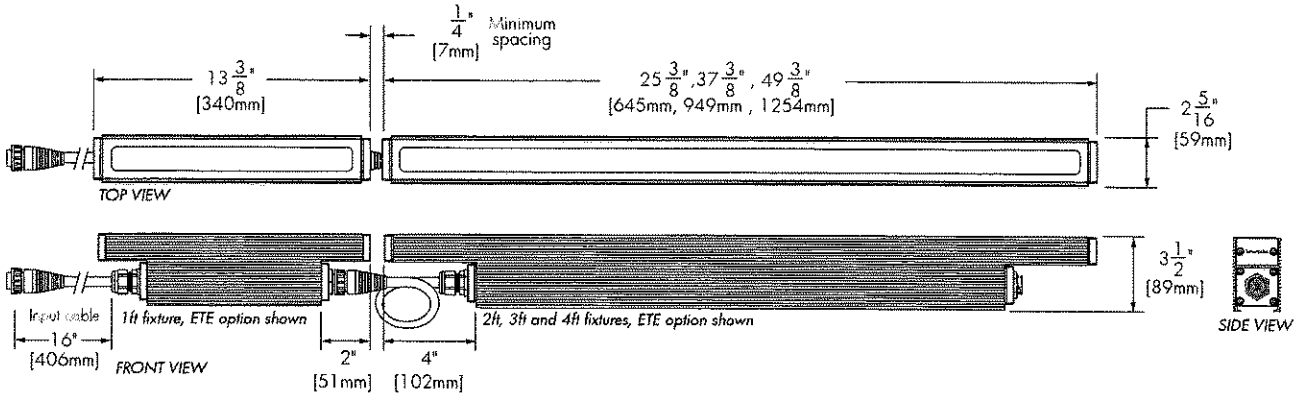
c UL us CE RoHS **IK07**[1]

lumentalk EcoSystem. Enabled

Photometric Summary

4ft HO, 4000K	Delivered Output [lm]	Intensity [peak cd]
WW	3,592	5,159
8°x8°	4,045	77,896
10°x10°	3,768*	38,346*
10°x30°	3,830	30,056
10°x60°	3,692	19,654
10°x90°	3,576	7,897
30°x30°	3,765	14,726
30°x60°	3,862*	5,119*
60°x60°	3,447*	3,015*
90°x90°	3,592	1,886

Photometric performance is measured in compliance with IESNA LM-79-08.
*Estimated. Consult Lumenpulse website for the latest IES and LDT files.



[1] Asymmetric wallwash lens is IK06 rated.
[2] Use only when exposed to salt spray and harsh chemicals. This option is not required for normal outdoor exposure!
[3] ASHRAE version not available for 1' fixture lengths. Power consumption is typically 20% higher for 1' fixture lengths.

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5-year limited warranty.

Consult www.lumenpulsegroup.com for our complete Standard Terms and Conditions of Sales

lumenpulse™ GROUP

Lumenpulse reserves the right to make changes to this product at any time without prior notice and such modification shall be effective immediately.

Specification Sheet

lumenfacade™

WHITE & STATIC COLORS

HOW TO ORDER

LOG Select:	Select:	Select:	Select:	Select:	Select:	Select:	Select:	Select:
1	2	3	4	5	6	7	8	9

1

Housing:

LOG ASHRAE - lumenfacade™, 5W/ft ASHRAE compliant[1]
LOG RO - lumenfacade™ Regular Output, 8.5W/ft
LOG HO - lumenfacade™ High Output, 15.25W/ft

2

Voltage:

100 - 100 volts
120 - 120 volts
208 - 208 volts
220 - 220 volts
240 - 240 volts
277 - 277 volts

3

Length:

12 - 13 3/8 inches (340mm) (2 kg/4.5 lbs)
24 - 25 3/8 inches (645mm) (3.17 kg/7 lbs)
36 - 37 3/8 inches (949mm) (4.75 kg/10.5 lbs)
48 - 49 3/8 inches (1254mm) (6.35 kg/14 lbs)

4

Colors and Color temperatures:

22K - 2200K
27K - 2700K
30K - 3000K
35K - 3500K
40K - 4000K
RD - Red
GR - Green
BL - Blue

Consult factory for availability of static Royal Blue, 6500K and 90+ CRI.

5

Optics:

Asymmetric

WWLF - Asymmetric Wallwash optic, left feed[2]
WWRF - Asymmetric Wallwash optic, right feed[2]

Symmetric

8x8 - 8° x 8°[3]
10x10 - 10° x 10°[3]
30x30 - 30° x 30°
35x35 - 35° x 35°
60x60 - 60° x 60°
80x80 - 80° x 80°
90x90 - 90° x 90°

Bi-symmetric

10x30 - 10° x 30°
10x60 - 10° x 60°
10x90 - 10° x 90°
15x25 - 15° x 25°
30x60 - 30° x 60°
50x80 - 50° x 80°

6

Mounting Option:

SAM - Slim Adjustable Mounting
UMP - Fixed Mounting[4]
UMAS - Universal Adjustable Mounting[4]
WAM2 - Adjustable Wall Mounting 2"
WAM6 - Adjustable Extended Arm Mounting 6"
WAM12 - Adjustable Extended Arm Mounting 12"
WAM18 - Adjustable Extended Arm Mounting 18"

7

Finish:

BK - Black Sandtex
BRZ - Bronze Sandtex
SI - Silver Sandtex
WH - Smooth white
CC - Custom color and finish (please specify RAL color)[5]

8

Control:

NO - No Dimming
LT - Lumentalk Dimming[6]
DIM - 0-10V Dimming option[7]
DALI - DALI Dimming option[8]
ES - Lutron® EcoSystem® Enabled Dimming[9]
DMX/RDM - DMX/RDM enabled[10]

9

Option:

ETE - End - to - end configuration, 16" black input cable, no jumper cable needed
CRC - Corrosion-resistant coating for hostile environments
3GV - 3G ANSI C136.31 Vibration Rating[11]
CE - CE (certification covers European Economic Area)

SPL - QUICK CONNECT

Notes:

[1] Not available for 1' [0.3m] fixture lengths. [2] Right feeding side is standard unless otherwise specified. [3] For best results use with HO fixtures at a 6-inch (15cm) setback from surface. Contact factory for application support. [4] Suitable to use when **3GV** option is specified. [5] North American RAL colors specified with RAL number only are provided with a smooth/high-gloss finish. Please consult factory for other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary. [6] Lumentalk system is enabled with LDB accessory for 1' [0.3m] fixture lengths, see Typical Wiring Diagrams pages for details. 1% minimum dimming value. [7] 10% minimum dimming value. Current Sink: 3mA/fixture, Current Source: 0.5mA/fixture. [8] 1% minimum dimming value. 1 DALI address per fixture. [9] Available for 2' RO [0.6m], 3' [0.9m] and 4' [1.2m] fixture lengths only. 1% minimum dimming value. 1 EcoSystem® address per fixture length. [10] 1% minimum dimming value. Fixtures set to by fixture resolution. 1 DMX address per fixture. [11] Available with **UMP** and **UMAS** mounting options only.

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lumenpulse™ GROUP

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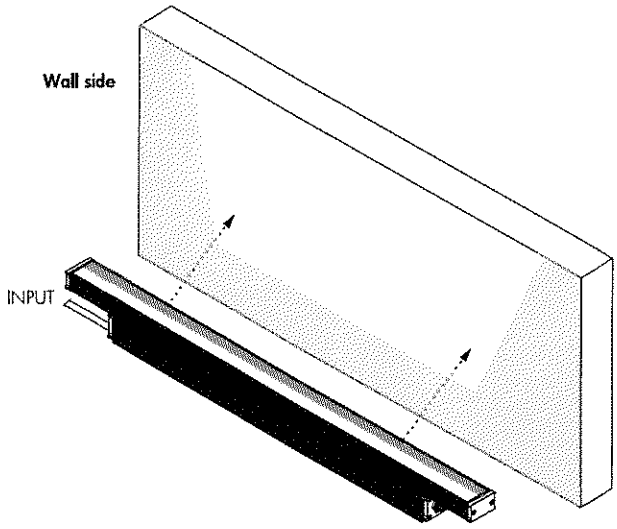
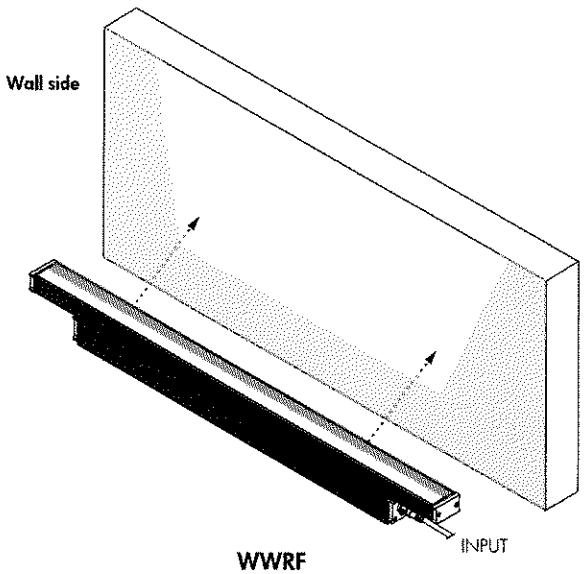
ASYMMETRIC WALLWASH OPTIC FEEDING SIDE DETAIL

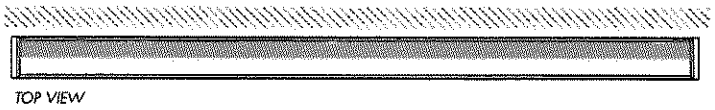


WWLF
Asymmetric Wallwash Optic, Left Feed

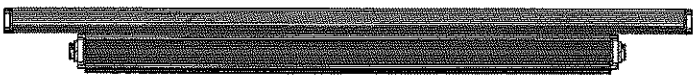


WWRF
Asymmetric Wallwash Optic, Right Feed

Always position frosted side toward the wall



TOP VIEW



FRONT VIEW

RIGHT SIDE VIEW
(Fixture pointing upwards)

*Fixture's feeding side is based on uplight installations. Feeding sides are reversed when fixture is used in a downlight application.

Recommended setback from wall is 1/10 of the wall height.

Example: 2ft [0.6m] setback for a 20ft [6m] wall.

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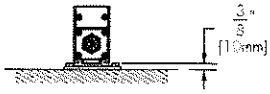
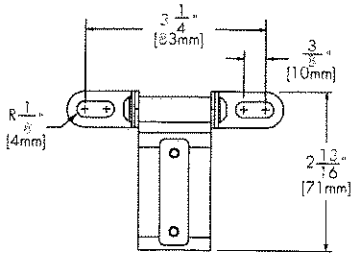
MOUNTING OPTIONS

Surface Mount

SAM
Slim Adjustable Mounting

UMP
Fixed Mounting





SAM
Mounting Hole Pattern

Wall Mount

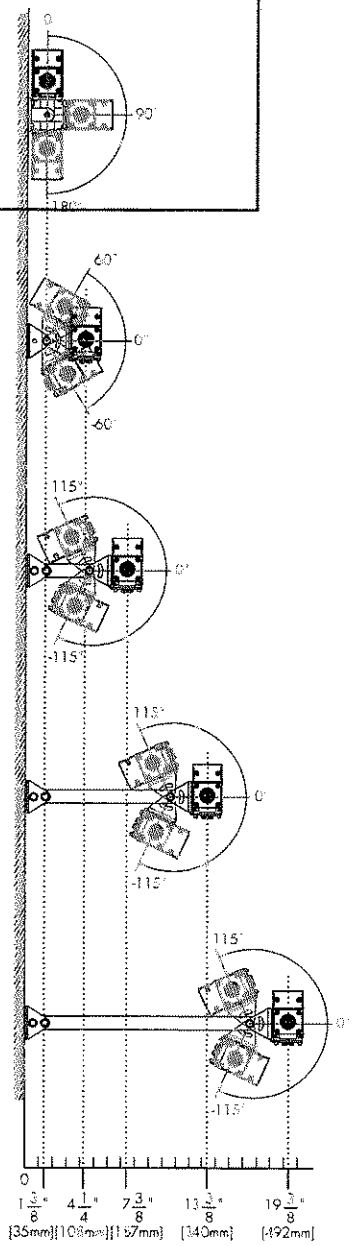
UMAS
Universal Adjustable Mounting

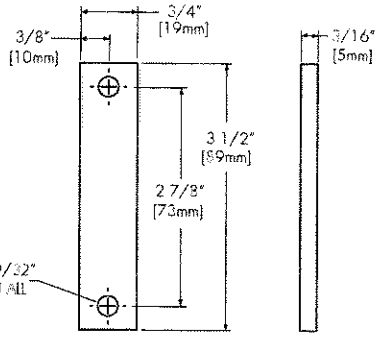
WAM2
Adjustable Wall Mounting 2"

WAM6
Adjustable Extended Arm Mounting 6"

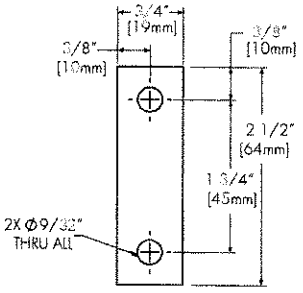
WAM12
Adjustable Extended Arm Mounting 12"

WAM18
Adjustable Extended Arm Mounting 18"

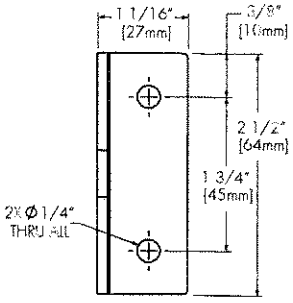




UMP
Mounting Hole Pattern



UMAS
Mounting Hole Pattern



WAM
Mounting Hole Pattern

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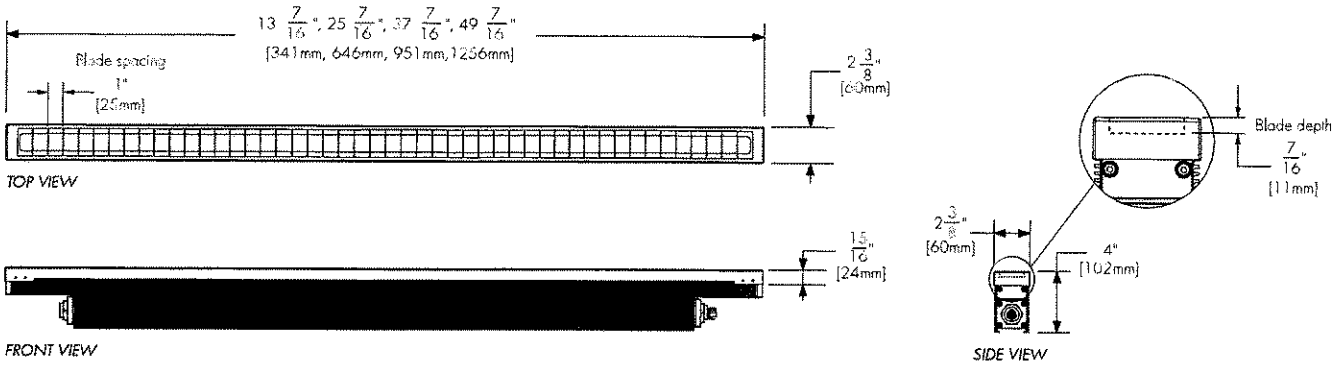
LOUVER ACCESSORY INSTALLATION DETAIL

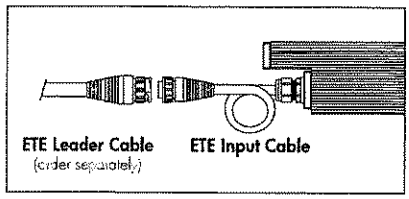
Not suitable for asymmetric wallwash optic



LOGRD
Radial Louver for Lumenfacade
(See page 6 for ordering code)

OPTION

ETE - End-to-end configuration, 16" black input cable, no jumper cable needed.



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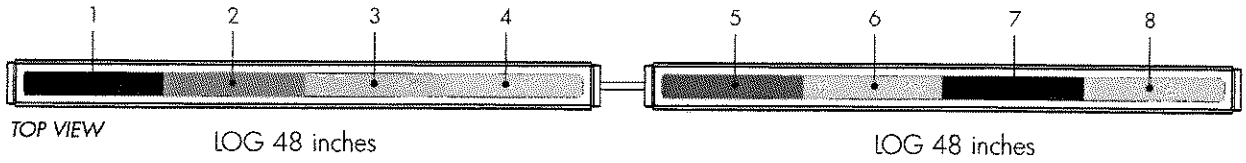
RESOLUTION DETAILS

Applicable for DMX/RDM control option only.
Fixture resolution can be configured on-site within the LumenID V3 software. A DMX/RDM enabled CBX is required.

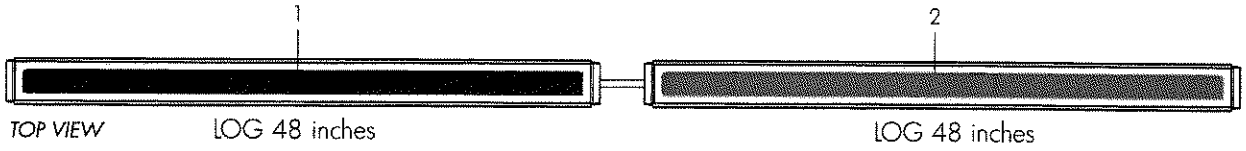
Resolution per foot: each foot is addressed independently

DMX ADDRESSES:



Resolution per fixture: each fixture is addressed independently

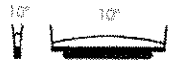
DMX ADDRESSES:



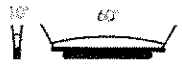
Optics:

10x10 - 10° x 10°

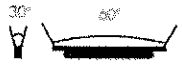
*For best results use with HO fixtures at a 6-inch (15cm) setback from surface. Contact factory for application support.



10x60 - 10° x 60°



30x60 - 30° x 60°



60x60 - 60° x 60°

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WRITTEN SUBMISSION 33– NOISE AND VIBRATION
BRAMHALL ST. – 22; MMC CONGRESS STREET BUILDING
LEVEL III SITE PLAN APPLICATION

THERE ARE SMALL HVAC UNITS PROPOSED ON THE ROOF OF THE HIGH PORTION OF THE BUILDING, HOWEVER, THERE ARE NO NEARBY ADJACENT PROPERTIES . MOST OF THE MECHANICAL, EQUIPMENT WILL BE LOCATED IN THE BASEMENT, AND PROPOSED AREAWAYS ARE LOCATED AT THE REAR OF THE BUILDING.

Maine Medical Center
Bramhall Campus Environmental Graphics & Wayfinding Program

Site Submission
9.24.18

Leverage/

Response to City Comments and Recommendations

We appreciate the comments and direction offered by the City and have considered them. We believe the designs put forth the best approach for patients and families visiting MMC. Our overall design approach includes:

- Using existing sign foundations and locations (where possible)
- A 15% reduction in sign sizes from the current design
- Reduction in overall quantity of signs from the current system
- Better alignment with the MMC brand and architectural enhancements

City Comments and Recommendations (received Thursday, September 6, 2018)

- No signs will be permitted on properties not owned by MMC (e.g. 1b)
- There are concerns about sight line obstructions on several of the signs, including ST.1a, CS.2 and EG.1a. Please provide a sight line analysis NOTE: Site Line Analysis to be completed in the near future.
- There are concerns about the size of the signs in general. Could those proposed as 11' in height be brought to a more pedestrian scale (e.g 8'?) There are particular concerns about the size of 4a, which is replacing a much smaller sign and 6a. Both of these signs should be brought to a pedestrian scale
- Eliminate one of the signs marked 5.b and reduce the size of the remaining to the scale of the existing sign
- Please indicate dimensions of CS.1 and method of illumination. At first blush, this sign appears out of scale.
- The layout of EG.1a is inconsistent with the other signs of similar purpose (e.g.ST.3a). Is there a reason for this?

Masterplan Overview

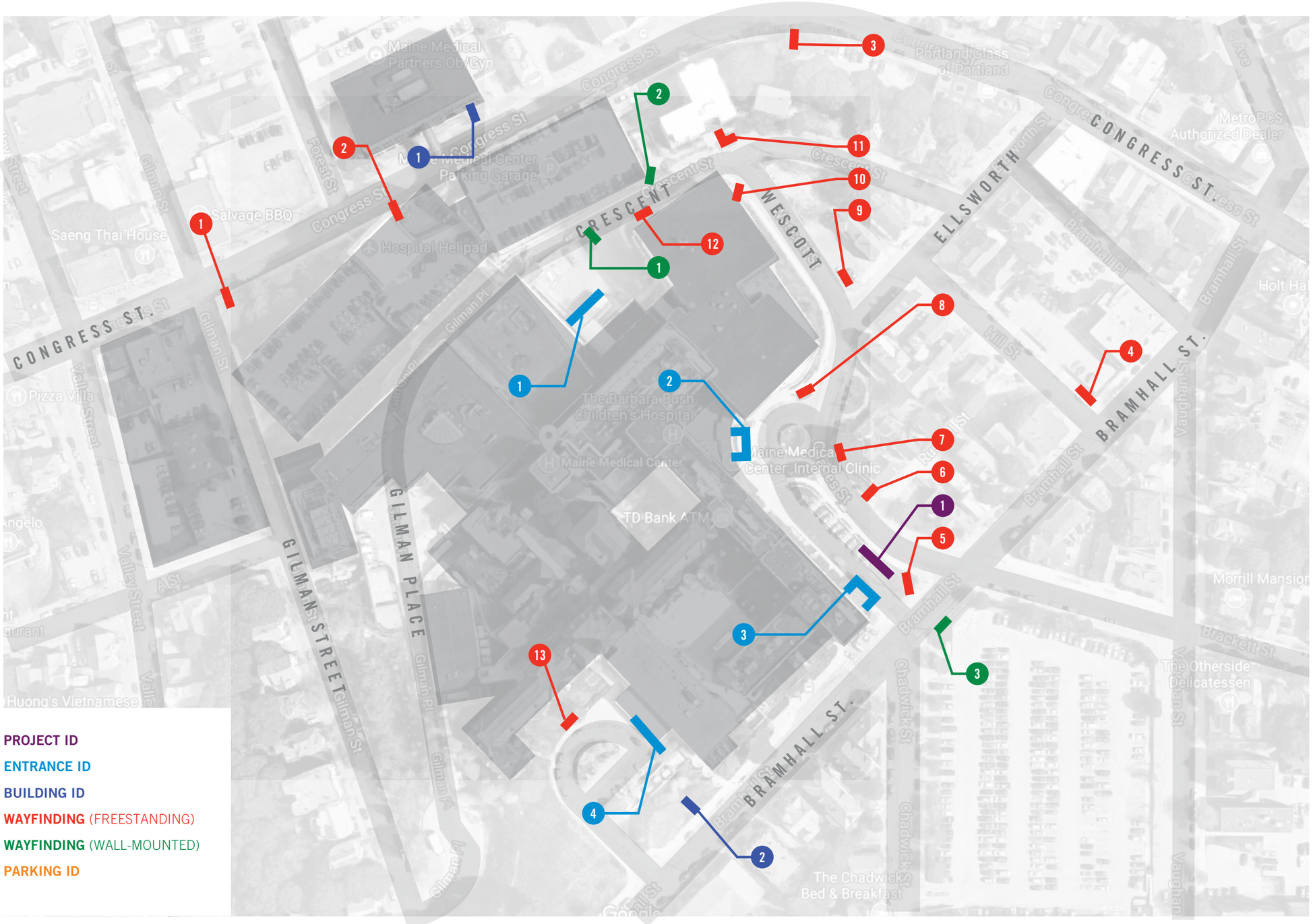
01 Main Campus Signage
02 Congress Street Building Signage
03 Employee Garage Signage

01

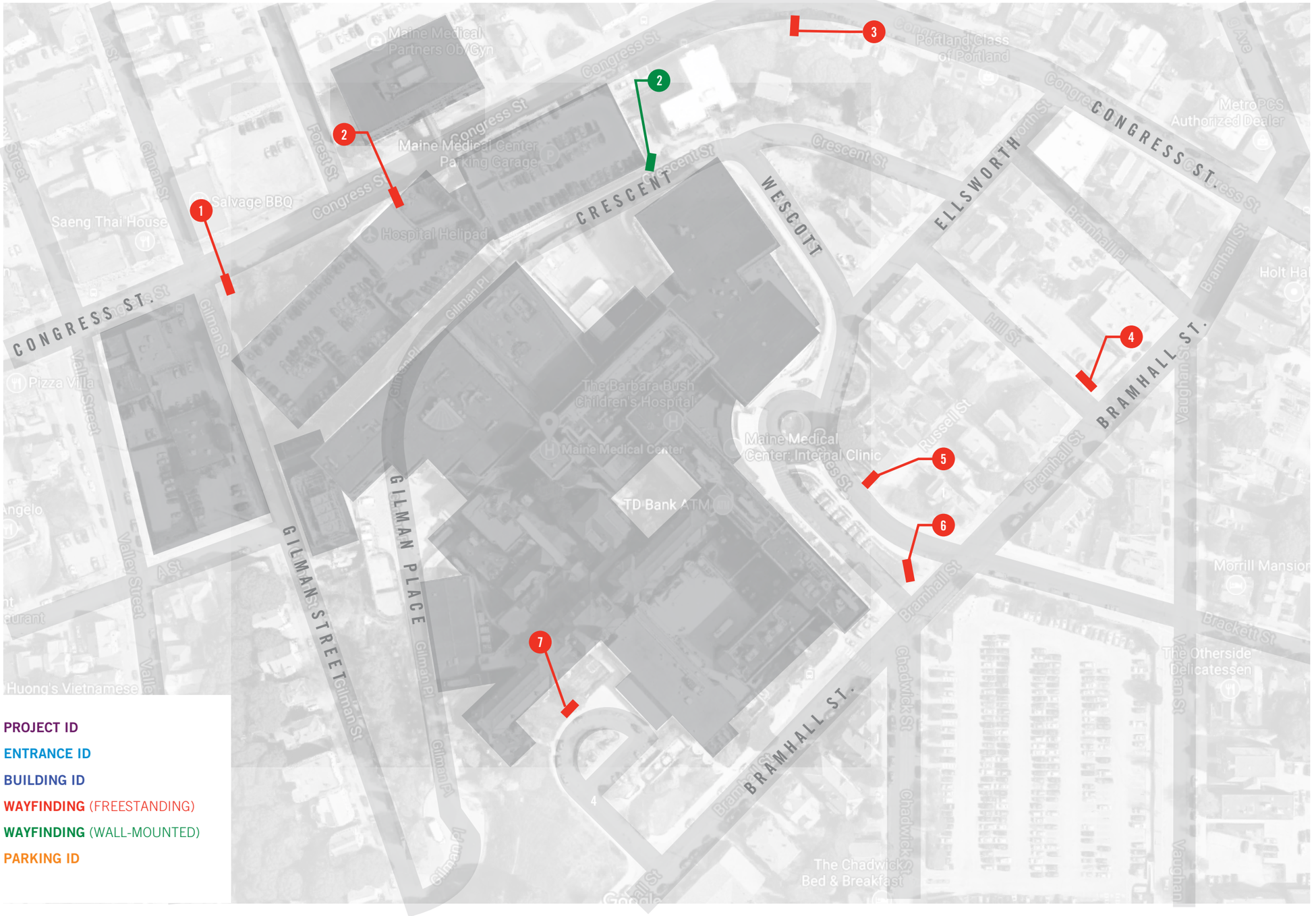
Main Campus Signage

Existing Signage

Existing Signage Location Plan



Demo Signage Elements



PROJECT ID

ENTRANCE ID

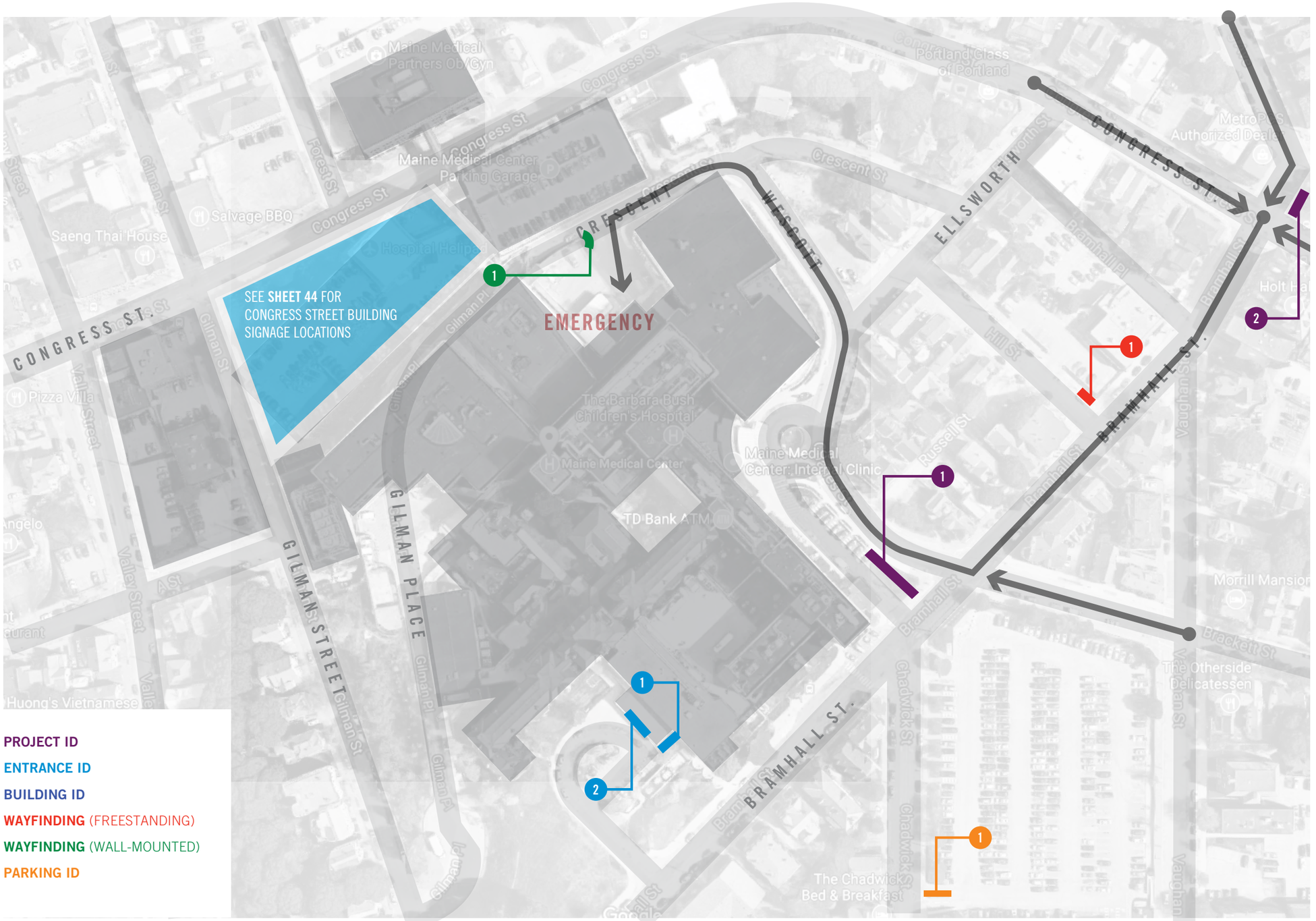
BUILDING ID

WAYFINDING (FREESTANDING)

WAYFINDING (WALL-MOUNTED)

PARKING ID

New Signage Elements



PROJECT ID

ENTRANCE ID

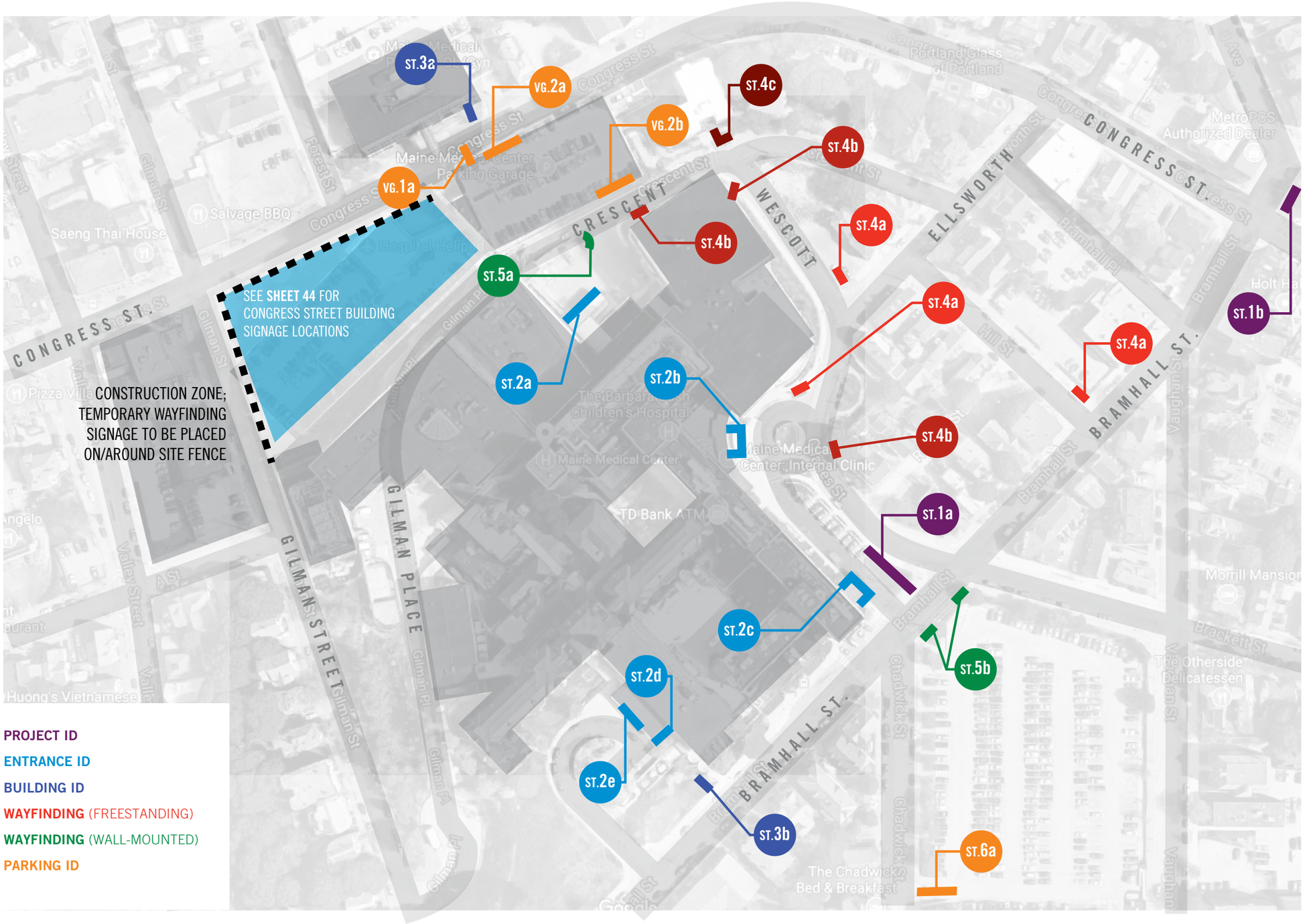
BUILDING ID

WAYFINDING (FREESTANDING)

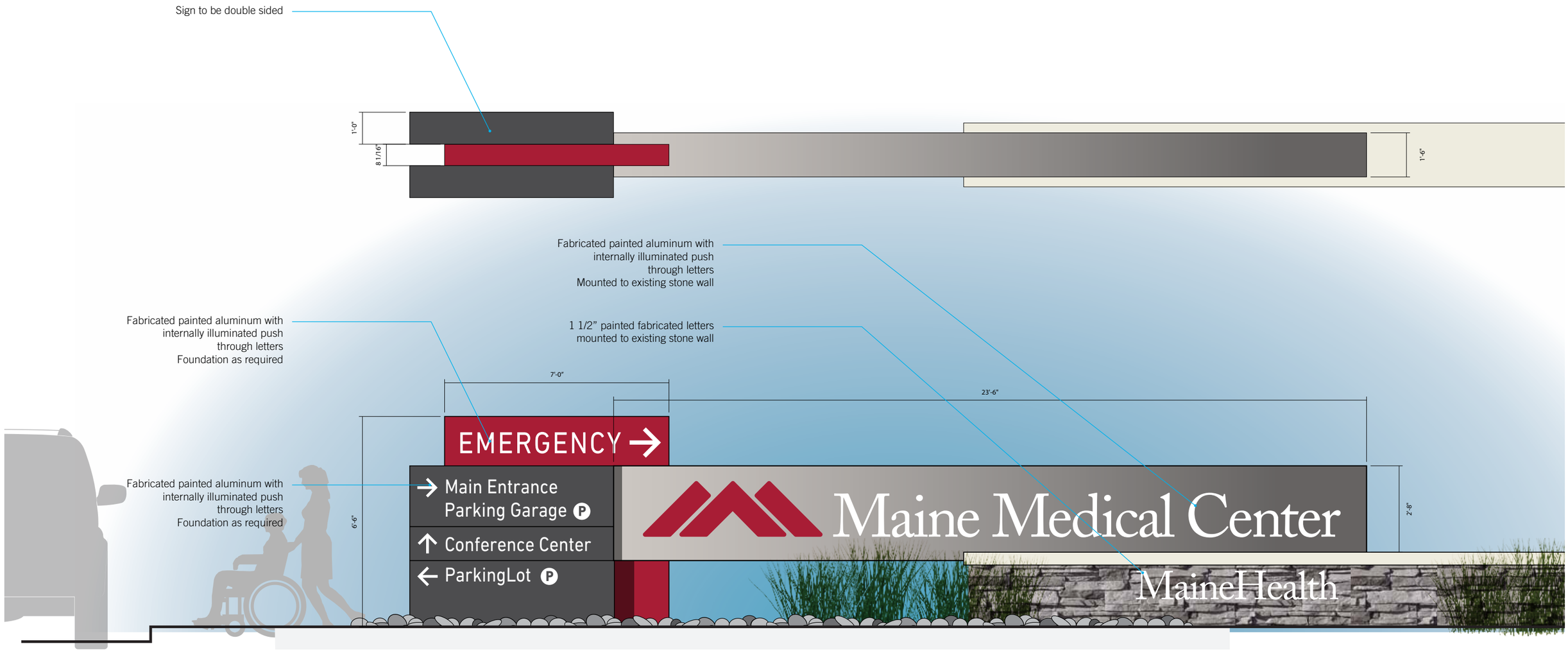
WAYFINDING (WALL-MOUNTED)

PARKING ID

Preliminary Sign Location Plan



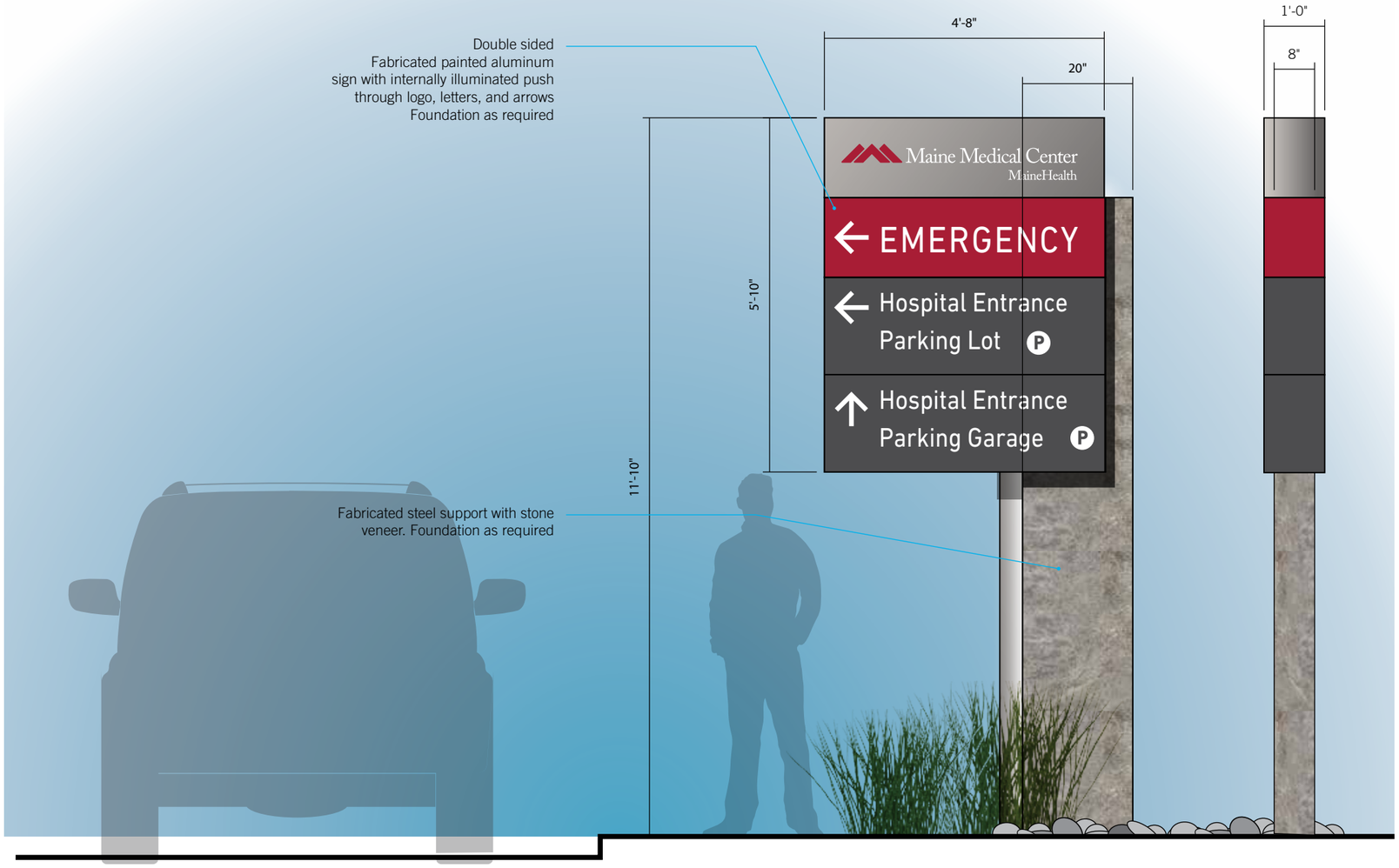
ST.1a Project ID (Bramhall Entry)



ST.1a View 1

EMERGENCY
Main Entrance
Parking Garage
Conference Center
Parking Lot
Maine Medical Center
MaineHealth
SOUTH

ST.1b Project ID (Bramhall Park)



ST.1b View 1

NO PARKING BUS STOP
ONLY
BUS STOP
METRO
122
Maine Medical Center
MaineHealth
EMERGENCY
Hospital Entrance
Parking Lot P
Hospital Entrance
Parking Garage P

ST.1b View 2

ST.2a Entrance ID (Emergency)

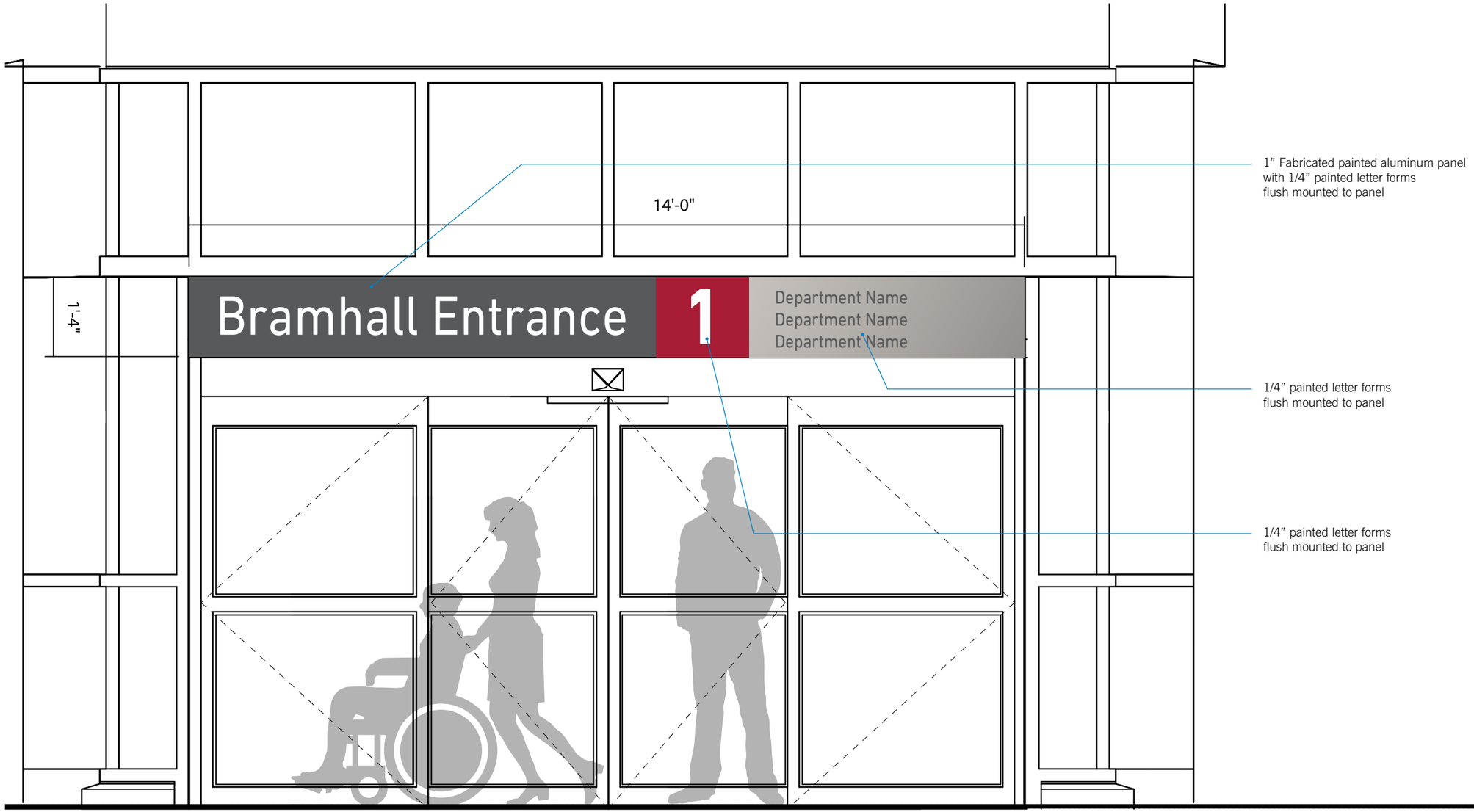
30”T x 24’W x 8”D VIF
Fabricated painted aluminum with internally illuminated push through letters
Mounted to existing columns as shown

24” x 48” x 1” fabricated aluminum panel with direct printed graphics

Fabricated painted aluminum panel with 1/4” painted letter forms flush mounted

Fabricated painted aluminum panel with surface applied vinyl

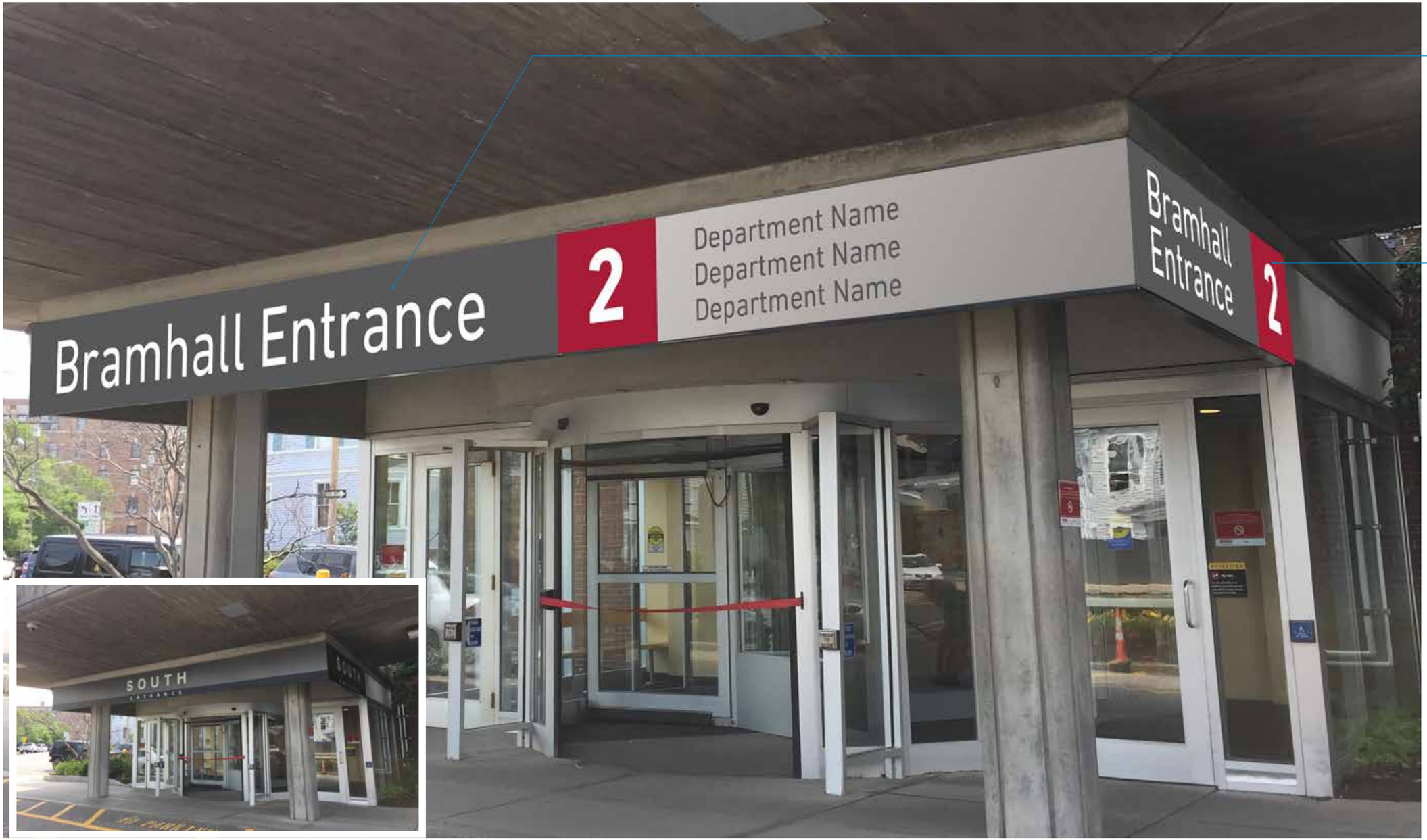
ST.2b Entrance ID (Bramhall 1)



ST.2b View 1

Bramhall Entrance
1
Department Name
Department Name
Department Name
MAIN
ENTRANCE

ST.2c Entrance ID (Bramhall 2)



FRONT
24”T x 25’-6”W x 1”D Fabricated painted aluminum panel with 1/4” painted letter forms flush mounted to panel

RIGHT/LEFT SIDES
24”T x 9’-10”W x 1”D Fabricated painted aluminum panel with 1/4” painted letter forms flush mounted to panel

ST.2d Entrance ID (Radiation)

8”T x 2”D Fabricated aluminum letter forms with enclosed back surfaces.
Mounted to top raceway, fastened to existing ceiling.

10”T x 60”W x 1/2”D Painted aluminum panel with 1/4” painted logo

12”T x 5”W x 1/4”D Painted aluminum panel with applied vinyl graphics

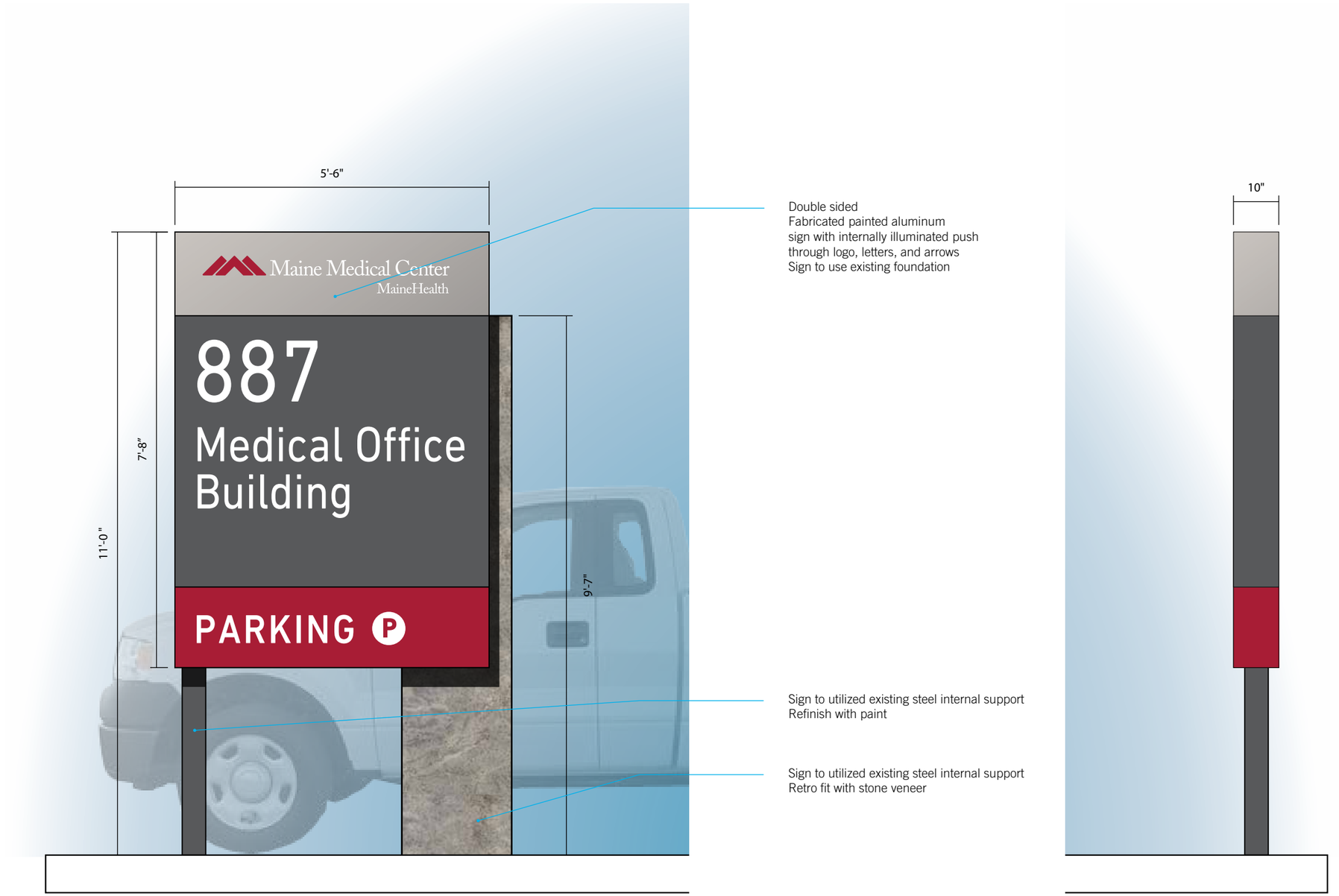
ST.2e Entrance ID (Dana Conference Center)

8”T x 2”D Fabricated aluminum letter forms with enclosed back surfaces.
Mounted to top raceway, fastened to existing ceiling.

10”T x 72”W x 1/2”D Painted aluminum panel with 1/4” painted logo

24” x 36” x 1” fabricated aluminum panel with direct printed graphics

ST.3a Building ID (MOB 887)

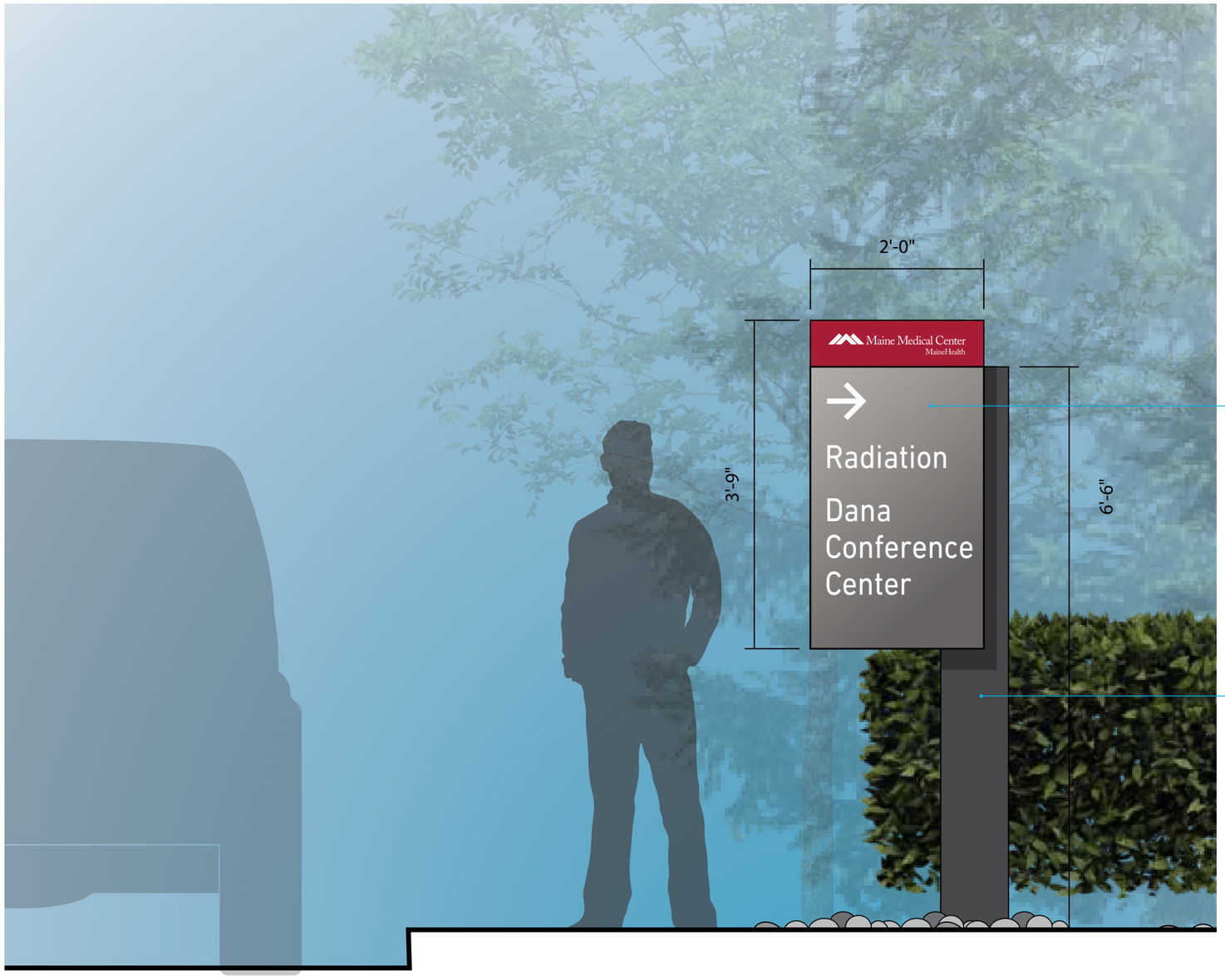


ST.3a View 1

887
Congress Street
Medical Building
PARKING
DO NOT ENTER
ENTER

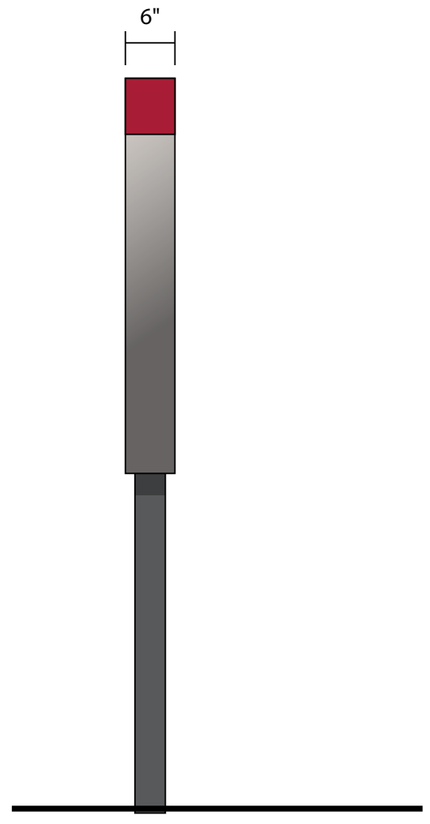
Maine Medical Center
MaineHealth
887
Medical Office
Building
PARKING
DO NOT ENTER
ENTER
CLEARANCE

ST.3b Building ID (Radiation/Dana)



Double sided
Fabricated painted aluminum with
applied vinyl graphics
Foundation as required

Fabricated painted aluminum
support



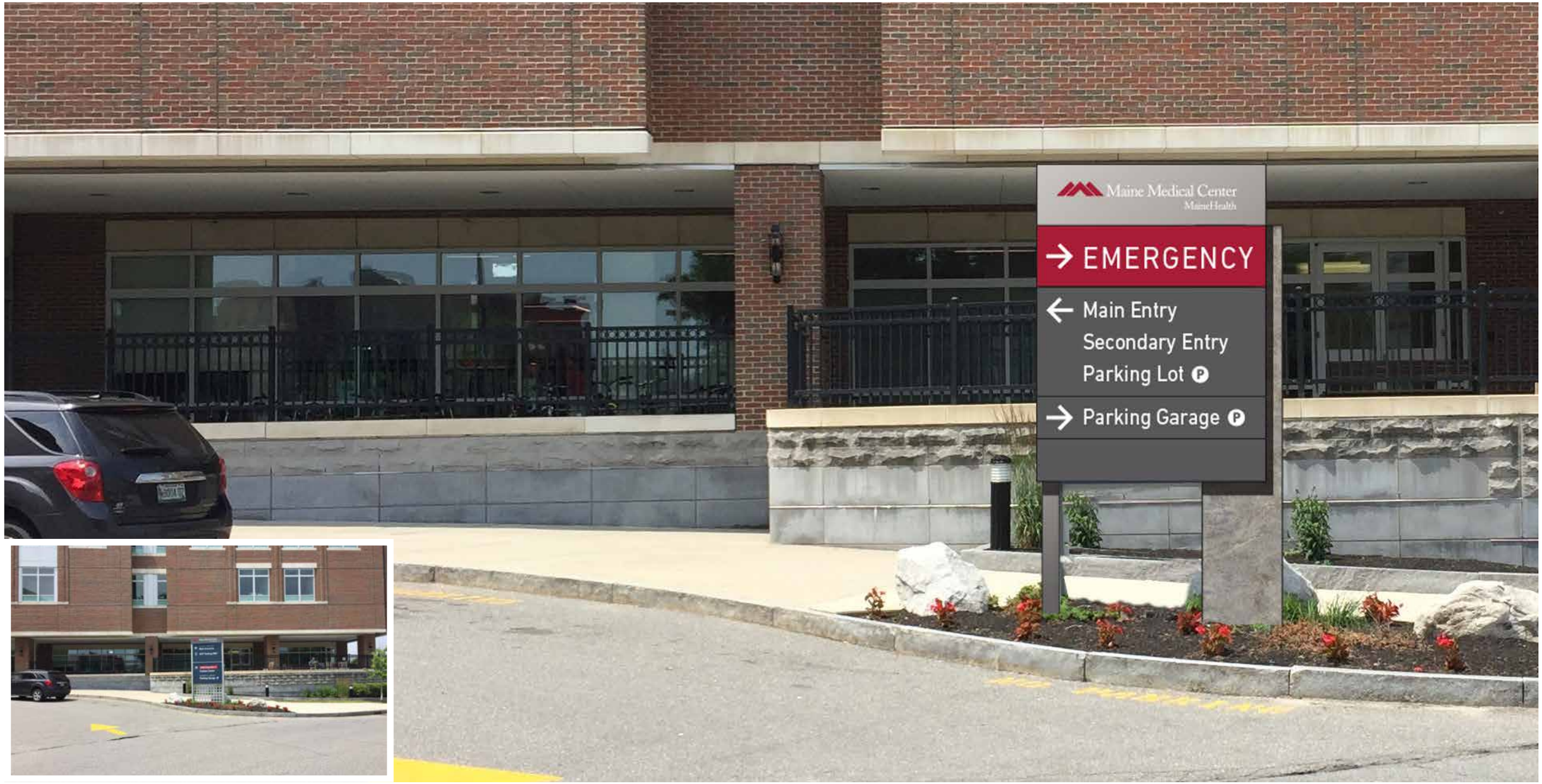
ST.3b View 1

Maine Medical Center
Radiation
Dana
Conference
Center
ESTERN

ST.4a Primary Vehicular Directional (Typical)

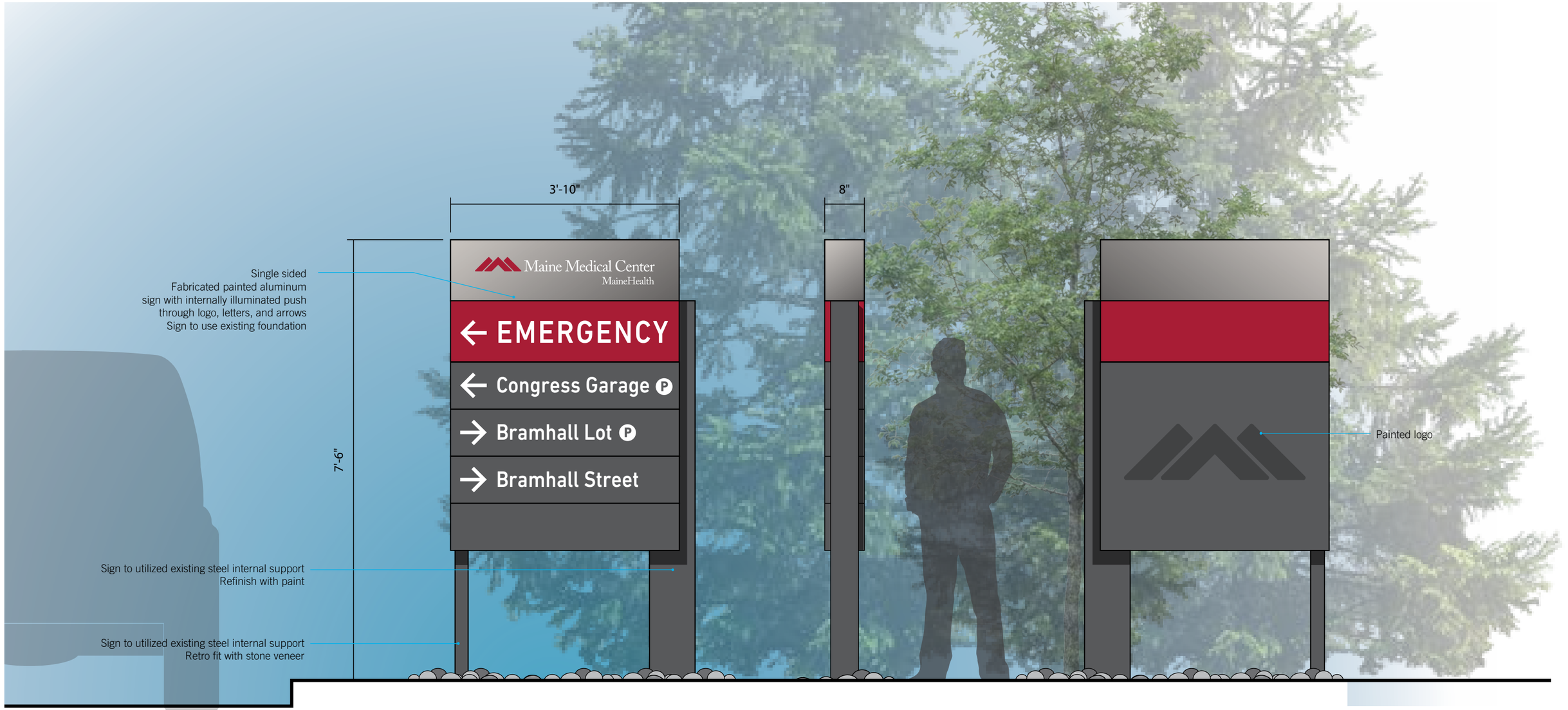
ST.4a Bramhall Street

ST.4a Bramhall Circle



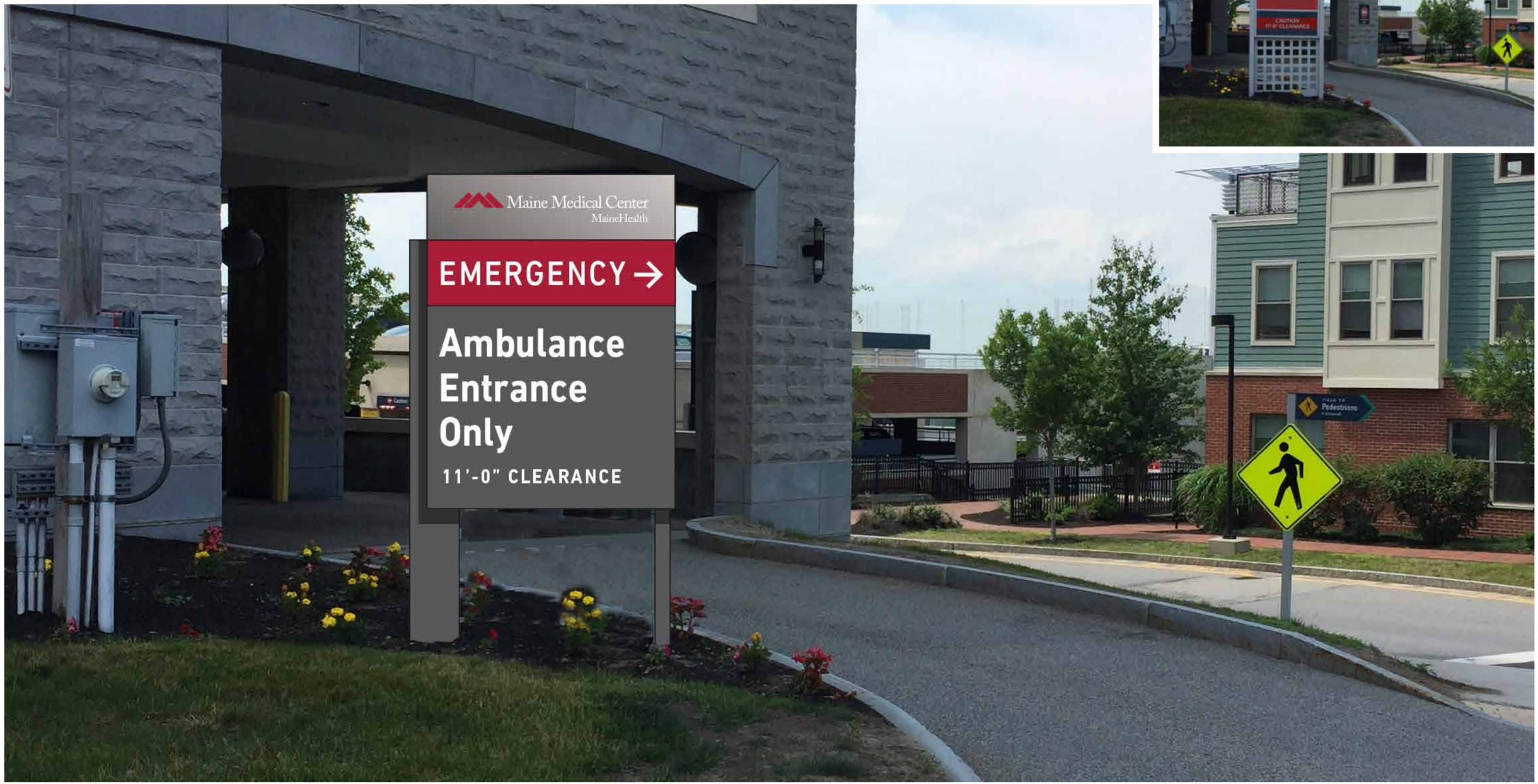
ST.4a Ellsworth

ST.4b Secondary Vehicular Directional

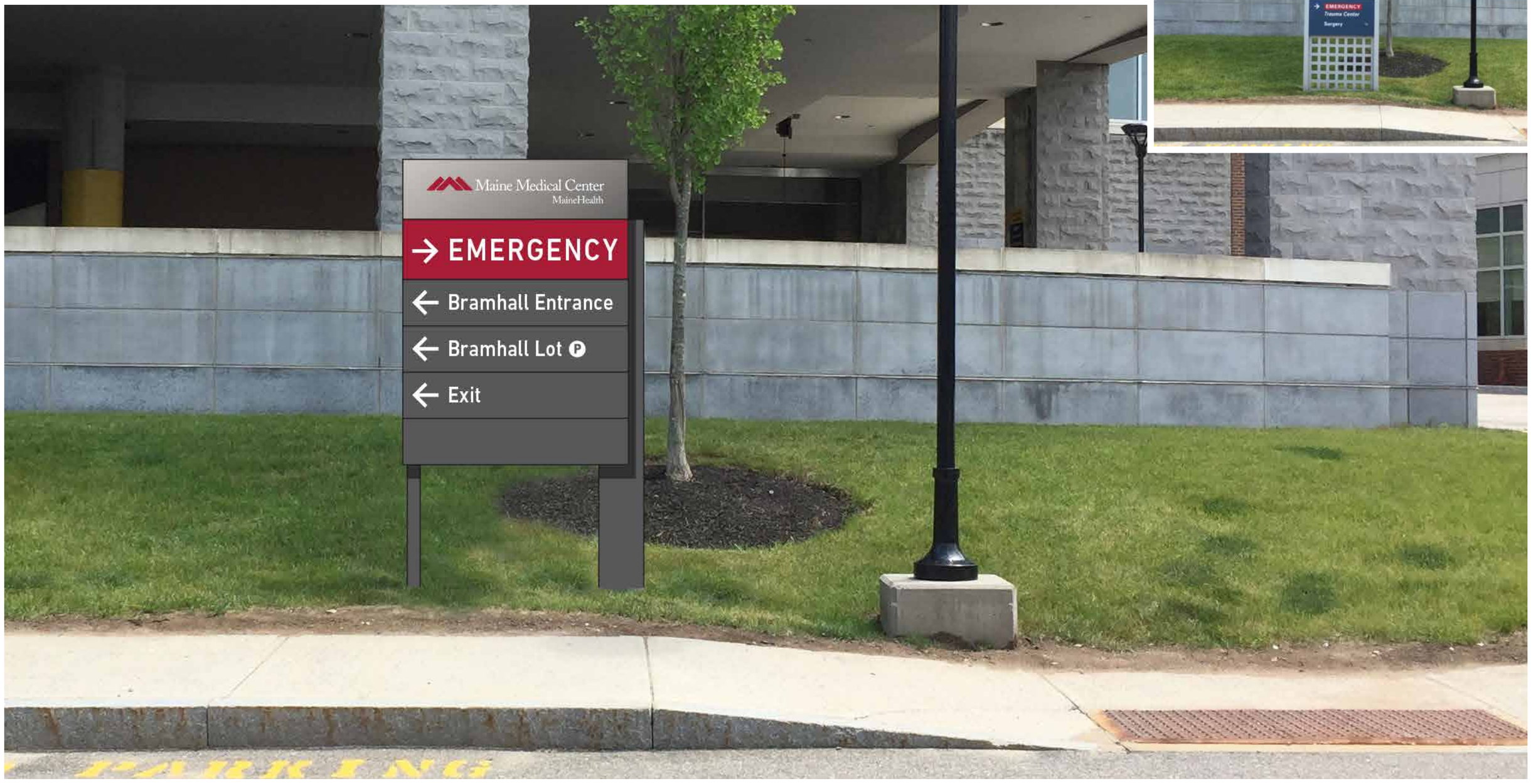


ST.4b Bramhall Circle

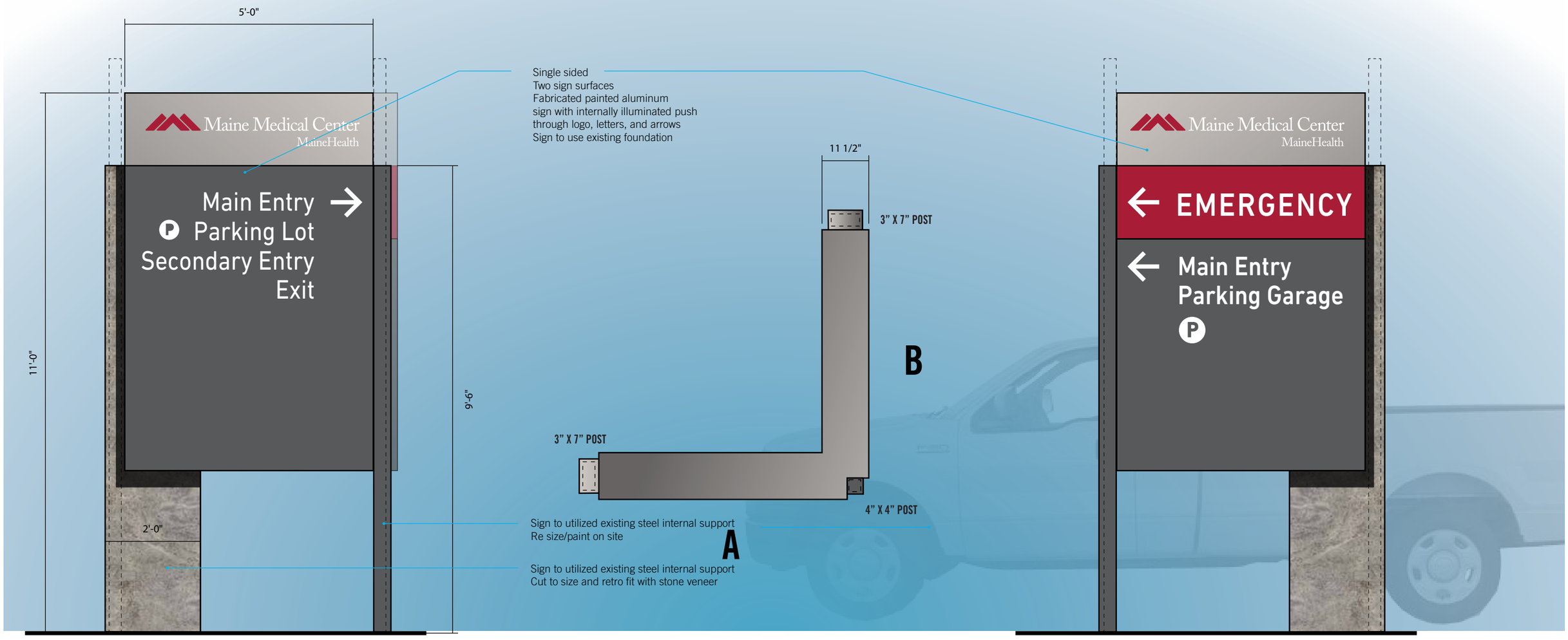
ST.4b Ambulance



ST.4b Congress Garage Parking



ST.4c L Vehicular Directional (Crescent & Wescott)



ST.4c View 1

Maine Medical Center
MaineHealth
EMERGENCY
Exit
Bramhall Lot
Bramhall Entrance
Maine Medical Center
MaineHealth
EMERGENCY
Congres Garage
Service
Facilities
NO PARKING

EMERGENCY

ST.5a Emergency Entrance Wall

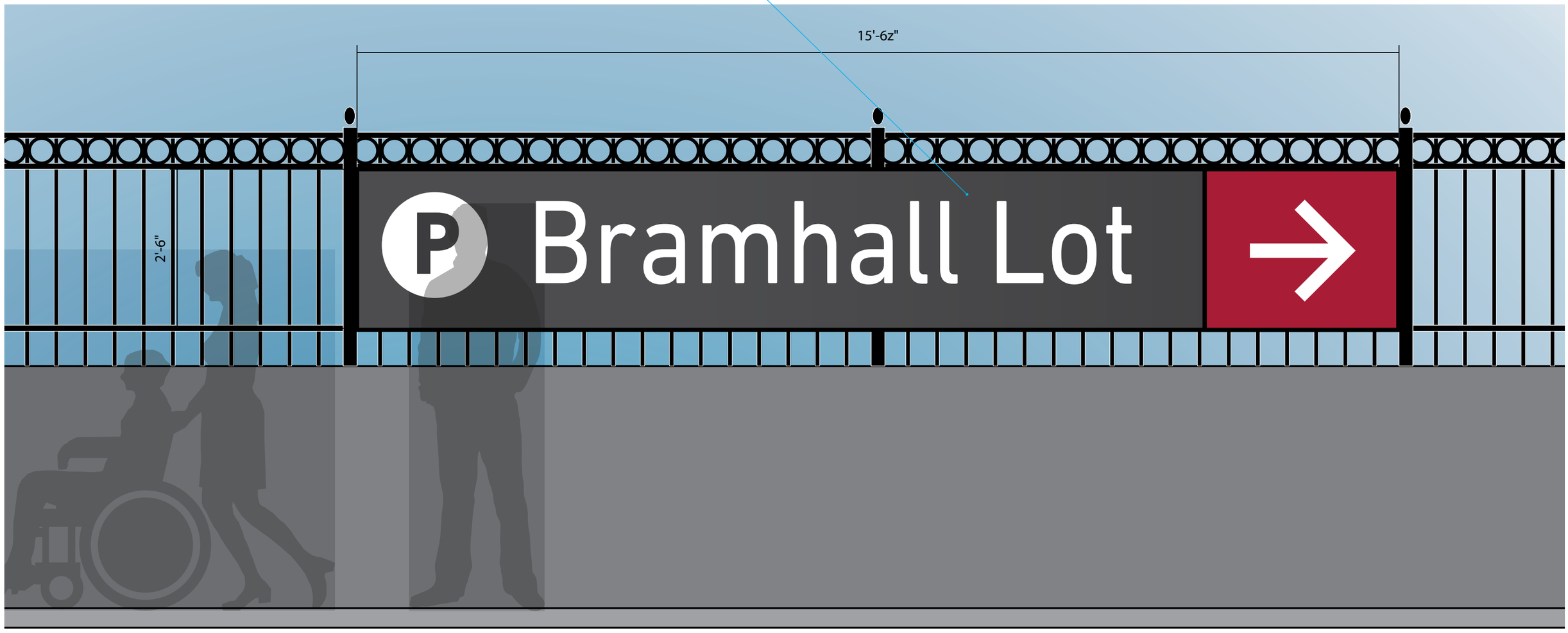
Single sided
16"T x 14'W x 6"D Fabricated painted aluminum sign with internally illuminated push through letters and arrows
Roll formed, flush mounted to existing precast

Single sided
12"T x 10'W x 4"D Fabricated painted aluminum sign with internally illuminated push through letters and arrows
Roll formed, flush mounted to existing precast

ST.5b Bramhall Lot Fence Panels

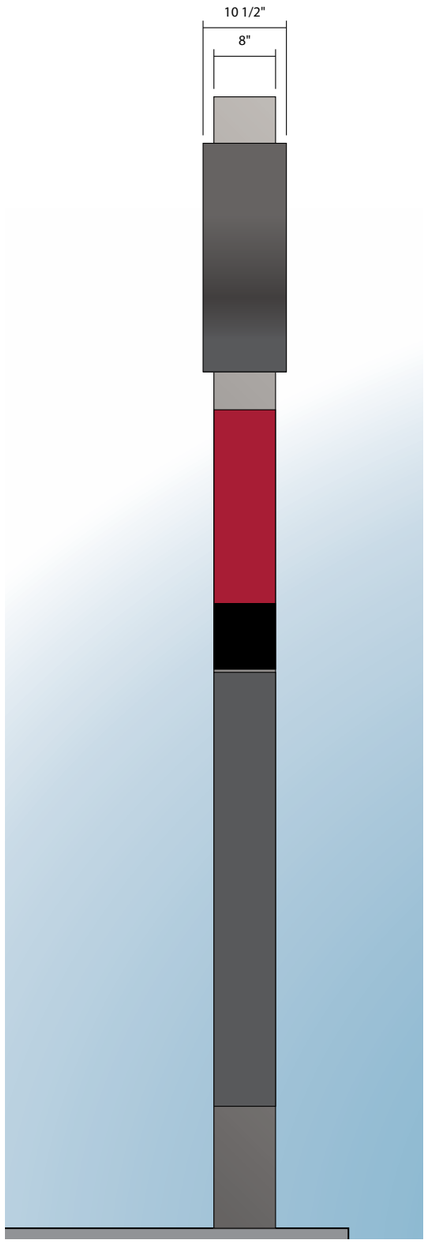
1” Fabricated painted aluminum
Mounted to existing fence
Surface applied reflective vinyl
copy and arrow

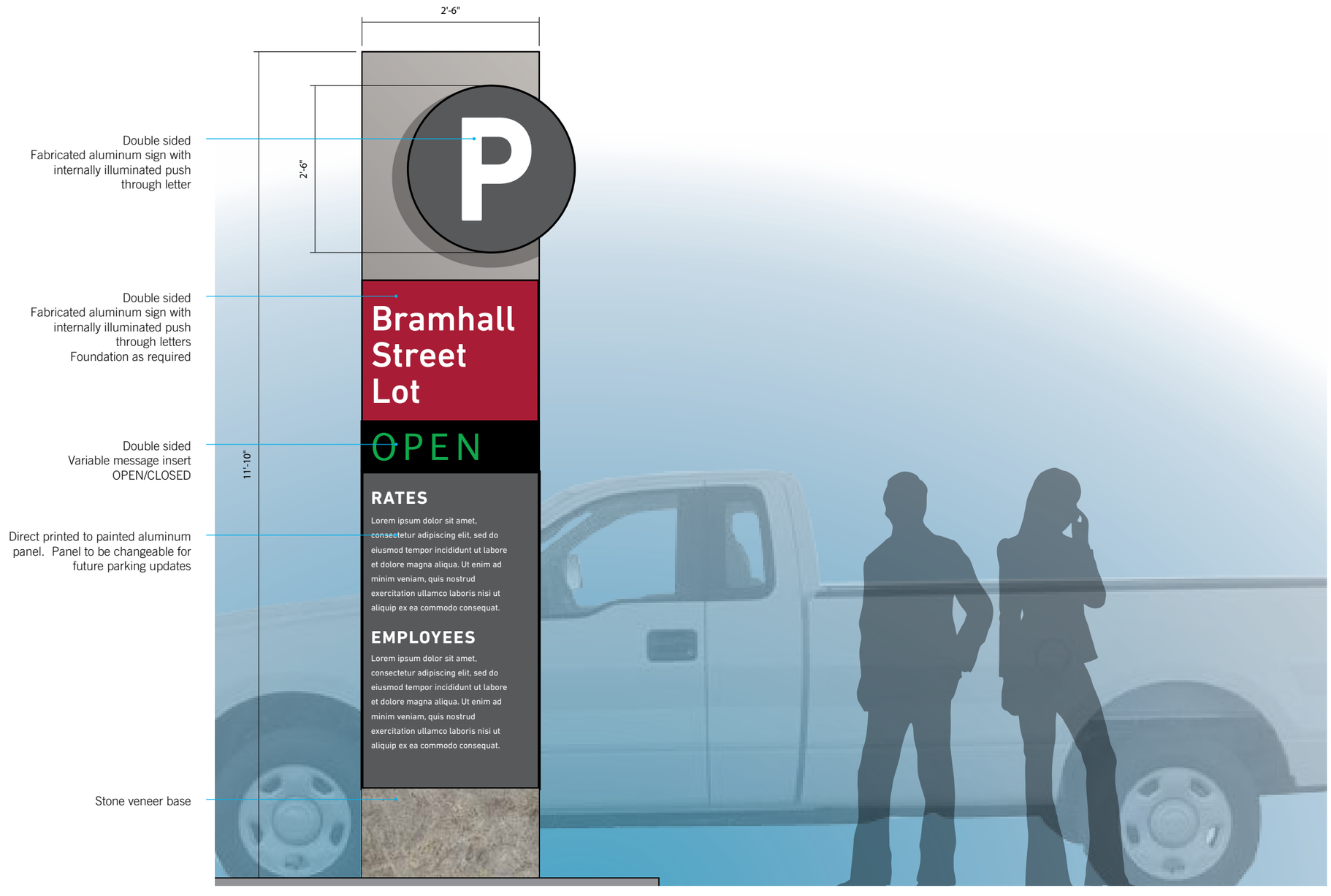
Quantity 2



ST.5b View 1

ST.6a Bramhall Lot Entrance





Double sided
Fabricated aluminum sign with
internally illuminated push
through letter

Double sided
Fabricated aluminum sign with
internally illuminated push
through letters
Foundation as required

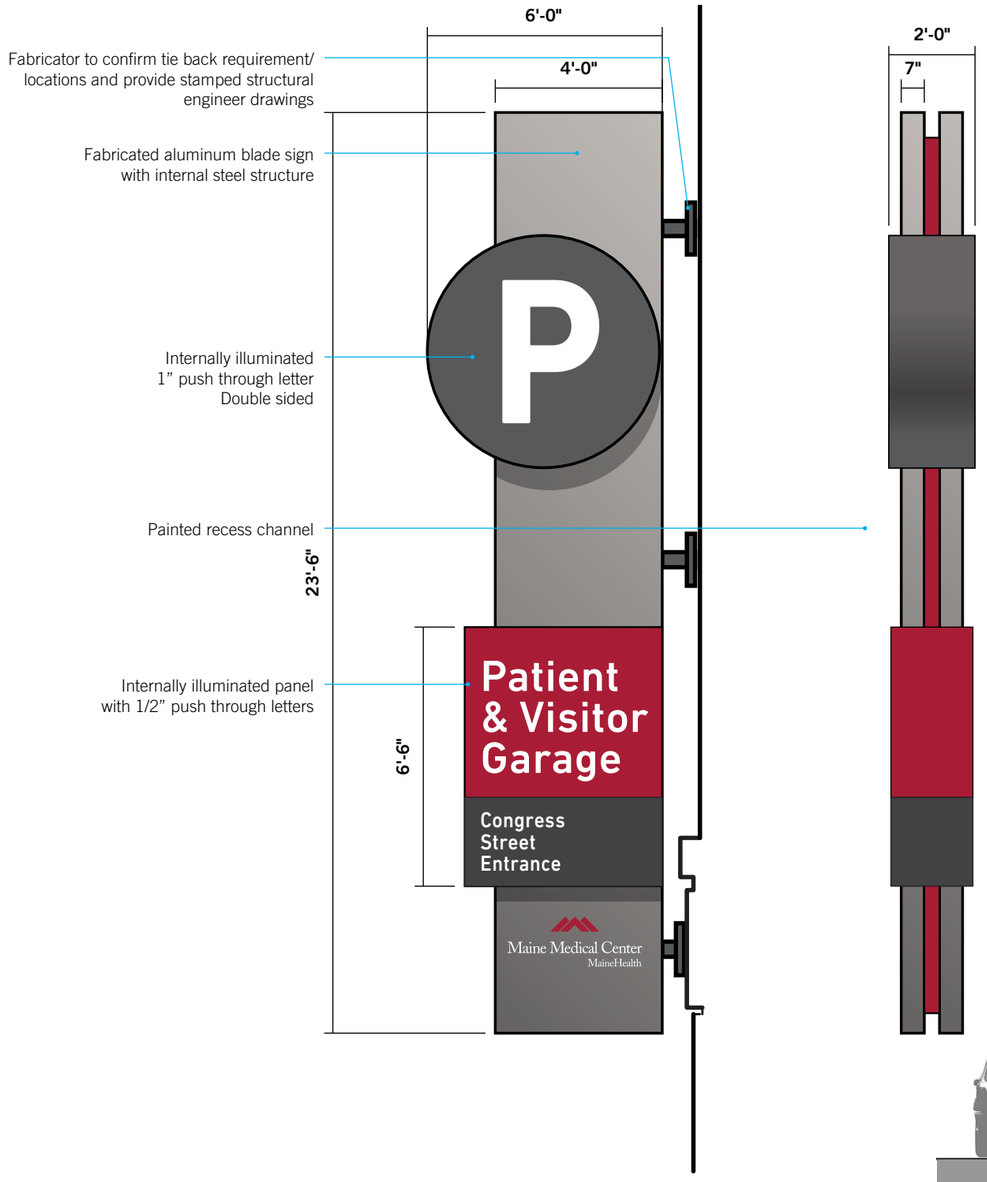
Double sided
Variable message insert
OPEN/CLOSED

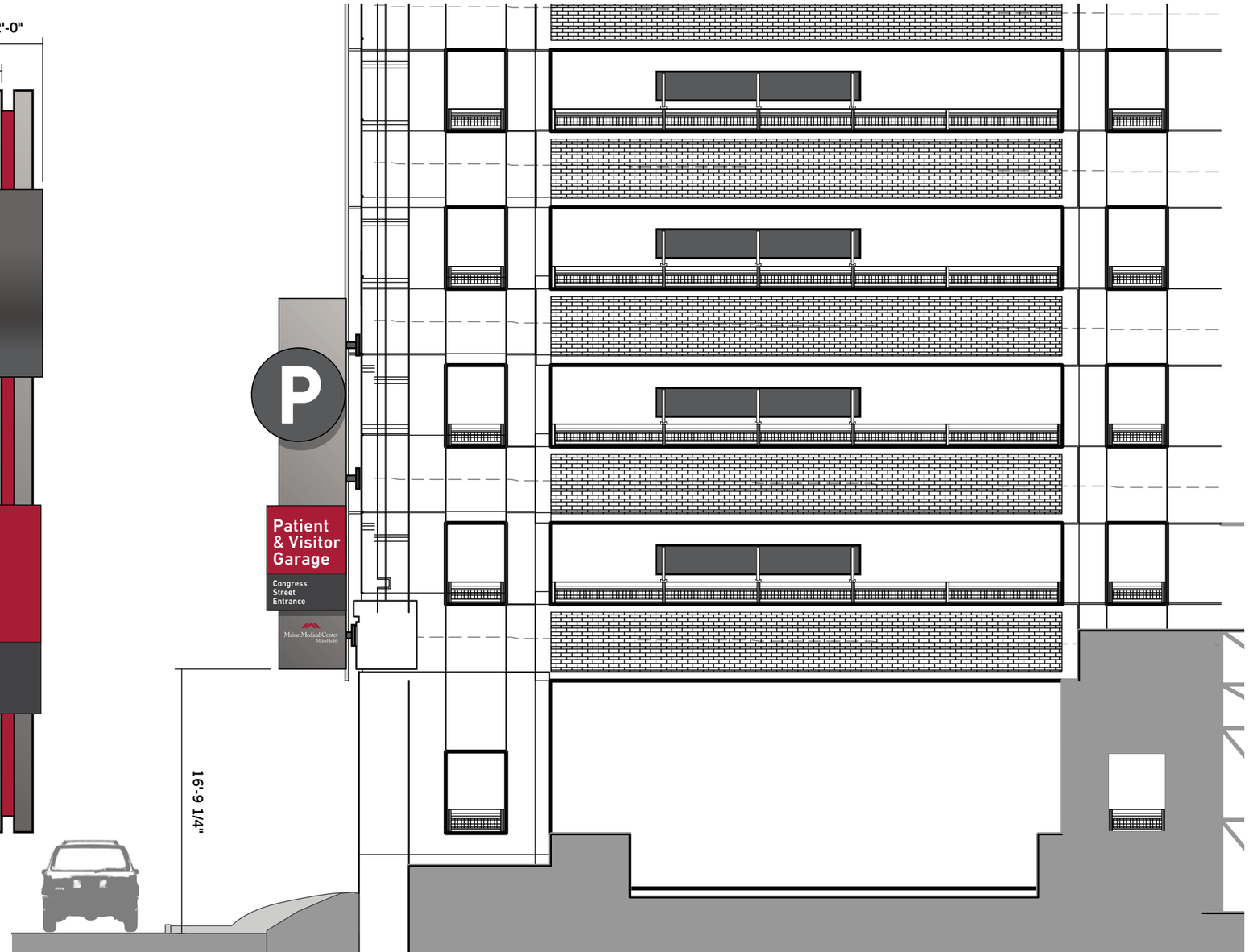
Direct printed to painted aluminum
panel. Panel to be changeable for
future parking updates

Stone veneer base

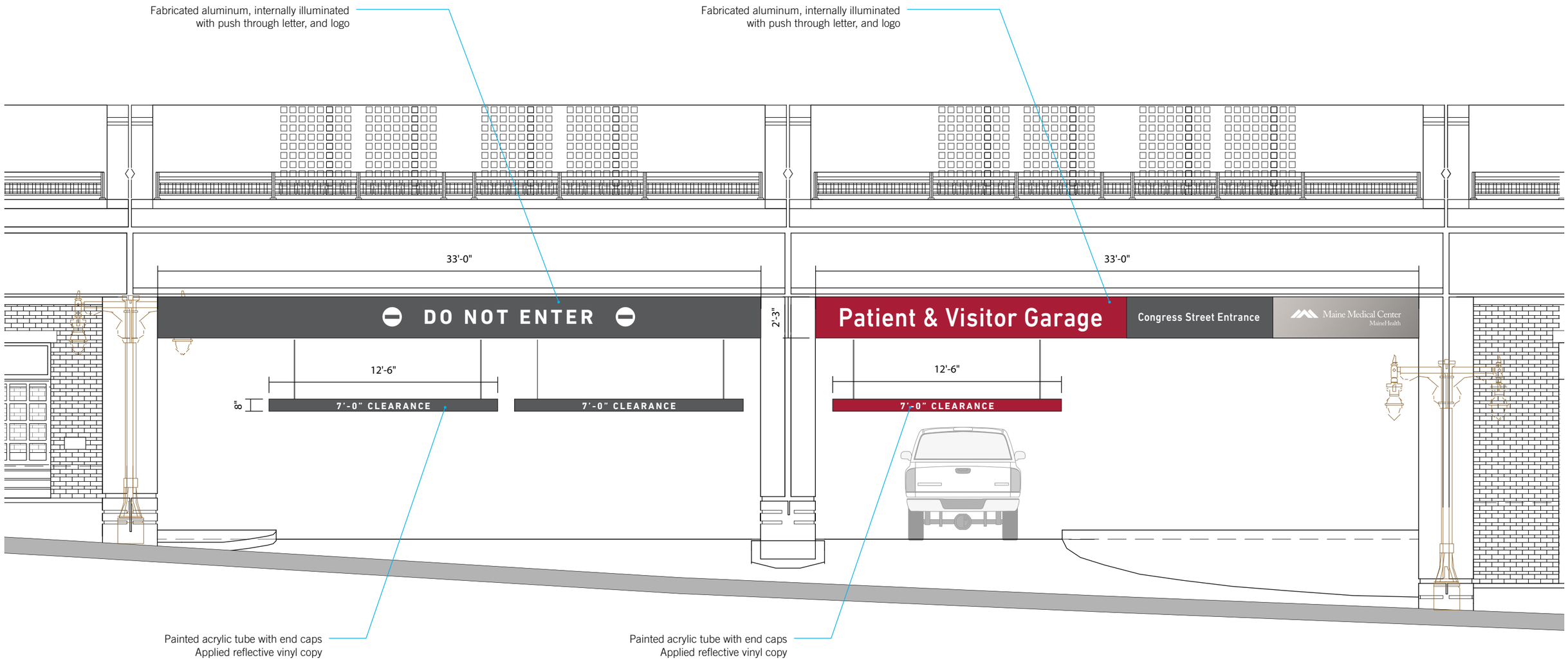
ST.6a View 1

VG.1a Blade Sign (Congress)





VG.2a Garage Identification (Congress)



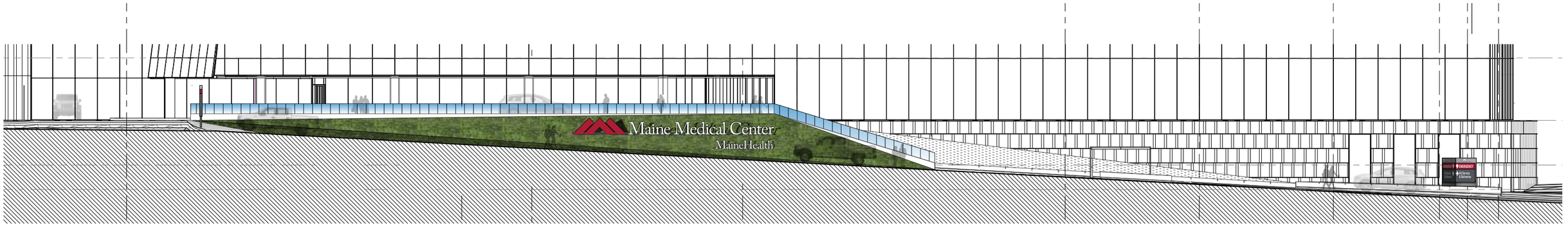
VG.1a & VG.2a View 1

VG.2b Garage Identification (Crescent)

02

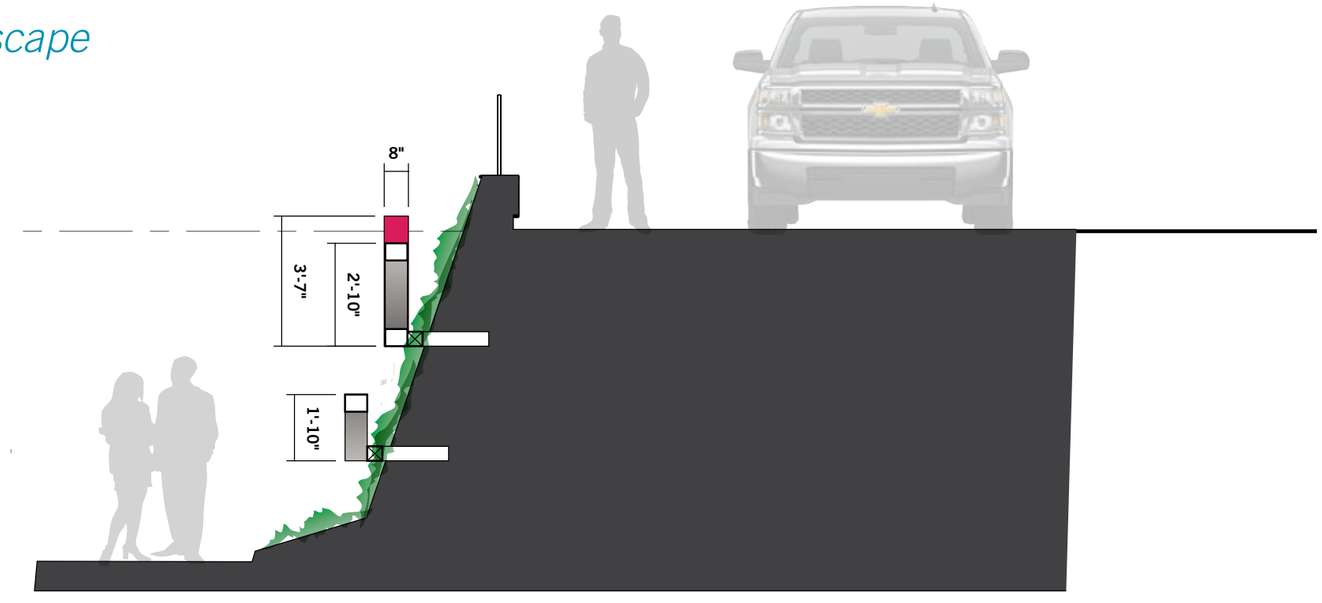
Congress Street Building Signage

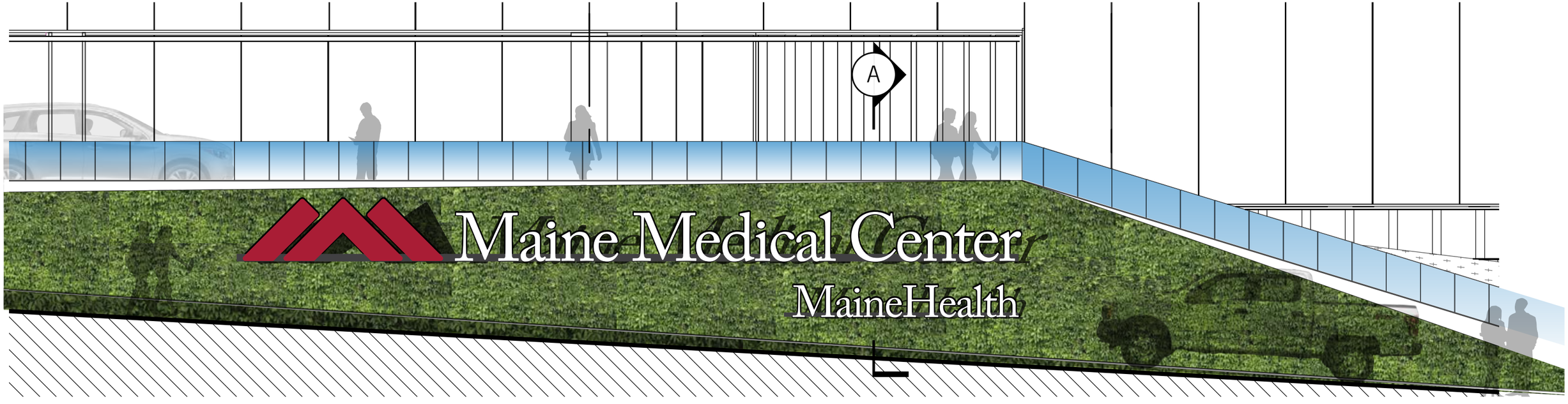
Preliminary
Sign Location
Plan



CS.1 Project Monument

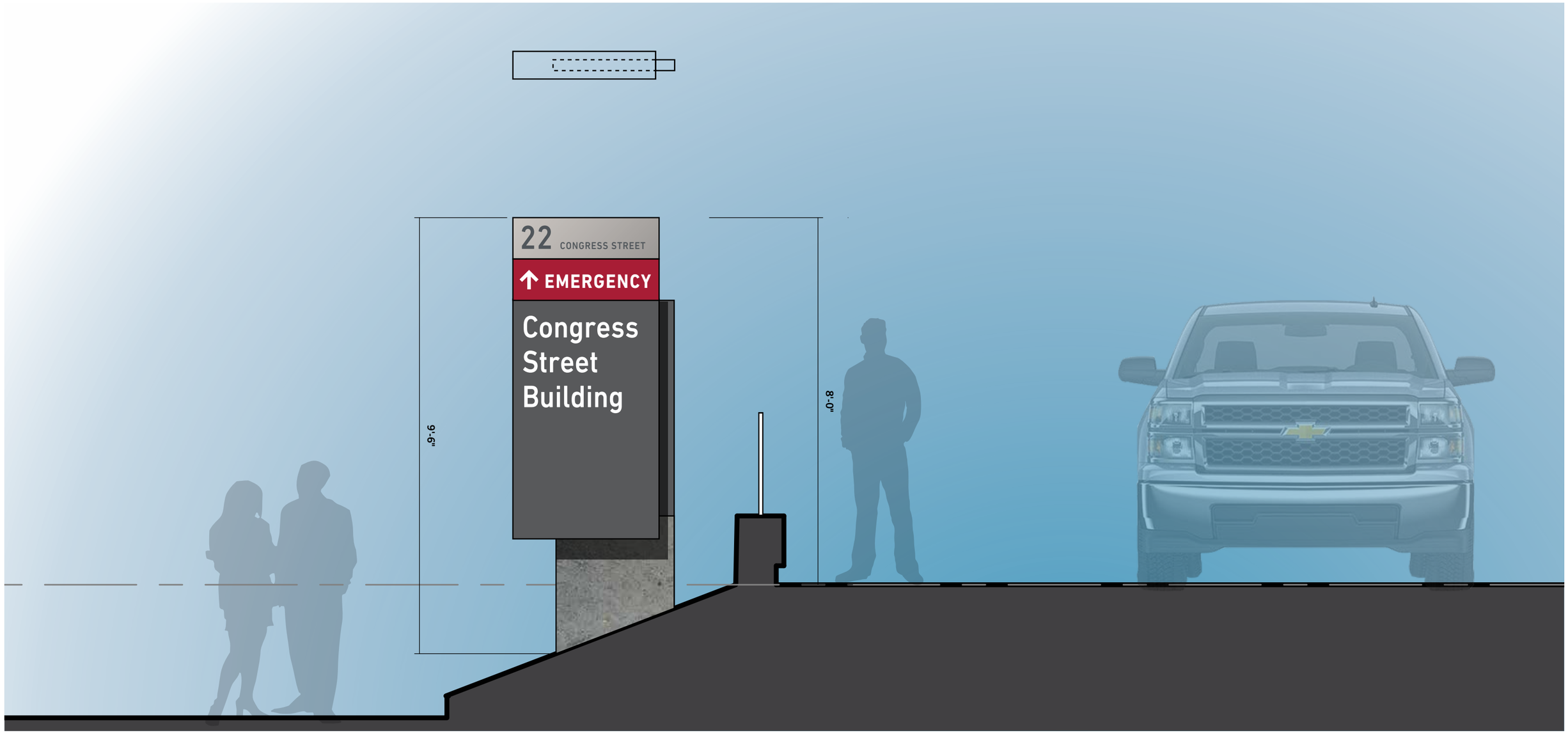
NOTE: Exact placement of signage to be determined once landscape design is finalized with the City of Portland.





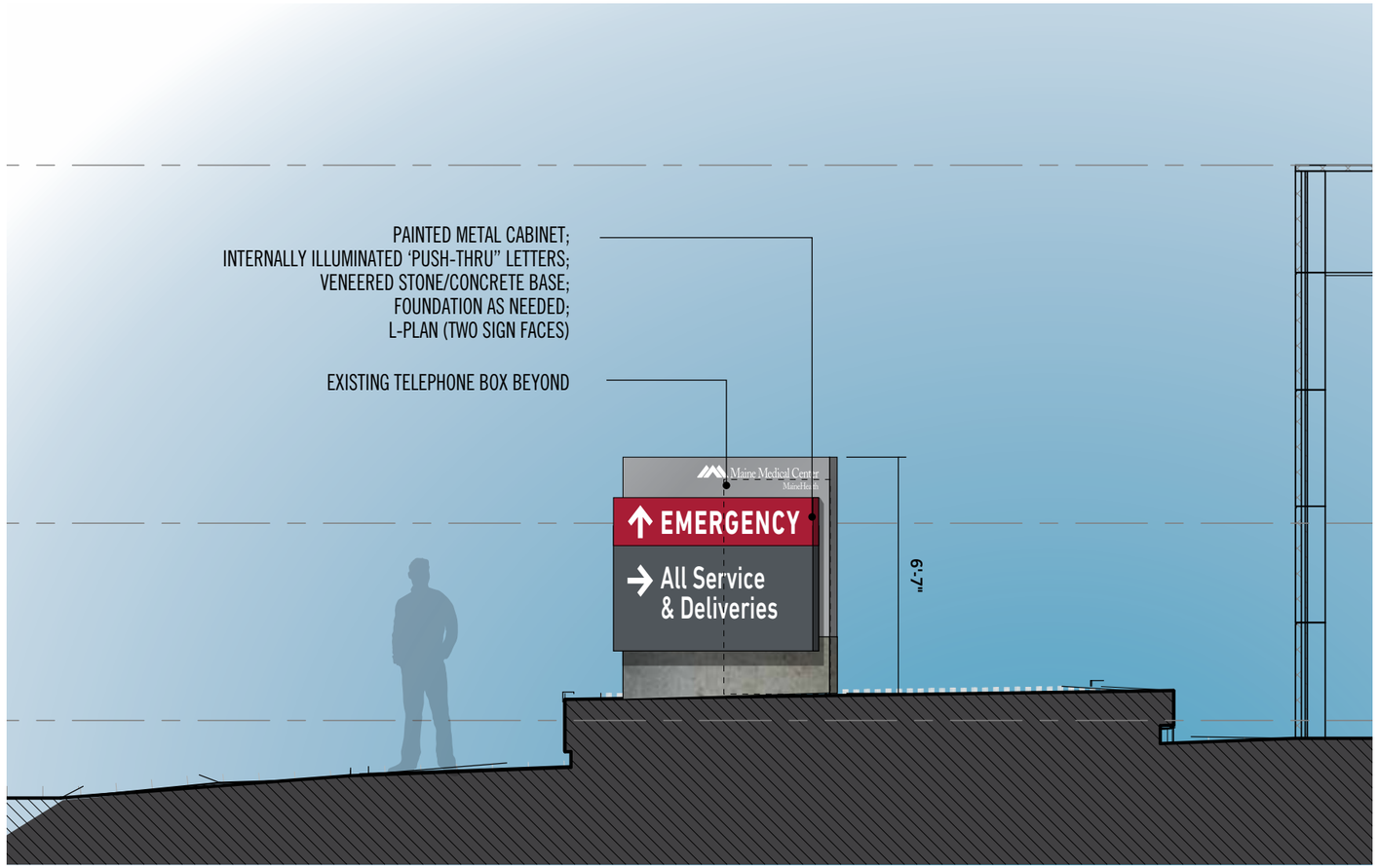
CS.2 Building Identification

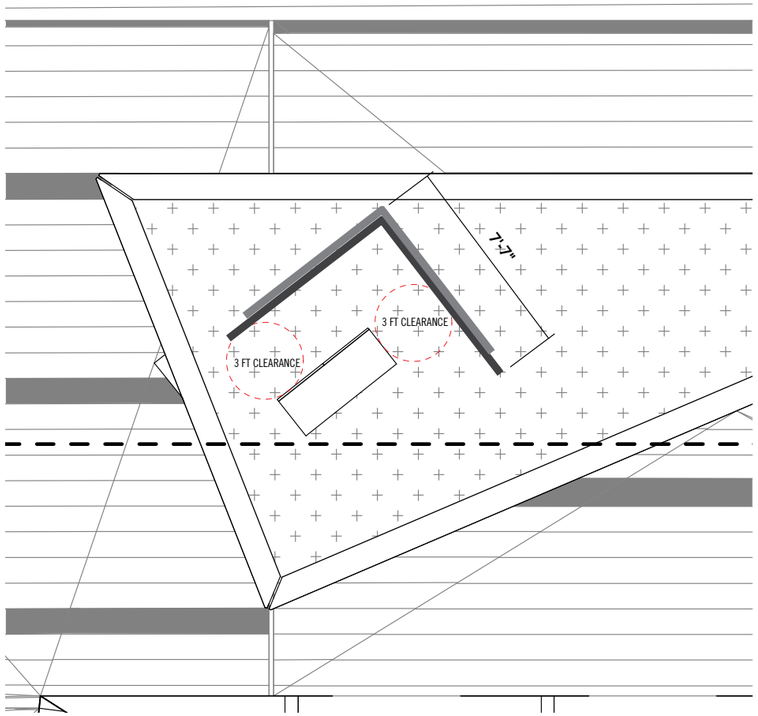
NOTE: Exact placement of signage to be determined once landscape design is finalized with the City of Portland.

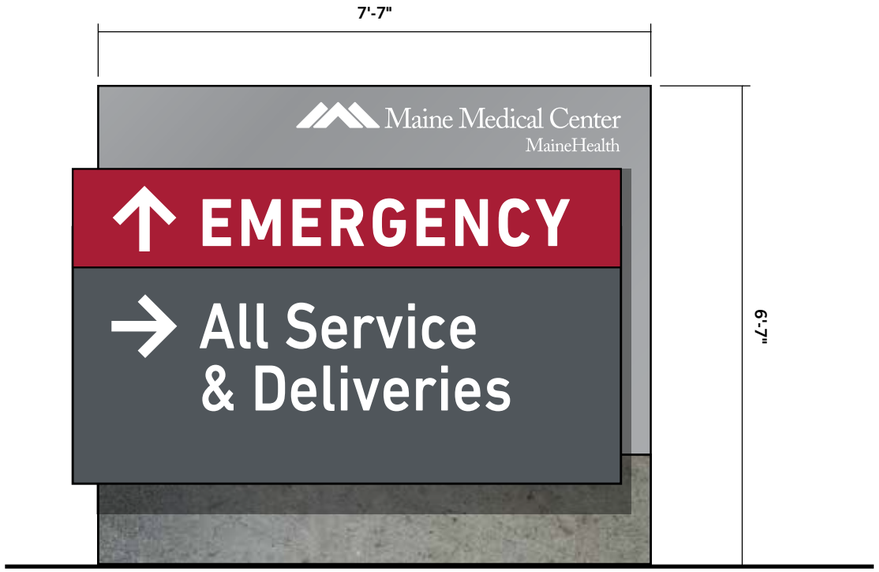


CS.3 Corner Directional

NOTE: Exact placement of signage to be determined once landscape design is finalized with the City of Portland.



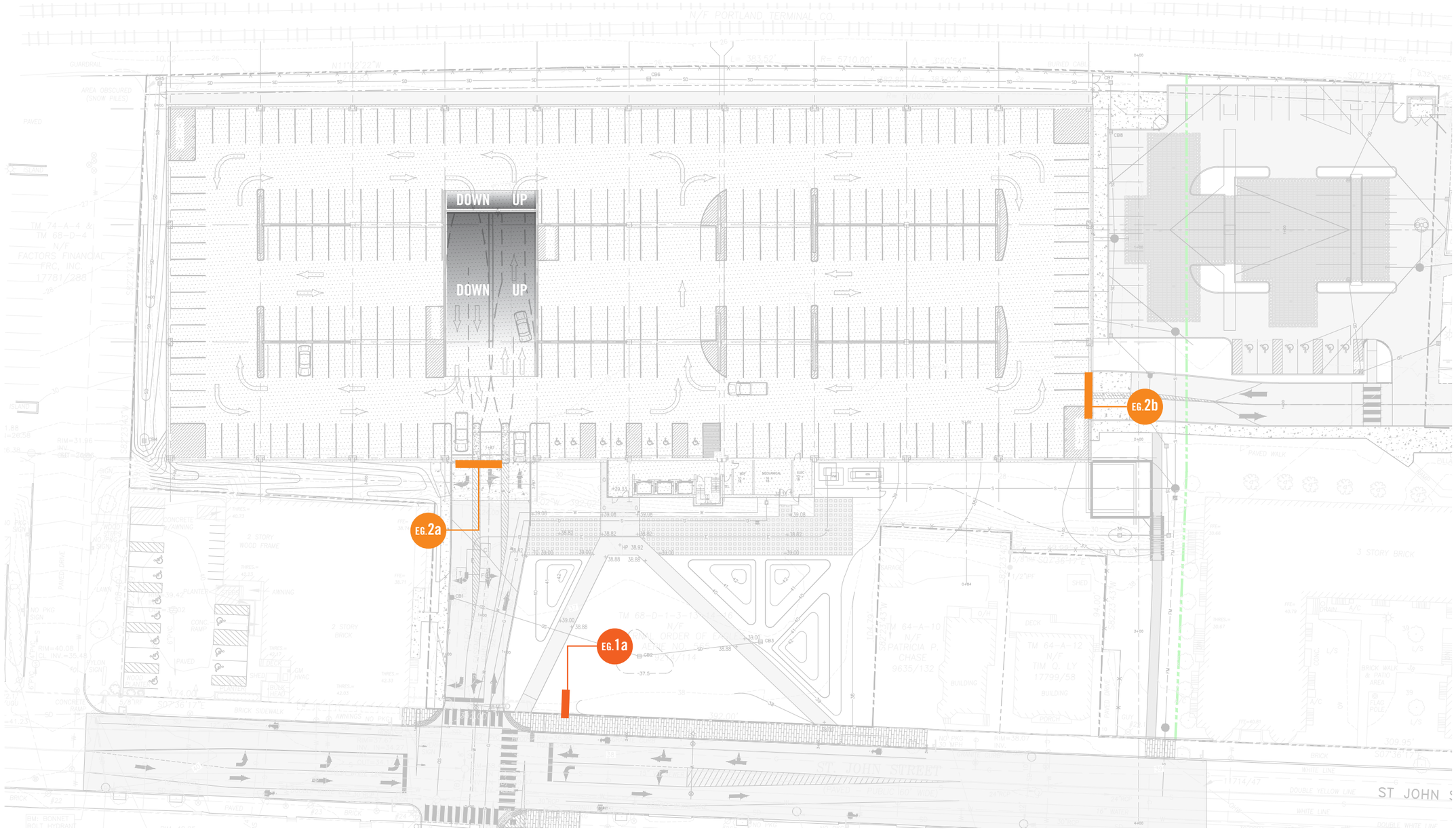




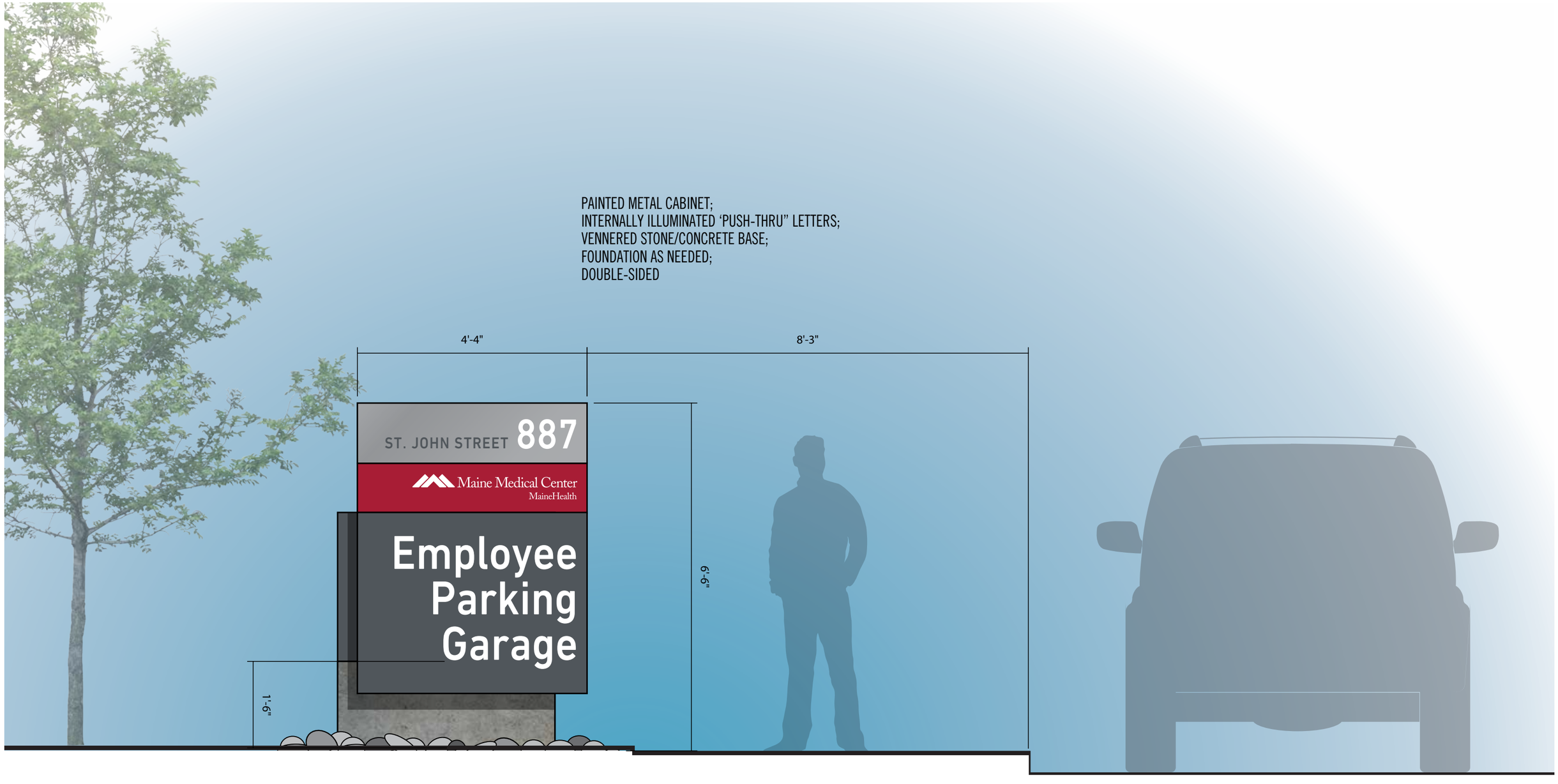
03

Employee Garage Signage

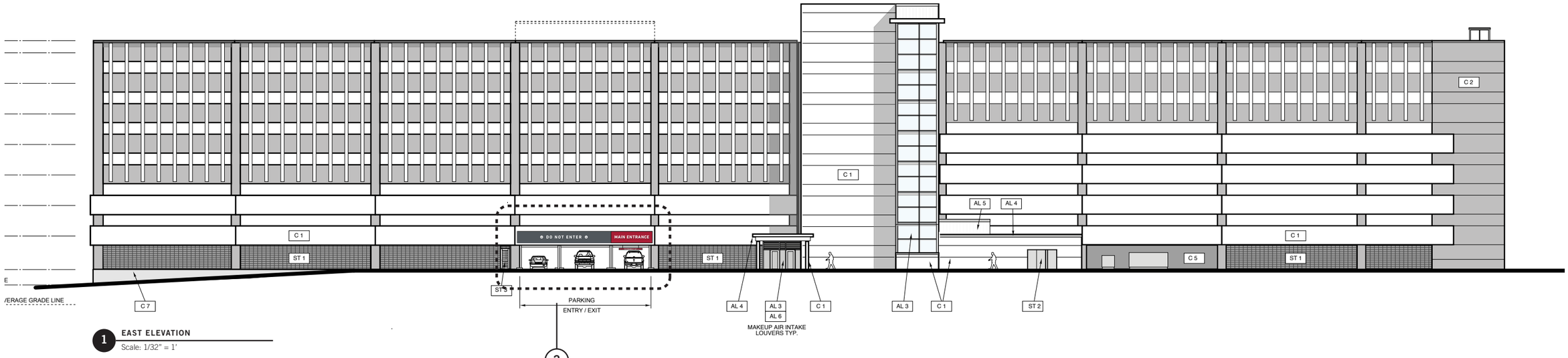
Preliminary Sign Location Plan (Level 1)



EG.1a Monument Sign



EG.2a Garage IDs (East Elevation)

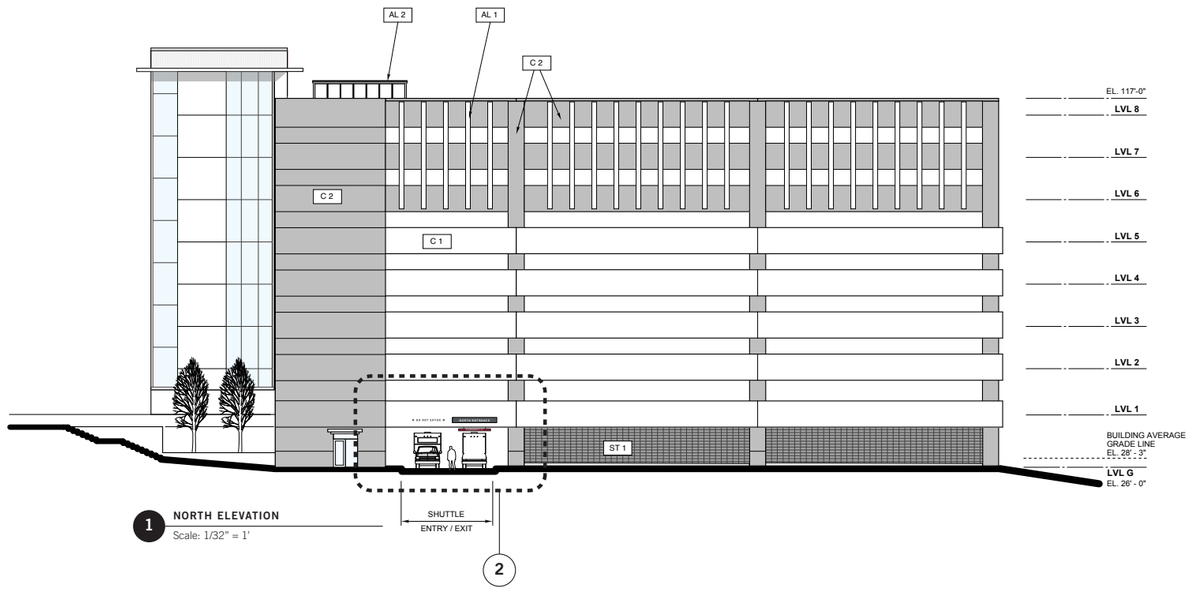


1 **EAST ELEVATION**
Scale: 1/32" = 1'

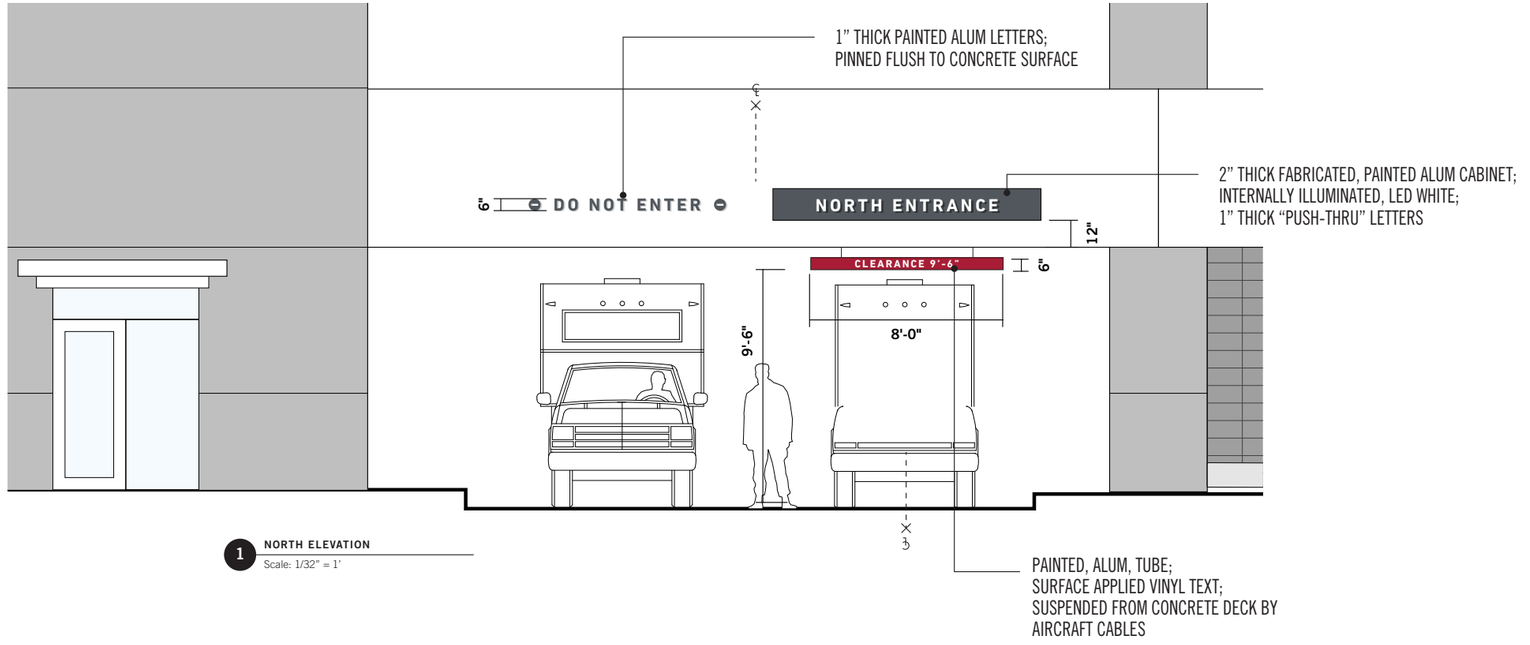
2

2 **SIGN TYPE F6: ENTRY SIGN**
Scale: 3/16" = 1'

EG.2b Garage IDs (North Elevation)



1 **NORTH ELEVATION**
Scale: 1/32" = 1'



1 **NORTH ELEVATION**
Scale: 1/32" = 1'

Thank You

Leverage/

Maine Medical Center
MaineHealth

PERKINS+WILL

MMC Congress Street - City Design Narrative

To: Al Green

From: Jeffrey Keilman

Date: September 14, 2018

Subject: **MMC Congress Street - City Design Narrative**

Attachments

The purpose of this memorandum is to document and provide design team process and responses to address the IOZ Design Review standards as required following up on conversations with City of Portland Planning Staff outlining design intent.

IDP Design Guidelines

Guideline No. 1
New buildings will be designed to contribute to the campus vision and organizational goals identified in the Master
FacilityPlan and the Transportation Plan, and best practice design
standards for healthcare.
Design Response
The design of the proposed Congress Street Patient Tower meets this guideline. The proposed building follows the design drivers outlined in MMC's Institutional Development Plan (Pgs. 100-102)

1. The building creates a new gateway to the hospital, highlighting a major axis in the City of Portland, along Congress Street and further expands upon the architectural character and vision of the MMC campus that was established by the Bean Expansion and East Tower. The Congress Street Patient Tower further defines the architectural character of the campus by articulating a design that adheres to best practice standards for healthcare as dictated by designing from the inside out in that the key plan and program requirements are expressed within the exterior massing. This massing relates to required scale for modern delivery of healthcare and further links to the architectural character and scale of the other building projects on the campus, including the East Tower addition and Bean Surgery expansion, both visible and reinforced in the layering of the buildings on campus.
2. The building will be an efficient and well-organized addition to campus. The Congress St. entrance, adjacent to the patient and visitor parking garage will be easy for patients and visitors to find. This entrance is glazed and highlighted by the multistory atrium that is visable from Congress Street and creates a destination for clarity of wayfinding.
3. The building design supports healing. The building is designed around the patient rooms and procedure rooms. Window heights, fenestration, and the façade articulation will all contribute to a better patient experience. The design aesthetics relate to the campus vision by epitomizing the top-quality, advanced healthcare delivered on campus. Attention to scale and proportions for the inhabitants drove design and massing decisions on the exterior. In

particular, decisions on where to include glazing, and more importantly, where solid wall is located was driven by the interior plan and program. A patient centric experience from the interior design was the key driver and critical in shaping the exterior expression of the architecture.

4. A sustainable and resilient campus is enhanced with the Congress St. Tower. Impervious surfaces are reduced with the use of green roofs, roof terraces & courtyards, and landscaped surfaces along Congress St.
5. The contextual landscape framework achieves a balance between the urban edge that the new building creates with Congress St. and providing landscaped amenities as appropriate. The landscape, in conjunction with the hardscape, create a layering of space from the public right-of-way to the new entry for the hospital. The landscape framework also mitigates the large grade changes and provides an urban plaza and pedestrian connections for the hospital previously lacking along Congress St. Decisions on landscape design and formal moves were considered not only from the context of the street experience, but also for patients who will be looking at these spaces from within the hospital with the understanding that a room with a view has clinically proven to improve patient outcomes

The stated MMC vision includes integrating inside and outside - achieved here through the internal circulation and window size and placement, as well as a "50 year palette" that selects materials based on cues from nature to create a timeless environment. This vision includes Sky, Sea, and Land as concepts for material/color selection. Although the design of the Congress Street Tower could be considered contemporary, the choice of materials, design details, and other elements relate to a sense of place, specifically, Maine.

Guideline No. 2

The overall composition and experience of the campus will be considered for cohesive identity from approaches along Congress Street and I-295.

Design Response

This guideline is met because the design of Congress Street Patient Care Tower was envisioned in conjunction with both the East Tower and Visitor Garage, in particular how long views and campus identity are reinforced, including both current and future phase goals. This is demonstrated in the provided renderings that link the buildings on the hill with those along Congress Street in approach and scale.

Guideline No. 3

Building entrances will be oriented toward, located adjacent to, accessible from, a sidewalk in a public right-of-way to create a pedestrian-oriented environment.

Design Response

This guideline is met as new entrances for vehicular drop-off, pedestrian access, and access from public transportation are created along Congress Street directly linked to the public right-of-way. The design of the landscape/hardscape along Congress Street further link the building to the public realm and assist in creating a pedestrian-oriented environment. The creation of a small plaza and an urban staircase

provide for a public space that mitigates the challenges created by grade at this location. Entrances were considered for their relation to the public, but also for their critical adjacencies within the facility. Ability for patients and visitors to quickly enter the building and access critical services through limited travel distances and intuitive wayfinding seamlessly link the exterior to the interior.

Guideline No. 4
Building designs will relate to and be compatible with the existing, or – in areas of change – planned character of residential and commercial neighbors. Design elements and characteristics to consider include:

- Building placement and relationship to the street
- Overall massing and scale
- Roof forms
- Proportion, directional expression, and composition of facades
- Rhythm of solids to voids
- Rhythm and proportion of openings
- Rhythm of entries and projections
- Relationship of materials, texture, and color

Design Response
This guideline is met because the design of Congress St. utilizes materials, scale, form, detail, to be compatible with adjacent MMC campus construction, while speaking to the required scale and aesthetics of modern healthcare. The design relates to both the East Tower and the recently completed Bean Addition. This is demonstrated through the rooflines, simplicity of details to adjacent construction, and materiality. Proportion, façade expression, and composition was developed to relate to the planned character for the Bramhall Campus, as it is an area of change. This is seen in the proportion of fenestration, expression and composition of facades with modern materials to relate to Surgery 2 expansion and proposed Congress Street building.

Guideline No. 5
Façade materials of buildings will be of high quality, and contribute to an attractive public realm.
Design Response
This guideline is met because the design utilizes high quality, high performance systems that provide attractive aesthetic design but also high performing environmental design adding aesthetically to the public realm. Choices in materials were selected deliberately to meet the rigors required by healthcare interior environments.

Façade materials are of high quality and more importantly appropriate performance from a thermal standpoint to align with the clinical programs within the building. Attention to detailing and current and future context were critical in the material selections. Additional long views have been developed that in conjunction with the campus aerial speak to the new vision and image for the MMC Bramhall Campus. Subsequently, constructability and programmatic drivers were real constraints in

selection of materials.

Guideline No. 6

The design process will consider long views of new buildings including roofs and associated structures to minimize visual impacts and provide visual interest. Rooftop appurtenances will be either screened from view or integrated into the building design, and will not be visible from adjacent streets, Western Promenade, or the Congress Street approach (helipad excluded).

Design Response

This guideline is met because the design of the Congress Street building demonstrated with perspectives indicating the long views and visual impacts achieved in unifying the campus. Rooftop screening is utilized in the limited locations where appurtenances would have potentially been visible from street and/or long views. Inclusion of green roofs, both visual and occupied, further enrich the roofscape.

Guideline No. 7

Vibrant, contributing and sustainable active ground floors will be provided to add activity and a sense of place to the priority node identified in the City's Comprehensive Plan.

Design Response

The Congress Street building provides this by aligning two entries along Congress St., providing activity and a sense of place along a key urban edge to the city. The inclusion of a major hospital entry along Congress St. that enables both vehicular and pedestrian connections enriches the streetscape but also provides identity to MMC in the place of a previously located parking garage. Linking this entry with a transparent concourse to the employee entry further activates the ground floor as activity will occur along this spine 24 hours a day, keeping eyes on the street.

Guideline No. 8

In areas where the occurrence of limited blank facades along public right-of-ways are unavoidable due to changes in topography or building use requirements, the following strategies will be used to mitigate visual impact:

- providing elements of visual interest along any black walls facing public streets, and,
- working with the City of Portland to ensure adequate lighting of public sidewalks to create a safe pedestrian experience.

Design Response

This guideline is met because Congress Street is activated with the addition of new entrances and activities along the Congress St. edge. In addition, MMC is working with the City of Portland regarding street and pedestrian level lighting along Congress St. The use of transparency and properly located glazing further strengthen the visual interest and depth of the facades. Photometric calculations have been provided indicating that proper light levels will be maintained. The location and rhythm of fenestration was determined by the patient focused planning and interior program drivers.

September 14, 2018
Re: **MMC Congress Street - City Design Narrative**

Guideline No. 9

Any parking structure within the IOZ will:

- screen views of cars from the public rights-of-way
- provide elements of architectural interest on upper floors to contribute positively to long views and gateway approaches
- for garage structures within 20' of the public right-of-way, meet street activation intent according to street type

Design Response

This guideline is not applicable to this submission because there is no proposed parking.

Building Relationship to Public Street

1. Urban Main Street (Congress Street)

MMC buildings abutting Congress St will be designed to:

- Provide urban-levels of density
- Create an urban street wall that provides a sense of enclosure to the public realm
- Have their primary orientation towards Congress Street
- Activate the public sidewalk with building entrances, lobbies, etc.
- To the extent possible, given programmatic needs, provide visual interest and ensure pedestrian safety with views into and out of the building along the public sidewalk
- To the extent possible, given programmatic needs, provide space for community oriented uses such as services or retail that can be shared between MMC users, neighbors, and the broader Portland community
- Support the existence of neighborhood amenities such as restaurants and other retail uses providing services to local residents and employees both during the day and evening hours.

In addition to the guidelines listed above, buildings that have frontage on Congress Street and that include parking components will activate portions of or place liner buildings along the ground floor facing Congress Street.

Design Response

The Congress Street building was conceived as the link for the MMC Bramhall Campus to the urban edge that is Congress Street. The buildings massing, while expressing the critical healthcare programs, also reinforces the street wall. Use of cantilevers and other changes within massing provide a sense of enclosure along the street edge while allowing for space to the benefit of the community such as urban plazas.

The new building is also oriented to Congress St. with the public entrance and lobby visible and active from the street. Also, since this is a hospital, its primary purpose programmatically is to provide community oriented services.

Crime Prevention Through Environmental Design (CPTED)

MMC will incorporate the following design strategies that have been demonstrated to deter crime:

- Providing a clean and aesthetically pleasing campus environment that is designed with vandal-resistant materials

- Providing clear and properly-sized signs in safe locations to ensure safe wayfinding
- Ensuring that paths from transit stops, bike storage areas, and parking areas to main pedestrian entrances are well-lit, with clear sight lines
- Designing street-level elevations to minimize potential hideouts
- To the extent possible, given clinical program demands, providing views in and out of building ground floors populated by users to serve as "eyes on the street"
- Generating foot traffic on public sidewalks with pedestrian entrances

Design Response

The new building is comprised of quality materials that are durable and resistant to abuse and vandalism. The public realm is properly lit, and designed to minimize potential areas for hideouts. Foot traffic, both on the sidewalk and within the concourse of the new facility will further activate the site and provide eyes on the street.

MAINE MEDICAL CENTER

Congress Street Building

New Clinical Tower

Construction Management Plan

September 25, 2018

[Amended: November 2, 2018]

Prepared for: Portland Department of Planning & Urban Development Department

Project Proponent: Colliers International

Construction Manager: Turner Construction

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MAINE MEDICAL CENTER

New Clinical Tower
Construction Management

Plan 09.25.18

Purpose Statement

The purpose of this document is to provide the details of the third phase of construction for MMC's Master Facility Plan - Phase IIB. This document outlines Turner Construction's plan for controlling impacts from noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding neighborhoods and buildings.

Maintaining normal campus operations and public safety are high priorities during the construction phase. This plan will be presented to the appropriate City and Neighborhood representatives. The City of Portland Planning Board will approve the final plan. It has been the goal of these programs to define the construction plan before construction begins. Turner's experience on projects with similar logistic constraints has proven that pre-planning and constant communication are necessary for a smooth efficiently run, incident free project.

Turner Construction and its subcontractors shall schedule and conduct operations in a manner that will limit the disturbance to the public in areas adjacent to the work and to occupants of buildings in the vicinity.

1.0 CONSTRUCTION MANAGEMENT PLAN

This Construction Management Plan (CMP), submitted to the Portland Department of Planning & Urban Development for approval by the City of Portland Planning Board prior to the start of construction, includes specific mitigation measures and staging plans to minimize impacts to surrounding residences and businesses. The Construction Manager and its trade contractors will be bound by the CMP.

Turner Construction Contacts:

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Project Superintendent: Chris Rodenhizer
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Project Director: Gregg Scholler
Email: GScholler@tcco.com / Cell – 203-219-4022

2.0 CONSTRUCTION SCHEDULE & WORK HOURS

Construction work hours will be in accordance with Section 17-18 and Section 25-129.

2.1 Work Hours

- The construction period for the project is expected to be approximately 36 months in duration.
- It is anticipated that the project construction is estimated to start on or about Winter 2019 (December) and last through Fall 2022 (commissioning activities will occur into early 2023).
- Work hours will be 7AM to 7 PM Monday thru Friday.
- Workers will gather at their workplace from 6 AM to 7AM.
- Saturday work will be required on a periodic basis with hours from 7 AM to 6 PM.

2.2 Construction Timeline

2.2.1 Winter 2019 to Fall 2022 (commissioning activities will occur through early 2023)

Congress Street Staff Garage- dismantle and remove

Structurally dismantle existing Staff parking garage. This project is expected to start in late Fall 2019 (December and complete in Spring 2020 (6 Months)

Congress Street Clinical Tower

A new 265,000 SF building. This project is expected to start in Spring 2020 and complete in Fall 2022. (30 Months)

2.3 Construction Updates Reporting

The following shall be reported to Maine Medical Center as a part of the CMP.

- Monthly "look ahead" schedules and narrative for upcoming construction activities.
- Schedule of over-size deliveries to the site that will impact roadways
- Schedule of deliveries that will be outside the City of Portland's allowable work hours.
- Proposed schedule for utility connection or work in public roadways or sidewalks as a part of Turner Construction's work.
- Proposed off-hours or Saturday work.
- Construction activities that may impact the neighborhood in an adverse way, including noise, vibration, dust, on-street parking or work outside construction limits or times. Also, proposed options to mitigate these impacts.
- An estimate of the number of vehicles that will require off-site parking.

2.4 Construction Logistics

The proposed Logistics Plans included in the CMP are designed to isolate the construction while providing safe access for pedestrians, hospital operations, and automobiles during normal day-to-day activities and emergencies. Interaction with the public will occur mainly along Congress Street and Gilman Street. The logistics plan define the timeline of construction activities and the location of cranes, gates, access for each Phase.

Each site will be secured by an 8-foot high fence with privacy screening in accordance with the Logistics Plan.

Pedestrian Routes of travel are shown on Logistics Slides page number 2 - 5

2.5 Perimeter Protection / Public Safety

- Turner Construction will work to ensure the sidewalk protection minimizes impact to pedestrian and vehicular flow.

- The specific configuration of sidewalk protection and pedestrian access around the site will vary depending on the phase of the work being performed.
- In general, secured fencing will be used to isolate construction areas from pedestrian traffic.
- Flagmen or Police Details will be provided at all active gates when there are deliveries.
- Construction procedures will be designed to meet all OSHA safety standards for specific site construction activities.
- Subcontractors will implement and manage their own Health and Safety Program for the project.
- All Subcontractors are required to wear appropriate personal protective equipment.
- Snow removal and ice treatment will be provided on the surrounding area within the construction fence.
- Sidewalks will be cleaned of trash and debris as needed.
- Street lights will be taken down on Congress Street and stored offsite. The street lights will be reinstalled as part of the project completion.
- Concrete washout will be in concrete washout station, collected and placed in a dumpster. Concrete washout area to be located within the site fence.
- Turner Construction will provide sufficient temporary site lighting to ensure the safety of all pedestrians accessing the sidewalks around the site, including lighting at all covered pedestrian walkways, until permanent street lights are installed Light levels will be tested prior to temporary removal of site lighting.

2.6 Worker Parking & Traffic Impacts

- Turner Construction and its subcontractors shall encourage the use of public transportation by their workers.
- Jobsite personnel will be required to park at an offsite parking area to be determined and will be shuttled to the construction site. See Logistics Slide page number 6 and 7
  - Jobsite personnel will be required to park at MMC's Scarborough Campus
  - Jobsite personnel will be shuttled to the construction site
  - Subcontractors who violate this requirement will be fined $500 per offense
- Worker parking shall not be allowed on site except for company vehicles required to perform the work.
- Turner will qualify subcontractors' with a legitimate reason to park onsite and manage that parking within the construction fence and not impact parking in the surrounding area.
- No personal vehicles will be allowed to park at the project construction site or in the adjacent residential streets.
- The following language will be included in the contracts with all subcontractors
  - *"Parking: There shall be absolutely no parking on the project site, in the Hospital Parking Garages and / or Hospital Surface Parking lots, and on street parking adjacent to the Hospital. This is including but not limited to employee vehicles, company vehicles, delivery trucks, trucks containing equipment such as welders, etc. Turner to provide remote parking location, and transportation to and from the jobsite. Any workers found in violation of this policy will be subject to permanent removal from the project and the subcontractor shall be assessed a $500 fine per incident."*

The number of workers required during the construction will vary by Construction Phase.

Construction Phase - November 2019 to November 2022

- Fall/Winter 2019- Spring 2020 – average workers – 60
- Spring 2020- Spring 2021 – average workers – 100-125
- Spring 2021- Spring 2022 - average workers – 200-275
- Spring 2022 – Fall/Winter 2022 – 225 - 300

2.7 Truck Routes and Volumes – **See Logistics Plans page number 6 & 7 and additional truck route information attached at the end of the Logistics Plans.**

All street opening and occupancy in the public right of way will be in accordance with Chapter 25 of the City of Portland Land Use Code

- Truck traffic will vary throughout the construction period, depending on the activity.
- An offsite marshalling area will be utilized for large deliveries such as structural steel and exterior wall.
- All trucks will be brought to the construction areas at MMC by experienced dedicated drivers from the marshalling lot.
- Radio and cell phones will be utilized to coordinate all trucking.
- Trucks routes must be submitted and approved by the City of Portland and the Owner before the start of construction.
- Truck idling will be held to a minimum on-site, to minimize the impact to adjacent properties.
- Turner Construction and its subcontractors shall ensure that haul routes, debris and soil removal, and staging areas are conducted in a manner that minimizes the impacts to the abutting communities.
- Wheel wash stations will be installed and maintained by Turner and its subcontractors as needed and maintained at construction site exit areas.
- Street sweeping / vacuuming of all impacted City streets and sidewalks shall be performed by Turner Construction and its subcontractors on an as-needed basis.
- Streets, sidewalks, bicycle ways or other means of travel may not be obstructed or closed without permission from the Owner and other authorities having jurisdiction. The Owner shall be notified one week in advance of any such obstructions or closures.

3.1 CONSTRUCTION

3.2 METHODOLOGY- Staff Garage Structural Removal- See Logistics slides page number 9 – 11

Turner and the Contractor will develop the sequencing and methodology of the Staff Garage removal. All sequencing will be approved by a Structural Engineer of Record. At mobilization of the garage removal, debris netting will be installed from the garage roof down to grade, with wire rope. This netting will be on all exposed faces of the garage elevations. All areas will be cordoned off and all utilities and transformers will be protected, or shut off. A level platform will be created at the west and north elevations.

A physical separation of the existing pedestrian bridge at the northeast corner of the garage will be created.

Upon separation of the garage, high reach excavators (Volvo EC 700 or equivalent) equipped with rotating concrete processors will be mobilized. Excavators will be mobilized to assist the high reach equipment in concrete processing and debris load out.
Brokks equipment will also potentially be utilized of the top two levels of the structure in areas where the high reach equipment cannot gain access.
Concrete materials will be placed in the existing building footprint to act as a bench surface for high reach progression and earth retention equipment.

The garage removal will commence on the west side of the garage. The high reach processors will move east working from the north to the south. Each long bay of the garage will be removed working to the east. The removal will start at the top of the garage, working downward, structural column bay. The concrete will be processed in place by the rotating concrete processors and reinforcement bars will be cut during the course of garage removal. The outer concrete on the north and south side of the garage will be pulled into the building footprint. On the south side each parking level will be cut free of the south garage retaining wall. This will keep the retaining wall in position as it will be reinforced with structural tiebacks.

Once the concrete has been processed in place by the high reach excavators, additional equipment will be used for the haul out of debris. Concrete materials will be placed at strategic elevations to create a work bench for equipment to work from.
As the demolition progresses east near the Stair Tower and Visitor garage, special care will be taken to remove the column bay, and hydraulic crane equipment with steel debris shields will act as protection from falling debris.

As the garage is razed, excess concrete materials will be shipped from the site via trucks, and disposed at a legal Maine disposal facility.
All debris will be sorted onsite and separated in the various waste streams.
During all concrete removals a constant water mist will be used to prevent the spread of dust from the site.

3.11 TRUCK TRAFFIC FOR STAFF GARAGE STRUCTURAL DEBRIS

- All truck traffic will be directed to enter the site in accordance with truck route plans approved by the City of Portland and included in the Logistics plans.
- Materials will be removed from the site by loading triaxles and roll off containers. Turner will closely coordinate the load out operation, and the staging of trucks.
- All subcontractors and vendors will be provided with pamphlets indicating the appropriate truck routes to access the site.
- Trucks will be brought within the fence line. The hauling of these trucks will be at designated loadout periods near the end of the working day. (From 3 PM to 7 PM)

- **Average Trucks per day for Congress Street patient tower construction project:**

PROCESSED CONCRETE DEBRIS REMOVAL
TRUCKS LOADING IN AFTERNOONS
AVERAGE TRUCKS PER DAY

2020	WEEK 1					WEEK 2					WEEK 3					WEEK 4				
	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
February	10	10	10	10	10	10	10	10	10	10	16	16	16	16	16	16	16	16	16	16
March	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
April	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
May	14	14	14	14	14	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0

3.2 Construction – New Clinical Tower– (Refer to Logistics Slides page number 12 to 18)

All street opening and occupancy in the public right of way will be in accordance with Chapter 25 of the City of Portland Land Use Code

- All truck traffic will be directed to enter the site utilizing one gate on Congress Street and two gates on Gilman Street.
- During the mass cut excavation trucks will be removing earthwork material and concrete foundations to create the basement.

MASS EXCAVATION & FOUNDATION REMOVAL
TRUCKS LOADING ALL DAY - 2 to 3 TRUCKS/HOUR
AVERAGE TRUCKS PER DAY

2020	WEEK 1					WEEK 2					WEEK 3					WEEK 4				
	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
June	8	8	8	8	8	12	12	12	12	12	16	16	16	16	16	16	16	16	16	16
July	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
August	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
September	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	18	18	18	18	18

- A tower crane will be built within the site fence. During the erection and dismantling of the Tower crane police details and minor traffic interruption will be required. The foundation of the Tower crane will be a permanent structure. The tower crane foundation will remain in the ground, and will be utilized in future expansions by Maine Medical Center.
- All detours and paths of travel shown on the Site Logistics Plans will be followed.
- All road signage identified on the Maintenance of Traffic Plans will be installed and maintained by Turner during the Congress Street shutdown and detour.
- One lane of Congress Street will be closed during the construction timeframe. Congress Street will remain open for two way traffic. One lane of Gilman Street will be closed for the construction timeframe. Gilman Street will remain open for two way traffic.
- All subcontractors and vendors will be provided with instructions prior to their project start indicating the appropriate truck routes to access the site.

4.0 Dust Control, Noise, Air Monitoring, Vibration Monitoring

4.1 Dust Control

Control of dust is of paramount importance for this project, for Maine Medical Center, and for the city of Portland. There will be substantial dust control solutions on the site prior to the start of work. To reduce emission of dust and minimize impacts, physical barriers will be built to control spread of airborne dust, water – based dust suppression systems will be installed, specific storm water collection and filtering will be in place. It is a goal to have no visible emissions outside of the work limits.

4.11 Garage Removal Dust Control.

- Wetting agents will be used regularly to control and suppress dust that may come from the construction materials.
- Monsoon misting machines continually wetting down the perimeter of the work area
- Fire hoses spraying water above the work area, knocking down the dust.

- Water will be collected at the lowest part of the garage proper on the Gilman Street side of the garage. The water will be processed thru a Frac tank to remove sediment and concrete /stone pieces. The water will be recirculated to reuse for dust control.
- Tractor trailers, triaxles, and roll off containers will be used to remove processed concrete, ferrous, and nonferrous metals. All trucking will be fully covered with tarps during loadout.
- Trucks will enter and exit off of Gilman Street and Congress Street. Traffic flagmen will be positioned during all trucking operations to ensure safety and mitigate disruption and control traffic.
- Equipment will be fueled away from storm drains.
- Spill kits will be available to address any environmental issues. A hazardous materials response plan will be setup and approved. In the unlikely event of a spill, local authorities will be notified and an appropriate hazardous materials firm will provide the cleanup.
- Street and sidewalks will be cleaned to minimize dust accumulations as needed.

4.2 Noise

- The project will require the use of equipment that can be heard from off-site locations. This project will strive to mitigate construction noise impacts, to the extent possible.
- Increased community sound levels are an unavoidable consequence of construction activities.
- Construction will occur during the daytime hours as defined by the City of Portland Code of Ordinances (7:00 AM to 7:00 PM Monday through Friday).
- In some instances, a second shift, off hour, holiday and weekends may be required.
- When these events arise, all required permits will be obtained and notification will be posted in accordance with section 2.3
- Work shall be performed so as to prevent nuisance noise conditions that are preventable (e.g., unmaintained equipment, brake squeal, etc.).
- Should the noise level exceed the City of Portland noise standards, or a neighborhood or community complaint is made, the Contractor foreman will:
  - Notify the operator to cease the current method used to generate the noise, and look for another method or area to perform the task to see if it corrects the noise level
  - If still not within acceptable noise levels, a new dismantling plan or piece of equipment will be used.
- Turner Construction and all subcontractors shall use all reasonable efforts to implement noise reduction methods listed below to minimize construction noise emission levels.

- **Use of**:
  - Tie to local power grid to reduce the use of on-site generators.
  - Noise-deadening / isolating surrounds around exceptionally noisy work equipment or operations
  - The maintenance of the access roadways to minimize the “bouncing” of construction vehicles within the construction site.
  - Enforcing the site logistics plan, so as to maximize to every extent possible the forward movement of construction vehicles. This will, in turn, minimize the sound of back-up alarms.

Attaching:

- Intake / exhaust mufflers, shields or shrouds
- Noise-deadening material to equipment and fencing

Maintaining:

- Equipment mufflers and lubrication
- Pre-cast decking and plates to avoid rattling
- Smooth surfaces on construction sites and public ways to prevent unnecessary noise from surface irregularities.

Minimizing

- Noise from the use of backup alarms, using measures that meet OSHA regulations. The construction logistics has been designed such that the backing-up of equipment and trucks is limited.
- Use of self-adjusting ambient-sensitive backup alarms.
- Manually adjustable alarms on low setting
- Scheduling of activities so that alarm noise is minimized

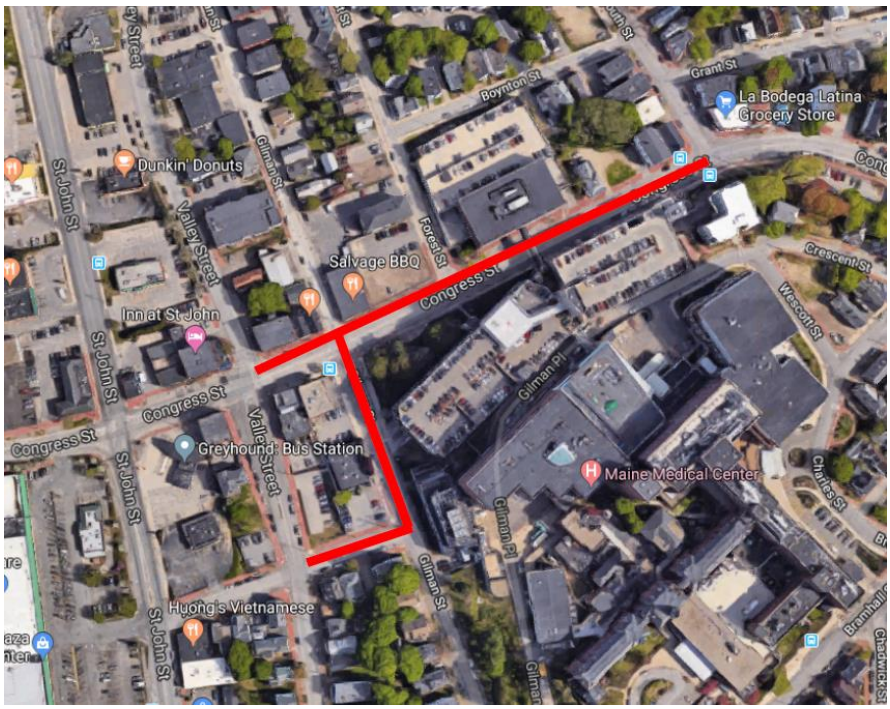
4.3 Air Monitoring

- Turner Construction and its subcontractor's shall employ dust, odor, and gas control measures to minimize the creation of airborne dusts, odors, and gases during the entire construction process. At a minimum, standard dust control techniques shall be employed where heavy equipment will be traveling, standing, or loading, such as watering down the site or utilizing dust control measures. All measures shall be taken in accordance with Turner's approved Health & Safety plan.
- Turner Construction and its subcontractors shall perform dustless street sweeping / vacuuming for all construction activities including demolition, excavation, slurry / soil mixing operations on an as needed basis.
- An air monitoring plan shall be developed by the Owner based on site contaminants of concern, particulate quantities / densities, and risk-based evaluations. The plan will be developed for off-site impacts. Turner Construction and its subcontractors will be responsible for on-site health and safety issues.
- The Owner will engage a qualified consultant to monitor for dust along the perimeter of the construction site. Results of this monitoring that indicate exceedances of air quality criteria will be immediately brought to the attention of Turner Construction. Turner and its subcontractors shall immediately address the site condition, including terminating construction activities to remedy the site conditions to the satisfaction of the Owner.
- Ductwork snorkels will be installed as required on building air intakes surrounding the job-site to minimize the amount of dust and construction vehicle gases being taken in through the air handling systems. The maintenance of the filters is by the individual building managers.

4.4 Vibration Monitoring

Site surveys will be completed:

- On Gilman St from Gilman/A to Gilman/Congress
- On A St from Gilman/A to Valley/A
- On Congress St from Weymouth/Congress to Valley/Congress



- The Maine Medical Center Project geotechnical engineer shall identify vibration-inducing: construction activities and work closely with the Turner to monitor vibration.
- Turner Construction Company and its subcontractors shall preauger Piles and other earthwork-induced vibrations (maximum peak particle velocity) to the limits outlined in the contract documents.
- The Owner shall conduct baseline vibration-level monitoring prior to construction and continuous monitoring of vibration during excavation. Vibration monitoring shall be conducted at the site perimeter locations and near adjacent buildings and other structures.
- It is acknowledged that episodic violations of the vibration criteria may result, primarily due to below grade obstructions. These obstructions shall be cleared in a manner that minimizes the impacts to neighbors.
- When a seismograph trigger level is reached or exceeded an email goes out to the Turner superintendent, Project Manager and Safety Engineer, the Maine Medical Center (MMC) Project Manager and Maine Medical Center safety and facilities staff. The following is the protocol that is followed.
- Events during work hours with the frequency between 5 hz. and 100 hz. and the peak particle velocity above the threshold values but below limiting values, Turner will investigate to determine if the event was caused by construction activities. If so determined, Turner will take steps to minimize the vibrations in the future.

- Turner will investigate and, if caused by construction, stop the activity, review the incident, and take steps to employ alternate means of construction to complete the task. Alternate means may include changes to the construction method being used or utilizing an alternate means of construction.
- The Contractor shall monitor groundwater levels before and during construction on a routine basis. Groundwater levels must be maintained within the allowable range.
- The discharge of pumped ground water shall be done in a manner as according to all required City, State and Federal Permits and approvals

5.0 Communication Strategies

5.1 Communication Plan

Turner will work with MMC's communications team to deliver a communications plan that encompasses:

- Plans for traffic management during Portland Seadogs games
- Plans for METRO bus stops and routes
- Implementation plans for all aspects of the detours outlined in the Maintenance of Traffic plan completed by Gorrill Palmer
- An emergency contacts list for the City of Portland including specifically Portland Police and Fire Departments.

5.2 Contacts, Distribution Lists

- Turner Construction shall develop a project contact list (e-mail addresses, office and cell phone numbers), to be posted by MMC on the project web site and supplied to Maine Medical Center (MMC) for 24/7 contacts.
- Turner Construction will request similar contact lists from the neighborhood associations (e-mail addresses, and phone numbers) of key contacts for the specific project.
- Turner Construction will set-up a project bulletin board for each Phase. These boards will be used as communication tools to the surrounding community. There will be a project website thru Maine Medical Center that also will communicate construction related activities to the community.
- Any last minute changes to the project schedule that may impact the neighborhood or Maine Medical Center (MMC) community will be communicated per section 2.3.
- Turner Construction will participate in the neighborhood council meetings as needed to discuss progress and issues.
- Turner shall maintain a log of all construction-related concerns, via the MMC website.
- MMC shall communicate final resolution of all complaints and concerns to the neighborhood, Maine Medical Center (MMC) community, and when appropriate, to the City of Portland.

5.3 Maintaining Bicycle and Pedestrian Circulation During Construction Activities

A temporary sidewalk or bike lane is not recommended by the Construction team. The construction fence will need to be maintained in the location outlined in the CMP for the majority of the project. It will be possible to set the construction fence back after significant structural, site work, and material deliveries are complete. Turner estimates that these activities will be completed in the Fall of 2022.

Share the road signs will be erected on Congress Street in each direction and Gilman Street prior to the roadway narrowing. These signs will remind drivers to be aware of bicyclists.

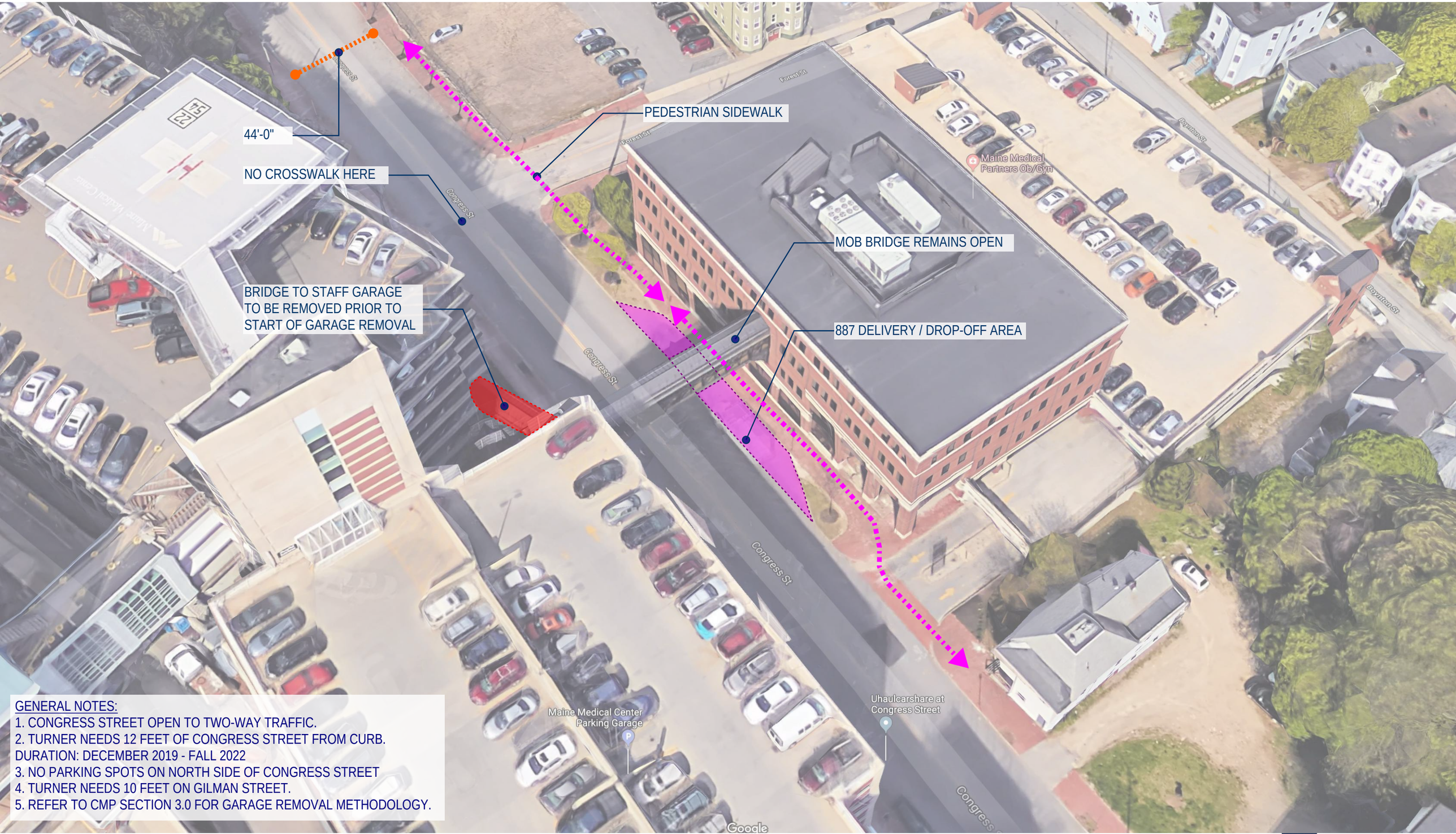
Maine Medical Center
MaineHealth

CONSTRUCTION MANAGEMENT PLAN

UPDATED [11-05-18]

[LOGISTICS PLANS & STUDIES]
CONGRESS STREET NEW CLINICAL TOWER

Turner

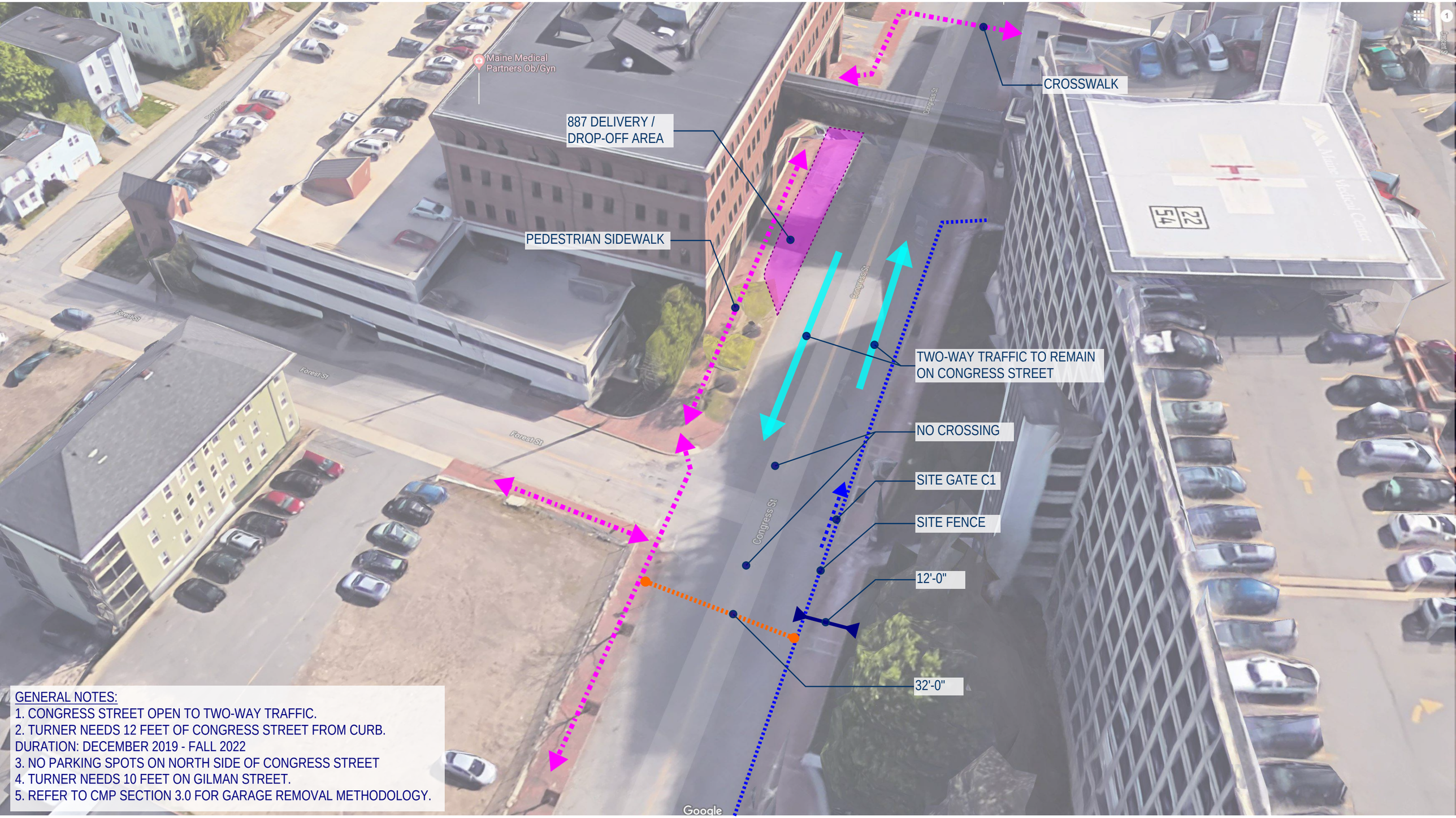


GENERAL NOTES:
1. CONGRESS STREET OPEN TO TWO-WAY TRAFFIC.
2. TURNER NEEDS 12 FEET OF CONGRESS STREET FROM CURB.
DURATION: DECEMBER 2019 - FALL 2022
3. NO PARKING SPOTS ON NORTH SIDE OF CONGRESS STREET
4. TURNER NEEDS 10 FEET ON GILMAN STREET.
5. REFER TO CMP SECTION 3.0 FOR GARAGE REMOVAL METHODOLOGY.

CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [887 Delivery / Drop-Off] CONGRESS STREET PEDESTRIAN ROUTING

Turner



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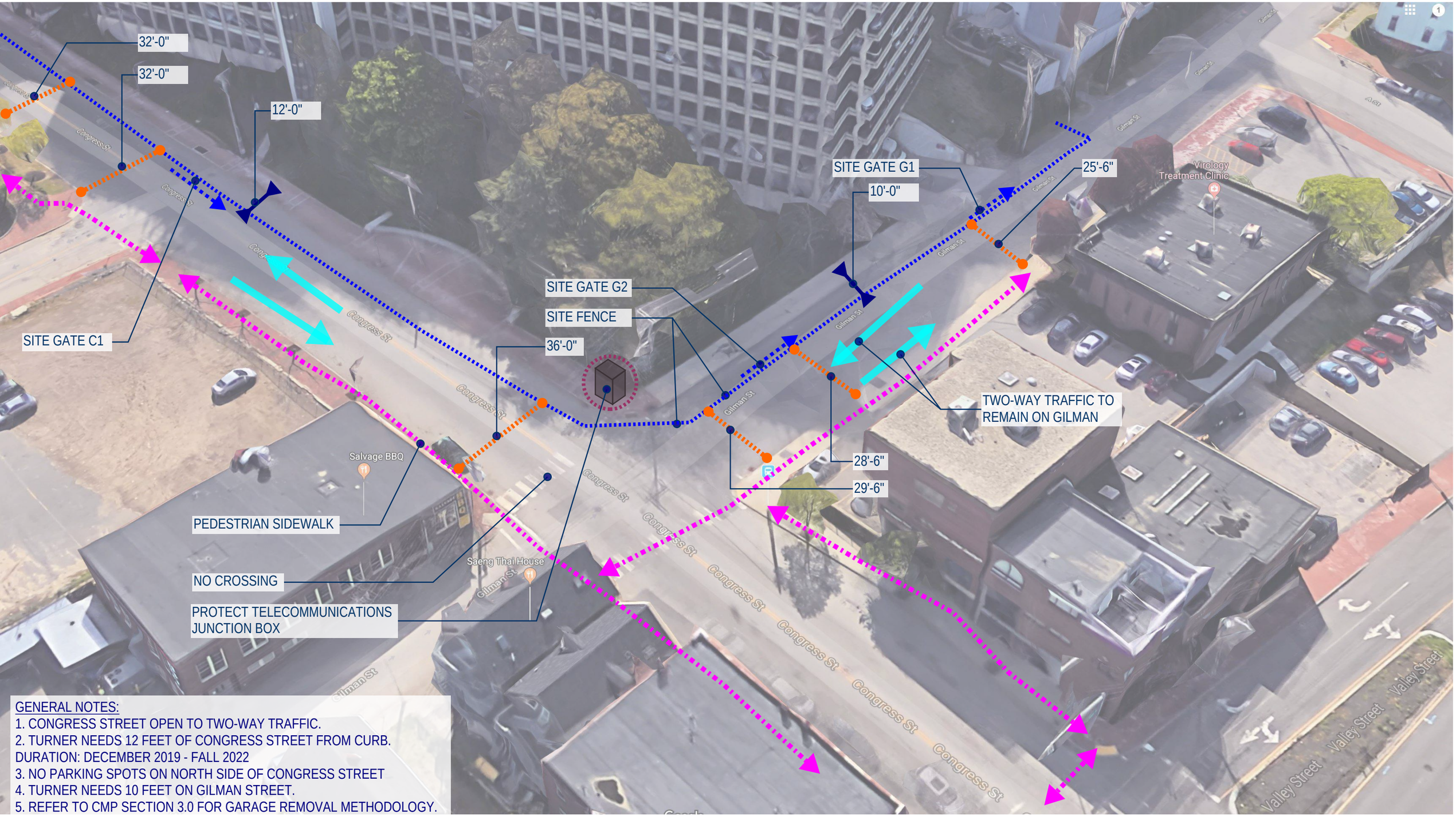
CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [887 Delivery / Drop-Off] CONGRESS STREET PEDESTRIAN ROUTING

Turner



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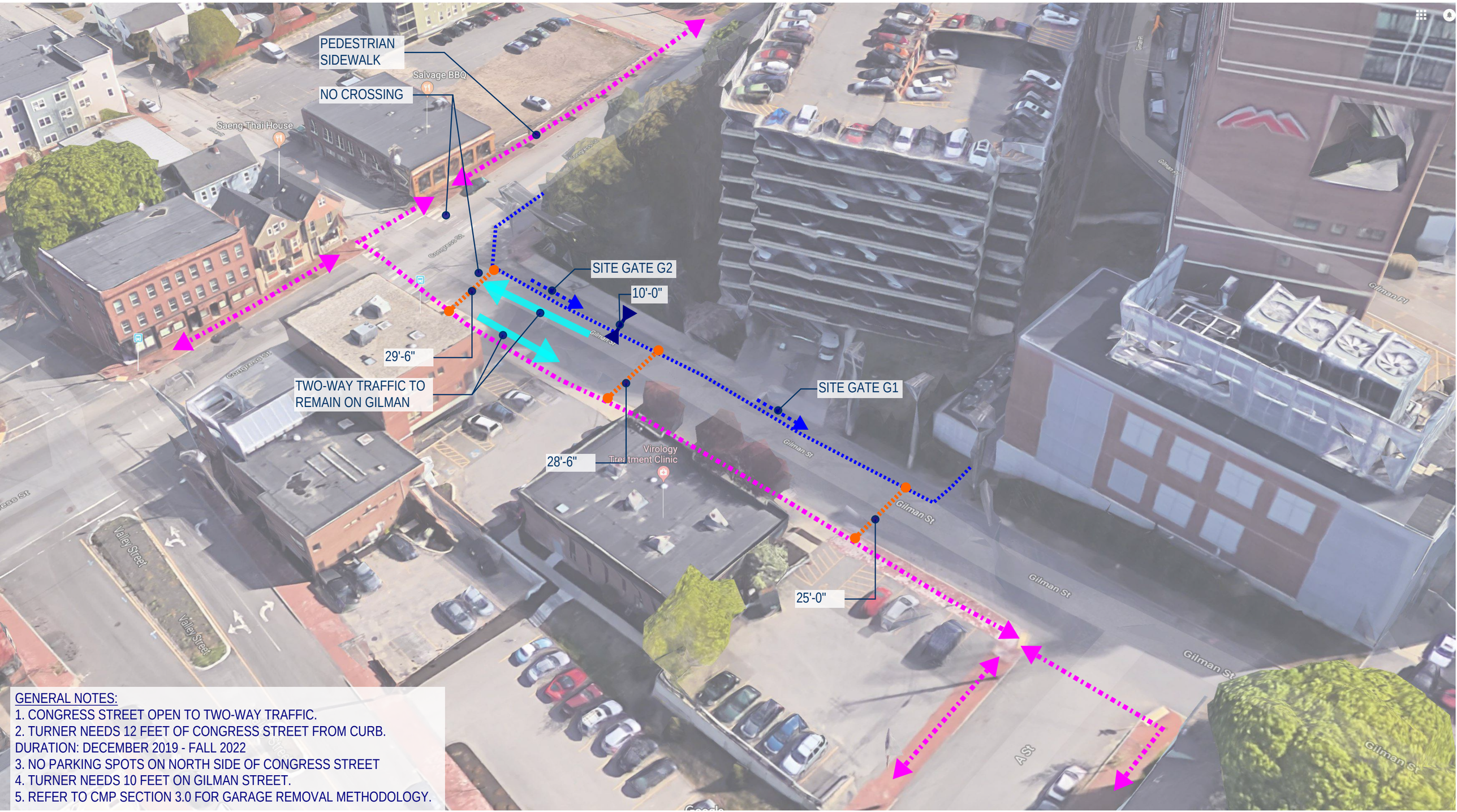
CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [CONGRESS/GILMAN/VALLEY PEDESTRIAN ROUTING]

Turner



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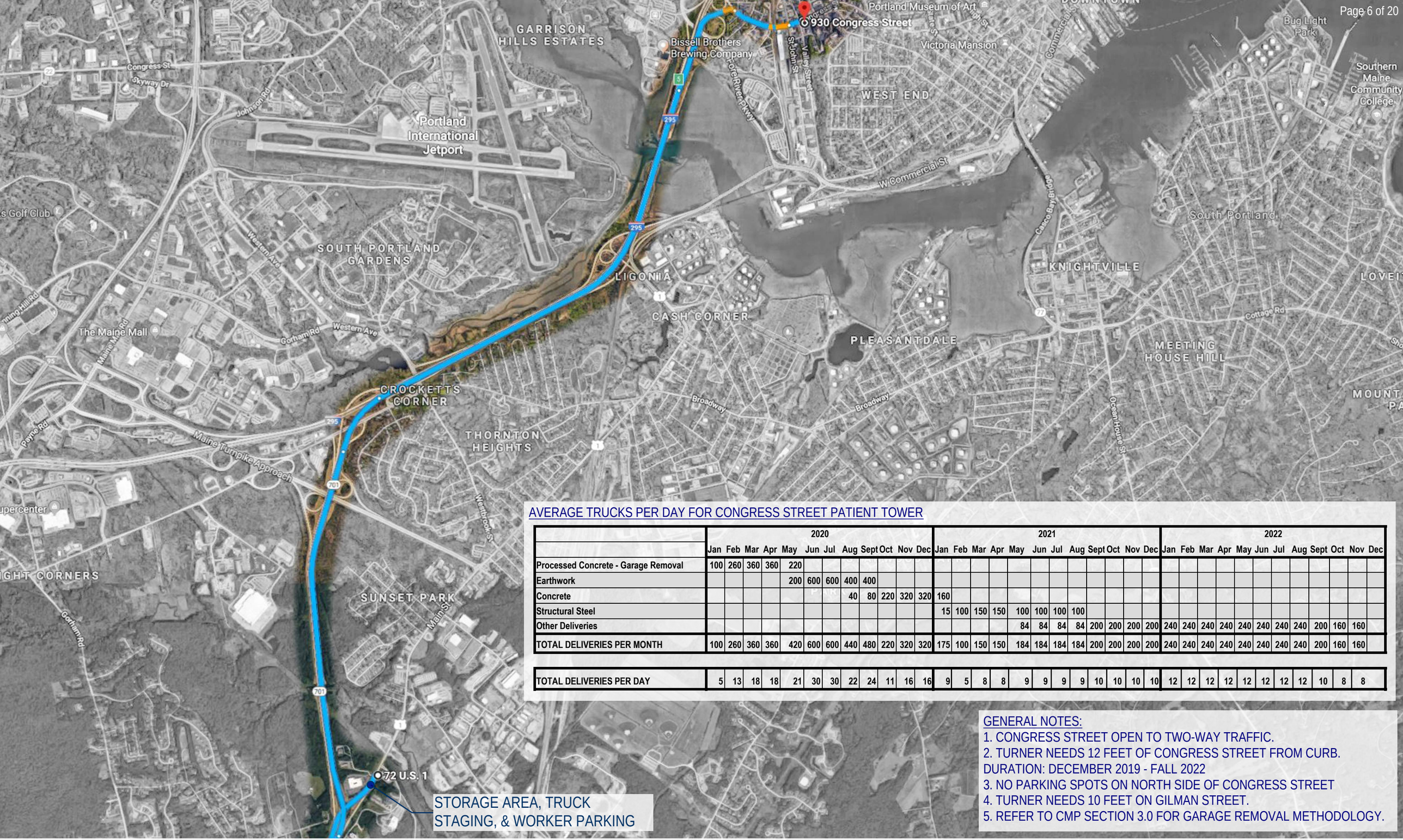
CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [PEDESTRIAN ROUTING GIMAN & A STREET]

Turner



AVERAGE TRUCKS PER DAY FOR CONGRESS STREET PATIENT TOWER

	2020												2021												2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Processed Concrete - Garage Removal	100	260	360	360	220																															
Earthwork					200	600	600	400	400																											
Concrete								40	80	220	320	320	160																							
Structural Steel													15	100	150	150	100	100	100	100																
Other Deliveries																	84	84	84	84	200	200	200	200	240	240	240	240	240	240	240	240	200	160	160	
TOTAL DELIVERIES PER MONTH	100	260	360	360	420	600	600	440	480	220	320	320	175	100	150	150	184	184	184	184	200	200	200	200	240	240	240	240	240	240	240	240	200	160	160	
TOTAL DELIVERIES PER DAY	5	13	18	18	21	30	30	22	24	11	16	16	9	5	8	8	9	9	9	9	10	10	10	10	12	12	12	12	12	12	12	12	10	8	8	

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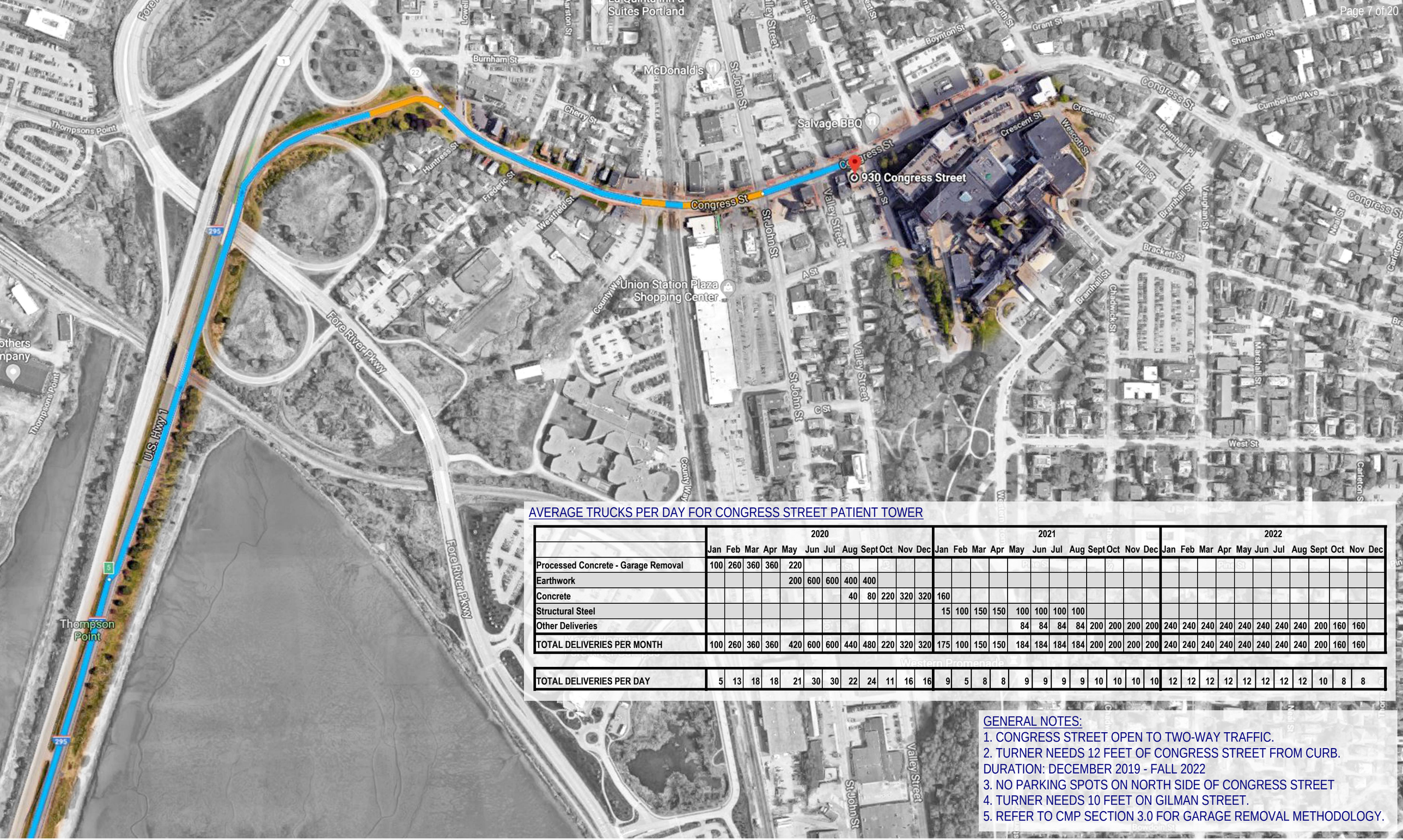
CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [TRAFFIC ROUTES] FROM US ROUTE 1, SCARBOROUGH

Turner



AVERAGE TRUCKS PER DAY FOR CONGRESS STREET PATIENT TOWER

	2020												2021												2022											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Processed Concrete - Garage Removal	100	260	360	360	220																															
Earthwork					200	600	600	400	400																											
Concrete								40	80	220	320	320	160																							
Structural Steel													15	100	150	150	100	100	100	100																
Other Deliveries																	84	84	84	84	200	200	200	200	240	240	240	240	240	240	240	240	200	160	160	
TOTAL DELIVERIES PER MONTH	100	260	360	360	420	600	600	440	480	220	320	320	175	100	150	150	184	184	184	184	200	200	200	200	240	240	240	240	240	240	240	240	200	160	160	
TOTAL DELIVERIES PER DAY	5	13	18	18	21	30	30	22	24	11	16	16	9	5	8	8	9	9	9	9	10	10	10	10	12	12	12	12	12	12	12	12	10	8	8	

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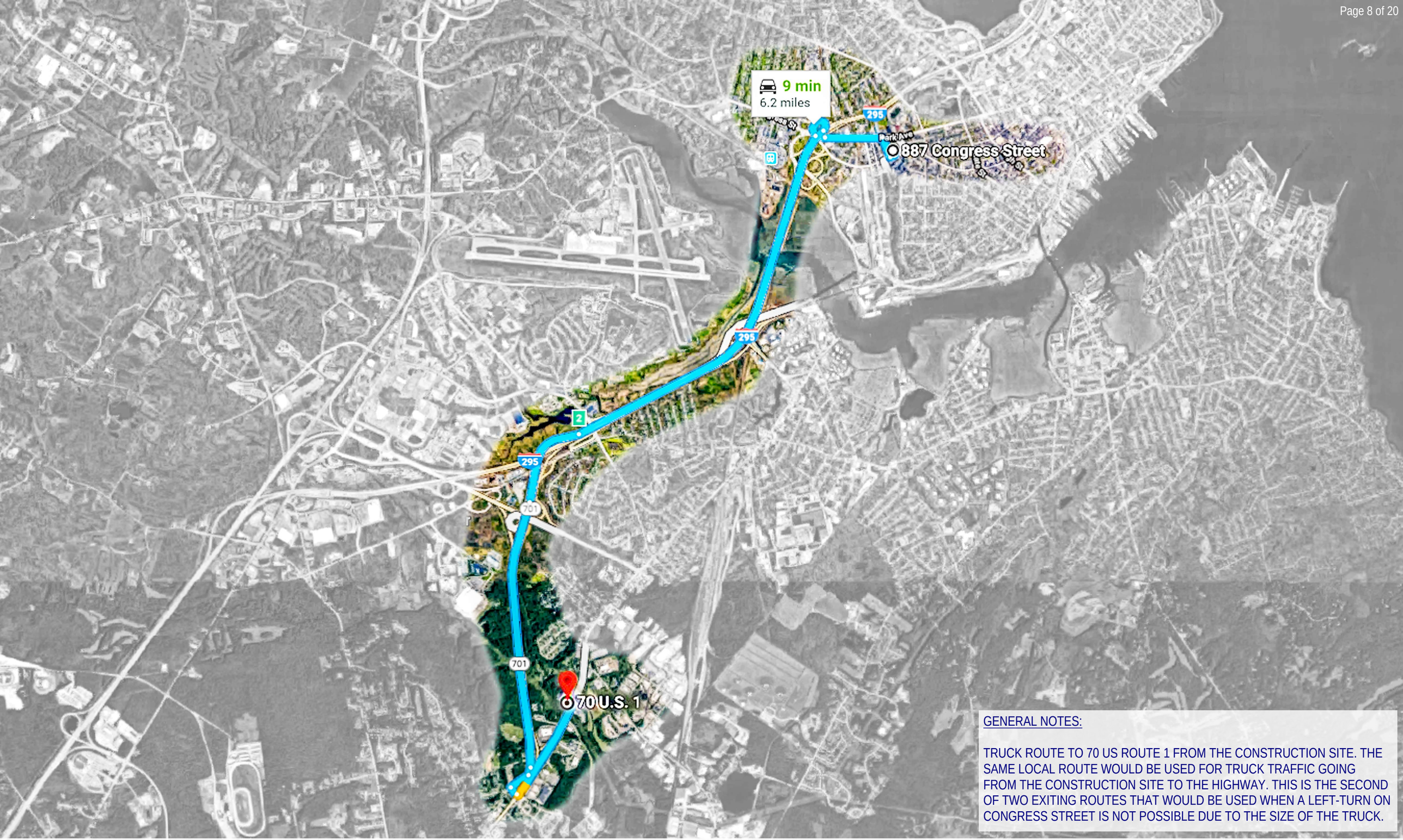
CONGRESS STREET NEW CLINICAL TOWER

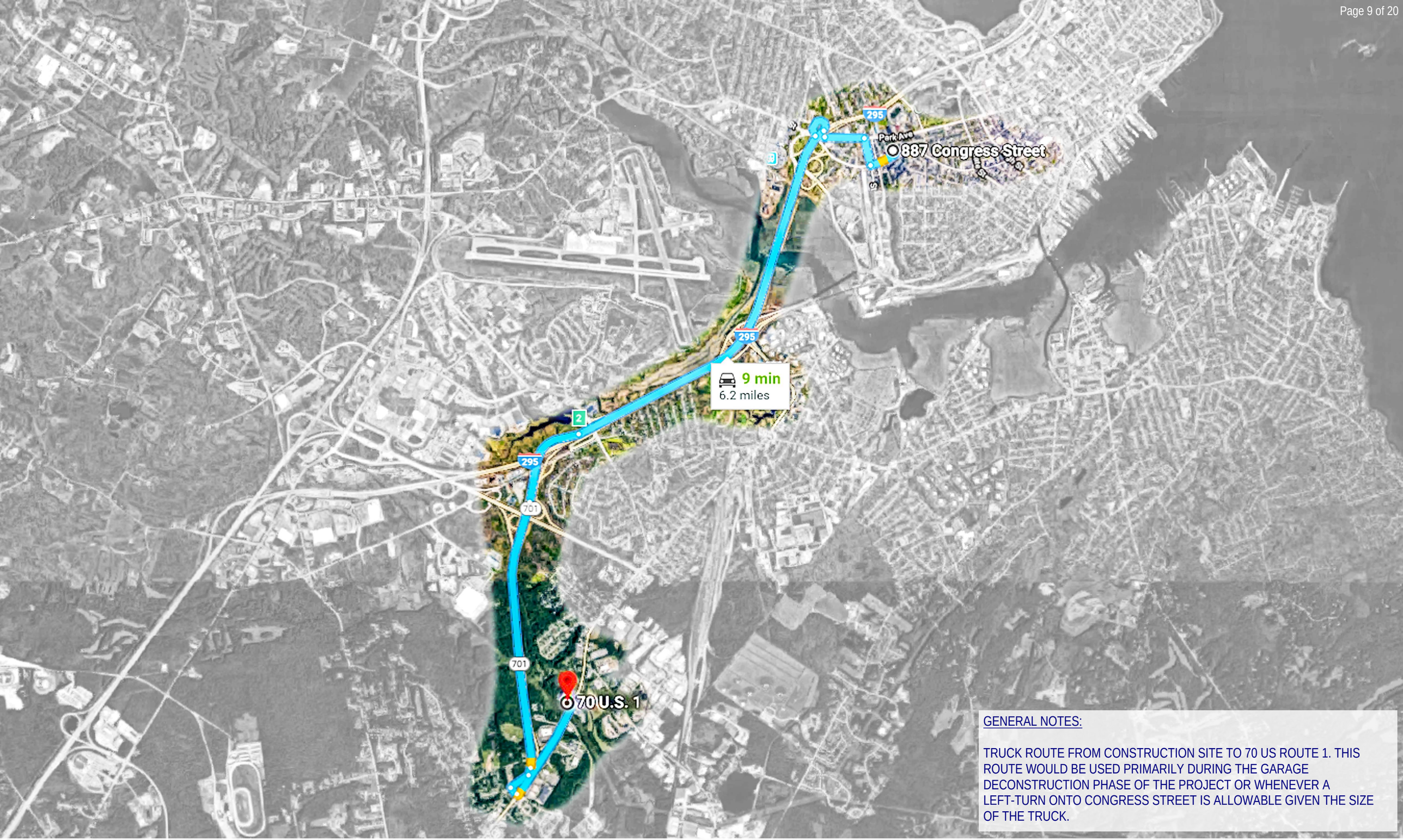
Additions and Renovations [TRAFFIC ROUTES] FROM US ROUTE 1, SCARBOROUGH

Turner



GENERAL NOTES:

TRUCK ROUTE TO 70 US ROUTE 1 FROM THE CONSTRUCTION SITE. THE SAME LOCAL ROUTE WOULD BE USED FOR TRUCK TRAFFIC GOING FROM THE CONSTRUCTION SITE TO THE HIGHWAY. THIS IS THE SECOND OF TWO EXITING ROUTES THAT WOULD BE USED WHEN A LEFT-TURN ON CONGRESS STREET IS NOT POSSIBLE DUE TO THE SIZE OF THE TRUCK.



GENERAL NOTES:

TRUCK ROUTE FROM CONSTRUCTION SITE TO 70 US ROUTE 1. THIS ROUTE WOULD BE USED PRIMARILY DURING THE GARAGE DECONSTRUCTION PHASE OF THE PROJECT OR WHENEVER A LEFT-TURN ONTO CONGRESS STREET IS ALLOWABLE GIVEN THE SIZE OF THE TRUCK.

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

TEMPORARY PEDESTRIAN BRIDGE INSTALLED PRIOR TO STRUCTURAL GARAGE REMOVAL

FILTERS ADDED TO PROTECT EXISTING MECHANICAL LOUVERS

ALL GARAGE RETAINING WALL TIE-BACKS (BEYOND) INSTALLED PRIOR TO START OF STRUCTURAL GARAGE REMOVAL

BEGIN SIDEWALK CLOSURE AT PROJECT START - DECEMBER 2019

CONGRESS STREET

FOREST STREET

GILMAN STREET

OVERHEAD POWER LINES TO BE RELOCATED

ELECTRICAL WORK ACROSS CONGRESS STREET.

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CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [Structural Garage Removal Logistics Plan]

Turner

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

DISONNECT BRIDGE TO STAFF GARAGE

BRIDGE TO MOB REMAINS OPEN

CONSTRUCTION GATE C1 - 30' ROLLING GATE

CONGRESS STREET

FOREST STREET

FAIRPOINT TELECOMM CABINET LOCATION

FILTERS ADDED TO PROTECT EXISTING MECHANICAL LOUVERS

ROAD (BEYOND) TO BE CLOSED DURING STRUCTURAL GARAGE REMOVAL.

PROTECT EXISTING TRANSFORMER BY TRENCH BOX & ROAD PLATES.

ALL GARAGE RETAINING WALL TIE-BACKS (BEYOND) INSTALLED PRIOR TO START OF STRUCTURAL GARAGE REMOVAL. WORK IN STAFF GARAGE TO START IN SPRING OF 2019

CONSTRUCTION ACCESS GATE G2 - 30' ROLLING GATE

AREA TO BE FILLED & LEVELED WITH GRAVEL (PRIOR TO STRUCTURAL GARAGE REMOVAL)

GILMAN STREET

OVERHEAD POWER LINES TO BE RELOCATED

CONSTRUCTION ACCESS GATE G1 - 30' ROLLING GATE

GENERAL NOTES:

1. CONGRESS STREET OPEN TO TWO-WAY TRAFFIC.
2. TURNER NEEDS 12 FEET OF CONGRESS STREET FROM CURB.

DURATION: DECEMBER 2019 - FALL 2022

3. NO PARKING SPOTS ON NORTH SIDE OF CONGRESS STREET
4. TURNER NEEDS 10 FEET ON GILMAN STREET.
5. REFER TO CMP SECTION 3.0 FOR GARAGE REMOVAL METHODOLOGY.

CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [Structural Garage Removal Logistics Plan]

Turner

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

DISONNECT BRIDGE TO STAFF GARAGE

BRIDGE TO MOB REMAINS OPEN

CONSTRUCTION GATE C1 - 30' ROLLING GATE

DIRECTION OF STRUCTURAL GARAGE REMOVAL.

BEGIN STRUCTURAL GARAGE REMOVAL OF EXISTING CONGRESS STREET GARAGE WITH LONG ARM EXCAVATORS

INSTALL BREAK-AWAY TARPING SYSTEM FOR DUST AND DEBRIS CONTROL

HIGH REACH EXCAVATOR WITH CONCRETE PROCESSOR

CONSTRUCTION ACCESS GATE G2 - 30' ROLLING GATE

ROUGH TERRAIN CRANE WITH DEBRIS SHIELD TO BE UTILIZED AS PROTECTION.

SITE CLEARING AND REMOVAL OF EXISTING TREES AND FOLIAGE

REMOVAL OF EXISTING UTILITY POLES ON CONGRESS AND GILMAN STREET TO OCCUR BEFORE DEMOLITION STARTS

CONSTRUCTION ACCESS GATE G1 - 30' ROLLING GATE

CONGRESS STREET

GILMAN STREET

FOREST STREET

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CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [Structural Garage Removal Logistics Plan]

Turner

2019						2020												2021												2022											
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DISONNECT BRIDGE TO STAFF GARAGE

BRIDGE TO MOB REMAINS OPEN

CONSTRUCTION GATE C1 - 30' ROLLING GATE

CONTINUE STRUCTURAL GARAGE REMOVAL OF CONGRESS STREET GARAGE WITH LONG ARM EXCAVATORS

INSTALL BREAK-AWAY TARPING SYSTEM FOR DUST AND DEBRIS CONTROL

CONSTRUCTION ACCESS GATE G2 - 30' ROLLING GATE

REMOVAL OF EXISTING UTILITY POLES ON CONGRESS AND GILMAN STREET TO OCCUR BEFORE DEMOLITION STARTS

CONSTRUCTION ACCESS GATE G1 - 30' ROLLING GATE

CONGRESS STREET

FOREST STREET

GILMAN STREET

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CONGRESS STREET NEW CLINICAL TOWER

Additions and Renovations [Structural Garage Removal Logistics Plan]

Turner

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

UNDERPINNING OF EXISTING GARAGE FOUNDATION WALLS AND ELEVATOR LOBBY WALLS

BRIDGE ACCESS TO GARAGE TO REMAIN.

CONSTRUCTION GATE C1 - 30' ROLLING GATE

MANGATE

ALL GARAGE RETAINING WALL TIE-BACKS (BEYOND) INSTALLED PRIOR TO START OF STRUCTURAL GARAGE REMOVAL

CONSTRUCTION ACCESS GATE G2 - 30' ROLLING GATE

TEMPORARY EARTH RETENTION.

CONSTRUCTION ACCESS GATE G1 - 30' ROLLING GATE

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WORK SCOPE:
1. EXCAVATION
2. EARTH RETENTION - PERMANENT
3. FOUNDATIONS REMOVAL
4. NEW FOUNDATIONS
5. UTILITIES INSTALLATION
6. TEMP. SUPPORT OF EXCAVATION

CONGRESS STREET NEW CLINICAL TOWER

Construction Management Plan [Logistics Plan] - Earth Retention

Turner

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

CONSTRUCTION GATE C1
- 30' ROLLING GATE

CONSTRUCTION ACCESS
GATE G2 - 30' ROLLING GATE

CONSTRUCTION ACCESS GATE G1 -
30' ROLLING GATE

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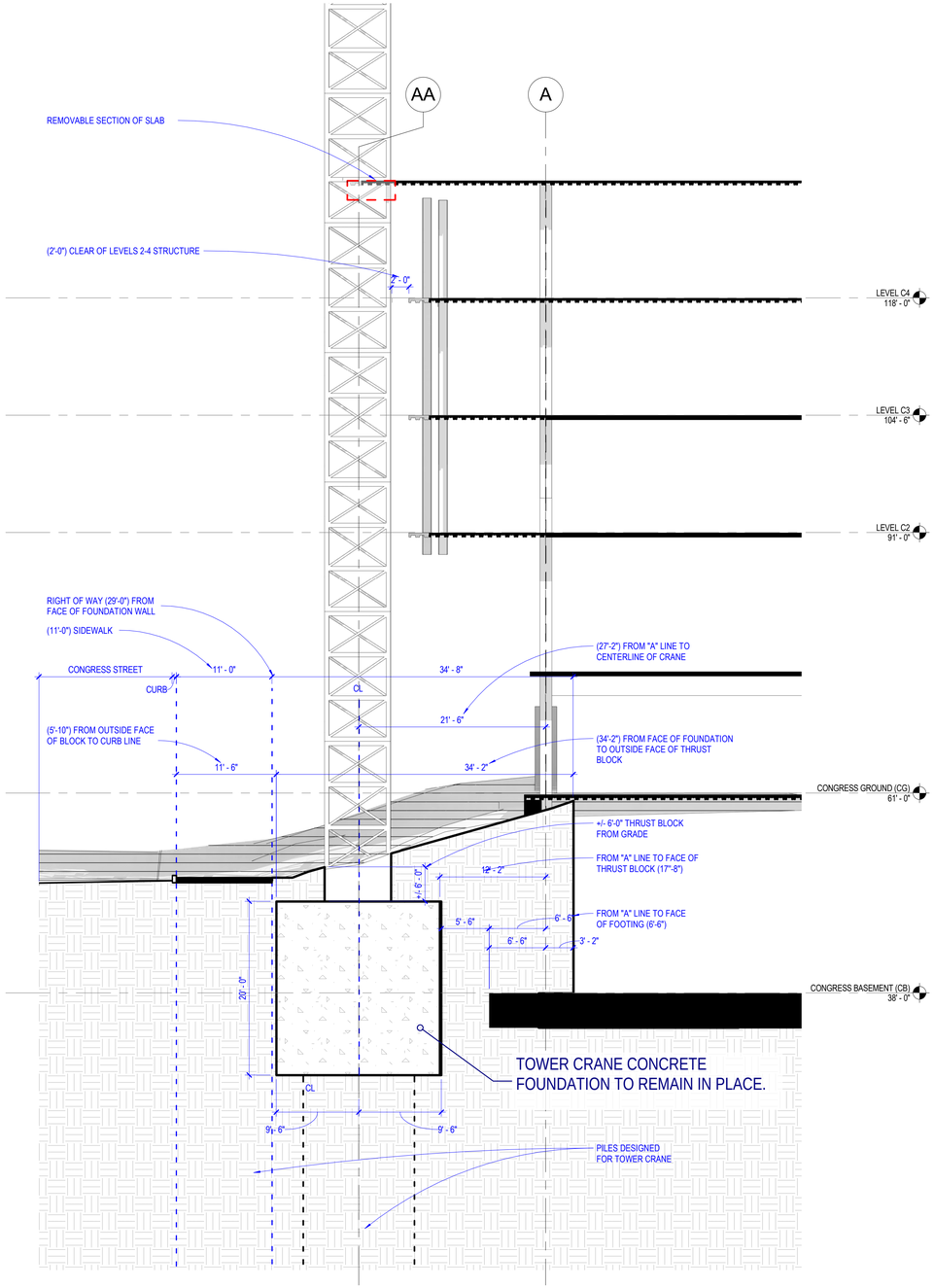
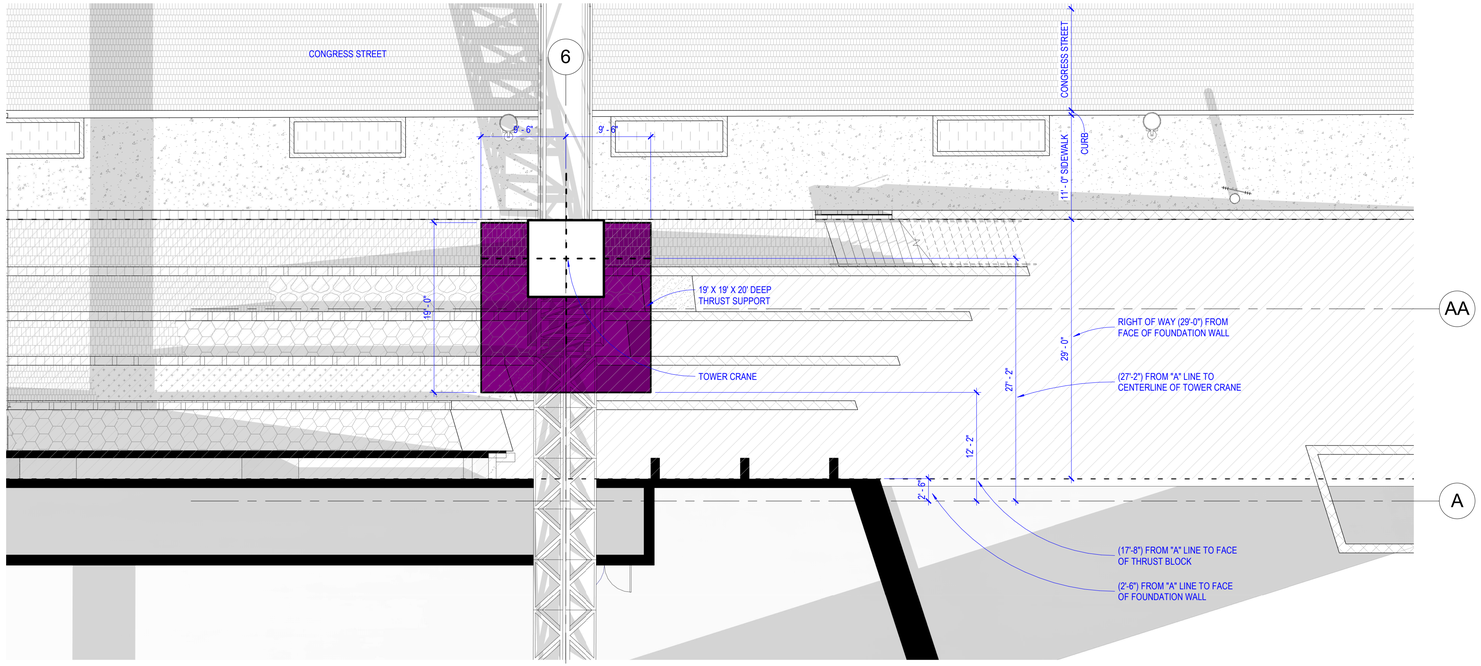
WORK SCOPE:
1. FOUNDATIONS - FOOTINGS & WALLS
2. MATT BASEMENT SLAB
3. RIGID INSULATION AND SECANT EARTH RETENTION
4. INSTALL TOWER CRANE BASE

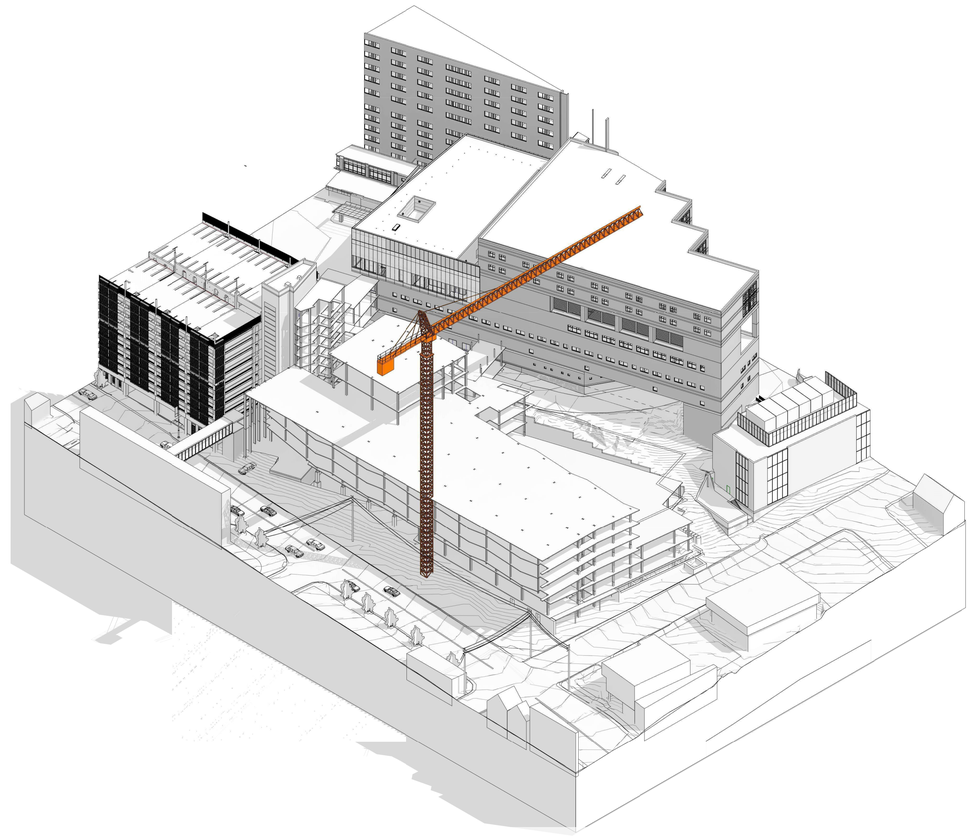
CONGRESS STREET NEW CLINICAL TOWER

Construction Management Plan [Logistics Plan] - Foundations

Turner







WORK SCOPE:

1. CONCRETE BASE INSTALLATION IN SUMMER OF 2020
2. TOWER CRANE BUILD IN NOVEMBER/DECEMBER 2020
3. LOCALIZED CONGRESS STREET ROAD CLOSURE - TWO WAY TRAFFIC MAINTAINED

CONGRESS STREET NEW CLINICAL TOWER

Congress Street Tower Crane Location & Detail [Logistics Plan]

Turner

2019						2020											2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

TRUCK PATH THROUGH SITE.

CONSTRUCTION GATE C1
- 30' ROLLING GATE

TOWER
CRANE

HOIST

CONSTRUCTION ACCESS
GATE G2 - 30' ROLLING GATE

CONSTRUCTION ACCESS GATE G1 -
30' ROLLING GATE

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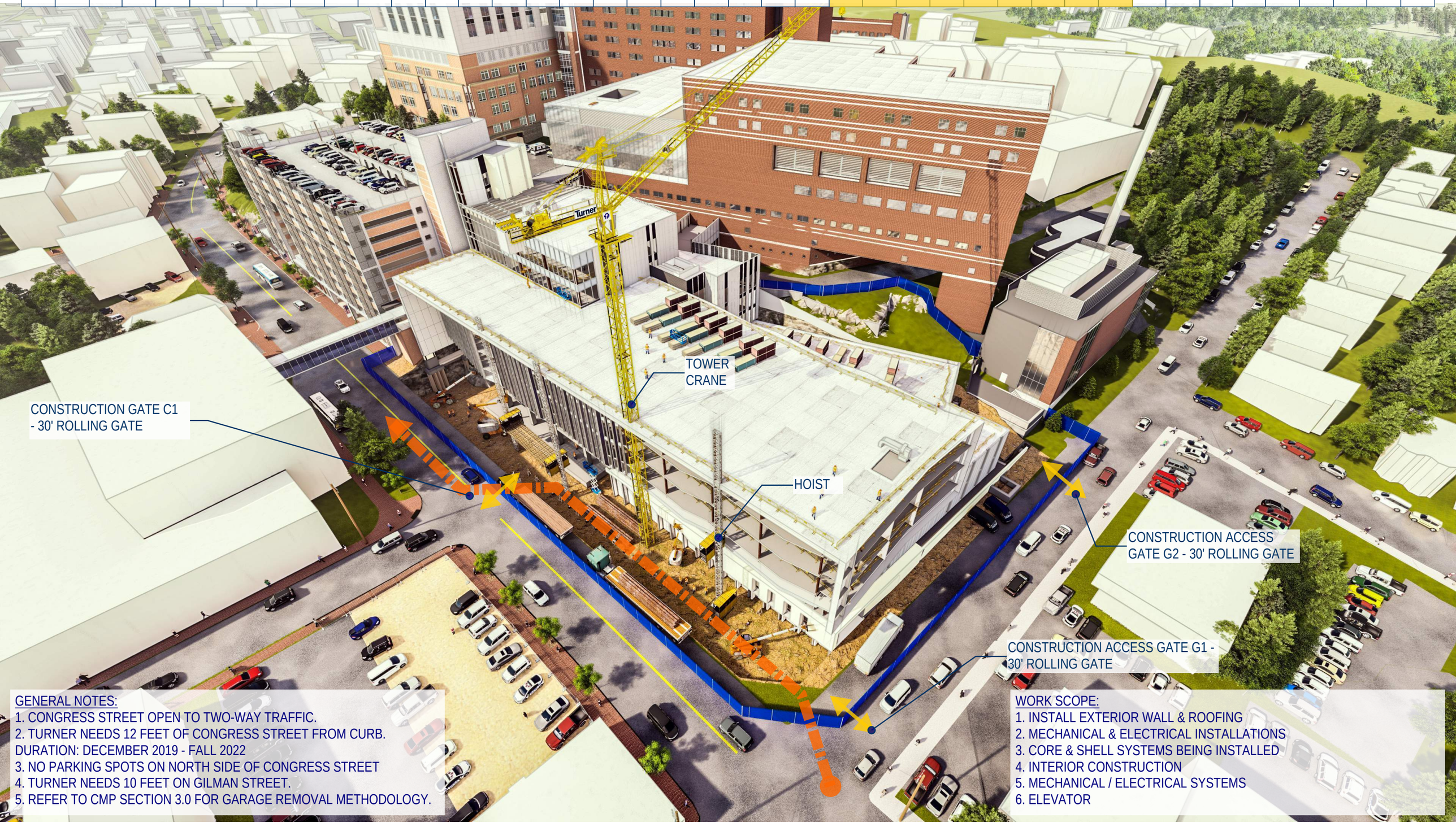
WORK SCOPE:
1. CONCRETE BASE INSTALLATION IN SUMMER OF 2020
2. TOWER CRANE BUILD IN NOVEMBER/DECEMBER 2020
3. LOCALIZED CONGRESS STREET ROAD CLOSURE - TWO WAY TRAFFIC MAINTAINED
4. INSTALL STRUCTURAL STEEL & DECK
5. PLACE CONCRETE SLAB
6. SPRAY ON FIREPROOFING

CONGRESS STREET NEW CLINICAL TOWER

Construction Management Plan [Logistics Plan] - Structure

Turner

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.



CONGRESS STREET NEW CLINICAL TOWER

Construction Management Plan [Logistics Plan] - Exterior Envelope

Turner

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

CONSTRUCTION GATE C1
- 30' ROLLING GATE

CONSTRUCTION ACCESS
GATE G2 - 30' ROLLING GATE

CONSTRUCTION ACCESS GATE G1 -
30' ROLLING GATE

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WORK SCOPE:
1. INTERIOR PATIENT ROOM FITOUT
2. CRITICAL CARE SUITES & ORs
3. MAIN LOBBY & PLUMBING SPACES FITOUT
4. SITE WORK AND HARDSCAPE

CONGRESS STREET NEW CLINICAL TOWER

Construction Management Plan [Logistics Plan] - Interior Fitout

Turner

2019						2020												2021												2022											
JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

WORK SCOPE:
1. INSPECTIONS
2. CLEANING
3. MEDICAL EQUIPMENT
4. SITE IMPROVEMENTS

CONGRESS STREET NEW CLINICAL TOWER

Construction Management Plan [Logistics Plan] - Commissioning and Completion

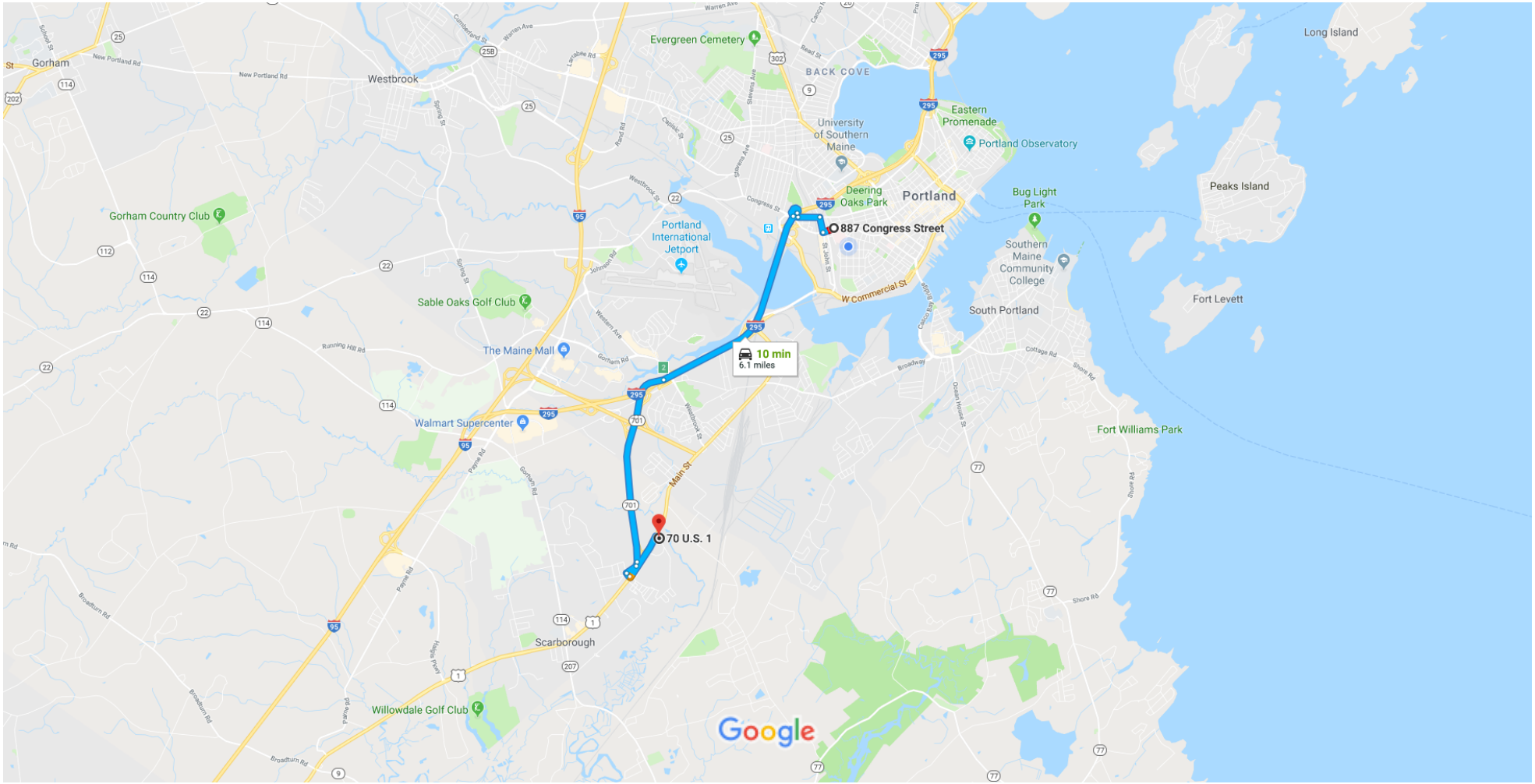
Turner

Google Maps

887 Congress St, Portland, ME 04102 to 70 US-1, Scarborough, ME 04074

Drive 6.1 miles, 10 min

Truck route from construction site to 70 US Route 1. This route would be used primarily during the garage deconstruction phase of the project or whenever a left-turn onto Congress St is allowable given the size of the truck.



887 Congress St

Portland, ME 04102

Get on I-295 S/US-1 S from St John St and Park Ave

3 min (0.8 mi)

1. Head southwest on Congress St toward Gilman St

0.1 mi

2. Turn right at the 3rd cross street onto St John St

0.2 mi

3. Turn left onto Park Ave

0.2 mi

4. Continue onto Congress St

295 ft

5. Slight right onto the Interstate 295 S/U.S. 1 ramp to So Portland

0.2 mi

Continue on I-295 S. Take ME-701 to US-1 S

5 min (4.6 mi)

6. Merge onto I-295 S/US-1 S
   Continue to follow I-295 S

2.4 mi

7. Use the right 2 lanes to take exit 2 toward U.S. 1 S/Scarborough/Old Orchard

0.6 mi

8. Continue onto ME-701

1.6 mi

Continue on US-1 N. Drive to Campus Dr

2 min (0.8 mi)

9. Use the right lane to merge onto US-1 S

243 ft

10. Slight right onto 1st St

0.1 mi

11. Turn left at the 1st cross street onto Green Acres Ln

325 ft

12. Use the right lane to turn left onto US-1 N

0.5 mi

13. Turn right onto Campus Dr

207 ft

70 US-1

Scarborough, ME 04074

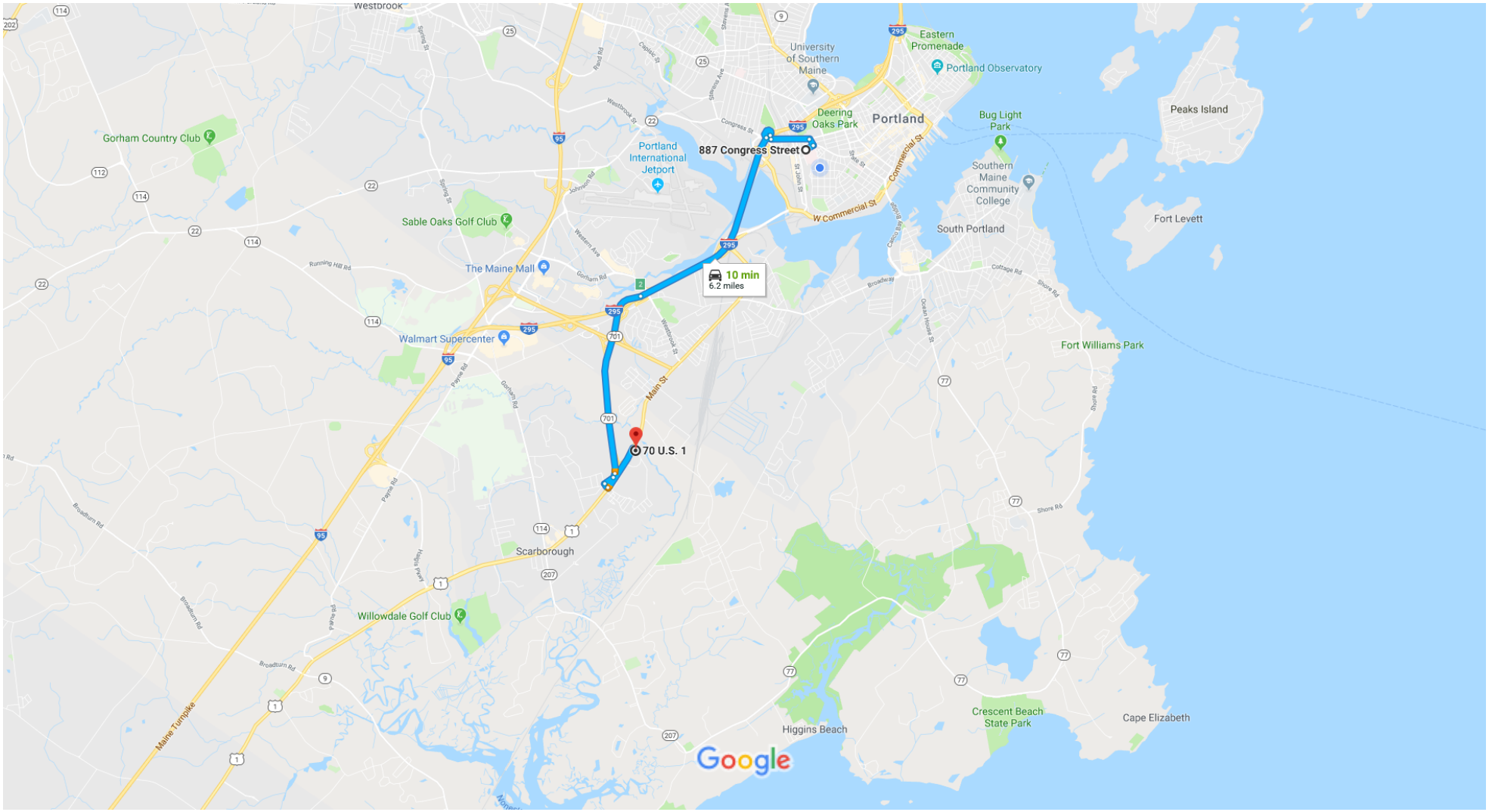
These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Google Maps

887 Congress St, Portland, ME 04102 to 70 US-1, Scarborough, ME 04074

Drive 6.2 miles, 10 min

Truck route to 70 US Route 1 from the construction site. The same local route would be used for truck traffic going from the construction site to the highway. This is the second of two exiting routes that would be used when a left-turn on Congress St is not possible due to the size of the truck.



Map data ©2018 Google 5000 ft

887 Congress St

Portland, ME 04102

Get on I-295 S/US-1 S from Park Ave

3 min (0.9 mi)

1. Head northeast on Congress St toward Weymouth St

0.1 mi

2. Turn left onto Weymouth St

443 ft

3. Turn left onto Park Ave

0.4 mi

4. Continue onto Congress St

295 ft

5. Slight right onto the Interstate 295 S/U.S. 1 ramp to So Portland

0.2 mi

Continue on I-295 S. Take ME-701 to US-1 S

5 min (4.6 mi)

6. Merge onto I-295 S/US-1 S
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2.4 mi

7. Use the right 2 lanes to take exit 2 toward U.S. 1 S/Scarborough/Old Orchard

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8. Continue onto ME-701

1.6 mi

Continue on US-1 N. Drive to Campus Dr

2 min (0.8 mi)

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0.5 mi

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207 ft

70 US-1

Scarborough, ME 04074

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Level III Site Plan Neighborhood Meeting
October 17, 2018, 5:30PM – 7:00PM
Maine Medical Center – Congress Building Site Plan Application
East Tower 2 & 3

Minutes

Attendees:

Karen Snyder	Richard Parsons
Troy Bennett	Gregg Scholler
Steve Whittier	Dominic Gagnon
George Rheavld	Matt Wickenheiser
Kris Hall	Randy Dunton
Thomas Cummings	Jeff Sanders
	Al Green
	Dennis Morelli

I. Welcome

Jeff Sanders extended a welcome to the attendees and discussed the objectives and previewed the content of the presentation.

II. Project Background and Need & Review Process

- MMC struggles to meet the daily patient care need due to capacity limitations created by semi-private rooms.
- A neighborhood attendee questioned the validity and statistical significance of the information MMC shared on a slide demonstrating a day at MMC. MMC explained the information is an example of a typical day at MMC and not meant to be statistically significant but that it is a scenario that MMC experiences often.
- Staff at MMC park in one of 8 different locations near MMC's Bramhall campus. This is a neighborhood and staff dissatisfier.
- City of Portland review of MMC's facility project is broken down into three site plan applications: 1. East Tower & Visitor garage (approved), 2. St John Garage (approved), 3. Congress Building (application submitted).
- Neighborhood attendees had several questions about the orientation of the proposed MMC buildings, the institutional overlay zone (IOZ), and the improvements to the right-of-way that were approved as part of the St John Street Garage site plan. Others questions were as follows:
    - Q: Why didn't MMC build a bigger garage?
        - A: MMC feels that the proposed garage is sized appropriately for MMC's needs.
    - Q: Will the garage be built of quality materials that last a long time?
        - A: Yes. Adhering to recommended maintenance schedules is also important when considering the lifespan of any building. MMC intends to adhere to all recommended maintenance schedules.
    - Q: How close is the proposed garage to the 222 St John historic building?

        - A: Less than 100'. MMC presented to the Historic Preservation board as required by City of Portland regulations.
    - Q: What beautification efforts are planned in the neighborhood?
        - A: The Planning Board approved plans submitted in MMC's St John Garage site plan application to replace broken or unsafe sidewalks, improve lighting, and add pedestrian street crossings between the new garage and MMC's Bramhall campus.

III. Design

- MMC reviewed the proposed design drivers of the Congress building, shared renderings of the proposed buildings, and discussed how each of the design guidelines outlined in MMC's institutional development plan (IDP) are met.
- A neighborhood attendee commented on the design of the building's façade at the street level on the corner of Gilman St and Congress St. The attendee felt that the design guideline to limit blank facades was not met by the proposed design. MMC shared that the employee entrance was added in part to address and meet the "limit blank facades" design guideline.
- One resident questioned the need to remove a large tree; MMC responded with information about trees being added and the inclusion of 2 green rooftop gardens in the new building's design.
- The trees being planted in front of the building will be approved by the City of Portland arborist.

IV. Construction Management Plan

- A representative of Turner construction provided some background on Turner construction, an overview of the project timeline, and logistics required to complete the project. The project is anticipated to be 36 months in duration.
- The topic of property surveys was discussed: Turner does not anticipate vibrations from construction activities to impact the adjacent properties. In order to ensure that adjacent properties are not impacted, vibrations monitoring devices will be placed around the construction site and building foundations will be installed using a screw-auger rather than an impact hammer. No blasting will occur during this project.
- City of Portland allows construction crews to work between 7:00AM – 7:00PM on weekdays. Turner will work within these times but anticipates the occasional weekend work will need to be completed.
- One resident had questions regarding MMC's future development plans, after Phase III. Response was that this is it for foreseeable future for this campus, but that additional floors to new Congress Street Building would be next logical expansion area.

V. Traffic

- MMC outlined the methods used to develop to complete the traffic analysis and shared the results of the analysis.

- MMC does not anticipate a significant increase in overall traffic as a result of the project. Traffic volumes will be redistributed from the MMC parking garage to the future St John St. garage and Bramhall St entrance to the future Congress St entrance.

VI. Communications

- For more information and on-going updates, anyone can visit MMC's website to sign up for email and text alerts: www.mmc.org/modernization.

For construction related issues, there are contact numbers on the MMC Modernization website, as well as on the City's website.

Link to project:
https://mainehealth.org/maine-medical-center/newsroom/modernization

Maine Medical Center
MaineHealth

Congress St Patient Tower

City of Portland Planning Board

Tuesday October 23, 2018

PATIENT CENTERED · RESPECT · INTEGRITY · EXCELLENCE · OWNERSHIP · INNOVATION

Contents

- How we got here
- Site plan I,II,III overview
- Construction progress to date
- Overview of Site Plan III
- Design
- Construction
- Ongoing communications
- Closing

A Typical Day at the Medical Center

Gassed Beds	
Total Beds:	637
Patient condition closures:	44
Construction closures:	4
Staffing closures:	13
Open beds:	576
Held for assigned admits:	7
Census at 0700:	553
Beds remaining:	16

Available Beds	
Medical/Surgical:	0
Cardiac:	4
Intermediate Care:	0
Intensive Care:	4
Psychiatric:	1
Childrens:	12
Obstetrics:	21
Beds remaining:	42

Patients Waiting for a Bed	
In the ED:	17
In the ED waiting for P6 (exculdes outside psych placement):	0
In the PACU:	2
Transfer from other facilities:	4
Total:	**23**

Expected Admissions	
ED admits:	45 - 55
Procedural admits:	45 - 50
Cath Lab admits:	1 - 4
Outisde admits:	10 - 15
Total:	**101 - 124**

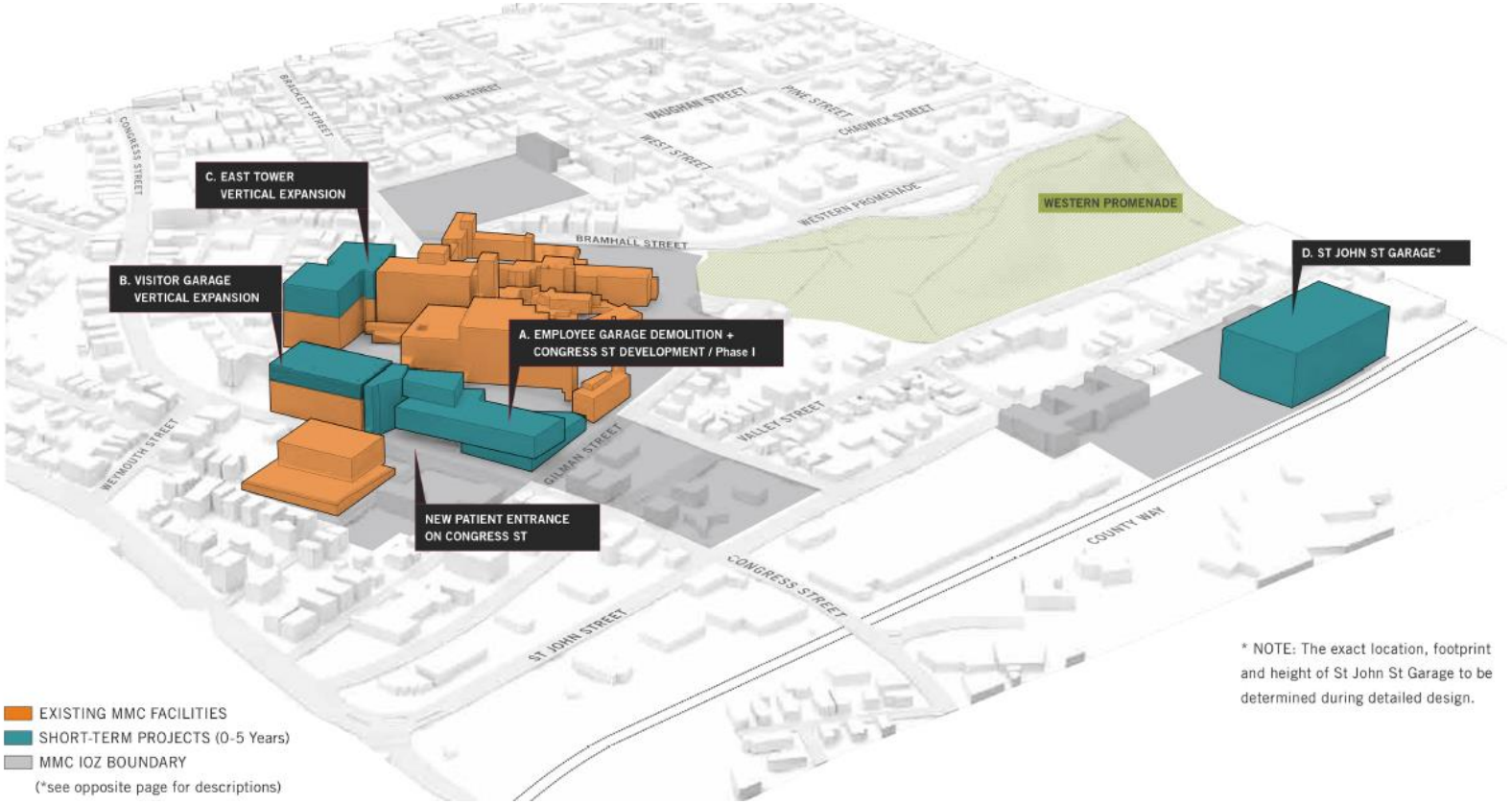
Building History

Institutional Development Plan (IDP) & Regulatory Framework

- MMC's Master Planning document recently approved by the Planning Board includes:
  - Maine Medical Center Master Facility Plan (MFP)
  - Transportation Plan
  - Environment & Infrastructure Plan
  - Design
  - Neighborhood Engagement

- The Regulatory Framework was approved by the City Council and includes:
  - Revised Boundary
  - Maximum Heights
  - Snow Ban Parking
  - Neighborhood Integration
  - Healthy Communities

Master Facility Plan

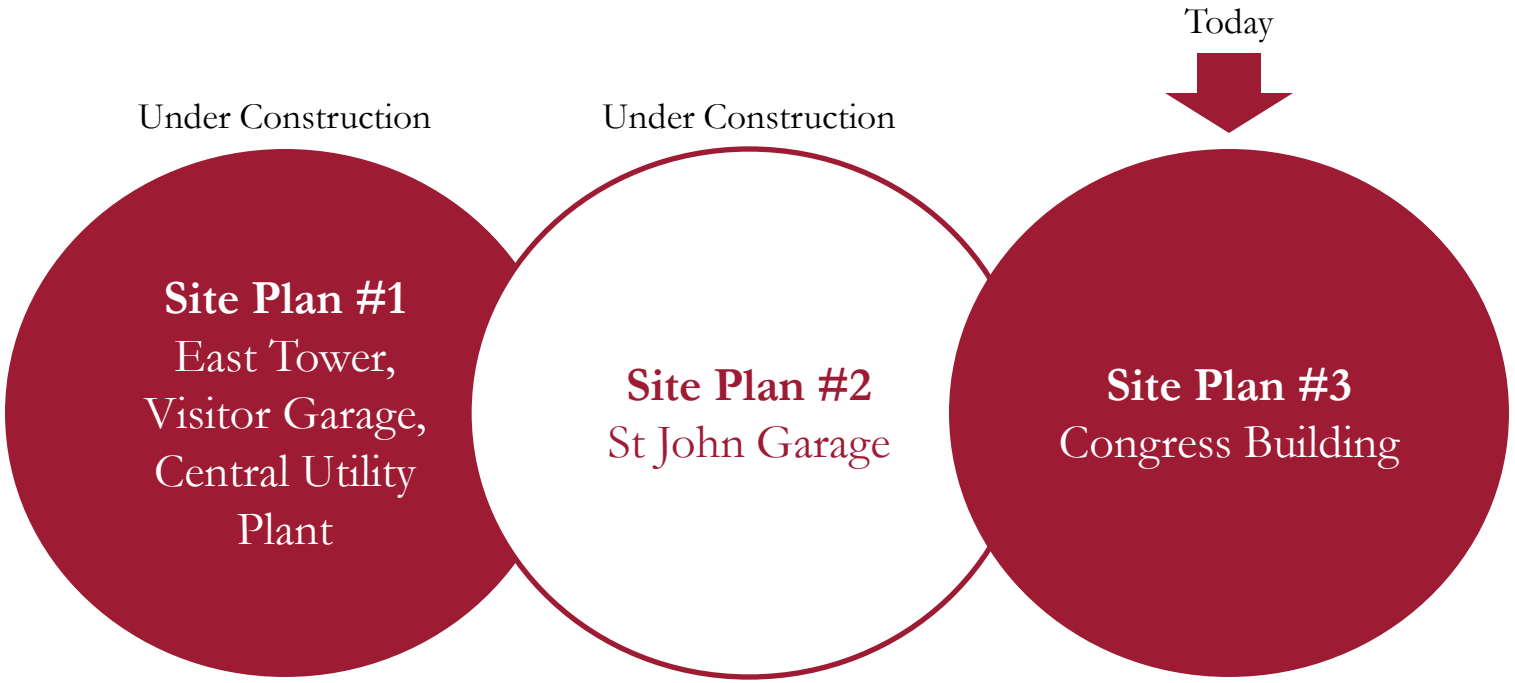


Act with kindness and compassion. | Be an active listener. | Be a role model. | Set high standards. | Take responsibility. | Embrace change.

Jeff Sanders,
Executive Vice President and COO,
MMC

Maine Medical Center
MaineHealth

MMC MFP Site Plan Review



- Three separate applications with overlapping schedules
- Intended to make the materials digestible and to provide more opportunities for feedback from the City and Neighbors

Act with kindness and compassion. Be an active listener. Be a role model. Set high standards. Take responsibility. Embrace change.

Congress St Patient Tower

Design

Jeff Keilman, Senior Project Manager, Senior Associate
Perkins + Will

Be a role model. Take responsibility. Set high standards.
Embrace change. Be an active listener.
Act with kindness and compassion.

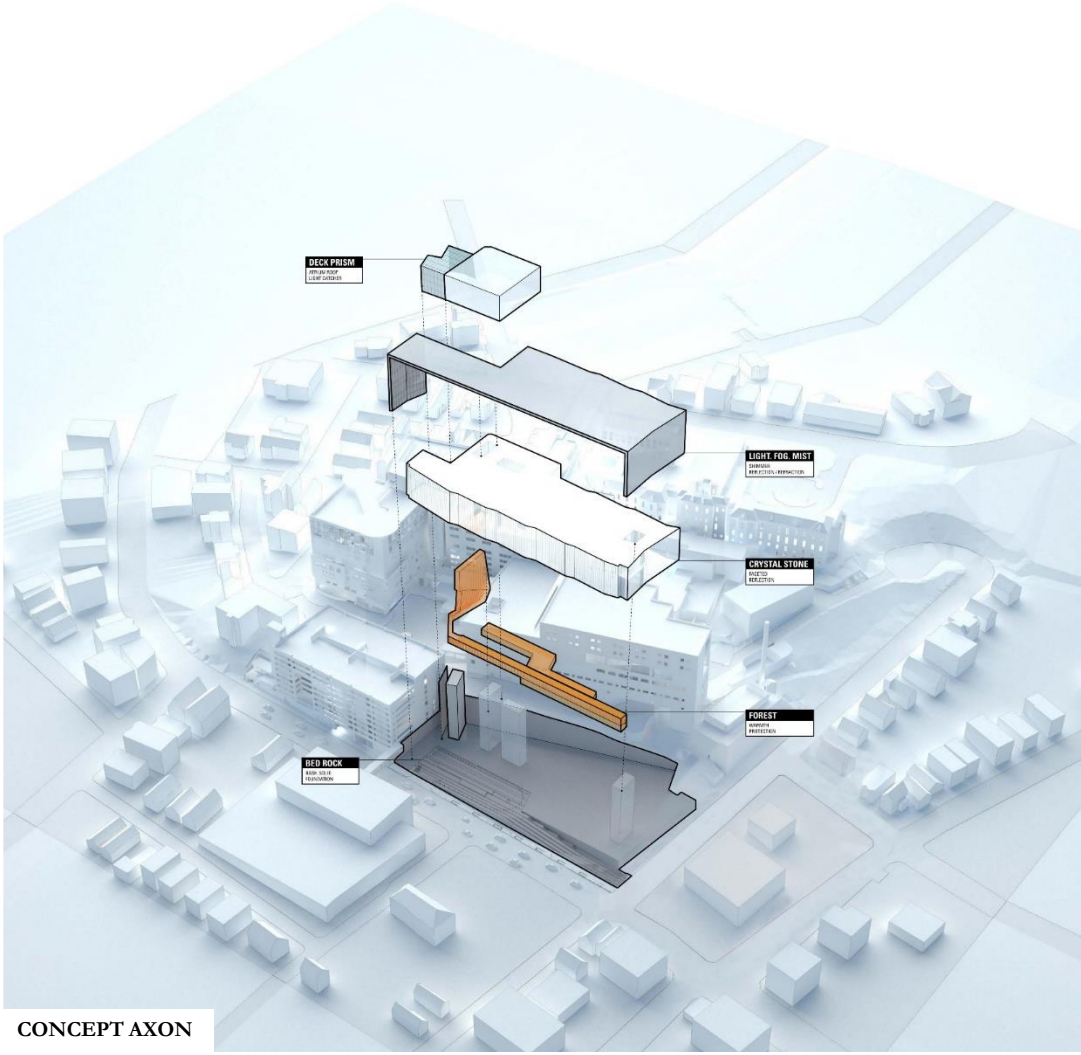
Design Guidelines

Guideline	Summary	Status
1	Contribute to campus vision	✓
2	Consideration for a cohesive identity from afar	✓
3	Entrances oriented towards public rights-of-way	✓
4	Compatible with existing or planned character	✓
5	High quality materials	✓
6	Design to consider long-views	✓
7	Vibrant, contributing and sustainable ground floor	✓
8	Limited blank facades	✓
9	Screened parking	n/a

ROCK WALL

FOREST

BED ROCK



CONCEPT AXON

Act with kindness and compassion.

Be an active listener.

Be a role model.

Set high standards.

Take responsibility.

Embrace change.

Design Concept

Jeff Keilman,
Senior Project Manager,
Perkins+Will

Maine Medical Center
MaineHealth

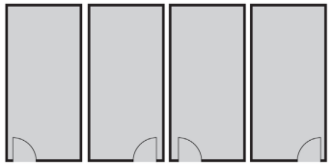
Planning Drivers

PATIENT ROOM PLANNING GOALS

- INCREASE VISIBILITY AND MAXIMIZE PATIENT OBSERVATION
- MINIMIZE WALKING DISTANCES
- CREATE CENTRALIZED INTERPROFESSIONAL COLLABORATION

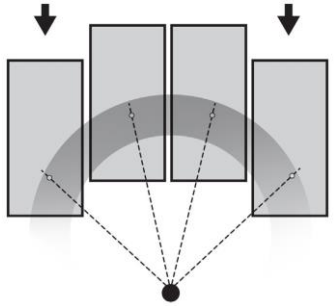
TRADITIONAL PATIENT ROOMS

- TRADITIONAL LINEAL PATIENT ROOM ARRANGEMENT



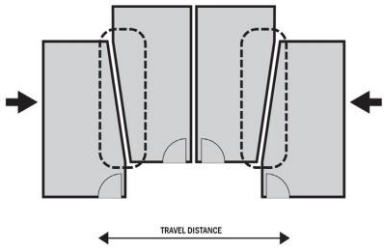
MODIFIED PATIENT ROOMS

- INCREASE STAFF VISIBILITY TO PATIENT
- IMPROVE PATIENT VIEWS OUT
- CENTRALIZE STAFF



NESTED PATIENT ROOMS

- REDUCE TRAVEL DISTANCE
- DECREASES THE OVERALL LENGTH OF THE BED FLOOR BAR / PERIMETER
- FURTHER IMPROVE STAFF VISIBILITY TO PATIENT



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Planning Drivers

PATIENT ROOM PLANNING : SOLAR ORIENTATION

- ALIGN BUILDING EXTERIOR AND FAÇADE TO REFLECT INTERNAL PLANNING STRATEGIES
- MAXIMIZE PATIENT VIEWS AND COMFORT BY REDUCING INCIDENTS OF DIRECT SUN AND GLARE

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Planning Drivers

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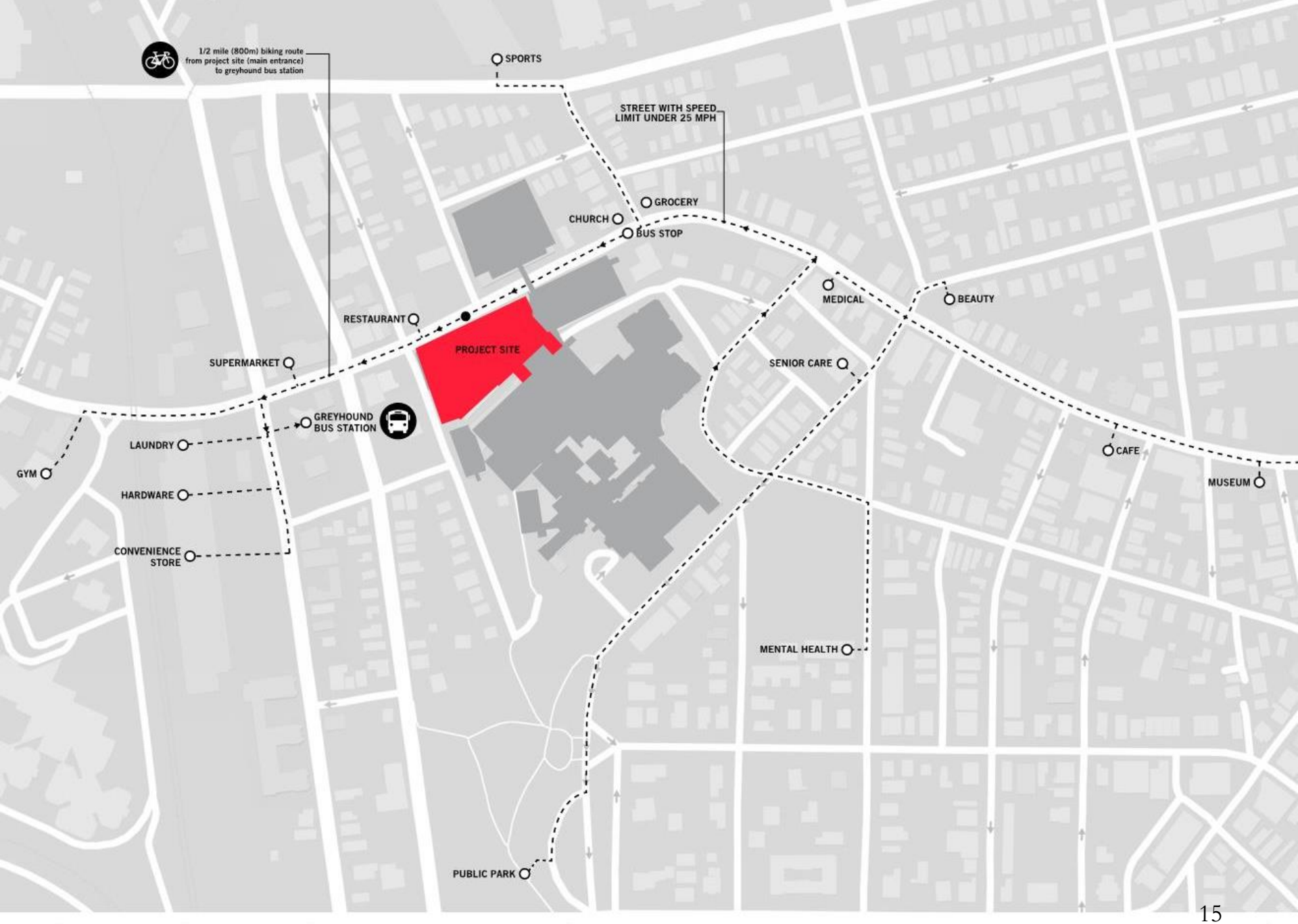
1/2 mile (800m) biking route from project site (main entrance) to greyhound bus station
SPORTS
STREET WITH SPEED LIMIT UNDER 25 MPH
GROCERY
CHURCH
BUS STOP
MEDICAL
BEAUTY
RESTAURANT
PROJECT SITE
SUPERMARKET
SENIOR CARE
GREYHOUND BUS STATION
LAUNDRY
CAFE
GYM
MUSEUM
HARDWARE
CONVENIENCE STORE
MENTAL HEALTH
PUBLIC PARK
SCALE:
1/16 mile (100m)
1/8 mile (200m)
1/4 mile (400m)
N

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Perkins+Will

Maine Medical Center
MaineHealth

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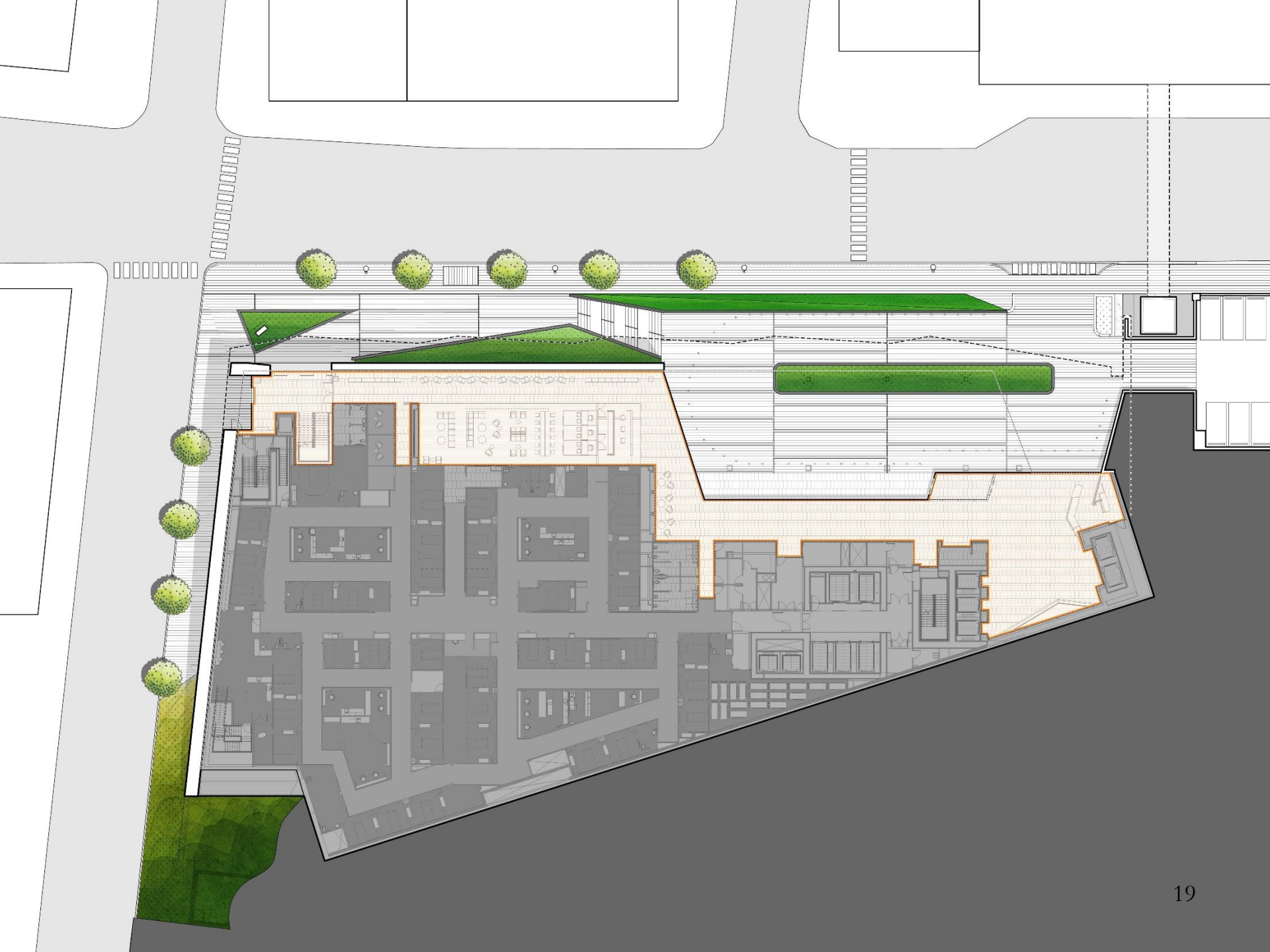
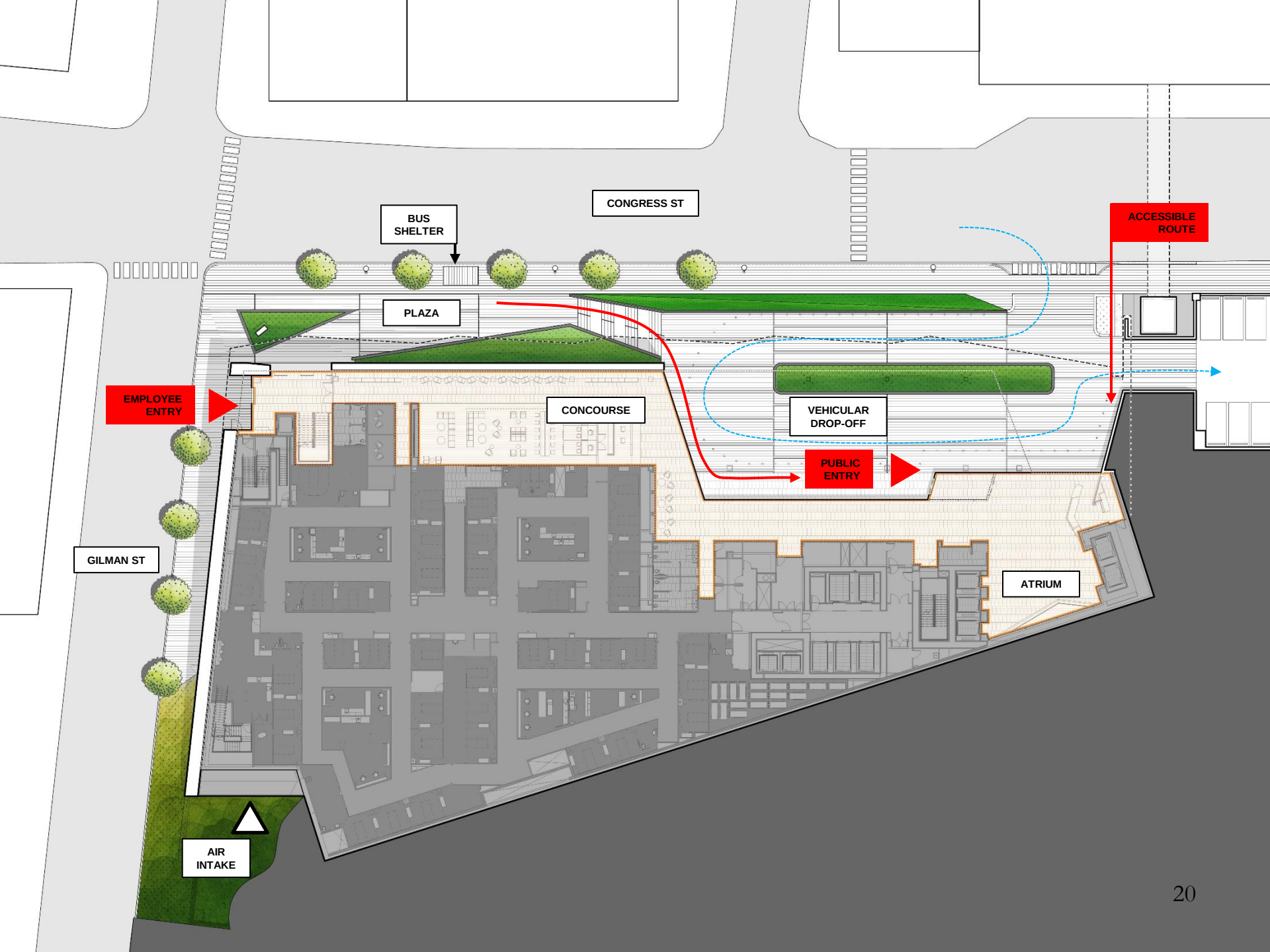
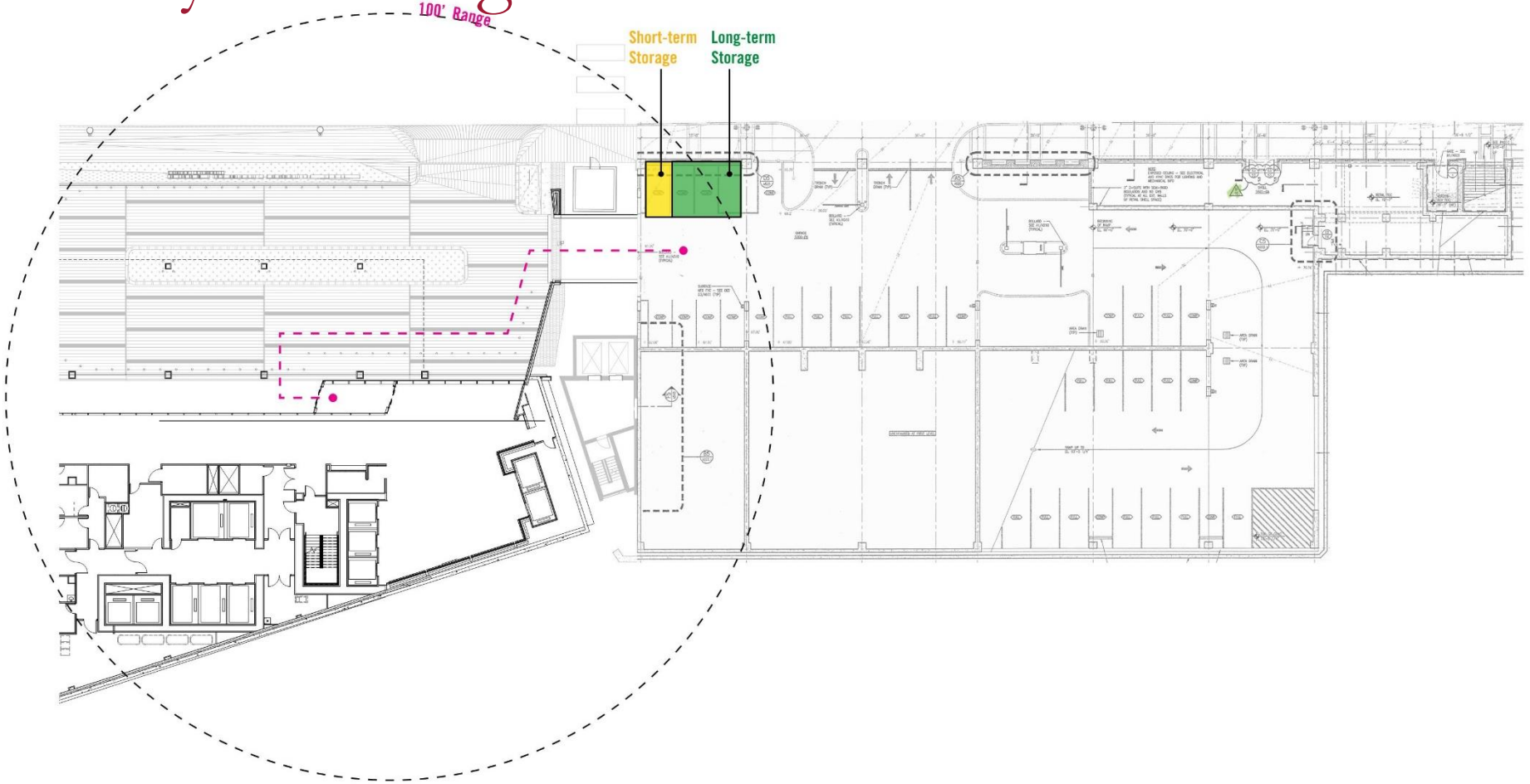
MaineHealth




CONGRESS ST
BUS SHELTER
ACCESSIBLE ROUTE
PLAZA
EMPLOYEE ENTRY
CONCOURSE
VEHICULAR DROP-OFF
PUBLIC ENTRY
GILMAN ST
ATRIUM
AIR INTAKE

Bicycle Storage



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Senior Project Manager,
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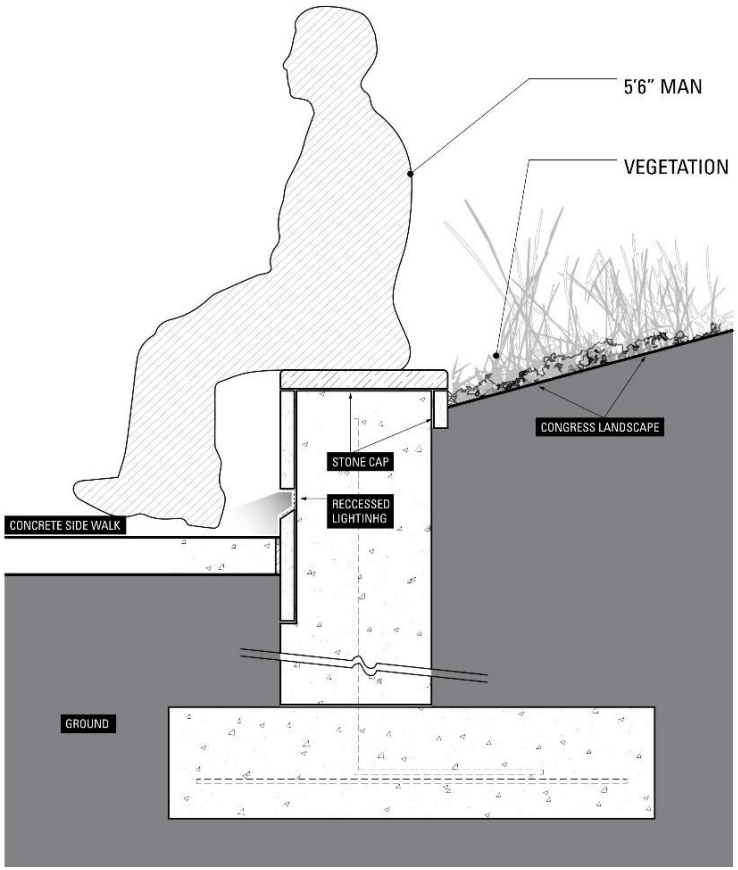
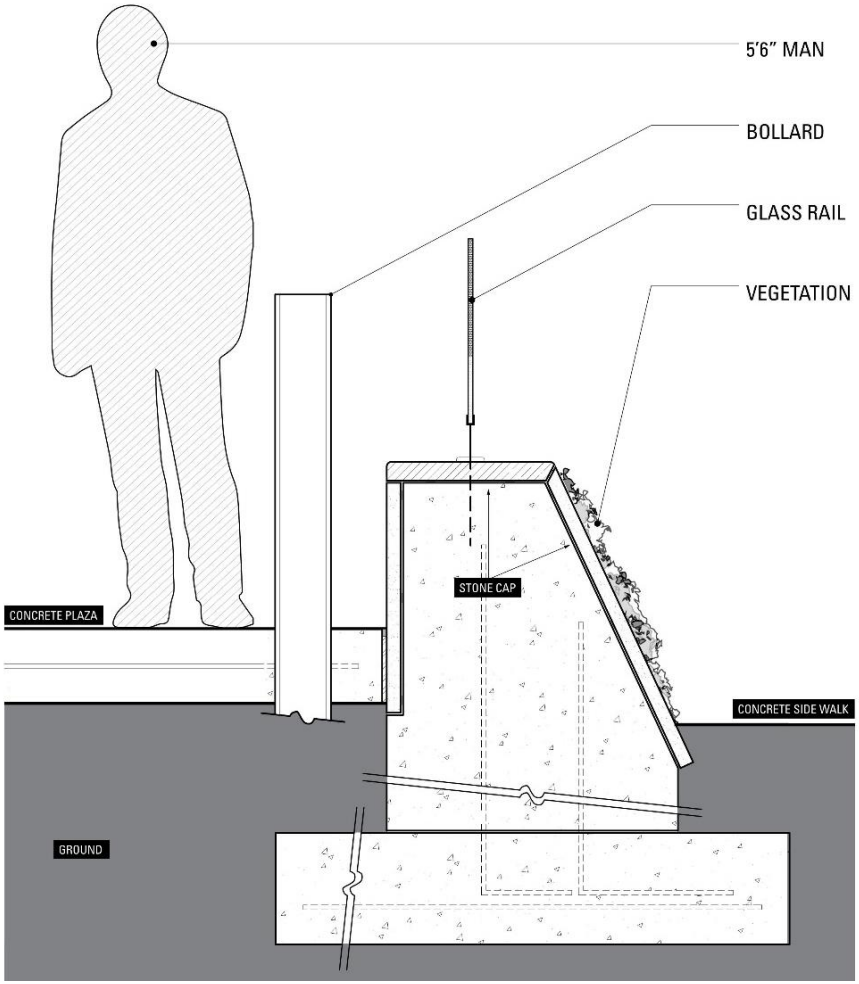
Senior Project Manager,
Perkins+Will

Jeff Keilman,
Senior Project Manager,
Perkins+Will

Site Design





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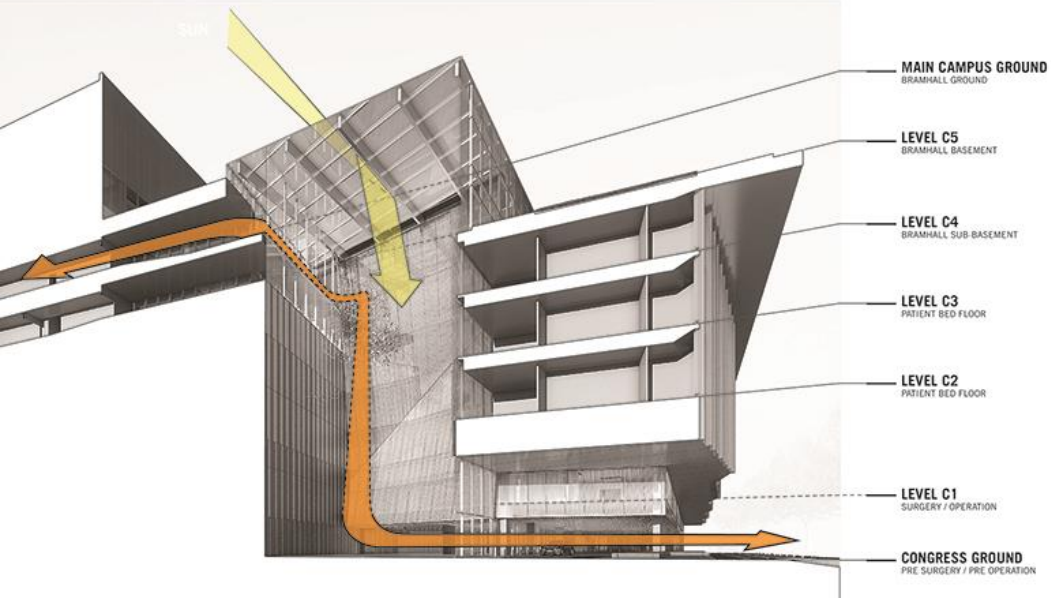

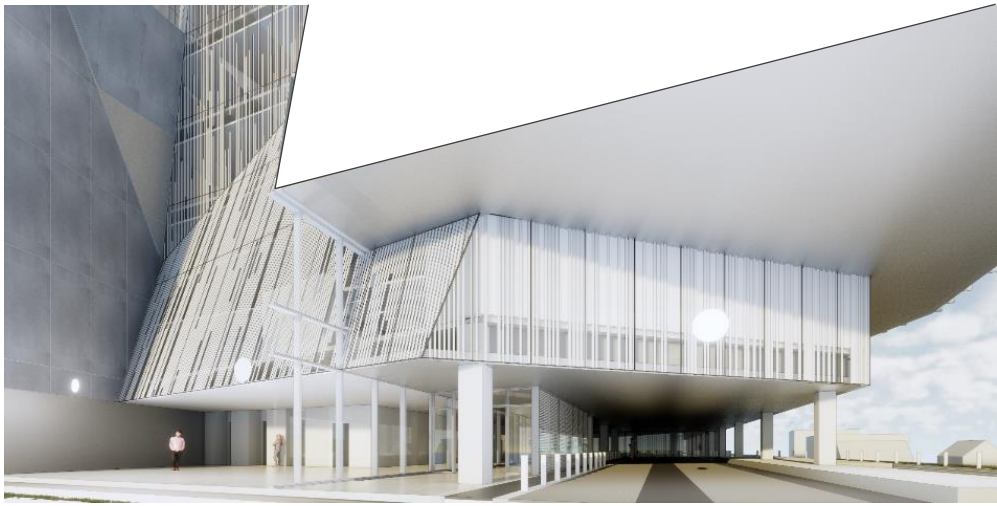

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Senior Project Manager,
Perkins+Will

Maine Medical Center
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1. **POINT CITY**
by introducing new transportation points, MMC strengthens pedestrian walk-ability and public circulation - bus stop is located at the front of building.

2. **BIKE STORAGE**
outdoor and indoor bike storage available on site.

3. **HIGH PERFORMANCE ENVELOPE**
well insulated exterior glazings help to prevent heat transfer and reduce heat loss.

4. **CONGRESS GROUND FLOOR GLAZING**
transparent glazing allows for natural daylighting to luminate concourse.

5. **PV-READY ROOF**
roof structure allows for addition of PV-Panels, cut building energy usage and provide roof shading.

6. **EFFICIENT LED LIGHTING**
energy efficient, long lasting fixtures.

7. **LOW FLOW PLUMBING FIXTURES**
reduce water usage and conserve water.

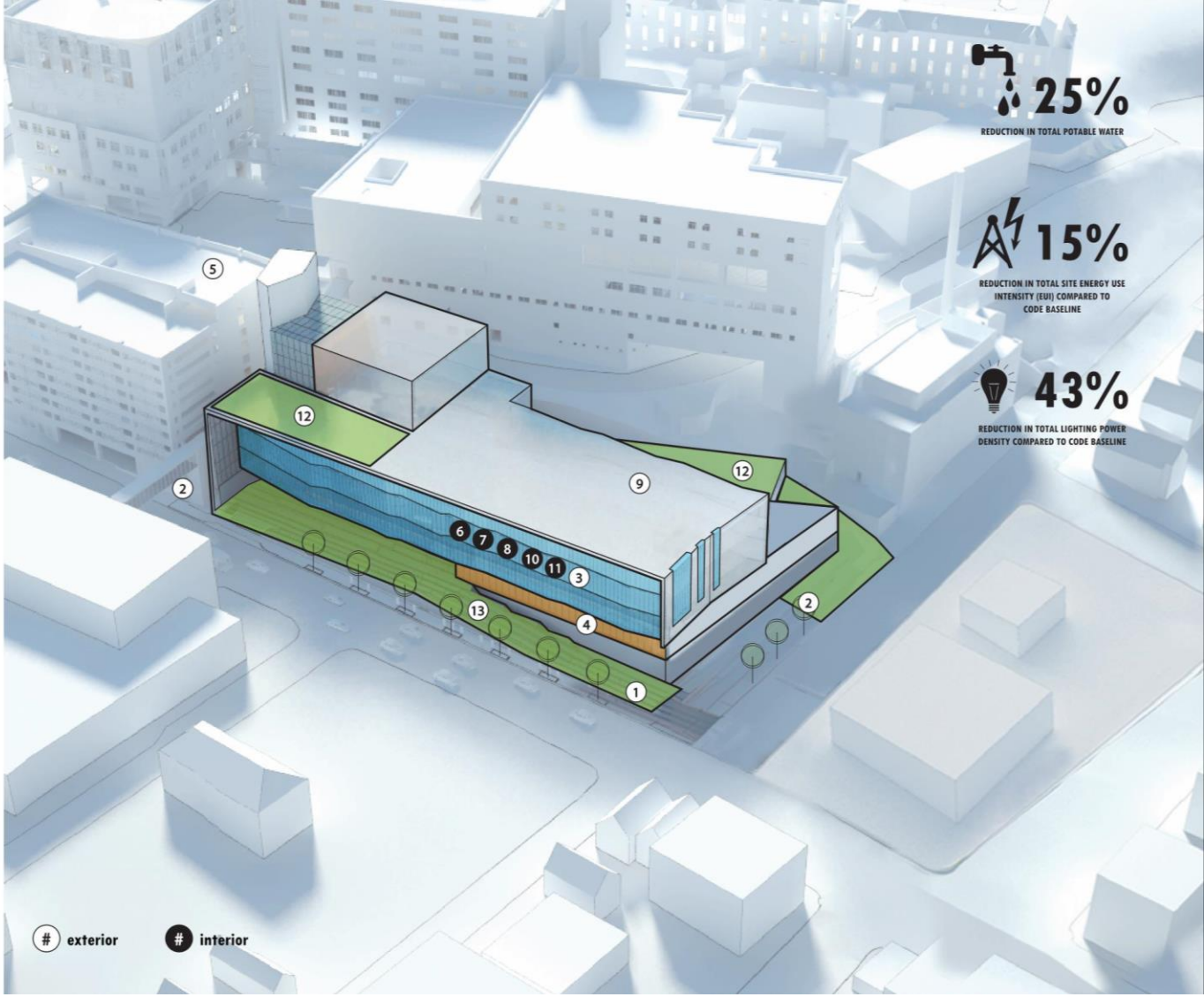
8. **EFFICIENT SYSTEMS**
use less energy to heat and cool the building.

9. **WHITE ROOF MEMBRANE**
helps to reduce heat island effect.

10. **HEALTHY MATERIALS**
improve indoor air quality and reduce exposure to harsh chemicals in materials.

11. **RECYCLING ALCOVE**
staffs have easy access to sustainable waste management.

12. **ROOF GARDENS/ IMPERVIOUS SURFACE**
decrease rate of flow into sewer, reduce storm water runoff, and improve thermo insulation.



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Jeff Keilman,
Senior Project Manager,
Perkins+Will

Construction Management Plan

Richard Parsons, Construction Executive,
Turner

Be a role model. Take responsibility. Set high standards.
Embrace change. Be an active listener.
Act with kindness and compassion.

Construction Approach & Challenges

- Minimize impacts to surrounding area
- Open and transparent communications
- Maintain hospital operations
- Safety

Turner

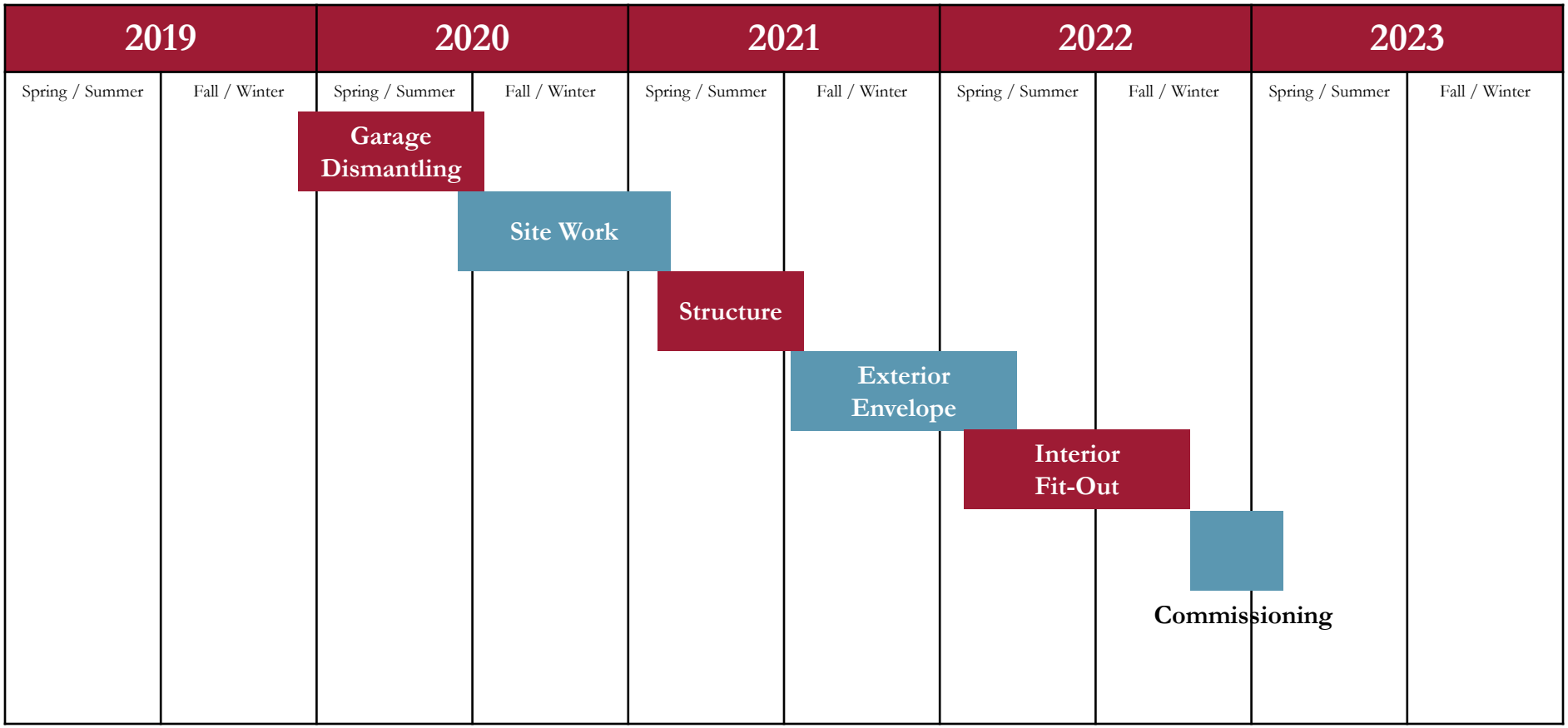
Dick Parsons,
Construction Executive,
Turner

Maine Medical Center
MaineHealth

Contractor Parking

- Offsite Parking area will be available for workers
- Construction worker parking on MMC grounds and on adjacent streets will be prohibited
- Construction Manager personnel will monitor daily
- Language to be included in all subcontracts with offsite parking requirements and penalties for non-compliance

Construction Timeline



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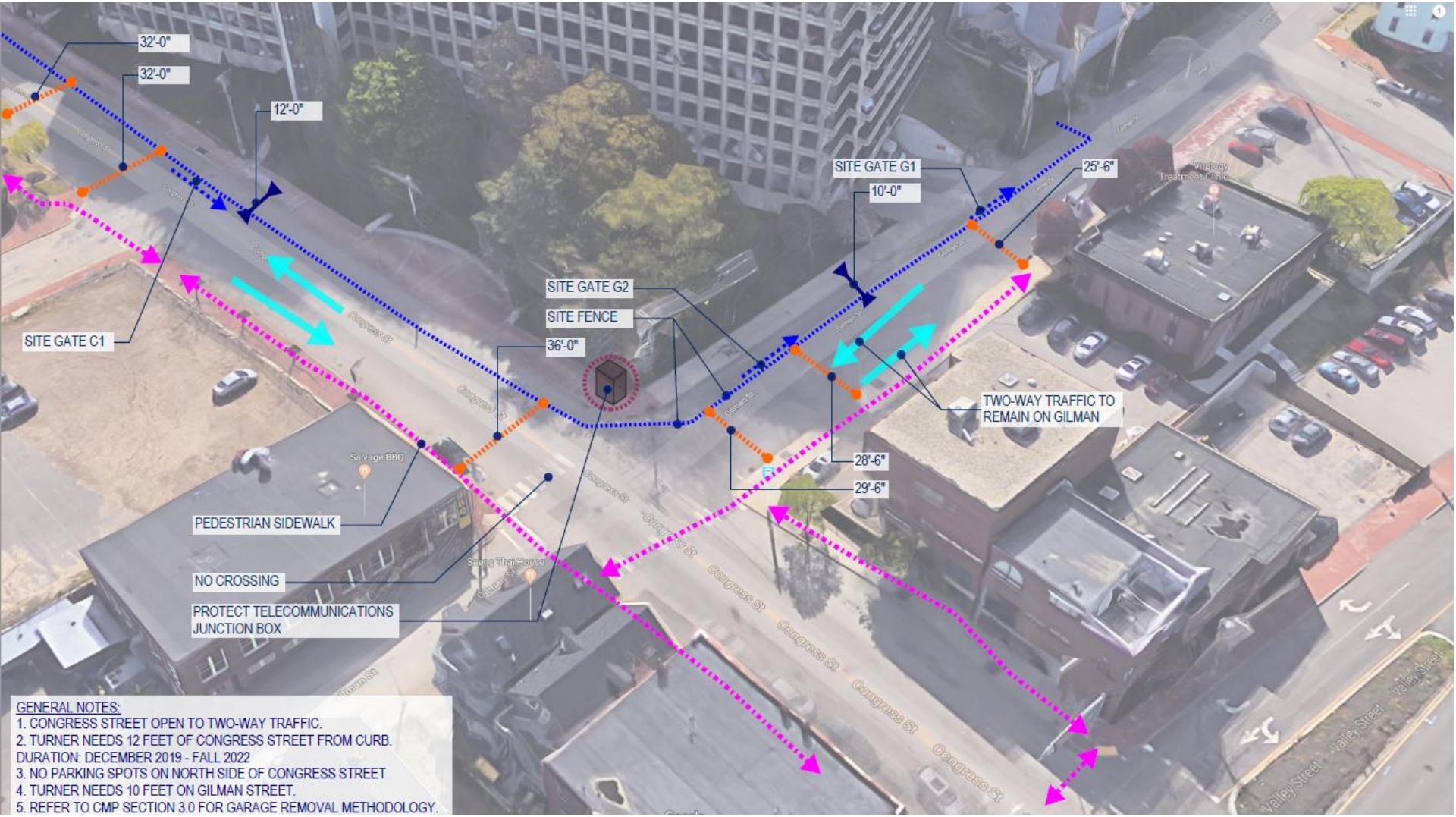
Dick Parsons,
Construction Executive,
Turner

Maine Medical Center
MaineHealth



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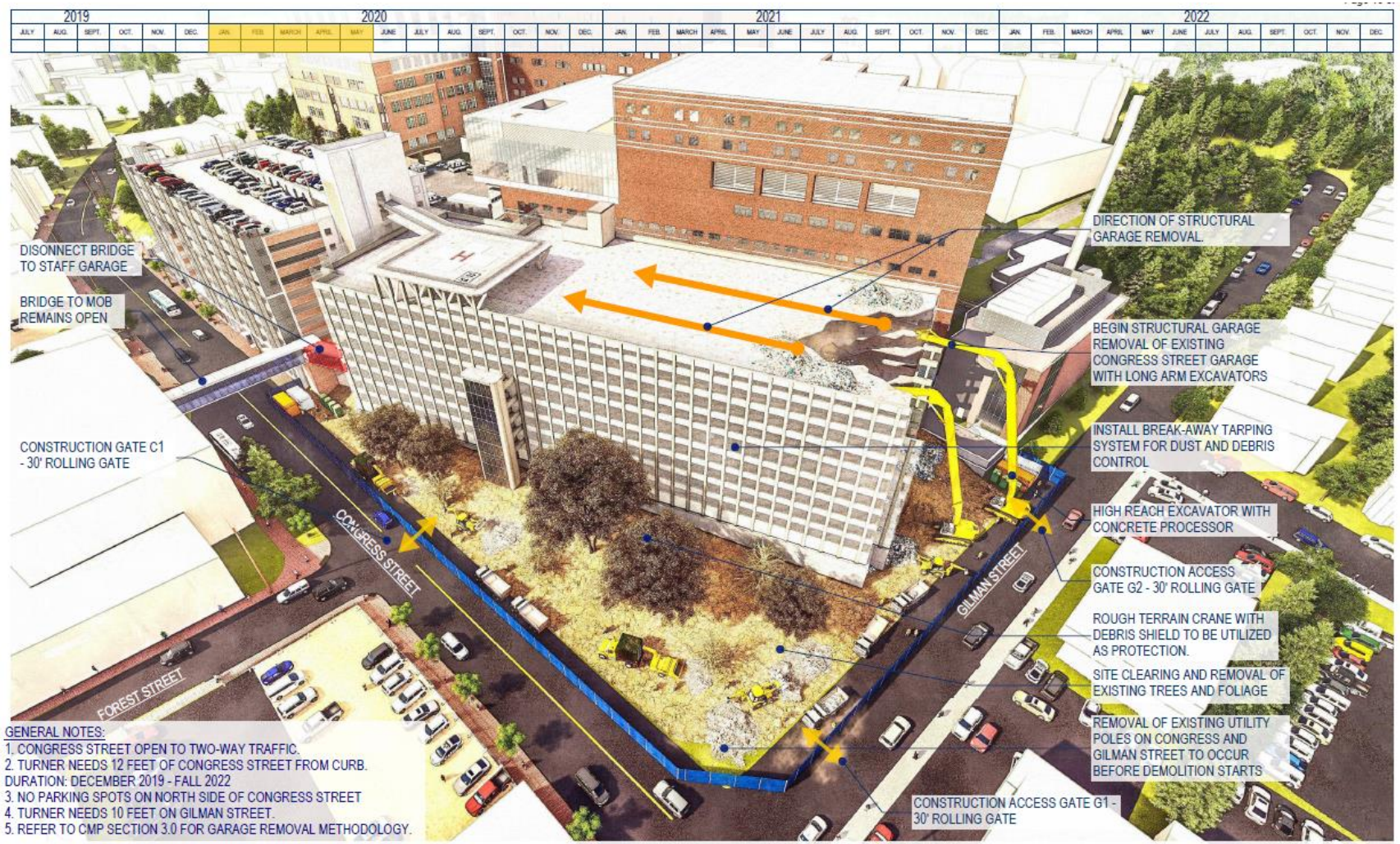
Pedestrian Routes



CONGRESS STREET NEW CLINICAL TOWER
Additions and Renovations [Structural Garage Removal Logistics Plan]

Turner

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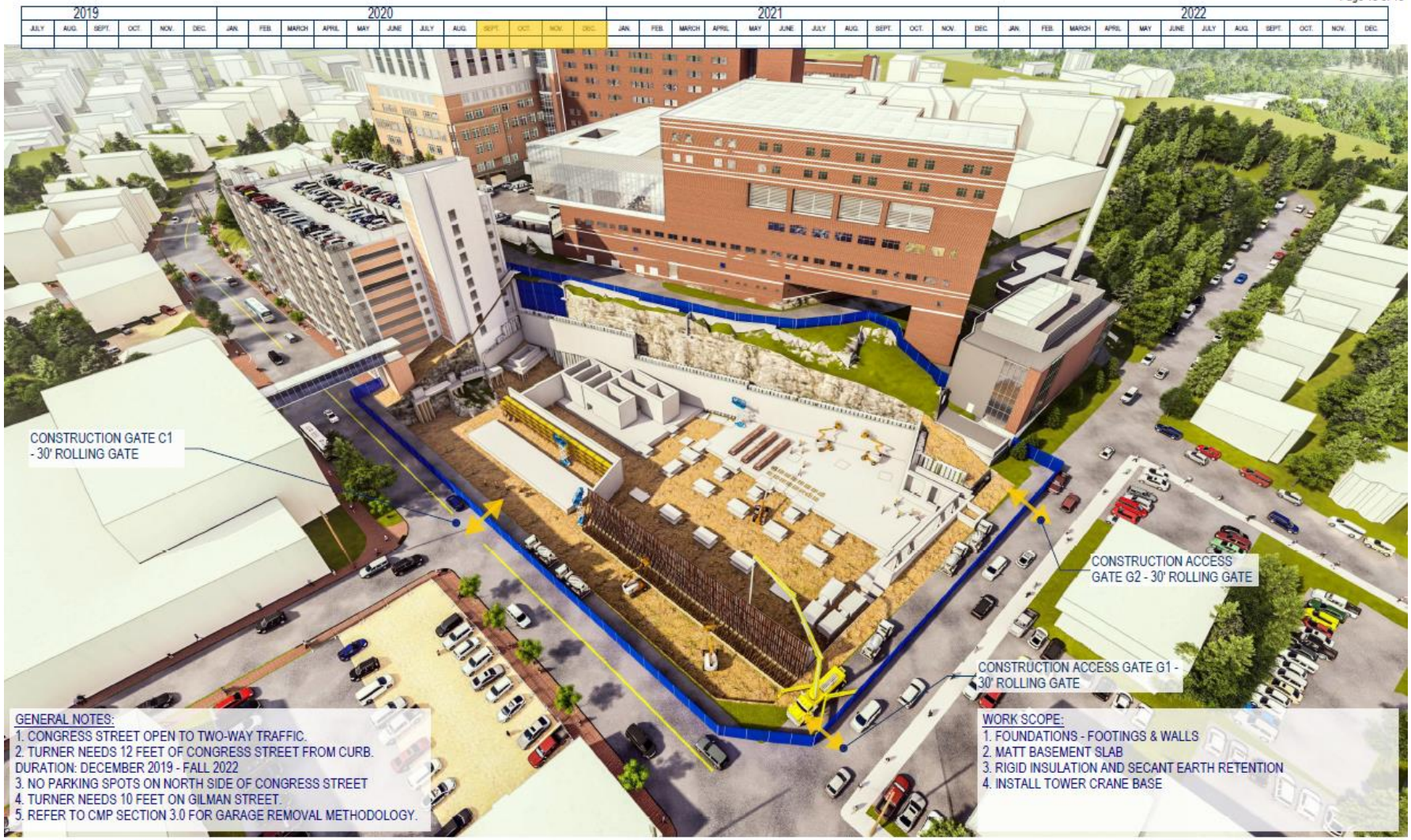
Garage Dismantling



CONGRESS STREET NEW CLINICAL TOWER
Construction Management Plan [Logistics Plan] - Foundations

Turner

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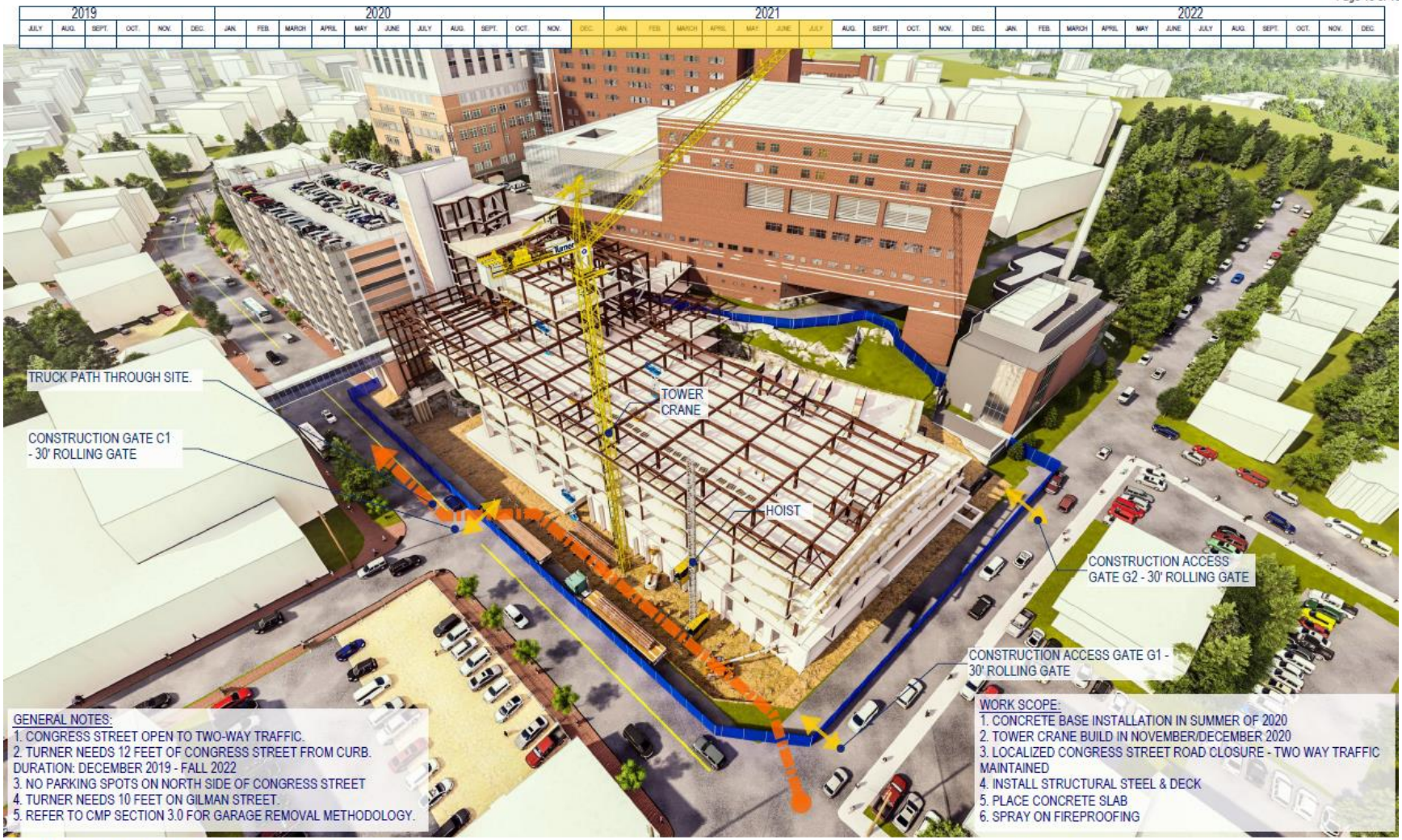
Site Work



CONGRESS STREET NEW CLINICAL TOWER
Construction Management Plan [Logistics Plan] - Structure

Turner

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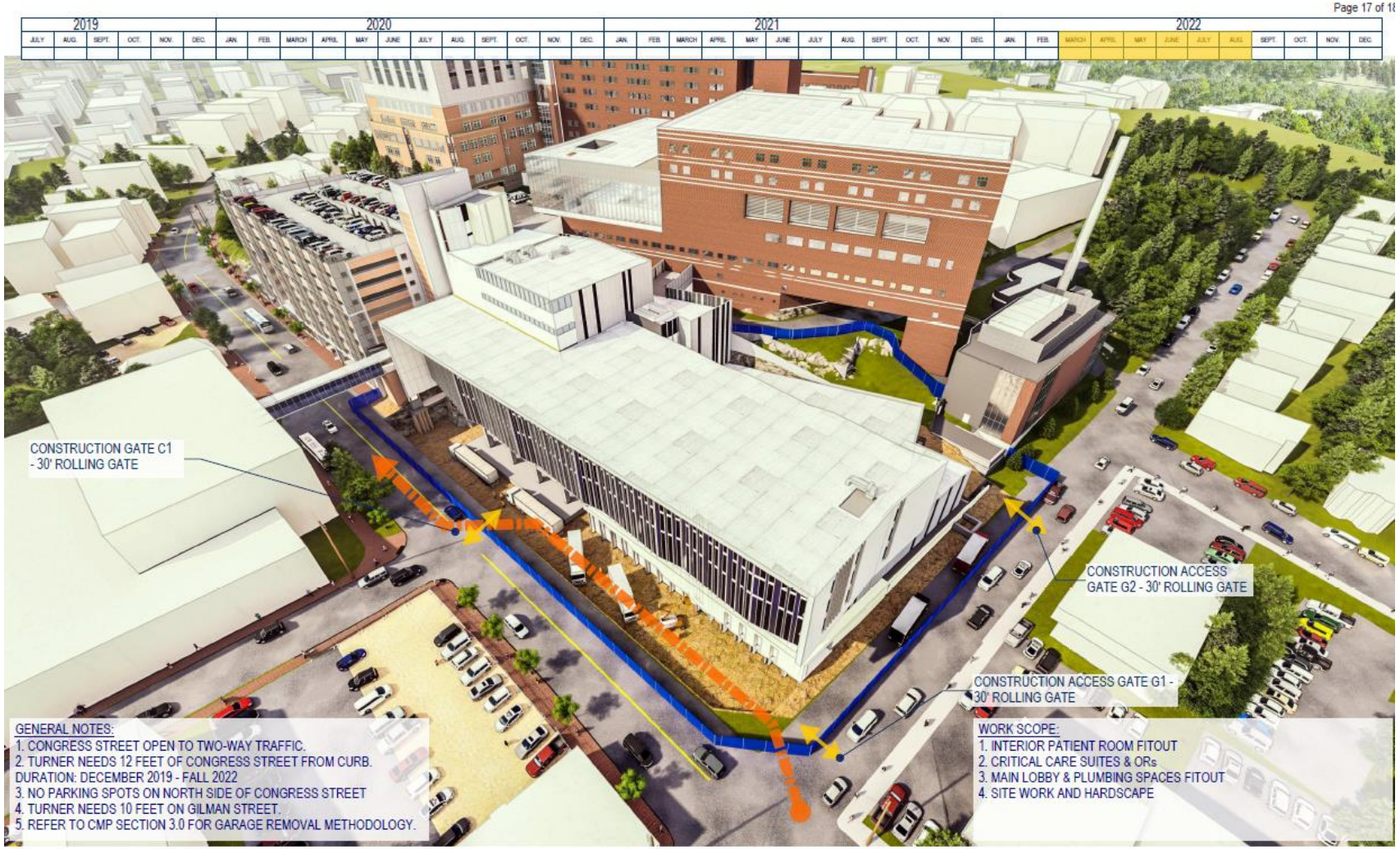
Building the Structure



CONGRESS STREET NEW CLINICAL TOWER
Construction Management Plan [Logistics Plan] - Interior Fitout

Turner

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Dick Parsons,
Construction Executive,
Turner

Exterior Envelope & Interior Fit-Out

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MaineHealth

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Take responsibility.

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Dick Parsons,
Construction Executive,
Turner

Commissioning and Completion

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MaineHealth

Ongoing Communications

Jeff Sanders, Executive Vice President, Chief Operating Officer
Maine Medical Center

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Embrace change. Be an active listener.
Act with kindness and compassion.

Communications

- For more information and on-going updates, anyone can visit MMC's website to sign up for email and text alerts: www.mmc.org/modernization

Newsroom

Media

Press Releases

MMC Campus Modernization Project

Project Updates

Neighborhood Meeting Minutes

Sign up for Project Alerts

Additional Information

MaineHealth › Maine Medical Center › Newsroom › *MMC Campus Modernization Project*

MMC Campus Replacement & Modernization Project

Maine Medical Center is excited to begin work on the largest modernization and replacement project in its history – a patient-focused initiative that will enable the state's largest hospital to meet the most urgent healthcare needs well into the future.

Altogether, the $525 million project will create 128 new private patient rooms, add 19 procedure rooms for surgeries and other complex treatments, provide an additional 225 spaces for patient and visitor parking, and consolidate MMC employee parking into one nearby garage that will meet current demand and future growth. The project will also open Maine Medical

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Jeff Sanders,
Executive Vice President and COO,
MMC

Maine Medical Center
MaineHealth

Thank You

Be a role model. Take responsibility. Set high standards.
Embrace change. Be an active listener.
Act with kindness and compassion.

Maine Medical Center
MaineHealth

Pedestrian Network Plan

The safety and security of pedestrians in and around its campus is of utmost importance to Maine Medical Center.

MMC's Campus Replacement and Modernization Project will transform the pedestrian experience of the campus along Congress Street. It will provide safe connections between Congress Street and neighborhood streets to the south of the Hospital.

Figure 1

Introduction: MMC Institutional Overlay Zone

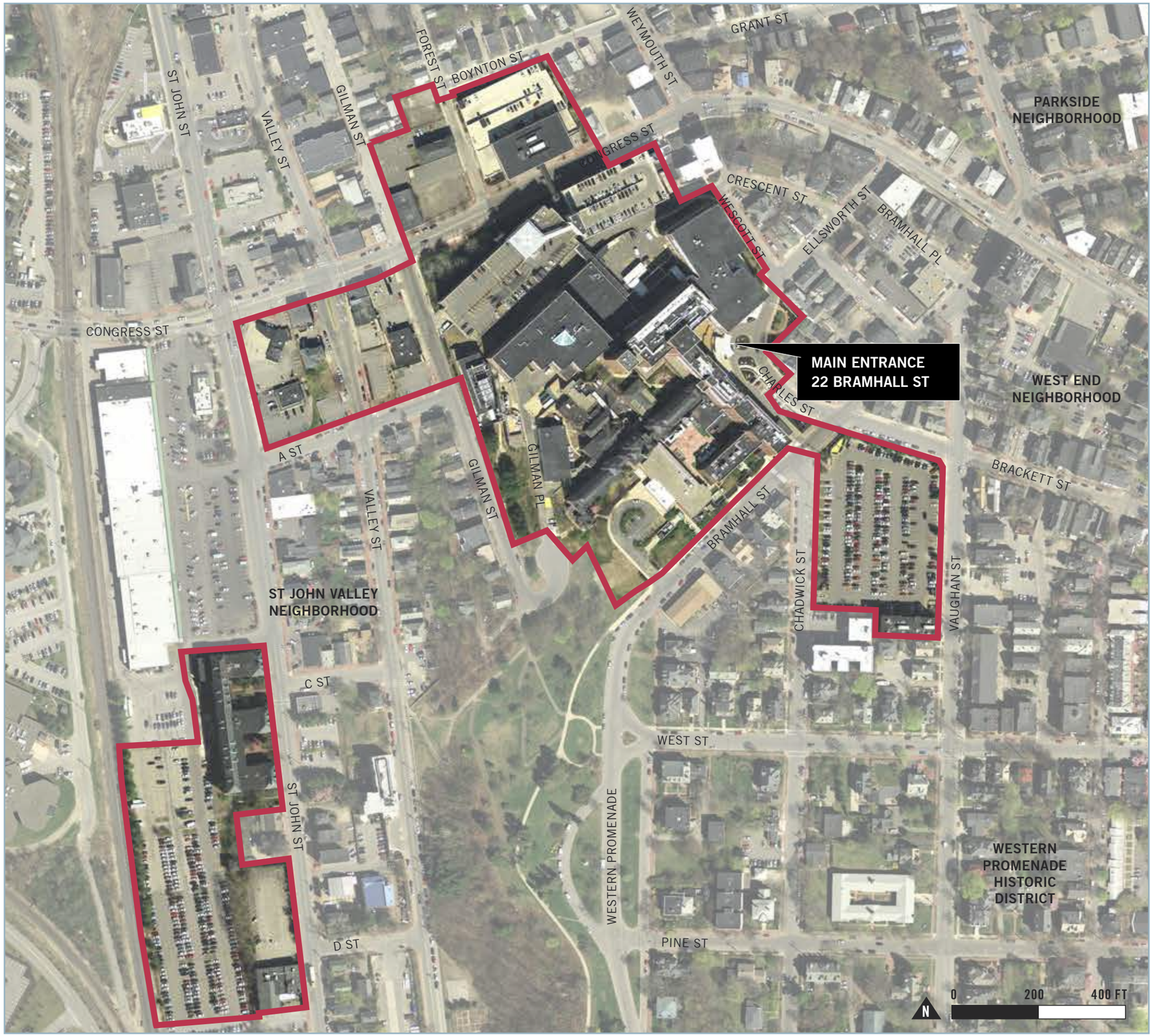
Maine Medical Center (MMC) is a complete health care resource for the people of greater Portland, the entire state of Maine, and northern New England. MMC is the state's largest medical center, licensed for 637 beds and employing more than 6,000 people.

On November 20, 2017, Portland City Council voted to approve MMC's application for a zoning amendment, creating the **MMC Institutional Overlay Zone (IOZ)** for the boundary shown at right. The regulatory framework for the IOZ, which was created with input from neighbors, City planning staff, and the general public, will enable MMC to modernize and expand its Bramhall St campus in harmony with surrounding neighborhoods and the Congress Street corridor.

Portland City Council subsequently approved the **MMC East Tower and Visitor Garage Vertical Expansion Project**. The Standard Conditions for the approval dated March 29, 2018 include the following requirement:

"*[…] the applicant shall develop a long term public Pedestrian Network Plan (both on and off the ROW) showing the integration of the upper level MMC campus with the Congress Street corridor, including measures to address CPTED principles, for implementation when the retail space beneath the Visitors Garage is available for lease or sale; such plan to be submitted for review and approval by the Planning Authority prior to the issuance of a building permit for the Congress Street Hospital Entrance;*"

This document was prepared for MMC by Perkins+Will with input from the City of Portland Planning Department to meet the Pedestrian Network Plan requirement cited above. It complements MMC's Institutional Development Plan (IDP), which was approved by the City of Portland Planning Board on September 26, 2017 and is available on the MMC website.



MMC INSTITUTIONAL OVERLAY ZONE (IOZ)

MMC Institutional Overlay Zone Boundary

Figure 2

Evolution of the MMC Bramhall Campus

MMC Bramhall campus occupies a steep hill that rises about 100 feet from Congress Street, Portland's main street, to Bramhall Street. It is nestled in Portland's historic urban fabric and a robust sidewalk network that connects the campus to its surroundings.

The original hospital building was sited facing the Western Promenade and the then emerging residential neighborhood abutting the park. The campus has maintained this orientation in its evolution into the state's largest medical center.

Since the 2000s, he campus has a main drop-off and pedestrian entrance at 22 Bramhall St that connects to Portland's robust network of public sidewalks. The sidewalk network connects pedestrians to multiple transit stops located within walking distance of the campus. A series of public corridors take patients and visitors from the main entrance to all clinical destinations on campus. Campus amenities such as the Impressions Cafe, the Pharmacy and the Gift Shop are also located along the public corridors (see "Figure 2" on page 4).

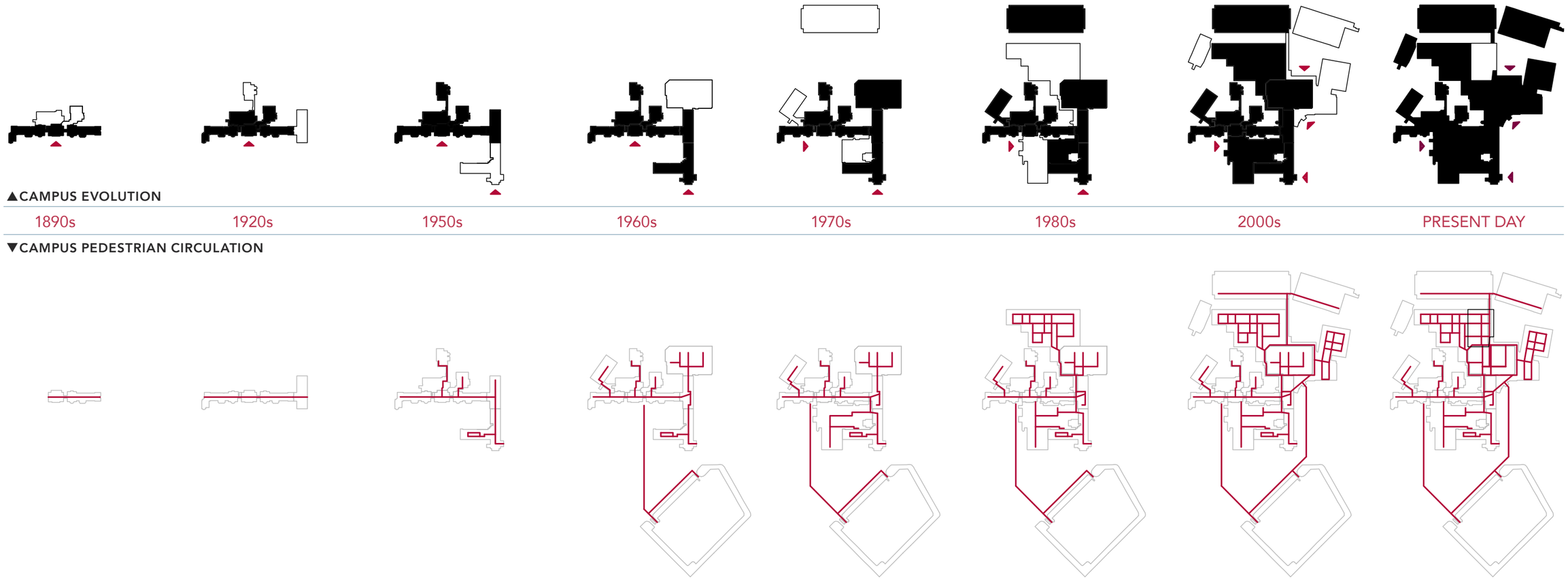
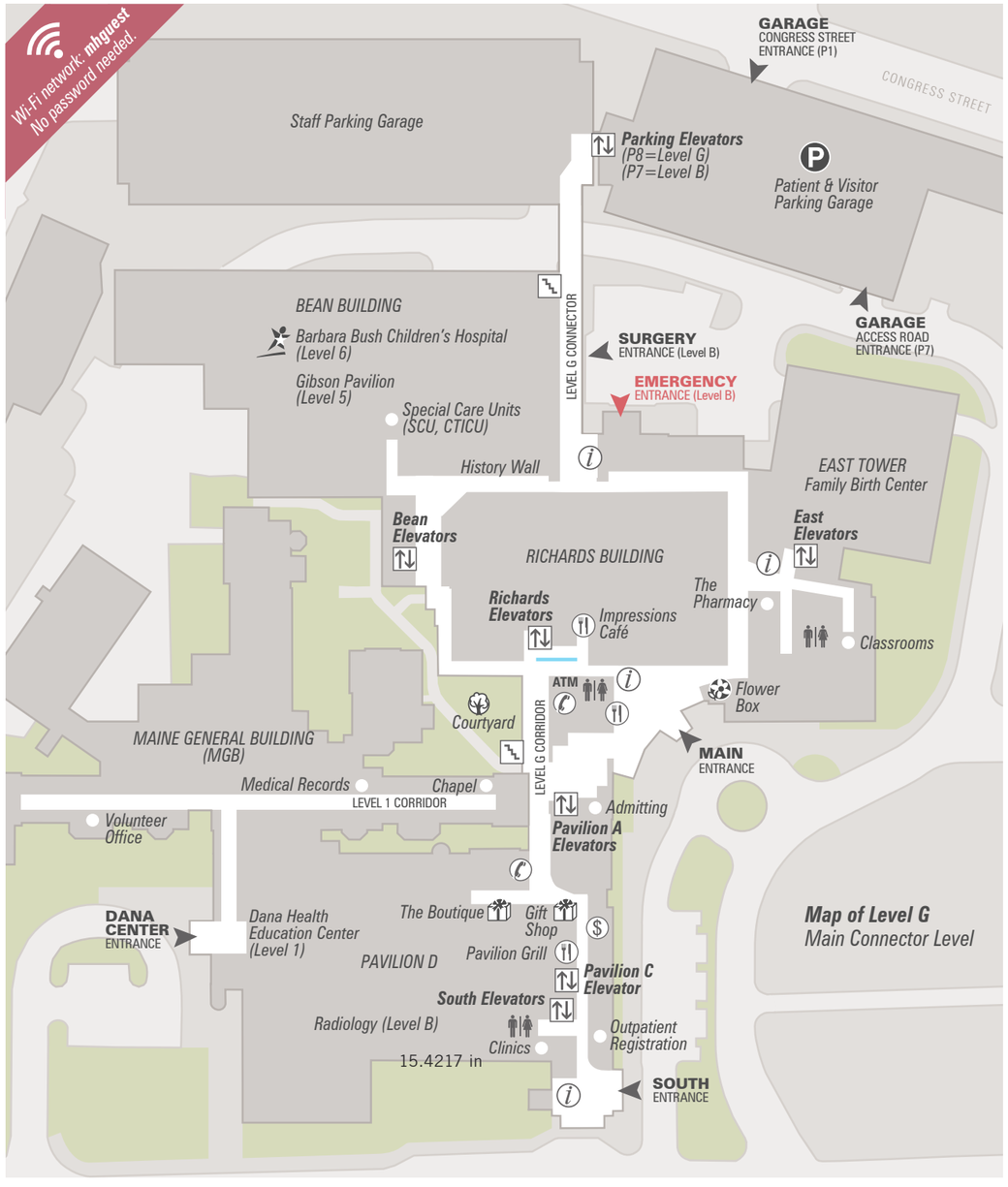


Figure 3

MMC Campus Pedestrian Circulation

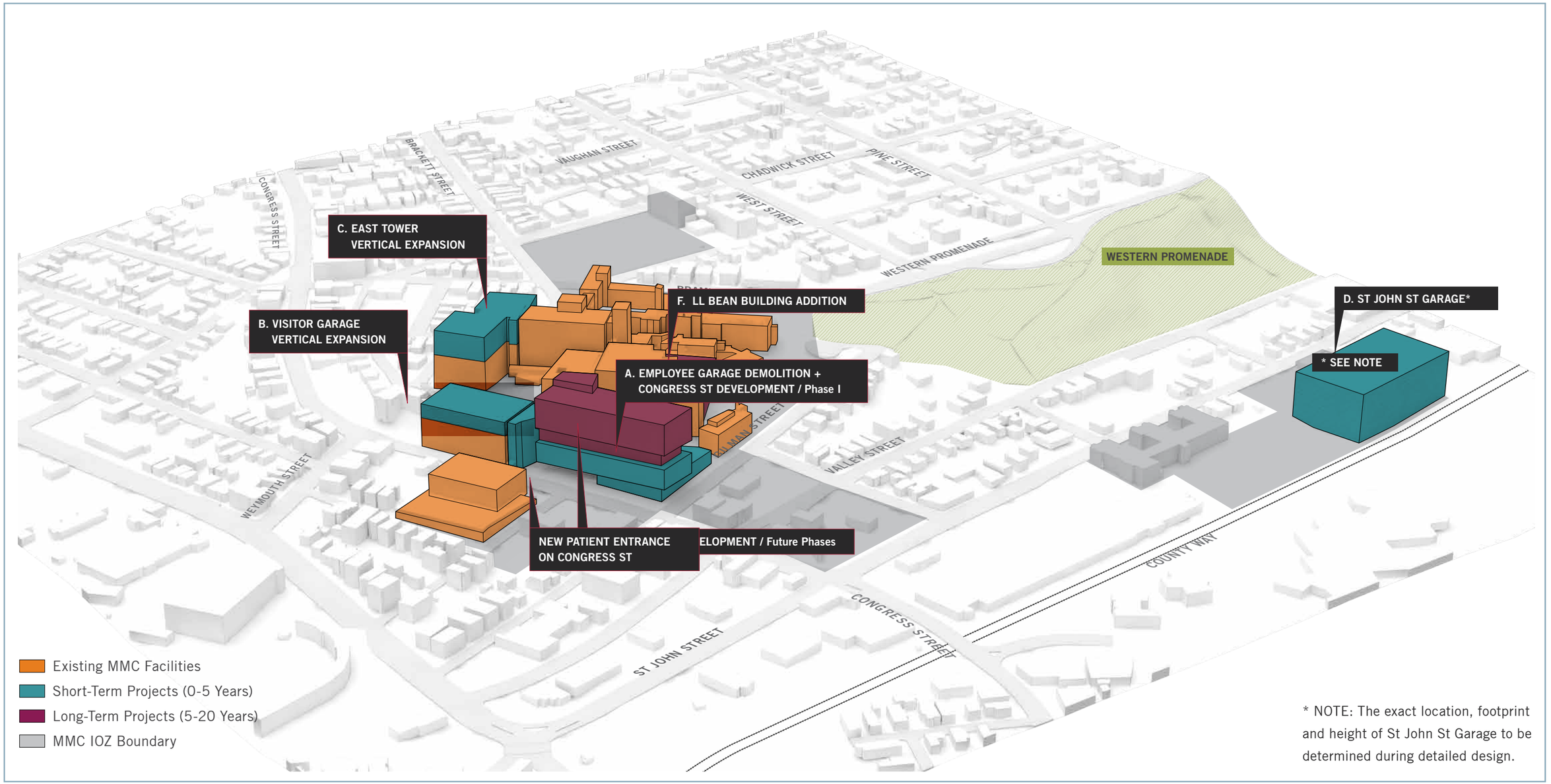


DESTINATION	LOCATION	LEVEL	NEAREST ELEVATOR
Admitting	Main Entrance	G	Richards
ATM *Cash Machine*	Main Entrance	G	Richards
Barbara Bush Children's Hospital	Bean	6	Bean
The Boutique	Pavilion A	G	South
Cafeteria *Impressions Café*	Richards	G	Richards
Cardiac Cath Lab	Richards	8	Richards
Cardiac Intensive Care Unit *CICU*	Richards	9	Richards
Cardiology	Richards	1, 7, 9	Richards
EKG/Echocardiography	Pavilion A	2	South
Ambulatory Cardiac Care Unit *ACCU*	Pavilion C	2	South
Cardiothoracic Intensive Care Unit *CTICU*	Bean	G	Bean
Cashier	Pavilion A	G	Pavilion A
Chapel/Prayer Room	Maine General Building	1	Pavilion A
Clinics	Pavilion D	G, 1, 2	South
OB/Gyn, Surgical, Pediatric Cardiovascular Specialty Clinic			
Continuing Care Nursery	East Tower	3	East
Dana Health Education Center	Dana Center	1	Pavilion A
Dialysis	Richards	5	Richards
Emergency	Richards	B	Richards
Endoscopy	Pavilion D	4	South
Family Birth Center	East Tower	G	East
Labor & Delivery/Recovery Mother-Baby Care			
Flower Box	Main Entrance	G	Richards
Gibson Pavilion	Bean	5	Bean
Gift Shop	Pavilion A	G	South
Joint Replacement Center	Bean	2	Bean
Laboratory	Pavilion A	G	South
Medical Records	Maine General Building	1	Pavilion A
Neonatal Intensive Care Unit *NICU*	East Tower	3	East
Outpatient Registration	South Entrance	G	Pavilion A
Pediatric Intensive Care Unit *PICU*	Bean	G	Bean
The Pharmacy	East Tower	G	East
Pavilion Grill	Pavilion A	G	South
Prenatal Care & Education	East Tower	G	East
Psychiatric Unit	Pavilion C	6	Pavilion C
Radiation Therapy	Radiology	B	South
Radiology	Radiology	B	South
X-Ray, CT Scan, MRI, Nuclear Medicine, Ultrasound, Pediatric Radiology			
Short Stay Unit *SSU*	Pavilion C	4	South
Special Care Units *SCU*	Bean	G	Bean
Surgery	Richards	B	Bean
Volunteer Services	Maine General Building	1	Pavilion A

Figure 4

MMC Bramhall Campus
Short and Long-Term Projects

(FROM MMC INSTITUTIONAL DEVELOPMENT PLAN, 2017)



* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

Figure 5

MMC Bramhall Campus
Short and Long-Term Projects

(FROM MMC INSTITUTIONAL DEVELOPMENT PLAN, 2017)

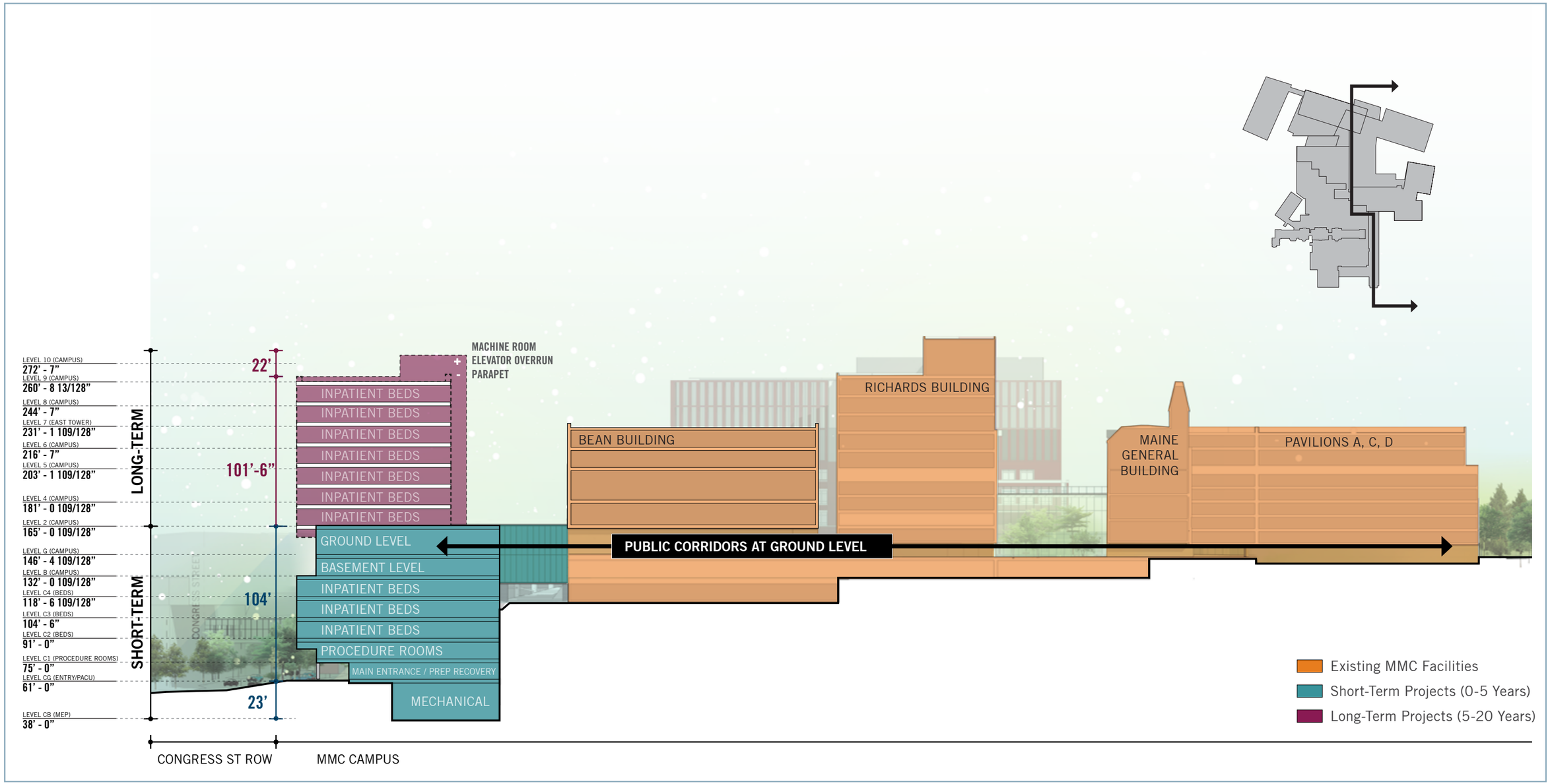
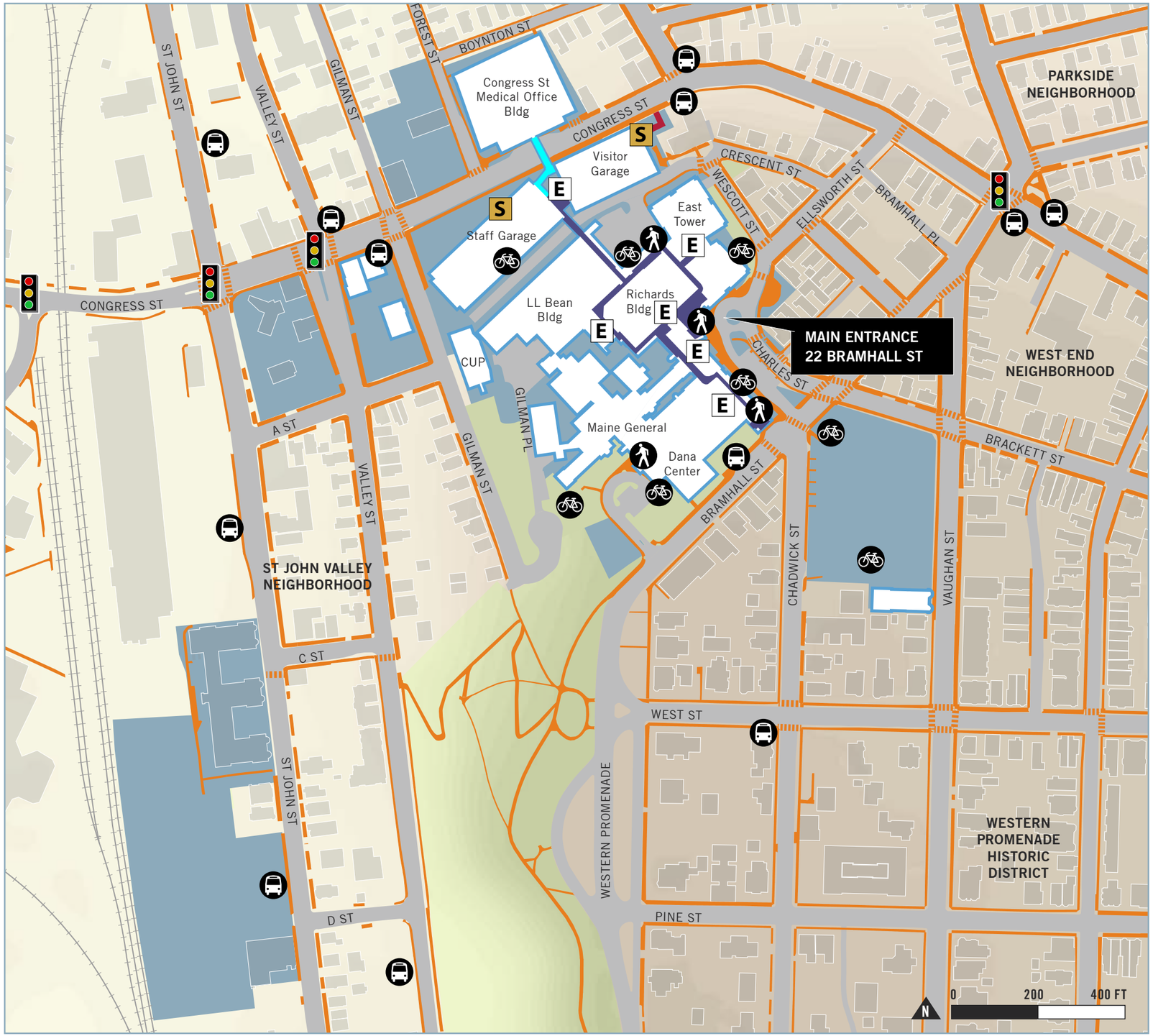


Figure 6

Existing Pedestrian Network

The MMC Bramhall campus straddles a steep hill that rises about 100 feet between Congress Street, Portland's main street, to Bramhall Street where the hospital's main entrance is located. A series of public corridors take patients and visitors from the main entrance to all clinical destinations and public amenities on campus. A pedestrian bridge carries the corridor over Crescent St to the Staff and Visitor Garages. From here, campus users can take the parking elevators to Level C2 to access a bridge across Congress St to reach the medical office building, or to Level CG to walk out to Congress Street. The stairwells that are connected to the Staff and Visitor Garages can also be used for egress onto Congress Street but are accessed by card or with key only*. Today, there are no official pedestrian entrances to the hospital complex along Congress Street.

** The Visitor Garage stairway was built in 2005 to provide public access between the MMC campus and Congress St, per requirement #16 of the 2005 Contract Zone Amendment. Due to chronic misuse of the stairway space, MMC installed security features that allow egress-only.*



PUBLIC PEDESTRIAN INFRASTRUCTURE

- Sidewalks and Pathways (from City of Portland GIS, 1/5/2018)
- Crosswalks
- Transit Stop
- Traffic-Light-Controlled Intersection

MAINE MEDICAL CENTER (MMC) PEDESTRIAN INFRASTRUCTURE

- MMC Campus Public Circulation, Ground Level
- MMC Campus Public Circulation, Level CG (Congress St)
- MMC Campus Public Circulation, Level CB (Staff Entrance)
- E MMC Public Elevators
- S MMC Stairway, Public Egress-Only
- MMC Bicycle Rack Locations
- MMC Public Pedestrian Entrances

MMC INSTITUTIONAL OVERLAY ZONE (IOZ)

- MMC IOZ Parcels
- MMC Buildings
- Non-MMC Buildings within MMC IOZ

Figure 7

Future Pedestrian Network

The MMC Campus Replacement and Modernization Project, which is described in the MMC Institutional Development Plan and illustrated in Figure 4 on page 6, will replace the existing Staff Garage with a new hospital building fronting Congress Street with a new drop-off and pedestrian entrance. Patients and visitors will be able to take elevators from the lobby area to the main public level of the hospital. The Visitor Garage stairway will remain egress-only per the current agreement between MMC, the City and neighbors. As part of this project, MMC proposes to improve the sidewalk between Gilman Street and the Visitor Garage and add a landscaped pedestrian space along the sidewalk that will moderate the 23 feet difference in grade between the new drop-off and Gilman St. A card-controlled staff entrance will be located at the corner of Congress and Gilman Sts. Sidewalk improvements and new crosswalks are also proposed for key routes between the proposed staff garage on St John St and the new staff entrance.

PUBLIC PEDESTRIAN INFRASTRUCTURE

- Sidewalks and Pathways (from City of Portland GIS, 1/5/2018)
- Proposed Sidewalk Improvements
- Existing Crosswalks / Proposed New Crosswalks
- Transit Stop / Traffic-Light-Controlled Intersection

MAINE MEDICAL CENTER (MMC) PEDESTRIAN INFRASTRUCTURE

- MMC Campus Public Circulation, Ground Level
- MMC Campus Public Circulation, Level CG (Congress St)
- MMC Campus Public Circulation, Level CB (Staff Entrance)
- E MMC Public Elevators / S MMC Stairway, Public Egress-Only
- MMC Bicycle Rack Locations
- MMC Public Pedestrian Entrances / MMC Staff Entrance

MMC INSTITUTIONAL OVERLAY ZONE (IOZ)

- MMC IOZ Parcels / MMC Buildings
- Non-MMC Buildings within MMC IOZ

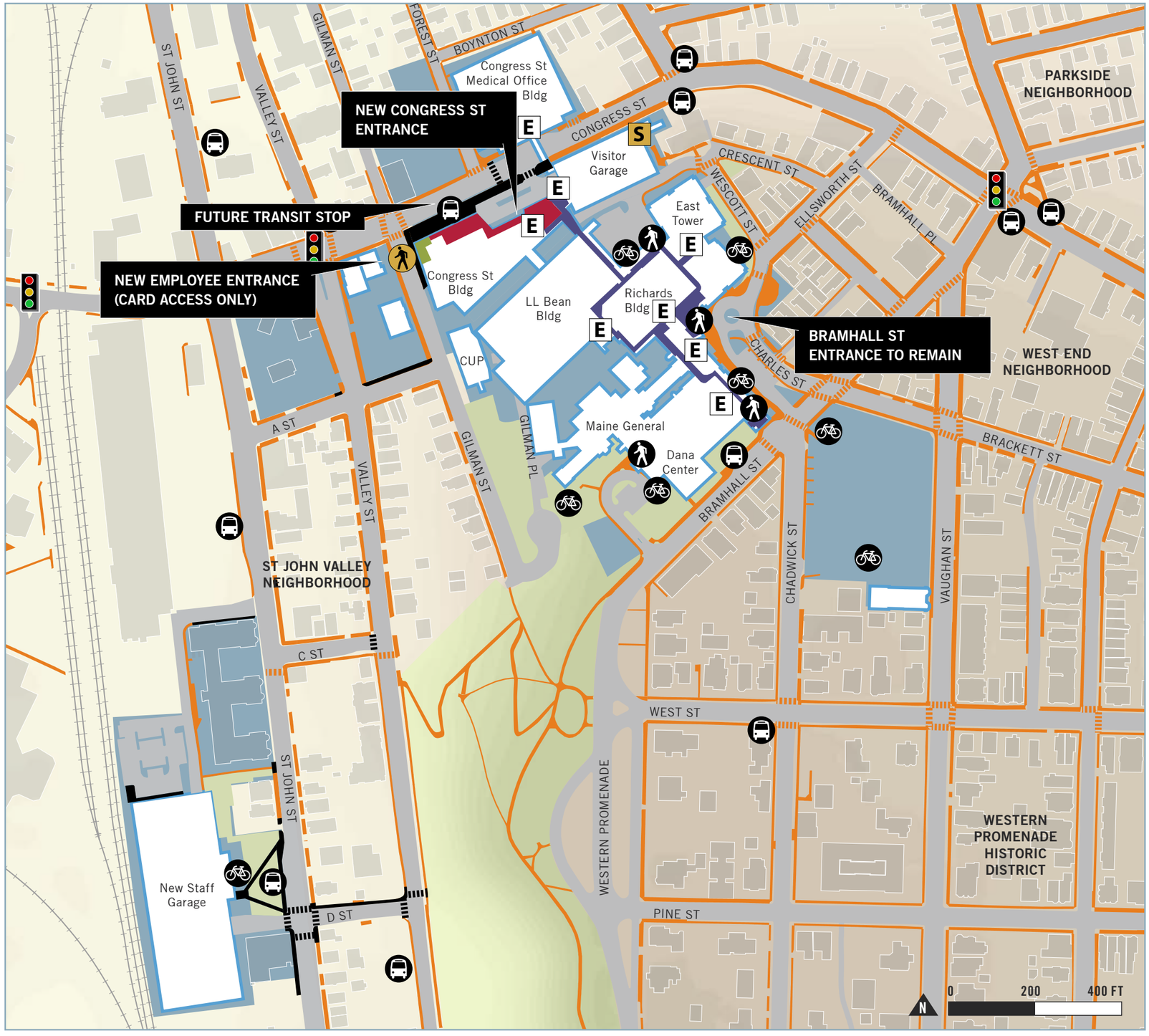


Figure 8

Proposed Pedestrian Improvements

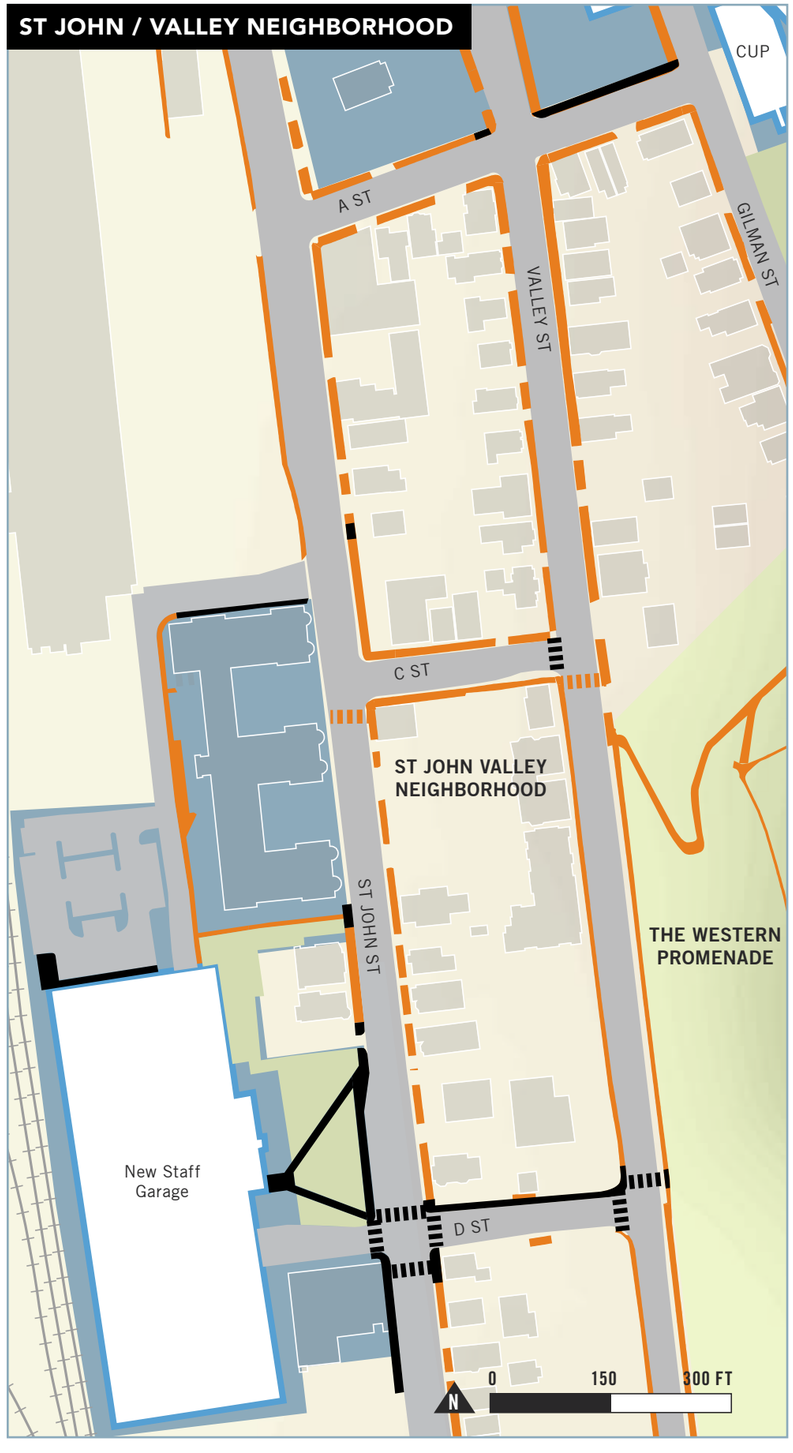
The following pedestrian and CPTED improvements are proposed as part of MMC's Campus Replacement and Modernization Project:

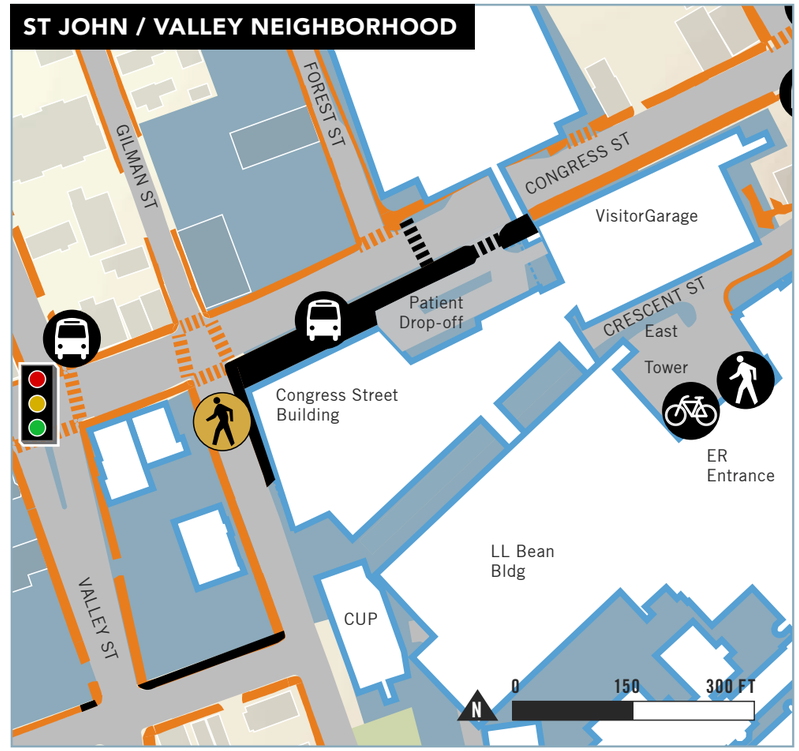
ST JOHN VALLEY NEIGHBORHOOD:

- New or repaired brick sidewalks and new standard crosswalks that meet the City of Portland Technical Standards:
  A, C, and D Streets, St John Street, and Valley Street (see Figure at right for specific locations)
- New pocket park between the Staff Garage and St John Street

CONGRESS STREET:

- New entrance provides public pedestrian connection between Congress Street and the main public floor of the uphill MMC campus
- New concrete sidewalk, as shown, in front of Congress Street Building and alongside its Gilman St facade
- Expanded sidewalk zone with pedestrian-friendly landscape moderating the grade difference between the drop-off plaza and Gilman Street
- New transit stop with shelter in front of the Congress St Building
- New Crosswalk on Congress at Forest Street
- New card-controlled staff entrance at the corner of Gilman Street





PUBLIC PEDESTRIAN INFRASTRUCTURE

- Sidewalks and Pathways (from City of Portland GIS, 1/5/2018)
- Proposed Sidewalk Improvements
- Existing Crosswalks
- Proposed New Crosswalks
- Transit Stop
- Traffic-Light-Controlled Intersection

MAINE MEDICAL CENTER (MMC)

- MMC Bicycle Rack Locations
- MMC Public Pedestrian Entrances
- MMC Controlled Staff Entrance
- MMC IOZ Parcels
- MMC Buildings
- Non-MMC Buildings within MMC IOZ

Figure 9

Crime Prevention Through Environmental Design (CPTED)

The MMC Campus Replacement and Modernization Project integrates best practices in CPTED to create a safe pedestrian environment along the campus edge. Key improvements include:

- The new pedestrian entrance on Congress Street provides a safe and secure public connection between Congress Street and the main public floor of the uphill MMC campus
- The new Congress St Building will increase pedestrian activity along Congress St. The sidewalk along the new building will be lit with pedestrian-oriented lighting meeting the City's Technical Standards.
- The englazed building lobby, which overlooks Congress Street, will provide "eyes on the street" and additional nighttime lighting for this zone
- Pedestrian improvements envisioned for the multiple routes between the Staff Garage and the Staff Entrance will be lit in accordance with City's Technical Standards
- Closure of the Visitor Garage stairway to public access from Congress Street addresses safety and security issues related to misuse of this space.

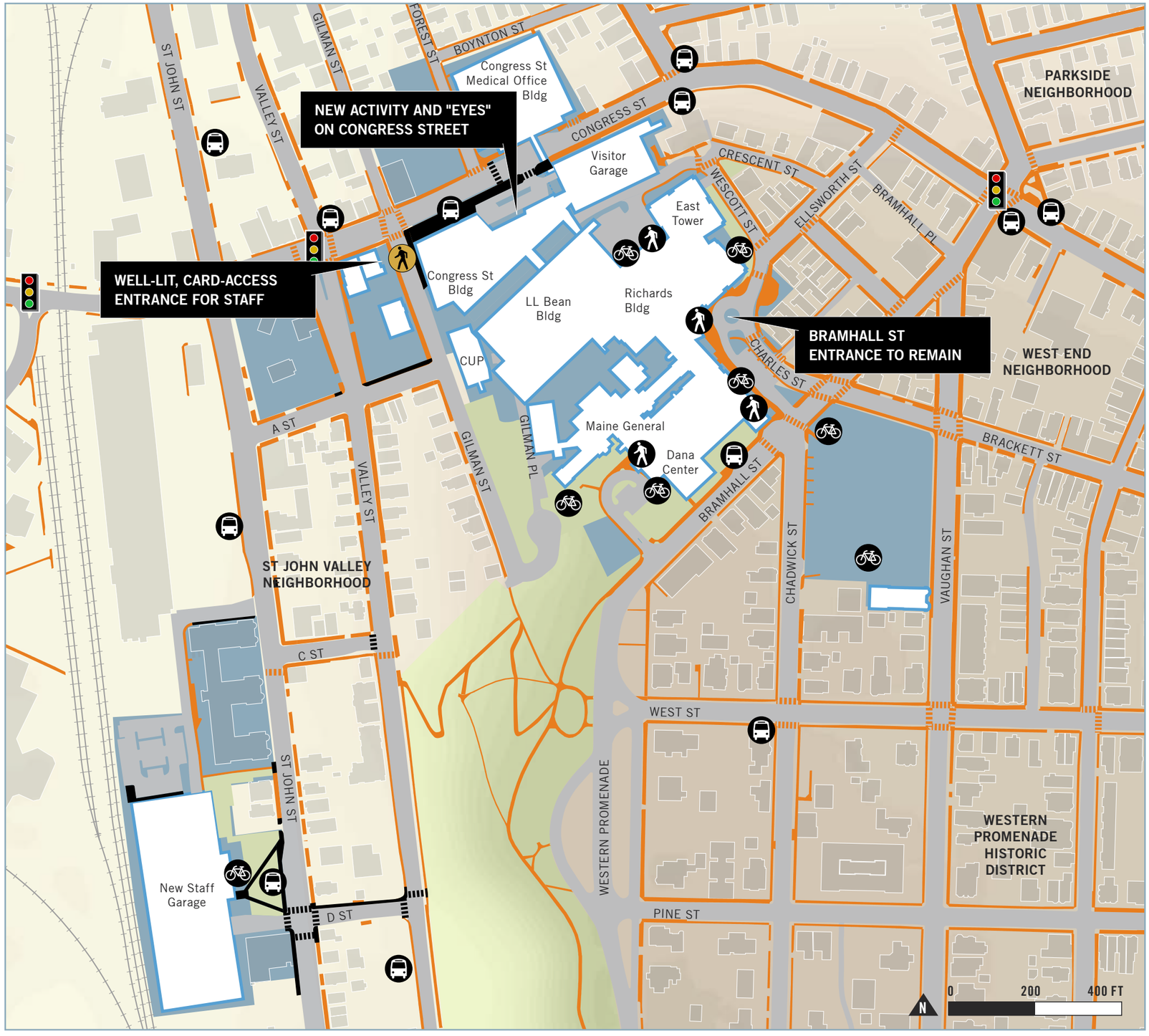


Figure 10

Sidewalk Materials

The MMC Institutional Overlay Zone (IOZ) and the surrounding area has a mix of sidewalk materials as surveyed by the City of Portland, and illustrated at right.

As indicated in the approved Institutional Development Plan, MMC may request waivers from the city's sidewalk material policy during site plan review in order to ensure safe pedestrian access to campus facilities.

MMC has identified the following sidewalk materials for public realm improvements included in its MMC Campus Replacement and Modernization Project :

- Brick sidewalks for proposed sidewalk improvement on A, C, and D Streets, St John Street, and Valley Street (See "Figure 8" on page 10 for locations)
- Concrete sidewalks in front of the future MMC Congress Street Building and alongside its Gilman St facade (See "Figure 8" on page 10 for locations)

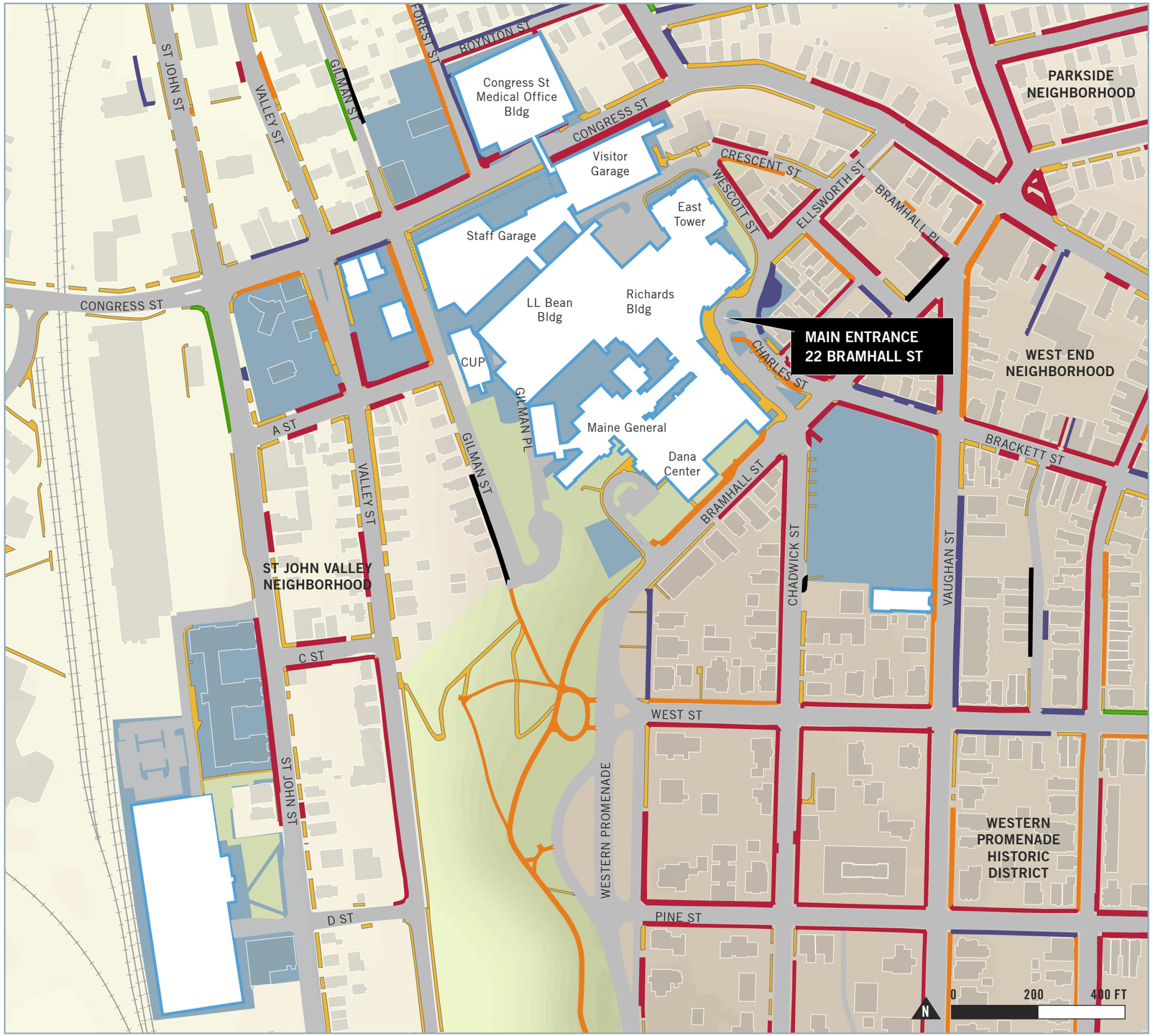
No additional changes are planned on campus sidewalks at this time.

SIDEWALK MATERIALS FROM CITY OF PORTLAND GIS

- Brick Sidewalks
- Brick-Concrete Sidewalks
- Concrete Sidewalks
- Asphalt-Brick Sidewalks
- Asphalt Sidewalks
- Other Sidewalks, no material listed

MAINE MEDICAL CENTER (MMC)

- MMC Bicycle Rack Locations
- MMC Public Pedestrian Entrances
- MMC Controlled Staff Entrance
- MMC IOZ Parcels
- MMC Buildings
- Non-MMC Buildings within MMC IOZ



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PERKINS+WILL

October 30, 2018

Maine Medical Center
MaineHealth

Nell Donaldson, Senior Planner
City of Portland Planning Division
389 Congress Street
Portland, ME 04101

Re: MMC Congress Building| 22 Bramhall St| Level III Site Plan
Response to City Reviewer Comments 1

Dear Nell:

Thank you for coordinating the review of the Maine Medical Center Congress Building project located at 22 Bramhall with frontage on Congress St.. This letter provides a summation of our responses to the comments received from various reviewers as part of the Level III Site Plan process. The original comment in italics below, and our response follows each.

Comments from Transportation Project Manager – Bruce Hyman Dated October 10, 2018

1. *In general - the plans as presented do not show enough context to readily assess them. The scale and extent of the area shown should be revised. The shading/hatching patterns should be modified so the plan is legible when shown in its entirety on a computer screen - it currently is not legible.*

Response: The Site Plan scale has been changed to 1"=20 feet, providing more context as requested.

2. *I don't believe, based on the grading plan submitted, (C40-01/02) that the curb ramps serving the mid-block crosswalk meet ADA in terms of cross-slope (2% max. cross-slope) nor that the area shown for the bus stop has a bus landing area that meets ADA. Please document the ADA analysis.*

Response: The existing grade of Congress Street is uniformly 5.5%, exceeding ADA requirements. It is not possible to provide ADA compliant cross slopes.

3. *The grading plan for Gilman St appears incomplete/not shown in its entirety. Please show the entire site.*

Response: Submitted grading plan encompasses the entire site.

4. *Site Plan: The site plans do not show enough context of the entirety of the street configuration in the vicinity of the site - I'd request that the applicant resubmit and provide 1"=20' plans instead of the 1"=10' site plan (and 1"=5' grading plans - requires 2 sheets)*
    a. *The site plan key identifies #14 as "Bus Stop" but the elevations show a bus shelter - there is not sufficient bus landing area (5'x8' minimum") provided if a bus shelter is intended (or unless the landing area includes a portion interior to the shelter as the landing area - which is not preferred)*
    b. *No bus stop or shelter location is shown on the north side of Congress St as has been discussed with the applicant - a paired bus stop is desired*
    c. *The tree wells do not meet city design standard - they 1) do not use radius curb and 2) do not show a section of raised granite tree well along the Congress St curb line and 3) are not of standard size.*
    d. *The proposed street layout is not shown on the plans - locations of on-street parking, travel lanes, climbing bike lane, etc.*
    e. *Required signs (bus stop, etc) are not shown on the plans*
    f. *Curb ramp modifications on the opposite side of Gilman and Congress Streets are to be shown to achieve ADA compliance*
    g. *The sidewalks are shown on both Congress and Gilman Streets as broom finish concrete - I do not currently support this without further documentation of the need to stray from our Sidewalk Material Policy*

b. *I need to further assess curb ramp design- for instance, there is not sufficient landing area for the curb ramp serving the mid-block crossing along the retaining wall - a 5' deep (measured perpendicular to the street) ramp landing area is required where a ramp meets vertical obstructions (not the usual 4')*

Response: Response pending further conversations with City plan reviewers.

5. *Design Details: I did not find details available for the proposed materials within the public ROW: lighting, sidewalk, curb ramps, detectable warning panels, tree wells, bus shelter (if proposed), etc.*

Response: Acknowledged – new materials being submitted.

Comments from City of Portland Planning Division – Nell Donaldson Received October 10, 2018

1. *Dimensional Requirements: Provide analysis with respect to dimensional requirements in the revised submittal.*

Response: A complete zoning assessment will be submitted separately.

2. *Design: Please provide floor plans in revised submittal.*

Response: Floor plans are submitted in the October 30, 2018 submittal.

3. *Construction Management:*
   a. *Please provide some discussion on attempts to minimize impacts to pedestrian circulation along the south side of Congress Street. Could sidewalk closure be limited to certain construction/demolition phases?*

      Response: A temporary sidewalk or bike lane is not recommended by the Construction team. The construction fence will need to be maintained in the location outlined in the CMP for the majority of the project. It will be possible to set the construction fence back after significant structural, site work, and material deliveries are complete. Turner estimates that these activities will be completed in the Fall of 2022.

   b. *Provide discussion on bike accessibility around the construction site.*

      Response: Share the road signs will be erected on Congress Street in each direction and Gilman Street prior to the roadway narrowing. These signs will remind drivers to be aware of bicyclists.

4. *Access and Circulation:*
   a. *Please provide a circulation plan showing how visitors and employees access the main entrance/employee entrance by different modes.*

      Response: Revised plans for the Congress St. entrance will include details of the pedestrian access and traffic controls to that will ensure pedestrian safety.

   b. *Further discussion on the street layout pending. At the least, a climbing bike lane should be shown on Congress Street.*

      Response: Traffic and transportation discussions are on-going with the City. The final cross section will be determined in coordination with City staff.

   c. *The Congress Street sidewalk should be widened as possible to provide better pedestrian access along the site frontage*

      Response: Traffic and transportation discussions are on-going with the City. The final cross section will be determined in coordination with City staff.

d. *A sidewalk material waiver request should be submitted. Pending review of this request, in places where sidewalk material is proposed to transition, details should be provided. Ideally, transitions would occur at curb cut locations.*

Response: A sidewalk material waiver request is included with the October 30, 2018 submittal. The concrete to brick transition has been relocated to the east, coinciding with an existing granite accent band in the sidewalk near the MMC visitor garage.

e. *A sidewalk waiver request should be submitted for the Gilman Street frontage.*

Response: A sidewalk waiver request for the Gilman frontage is included in the October 30, 2018 submittal.

f. *Provide more information on 'mechanical areaway' showing in the Gilman Street ROW. This appears to be a sidewalk obstruction?*

Response: This will be a flush sidewalk condition similar to image provided with a hatch. Areaway is to allow for equipment removals or replacements and used very rarely. Perkins & Will is exploring relocating the areaway so as not to interfere with the Gilman St. ROW.

g. *Confirm how a pedestrian coming from the west would access the front door on foot if stairs are not an option?*

Response: In addition to the stairs, pedestrians can access the Congress St entrance from the Eastern side of curb cut adjacent to pedestrian bridge across Congress St.. Revised plans for the Congress St. entrance will include details of the pedestrian access and traffic controls to that will ensure pedestrian safety.

5. *Public Transit Access:*
   a. *Plans have been forwarded to METRO for review. Further discussion of bus shelters and associated access improvements (including crosswalk and north side shelter) pending.*

Response: Metro expressed a desire to consolidate the North-bound and South-bound Gilman St. / Congress St. bus stop and the Weymouth St. / Congress St. bus stop to a location as close to the MMC Congress St. entrance as possible. Metro also desires a bus shelter designed to Metro standards. The City of Portland / METRO / and MMC are still discussing the opportunities and challenges of this consolidation. The location of the consolidated bus stop is related to the ongoing conversation about the Congress St. streetscape design.

b. *At the least, bus shelter as proposed lies in the middle of the pedestrian desire line. Please propose alternate location.*

Response: The bus shelter could be placed on MMC property which would require an agreement between MMC and the City of Portland. This is an ongoing conversation with the Metro, the City, and MMC.

6. *Parking:*
   a. *Bike racks should be provided at this entrance. Please indicate on revised plans.*

Response: Attached diagram for consideration. This coincides with LEED efforts as well. Thought is to use covered portion in garage that is not ideal for parking due to entrance of cars.

7. *Landscaping and Landscape Preservation:*
   a. *See comments from others forthcoming.*

Response: Waiting for comment.

b. Provide street trees on Gilman Street.

Response: Street trees on Gilman St may be interference with the planned employee shuttle drop-off. The design team is evaluating this now.

8. *Water Quality, Storm Water Management and Erosion Control:*
   a. See comments from others.

   Response: Acknowledged

9. *Public Safety and Fire Prevention:*
   a. See comments from others forthcoming.

   Response: Acknowledged

10. *Availability and Adequate Capacity of Public Utilities:*
    a. Utility plans are still under review.

    Response: Acknowledged

11. *Exterior Lighting:*
    a. Please provide light fixture cut sheets for all lights proposed.

    Response: Cut sheets will be uploaded to eplan.

    b. Photometric plan should show average and max illumination levels.

    Response: Revised Photometric Plans are included in the October 30, 2018 submittal.

    Signage and Wayfinding:

    c. Revised sign plan still under review.

    Response: Acknowledged. A revised sign plan will be submitted to the City based on a conversation with Nell Donaldson and Caitlin Cameron on October 25, 2018.

12. *Zoning Related Design Standards:*
    a. See comments from Others.

    Response: Acknowledged

13. *Other Submittals Required.*
    a. Utility capacity letters

    Response: Acknowledged

    b. Plan edits
        i. Rescale site plan at 1" = 20'
        ii. Include distances to property lines on site plan
        iii. Add height calculation from average grade on elevations
        iv. Plans need to be stamped by an engineer

Response: A complete zoning assessment will be submitted separately.

14. *RTI (Rights, Title or Interest)*
    a. *Encroachments (building and 'mechanical areaway') into Gilman ROW need further review.*

    Response: Acknowledged

15. *Other Permits/Reviews Required:*
    a. *Site Location of Development*

    Response: DEP documentation underway.

    b. *FAA*

    Response: MMC will be submitting the FAA permit request for the building. Turner will be submitting for the crane. We do not anticipate submitted the permit request or receiving approval prior to the end of calendar year 2018.

16. *Waivers:*
    a. *Please provide formal requests for sidewalk material waiver and waiver of sidewalk along Gilman Street.*

    Response: A sidewalk material waiver request is included with the October 30, 2018 submittal.

17. *Outstanding Items from Earlier Reviews:*
    a. *Pedestrian Network Plan (requirement of IDP, included as condition of approval on East Tower) - That the applicant shall develop a long term public Pedestrian Network Plan (both on and off the ROW) showing the integration of the upper level MMC campus with the Congress Street corridor, including measures to address CPTED principles, for implementation when the retail space beneath the Visitors Garage is available for lease or sale; such plan to be submitted for review and approval by the Planning Authority prior to the issuance of a building permit for the Congress Street Hospital Entrance").*

    Response: A Pedestrian Network Plan will be uploaded to eplan on October 30, 2018.

Comments from City of Portland Traffic Consultant – Tom Errico, TY Lin Dated October 10, 2018

1. *A Traffic Movement Permit Scoping meeting is scheduled for October 23, 2018 and accordingly no comments are provided regarding off-site traffic impacts at this time.*

Response: Acknowledged

2. *The Gilman Street non-tangent curb alignment is not acceptable. A straight curb is suggested. Gilman Street width dimensions shall be provided.*

Response: Plans will be revised in future submissions when the Congress St configuration is determined.

3. *The flared curb ramp near the main entrance vehicle driveway is not acceptable partly because it creates a narrow pedestrian accessible route. Also, the crosswalk location should be evaluated.*

Response: Plans will be revised.

4. *The provision of the City's preferred two ramp configuration at the Gilman Street corner should be investigated.*

Response: Plans will be revised.

5. *Bus stop location and accessibility should be evaluated.*

Response: Please refer to above comments about ADA accessibility.

6. *Shuttle pick up and drop off operations at the employee entrance on Gilman Street should be detailed.*

Response: Complete shuttle routes to and from the Gilman Street entrance are on file with the City of Portland as part of the St John St garage site plan review. Shuttles will approach the Gilman St employee entrance from the South and stop to unload and load. The length of time for unloading and loading will vary but are estimated to be less than 15 minutes. The design team is revisiting the exact stop locations so as not to interfere with the street trees on Gilman St. that the City requested.

7. *Vehicle drop-off/pick-up operations/management at the vehicle loop should be provided.*

Response: Vehicles entering the site at the patient drop-off / pick-up area will be directed right to travel around the loop. A median will be constructed at the site access to prevent drivers from directly accessing the visitor garage without going around the loop. As the vehicles complete their drop-off or pick-up, they will have the choice of going straight to exit onto Congress Street or turning right to enter the visitor garage. This design allows vehicle interconnection between the patient loop and visitor garage without recirculating onto Congress Street, which can further reduce congestion and increase safety. Vehicles wishing to park and not drop-off or pick-up can use the existing full movement access to the visitor garage onto Congress St..

There will be exterior signage and interior signage that supports the traffic flow described above. Exterior signs will differentiate the Congress St patient pick-up / drop-off from the existing patient and visitor garage entrance. Signs within the existing patient and visitor garage will direct exiting traffic and traffic intending to pick-up a patient. Signs within the circle drive will direct traffic intending to exit the site and traffic intending to enter the patient and visitor parking garage. In addition to signs supporting the traffic flow, traffic exiting the patient and visitor garage will have a stop sign to support safe pedestrian access to the building's entrance.

There is enough length within the entrance loop for approximately 11 vehicles to queue on-site without backing onto Congress Street. Traffic engineers observed the exiting entrance on Bramhall St to better understand the frequency and volume of queueing at a MMC entrance. Traffic engineers observed a maximum of 9 queued vehicles. The volume of patient pick-ups and drop-offs will be split between the existing entrance and the proposed new entrance in the future.

MMC intends to support the operations of the Congress St. entrance with valet service. Valet parking will improve the flow of the circular drive. In addition, valet attendants will assist individuals who do not wish to take advantage of the service by providing directions when needed.

At the October 23, 2018 Planning Board workshop, a planning board member commented that snow melters would be an excellent addition to the Congress St. entrance. MMC will be adding snow melters to this entrance.

MMC will continue to support the patient arrival experience by communicating with patients and their families in advance of scheduled appointments. These communications include details about the correct hospital entrance and parking location.

A detailed site plan will be submitted that clarifies these movements in addition to pedestrian access.

8. *Pick-up/Drop-off loop interaction with parking garage entrance is a concern and an analysis should be provided.*

Response: A detailed site plan will be submitted that clarifies these movements in addition to pedestrian access.

9. *General sidewalk width given future pedestrian demand on Congress Street seems inadequate.*

Response: Pending conversation with the City reviewers.

10. *Congress Street cross-section width should specifically be detailed. How will bikes, parking, bus, vehicles be accommodated*

Response: MMC is currently working with the City on alternative cross-sections for Congress Street along the site frontage that will balance the priorities identified for the area.

11. *Pedestrian movements across the parking garage entrance to the Main Entrance is a concern.*

Response: Revised plans for the Congress St. entrance will include details of the pedestrian access and traffic controls to that will ensure pedestrian safety.

12. *A sidewalk on Gilman Street to A Street should be explored or a waiver analysis should be provided.*

Response: A sidewalk waiver request is submitted for consideration by the Planning Board.

13. *I have briefly reviewed the Construction Management Plan and noted the following:*
    a. *Local truck routings should be clearly documented from each construction entrance.*

    Response: Truck delivery routes are outlined in CMP. Truck routes exiting the construction site are submitted separately on October 30, 2018.

    b. *Roadway widths shall be detailed.*

    Response: An amendment to the CMP is provided via eplan on October 30, 2018

    c. *Is a temporary protected sidewalk on Congress Street feasible (if not for the entire project – but during certain phases).*

    Response: A temporary sidewalk or bike lane is not recommended by the Construction team. The construction fence will need to be maintained in the location outlined in the CMP for the majority of the project. It will be possible to set the construction fence back after significant structural, site work, and material deliveries are complete. Turner estimates that these activities will be completed in the Fall of 2022.

    d. *How will METRO service be accommodated.*

    Response: Existing stops will not change during construction. Two-way traffic will be maintained on Congress St.

Comments from City of Portland Civil Engineering Consultant – Wright Pierce Dated October 10, 2018

1. *Level III Site Plan applications with the City of Portland must submit a stormwater plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules. This includes conformance with the Basic, General, and Flooding Standards (Ref: Technical Manual, Section 5. II. Applicability in Portland. C. a.; and Ref: City of Portland Code of Ordinances Sec. 14-526. Site Plan Standards, (b). 3. b.)*

a. *Basic Standard: Plans and application material should be provided to address erosion and sedimentation requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with MaineDEP Chapter 500, Appendix A, B, and C. The applicant has provided information that the project will be subject to the Basic Standard. The applicant has provided:*

   i. *An Erosion and Sedimentation Control Plan in Section 23 of the application. This item has been reviewed and accepted.*

      Response: Acknowledged

   ii. *Inspection and Maintenance information in Section 23 of the application. This item has been reviewed and accepted.*

      Response: Acknowledged

   iii. *Erosion and Sedimentation Control Details and Notes (C30-07). This item has been reviewed to indicate details for catch basin inlet protection. Given that there will be a level of disturbed surfaces, additional details should include temporary slope stabilization, construction entrances, perimeter erosion controls, dewatering, and other standard erosion and sedimentation details.*

      Response: Additional details including perimeter erosion controls and dewatering filter bags have been added to the plans the detail sheet C30-07. The location for erosion control measures have been added to the Demolition plan Sheet C04-01. Stabilized entrances are provided at the locations of the gated entrances identified on the Construction Management plan. As indicated in the Construction Management Plan, the majority of site disturbance will be internally drained, occurring below grade, behind temporary earth retention walls. Recommended locations for construction dewatering filter locations are indicated on Sheet C04-01.

   iv. *Location of Erosion and Sedimentation Control best practices were not observed on the Demolition Plan or Site Grading Plans. The applicant shall provide this information.*

      Response: The location of erosion and sedimentation control measures has been added to the Demolition plan Sheet C04-01. Stabilized entrances are provided at the locations of the gated entrances identified on the Construction Management plan. As indicated in the Construction Management Plan, the majority of site disturbance will be internally drained, occurring below grade, behind temporary earth retention walls. Recommended locations for construction dewatering filter bag locations are indicated on Sheet C04-01.

b. *General Standard: The applicant has provided information regarding the size and scope of the project indicating the project is subject to the Redevelopment Standard within the City of Portland. It is understood the City's redevelopment standard is more stringent than the Chapter 500 requirements for redevelopment. The City requirements indicate that greater than 50% of the proposed impervious surfaces must receive stormwater quality treatment pursuant to the MaineDEP Chapter 500 requirements. The applicant has provided information that greater than 50% of the facility impervious surfaces are conveyed to a Subsurface Sand Filter. The applicant shall clarify the following and provide responses:*

   i. *The applicant will be required to inspect, maintain, and report on the filter in accordance with the Chapter 32 stormwater requirements. The applicant has provided inspection, maintenance, and housekeeping information in Section 23 of the application. An executed stormwater maintenance agreement is required for the proposed stormwater treatment units.*

      Response: Noted, an executed agreement will be provided upon project approvals.

ii. *A 25% pre-treatment credit has been provided for the subsurface sand filters on Sheet 2 and Sheet 3 of the Underdrained Subsurface Sand Filter calculations. Under Chapter 500 Section 5 (a), Exemptions from the general standards, "The pre-treatment credit does not apply to subsurface underdrained filter structures using chambers." Please clarify how the 25% pretreatment credit is being applied to the proposed Subsurface Sand Filter in these calculations.*

Response: The pretreatment credit has been removed from the calculation sheet. The credit had only been applied to the water quality volume (WQv) calculation for the impervious area associated with the garage rooftop area. The credit reduced the total WQv for the system by about 550 cubic feet. The calculation is presented in the water quality calculations, sheet 3 of 3. A revised Stormwwater Management report dated 10/30/2018 is attached that incorporates the updated WQv calculations without pretreatment credits.

iii. *Please provide additional information on the "HIL" Unit at the existing parking garage, and how it conforms to the pretreatment credit.*

Response: The unit is a 6' diameter Hydro International Downstream Defender treatment unit designed and approved as part of the 2004 campus expansion Site Law approval by the City. The credit has been removed from the WQv calculations.

iv. *The MaineDEP Stormwater BMP manual indicates that, "The surface area of the filter must be no less than the sum of 5% of the impervious area and 2% of the landscaped area draining to the system.". The applicant has asked for a waiver of this principle to allow additional surface flows to be conveyed to the treatment system, as requested by the City. Whereas the magnitude of this difference may be modified as the pre-treatment calculations are revised, this waiver will be reviewed when the pre-treatment volumes have been revised.*

Response: The pretreatment credit was not applied to the surface area criteria. Although the system has been increased in size to meet the treatment volume criteria, a waiver remains required for the surface area criteria.

c. *Flooding Standard: The applicant has provided information indicating the project is required to meet the Flooding Standard of Chapter 500. The applicant has submitted the following:*
   - *Subcatchment Plans for Pre- and Post-Development*
   - *Hydrology computations of these conditions*
   - *Summary of Pre- and Post-Development Flow Rates*

   i. *HydroCAD outputs for the 2-year, 10-year, and 25-year, 24-hour storm events have been provided. The model indicates the post-development flow rates for the proposed project do not exceed flow rates for the pre-development condition.*

   Response: Acknowledged.

   ii. *"Subsurface Sandfilter Section" details match the HydroCAD model. Additional pipe invert, pipe length, and pipe size information on grading plans and details are needed to confirm that the HydroCAD model matches permitting plans.*

   Response: Plan sheet C30-01 has been revised to include additional structure labels. Structure tables and pipe tables with rim elevations, inverts, length and slope of all of the pipes and structures associated with the system are now included on both Sheet

C11-01 and Sheet C30-01. An outlet control structure detail has been added to sheet C30-04.

2. *Discharge to Combined Sewer Overflow (CSO) Locations*
   a. *The applicant has provided information for pre-development and post-development flow rates to the combined sewer system for a 1-inch, 24-hour rain event. This storm event has been mentioned in previous discussions with the applicant and City Department of Public Works (DPW). To ensure that all involved parties are in agreement with evaluating this storm event for the CSO location, please provide e-mail or other written confirmation from City DPW.*

   Response: A confirmation email has been requested from the Keith Gray.

   b. *The Pre-Development and Post-Development HydroCAD reports each indicate multiple inflows to Existing SMH-13952. In Table 2, it appears the pre-development flow rate accounts for only flows from Reach 172, and the post-development flow rate accounts for only flows from Reach 135. Please either provide discussion confirming how the pre- and post-development CSO storm events are represented by the model, or provide revised modeling indicating how the other flows to SMH-13952 are represented.*

   Response: The modeling is correct. Table 2 has been revised. The predevelopment flow at SMH-13952 with contributions from reach 172 and 135 is 1.61 cfs (not 1.34 cfs as initially reported).

   The post development flow at this location is correctly reported as 0.28 cfs which is due primarily to the offsite runoff in reach 135. In the post development condition the detention system reduces the peak flow from the campus at this location to only 0.04 cfs. Therefore the majority of runoff at this location during a 1" storm is from off site locations tributary to reach 135. A revised Table 2 is presented below and is included in the revised report dated 10/30/18. The revised results indicated slightly greater reduction in runoff at this location than previously reported

Table 2 CSO Event Summary Table

Study Point	1"- 24 Hour Type III Storm		
	Peak Runoff		
	Pre (cfs)	Post (cfs)	Diff. (cfs)
ESMH-13952	1.61	0.28	-1.33 (83%)

3. *Connection to Existing System:*
   a. *The applicant shall provide written or e-mail confirmation from the Department of Public Works that proposed connections to existing drainage and sewer systems are being completed in accordance with City of Portland Code of Ordinances section 14-526 (b) 3.a, subsection iii and iv.*

   Response: A confirmation email has been requested from the Keith Gray.

   b. *The applicant has indicated that capacity to serve letters from utilities will be provided as they become available.*

Response: Acknowledged. Capacity to serve letters from utilites will be provided as they are received.

4. *Proposed Drainage Design*
    a. *More information is needed to confirm the pipe capacity and inlet capacity is adequate for each structure and pipe length. Information has been provided in the HydroCAD model, but the information provided in the site grading plans is currently limited.*

Response: Plan sheet C30-01 has been revised to include additional structure labels. Structure tables and pipe tables with rim elevations, inverts, length and slope of all of the pipes and structures associated with the system are now included on both Sheet C11-01 and Sheet C30-01. An outlet control structure detail has been added to sheet C30-04.

    b. *Please provide spot grades or standard details confirming grading at curb and drainage structures.*

Response: Plan sheet C30-01 has been revised to include additional structure labels. Structure tables and pipe tables with rim elevations, inverts, length and slope of all of the pipes and structures associated with the system are now included on both Sheet C11-01 and Sheet C30-01. An outlet control structure detail has been added to sheet C30-04.

5. *Soils:*
    a. *Medium-intensity soil survey indicates Hollis-Windsor-Au Gres soils, but Hinkley soils were reported based on a geotechnical report. This geotechnical report was referenced in Section 23 but was not included as part of this section. Please provide this report, or citation of where the soils information is located in the application.*

Response: The current Natural Resource Conservation Service soil data, obtained from the NRCS web soil survey service indicates that the project area is comprised of Hinkley (HID, HIB) soils.

A copy of the soil survey map of the area is attached in the revised Stormwater management report and is depicted below. The Windsor-Au Gres soils in the vicinity of the MMC campus are located offsite to southwest, in the vicinity of St John Street and Park Street.

Soil Map—Cumberland County and Part of Oxford County, Maine
(Maine Medical Center area)

Map Scale: 1:10,400 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 150 300 600 900

Feet: 0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

b. *Soil groups should be referenced as "hydrologic soil group".*

Response: Noted. A misspelling has been corrected on page 3 of the revised report changing the word "hydraulic" to "hydrologic".

6. *Snow Storage:*
   a. *The applicant has noted in Section 16 of the application that snow storage will be completed through means of removal and off-site storage. No further action is necessary at this time.*

   Response: Acknowledged

7. *Details have been provided confirming the following storm drain infrastructure items that are in conformance with the City Standard Details and Technical Manual:*
   a. *Manhole Frame, Cover*
   b. *Catch Basin Frame, Grate*
   c. *Manhole, Manhole Steps*

   Response: Acknowledged

8. *A catch basin detail was included indicating a 2' sump. Catch basins require 3' sumps per City Technical Manual. Please revise.*

Response: The catch basin details have been revised to include a 3' deep sump.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

10/23 Planning Board Meeting - Maine Med Proposal

Karen Snyder <karsny@yahoo.com> Wed, Oct 24, 2018 at 11:53 AM
Reply-To: Karen Snyder <karsny@yahoo.com>
To: Helen Donaldson <hcd@portlandmaine.gov>, Planning Board <planningboard@portlandmaine.gov>
Cc: Jeff Tarling <jst@portlandmaine.gov>

Hi Nell,

I think the Maine Med latest proposal is definitely more respectful and considerate to the residential neighborhood around Maine Med. Thanks to Maine Med working with the neighborhood organization representatives to address the residents concerns.

I just have three topics to address:

1) Even though the proposed Maine Med building on Congress is beautiful, it is also kind of sterile looking, especially with that 5 story shear concrete or granite wall next to the entrance. If Maine native trees could be planted in the multiple plant beds in front of the building instead of some low shrubs, this will provide a more "green", healthy, and calming experience to the people entering the new building when walking up Congress. Also, it will give visitors a cool canopy in the summer when it is hot against all that large expanse of concrete/granite plaza area in front of the building and also winter interest if conifers are planted. If the designers want to emulate Maine's granite/forest nature, why not embrace it and actually plant Maine's native trees (everyone loves the birch tree and spruce/hemlock) in the planter beds against the backdrop of this building? I think it would make the building look more beautiful and inviting.

2) Can there be a official confirmation that residents will continue to have snow ban parking privileges at the visitor Congress St parking garage or the St. John parking garage? If so, how many reserved spots and where?

3) I was surprised to hear the 12 mature oak trees that are on the Maine Med property close to the parking garage will be replaced with a 8 medium sized street trees called the Honey Locust. Also, I was surprised to see this tree on Portland's recommended tree list since it is not even native to Maine and climate zone. In fact, from the Portland's Recommended Street Tree list, only 1 of Portland's recommended medium street trees are actually a native to Maine as shown below. However, the recommended large street trees are mostly native to Maine... except for the Catalpa and that junk tree, gingko biloba from China.

Can someone explain to me why City of Portland Parks department isn't using trees from the Maine Native tree list as recommended Portland street trees shown in below from Maine.gov and UMaine websites? A good example is that the non-native ginko needs to be removed from this tree list because the gingko street trees planted on Munjoy Hill are stunted and provide no shade coverage at all.

http://www.portlandmaine.gov/DocumentCenter/View/1765/Recommended-Tree-List?bidId=

Portland, ME Recommended Tree List

	Medium Size Trees 25'-45'	Native to Maine	Native
1	River Birch	No	Southeastern quarter of USA
2	American or European Hornbeam	Yes	Minnesota to Ontario east to Maine, South to Texas
3	Katsuratree	No	China and Japan
4	American Yellowood	No	Southeast restricted range: from eastern North Carolina to Oklahoma, southern Missouri and Indiana to south to central Alabama
5	Turkish Filbert	No	Southeast Europe to Western Asia
6	HoneyLocust	No	Central states, southeastern South Dakota to New Orleans
7	Tupelo	No	eastern North America from the coastal Northeast USA and southern Ontario south to central Florida and eastern Texas, as well as Mexico
8	Korean Mountain Ash	No	Korea, Japan, and China
	Large Size Trees 45' +	**Native to Maine**	**Native**
1	Red Maple	Yes	https://www.maine.gov/dacf/php/pesticides/yardscaping/plants/n_trees.htm
	Amstrong Red Maple	Yes	https://www.maine.gov/dacf/php/pesticides/yardscaping/plants/n_trees.htm
	Karpick & Bowhall Red Maple	Yes	https://www.maine.gov/dacf/php/pesticides/yardscaping/plants/n_trees.htm
	Redpointe/& Red Sunset Red Mapl	Yes	https://www.maine.gov/dacf/php/pesticides/yardscaping/plants/n_trees.htm
2	Sugar Maple	Yes	https://www.maine.gov/dacf/php/pesticides/yardscaping/plants/n_trees.htm
3	Catalpa	No	it is native to **southern and southeastern Illinois**,
4	Beech	Yes	https://www.maine.gov/dacf/php/pesticides/yardscaping/plants/n_trees.htm
5	Ginkgo Biloba	No	China
6	Tuliptree	Possibly	But not on the Maine.gov Native Tree List
7	Cucumber Magnolia	Possibly	But not on the Maine.gov Native Tree List

The native Maine trees are listed on UMaine and Maine.gov websites...

https://extension.umaine.edu/publications/2500e/

https://www.maine.gov/dacf/php/pesticides/yardscaping/plants/n_trees.htm

Regards,
Karen Snyder
Gilman St Property Owner

---

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1K

CONGRESS STREET
(FKA MAINE STREET)
76 FEET WIDE

CONGRESS STREET
(FKA MAINE STREET)
66 FEET WIDE

VALLEY STREET
(FORMERLY B STREET)

GILMAN STREET
60 FEET WIDE

A STREET

N/F
GLI REALTY CO.
7815/332

N/F
TPA ASSOCIATES
9335/26

N/F
TPA ASSOCIATES
9335/26

N/F
RBT.K JORDAN TRUSTEE
22902/156

EAST END CORP.
23397/308
1+ STORY BUILDING

EAST END HOLDINGS, LLC
PARCEL 1 OF
20289/341

EAST END HOLDINGS, LLC
PARCEL 2 OF
20289/341

EAST END HOLDINGS, LLC
PARCEL 3 OF
20289/341

EAST END HOLDINGS, LLC
PARCEL 4 OF
20289/341

2+ STORY RESTAURANT/HOUSE

FACE OF BUILDING ALONG CONGRESS STREET ENCROACHES INTO CONGRESS STREET RIGHT OF WAY UP TO APPROXIMATELY 0.26 FEET.

8" x 8" GRANITE MONUMENT IN HANDHOLE

8" x 8" GRANITE MONUMENT WITH BRASS PLUG #PLS2239

8" x 8" GRANITE MONUMENT WITH BRASS PLUG IN HANDHOLE

8" x 8" GRANITE MONUMENT WITH BRASS PLUG (HELD AS 3 FOOT OFFSET)

REMAINS OF CONC. WALL

BENCHMARK
BRASS PLUG IN 8" x 8" GRAN. MON.
ELEV=52.17'

BENCHMARK
TOP CENTER OF 6" X 6" GRAN. MON.
ELEV=41.78'

BENCHMARK
EASTERLY EDGE OF SEWER MANHOLE
RIMELEV=1063.57'

SEE NOTE 8
1" IRON PIPE FLUSH

SEE NOTE 7

1/2" DRILL HOLE

5/8" REBAR 1" HIGH

5/8" REBAR FLUSH W/ WORN ALUMN. CAP

6" x 6" GRANITE MONUMENT FLUSH

S63°11'56"W 181.65'

66.00'

76.00'

MAINE MEDICAL CENTER

COMMUNICATION BOX ON CONC. PAD

GRANITE BENCH/RETAINING WALL

COLUMNS (TYPICAL) SECOND FLOOR THIRD FLOOR

WOOD GUARDRAIL

CONC. PAD

ELEVATOR

TRANSFORMER PAD

METAL BULKHEAD

A/C UNIT

OVERHANG

REMAINS OF OLD CONCRETE CENTER BLOCK WALL

CONC. ENTRANCE/EXIT TO PARKING GARAGE

PARKING GARAGE

HELIPAD

STAIRWAY

CRUSHED STONE

CONC. RETAINING WALL

MAINE MEDICAL CENTER

CENTRAL UTILITY PLANT

BOLLARD (TYPICAL)

GRAVEL AREA

GRAVEL DRIVE

GRAVEL PARKING

PAVED PARKING

MISC. LANDSCAPE

SHEET 3

SHEET 4

SHEET 5

SHEET 6

GRID

GRAPHIC SCALE 1 INCH = 20 FEET

NOTES

1. SEE SHEET 2 FOR GENERAL NOTES.

STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

REV.	BY:	DATE:	STATUS:
A	MWE	12/23/09	SUBMITTED FOR CLIENT REVIEW
B	MWE	12/14/17	SUBMITTED FOR CITY REVIEW

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 1A
South Portland, ME 04106
Tel: 207-200-2100
250 Goddard Rd. - Suite B
Lewiston, ME 04240
Tel: 207-783-9858

PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

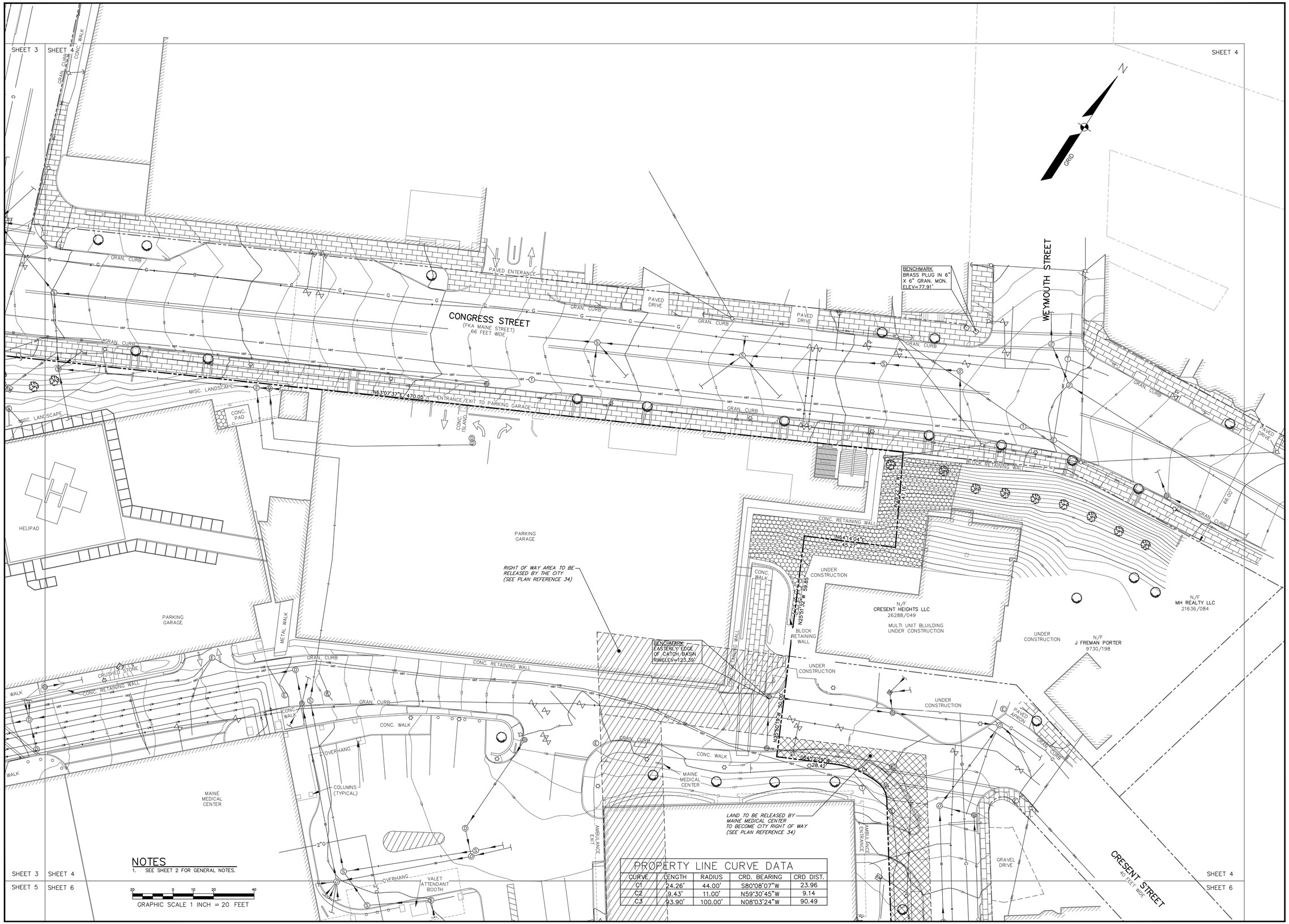
EXISTING CONDITIONS SURVEY
OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST, CONGRESS ST, BRAMHALL ST, ET AL
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	1"=20'

SHEET 3 OF 8

01046-EC-2017.dwg, TAB:ECO3



NOTES

1. SEE SHEET 2 FOR GENERAL NOTES.

GRAPHIC SCALE 1 INCH = 20 FEET

PROPERTY LINE CURVE DATA

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD DIST.
C1	24.26'	44.00'	S80°08'07"W	23.96
C2	9.43'	11.00'	N59°30'45"W	9.14
C3	93.90'	100.00'	N08°03'24"W	90.49

STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

REV:	BY:	DATE:	STATUS:
B	MWE	12/14/17	SUBMITTED FOR CITY REVIEW
A	MWE	12/23/09	SUBMITTED FOR CLIENT REVIEW

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Tel. 207-200-2100
250 Goddard Rd. - Suite B
Lewiston, ME 04240
Tel. 207-783-5656

PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

EXISTING CONDITIONS SURVEY

OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST, CONGRESS ST, BRAMHALL ST, ET.AL
PORTLAND, MAINE

FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

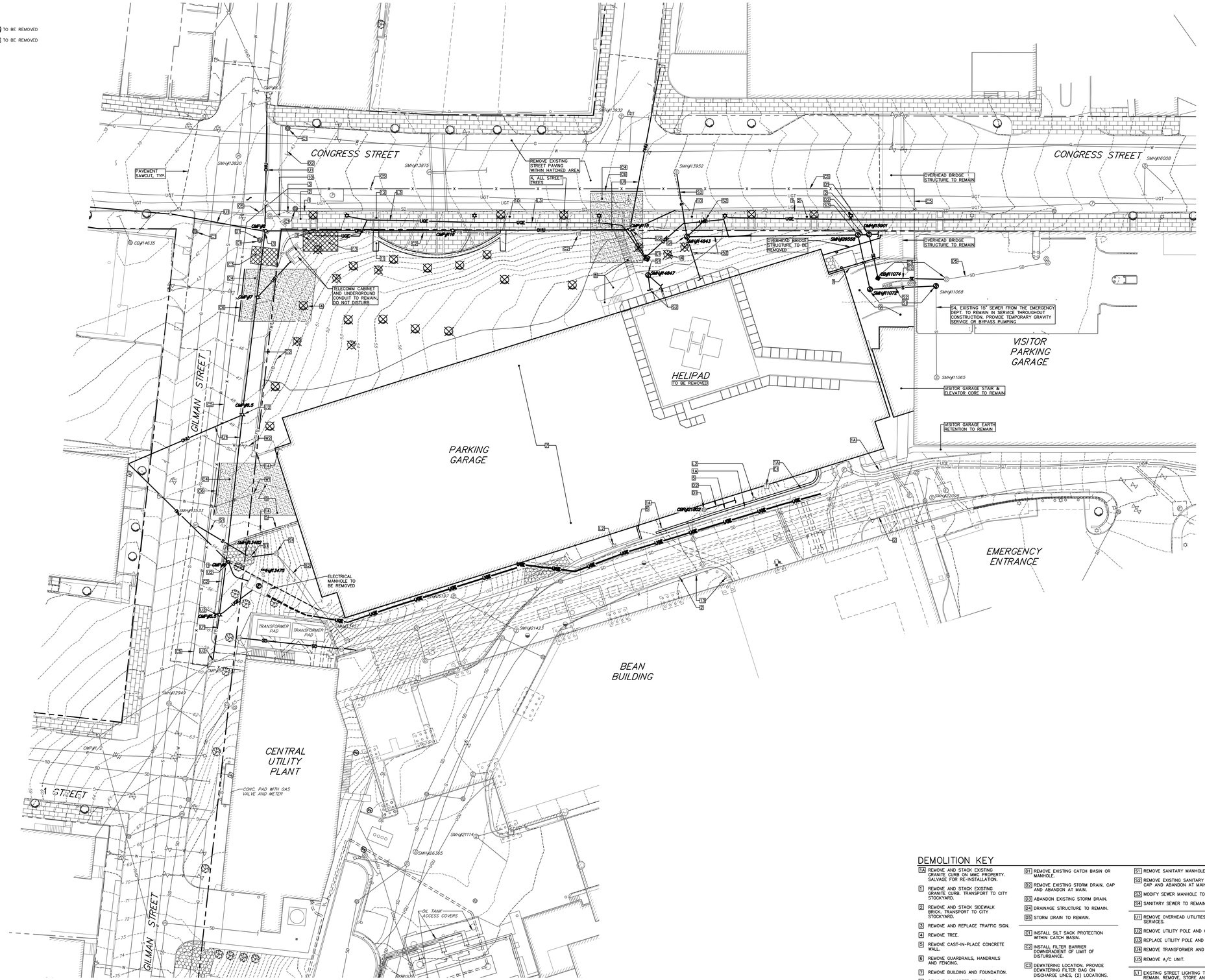
DATE	SCALE
10/23/09	1"=20'

SHEET 4 OF 8

01046-EC-2017.dwg, TAB:EC04

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	BUILDING	
	EDGE PAVEMENT	
	PAVEMENT SAWCUT	
	EDGE CONCRETE	
	CURB LINE	
420 118	CONTOURS	
x120.00	SPOT GRADE	
	RETAINING WALL	
	DECIDUOUS TREE	TO BE REMOVED
	CONIFEROUS TREE	TO BE REMOVED
	SIGN	
G	GAS	
	GAS GATE VALVE	
	GAS METER	
	GAS MANHOLE	
W	WATER	
	WATER GATE VALVE	
	WATER SHUT OFF	
	HYDRANT	
	WATER MANHOLE	
S	SANITARY SEWER	
	SANITARY MANHOLE	
SD	STORM DRAIN	
UD	UNDER DRAIN	
	DRAINAGE MANHOLE	
	CATCH BASIN	
OHU	OVERHEAD UTILITY	
UGU	UNDERGROUND UTILITY	
	TRANSFORMER PAD	
	ELECTRICAL MANHOLE	
	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	
	RIPRAP	
	INLET PROTECTION	



DEMOLITION KEY

- 1A REMOVE AND STACK EXISTING GRANITE CURB ON MMC PROPERTY. SALVAGE FOR RE-INSTALLATION.
- 1 REMOVE AND STACK EXISTING GRANITE CURB. TRANSPORT TO CITY STOCKYARD.
- 2 REMOVE AND STACK SIDEWALK BRICK. TRANSPORT TO CITY STOCKYARD.
- 3 REMOVE AND REPLACE TRAFFIC SIGN.
- 4 REMOVE TREE.
- 5 REMOVE CAST-IN-PLACE CONCRETE WALL.
- 6 REMOVE GUARDRAILS, HANDRAILS AND FENCING.
- 7 REMOVE BUILDING AND FOUNDATION.
- 8 REMOVE CONCRETE STAIRS AND FOOTINGS.
- 9 REMOVE PAVEMENT AND CURBING.
- 10 REMOVE CONCRETE SIDEWALK.
- 11 REMOVE AND STACK GRANITE SEAT WALL BLOCKS.
- 12 REMOVE AND STACK GRANITE PAVERS AT TREE WELLS AND SIDEWALK.
- 13 REMOVE BOLLARDS.

- D1 REMOVE EXISTING CATCH BASIN OR MANHOLE.
- D2 REMOVE EXISTING STORM DRAIN. CAP AND ABANDON AT MAIN.
- D3 ABANDON EXISTING STORM DRAIN.
- D4 DRAINAGE STRUCTURE TO REMAIN.
- D5 STORM DRAIN TO REMAIN.

- C1 INSTALL SILT SACK PROTECTION WITHIN CATCH BASIN.
- C2 INSTALL FILTER BARRIER DOWNGRADIENT OF LIMIT OF DISTURBANCE.
- C3 DEWATERING LOCATION. PROVIDE DEWATERING FILTER BAG ON DISCHARGE LINES, (2) LOCATIONS.
- C4 STABILIZED CONSTRUCTION ENTRANCE, (3) LOCATIONS.
- C5 INSTALL TEMPORARY FENCING. SEE CONSTRUCTION MANAGEMENT PLAN, TYP., GILMAN AND CONGRESS ST.
- C6 30' ROLLING GATE, TYP. (3) LOCATIONS. SEE CONSTRUCTION MANAGEMENT PLAN.

- W1 RETIRE EXISTING 6" FIRE SERVICE.
- W2 RETIRE EXISTING 1" DOMESTIC SERVICE.

- S1 REMOVE SANITARY MANHOLE.
- S2 REMOVE EXISTING SANITARY SEWER. CAP AND ABANDON AT MAIN.
- S3 MODIFY SEWER MANHOLE TO REMAIN
- S4 SANITARY SEWER TO REMAIN.

- U1 REMOVE OVERHEAD UTILITIES AND SERVICES.
- U2 REMOVE UTILITY POLE AND GUY.
- U3 REPLACE UTILITY POLE AND GUY.
- U4 REMOVE TRANSFORMER AND PAD.
- U5 REMOVE A/C UNIT.

- L1 EXISTING STREET LIGHTING TO REMAIN. REMOVE, STORE AND RESET AS REQUIRED FOR NEW CONSTRUCTION.
- L2 REMOVE STREET LIGHT AND BASE.
- L3 UNDERGROUND LIGHTING CONDUIT TO REMAIN.

- E1 REMOVE & REPLACE ELECTRICAL METER AND SERVICE FOR STREET LIGHTING.
- E2 REMOVE ELECTRICAL/TELECOMM SERVICE ENTRANCES.
- E3 REMOVE ELECTRICAL MANHOLE.
- E4 REMOVE ELECTRICAL DUCT BANK TO CUT IN LOCATION. SEE SHEET C11-01.

GRAPHIC SCALE
(IN FEET)
1 INCH = 20 FT.

PERKINS + WILL
225 Franklin Street, Suite 1100
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f 617.478.0321
www.perkinswill.com

CLIENT

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MaineHealth

Maine Medical Center
22 Bramhall Street
Portland, ME 04102

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Sebago Technics Inc.
75 John Roberts Road, Suite 1A,
South Portland, ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

CONSTRUCTION MANAGER
TURNER CONSTRUCTION
2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
VDA (Van Deusen & Associates)
101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

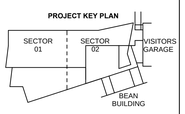
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE — DANIEL L. RILEY — No. 9999 — REGISTERED PROFESSIONAL ENGINEER — 10/30/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
3 - VISITOR GARAGE
4 - EAST TOWER
5 - CENTRAL UTILITY PLANT
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING

TRUE NORTH

CITY SUBMITTAL NO. 2
OCTOBER 30, 2018

NO	ISSUE	DATE
2	CITY SUBMITTAL	10/30/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE

DEMOLITION PLAN CONGRESS STREET EXPANSION

SHEET NUMBER

C04-01

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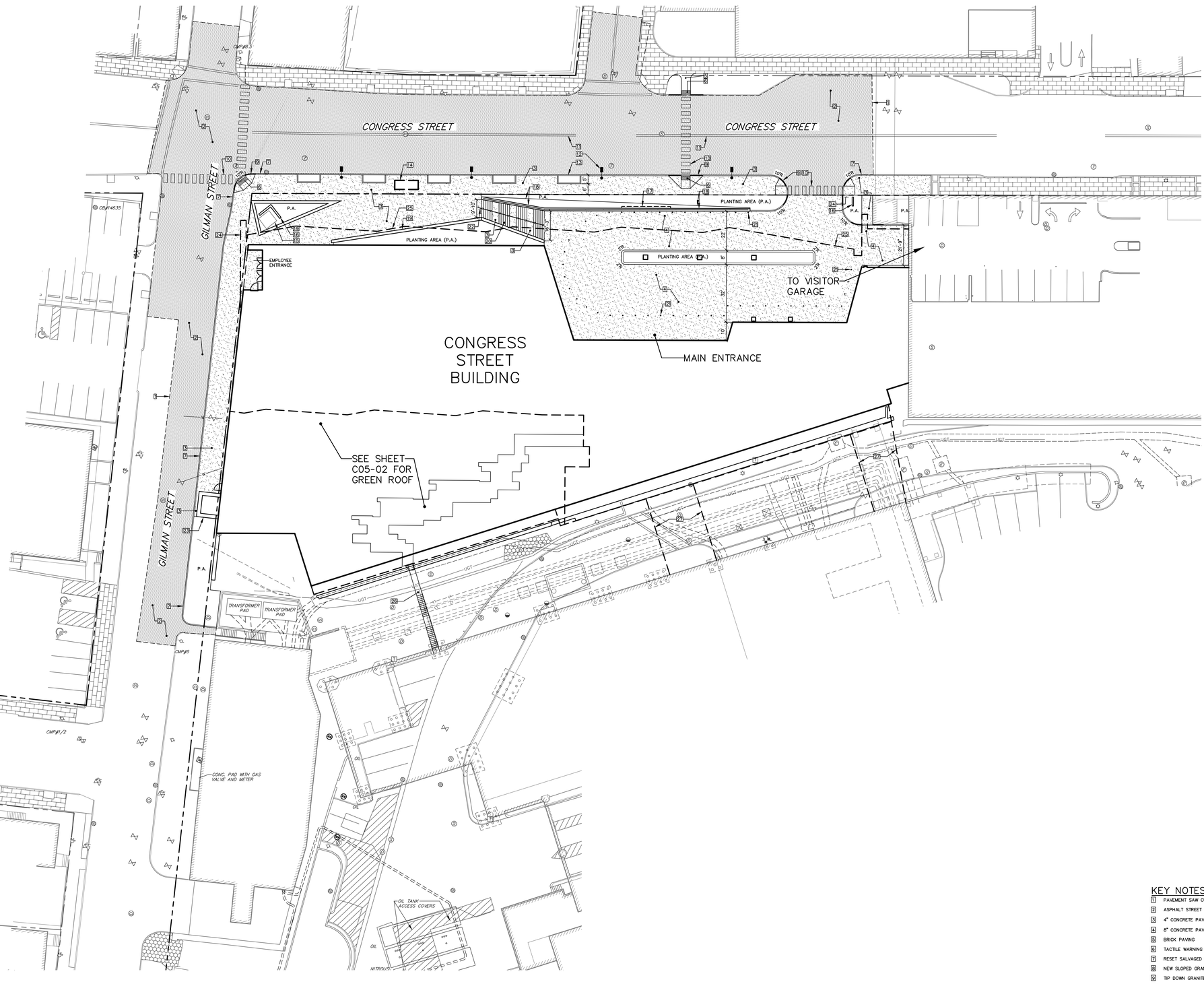
152189DMO.dwg, TAB: CONGRESS

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	BUILDING	
	EDGE PAVEMENT	
	PAVEMENT SAWCUT	
	EDGE CONCRETE	
	CURB LINE	
	SIGN	
	GAS GATE VALVE	
	GAS METER	
G	GAS MANHOLE	
	WATER GATE VALVE	
	WATER SHUT OFF	
	HYDRANT	
W	WATER MANHOLE	
S	SANITARY MANHOLE	
D	DRAINAGE MANHOLE	
	CATCH BASIN	
T	TRANSFORMER PAD	
E	ELECTRICAL MANHOLE	
T	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	



KEY NOTES

1. PAVEMENT SAW CUT
2. ASPHALT STREET PAVING
3. 4" CONCRETE PAVING
4. 8" CONCRETE PAVING
5. BRICK PAVING
6. TACTILE WARNING PLATES 2 FT. X 6 FT.
7. RESET SALVAGED GRANITE CURB
8. NEW SLOPED GRANITE CURB
9. TIP DOWN GRANITE CURB
10. 24" SOLID WHITE PAINT BARS, 5 FT. WIDE, SPACED 24" APART
11. (2) 4" SOLID YELLOW PAINT LINES
12. NEW STREET LIGHT - SEE SITE ELECTRICAL PLAN
13. 5 FT. X 13 FT, TREE WELL - GRANITE CURB SET 6" ABOVE SIDEWALK
14. METRO BUS STOP LOCATION
15. EXISTING TELEPHONE VAULT TO REMAIN
16. MMC DIRECTIONAL SIGN - SEE SIGNAGE PLAN
17. MMC PRIMARY SIGN ON BATTER WALL - SEE SIGNAGE PLAN
18. BATTER RETAINING WALL
19. 18" SEAT WALL
20. GRANITE STAIR - 5 RISERS PER FLIGHT
21. STAINLESS STEEL BOLLARD
22. STAINLESS STEEL HANDRAIL
23. MECHANICAL AREAWAY - SEE ARCHITECTURAL PLANS
24. STOP SIGN
25. BUILDING CANOPY
26. EGRESS STAIR - SEE PERKINS + WILL PLANS
27. BRIDGE CONNECTOR - SEE PERKINS + WILL PLANS

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CLIENT

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MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

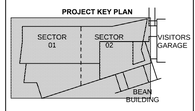
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L RILEY
No. 9999
REGISTERED PROFESSIONAL ENGINEER
10/30/18

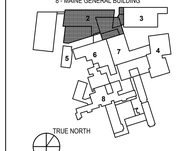
KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
3 - VISITOR GARAGE
4 - EAST TOWER
5 - CENTRAL UTILITY PLANT
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING



CITY SUBMITTAL NO. 2
OCTOBER 30, 2018

NO	ISSUE	DATE
2	CITY SUBMITTAL	10/30/2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	DLR

TITLE
SITE PLAN
MAIN ENTRANCE
CONGRESS STREET EXPANSION

SHEET NUMBER

C05-01

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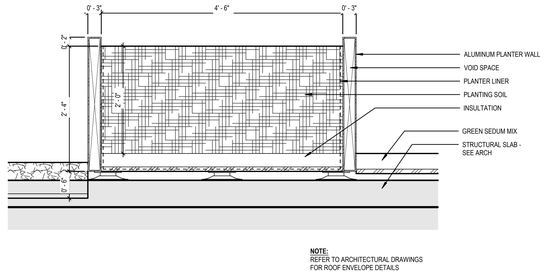
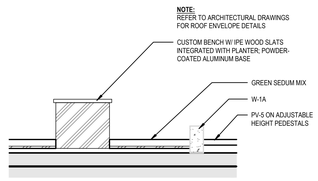
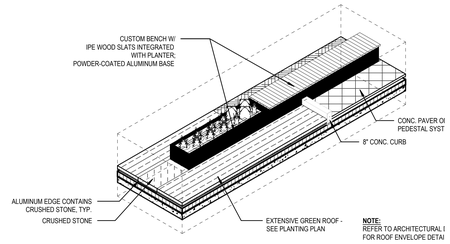
1545652.dwg, TAB:S



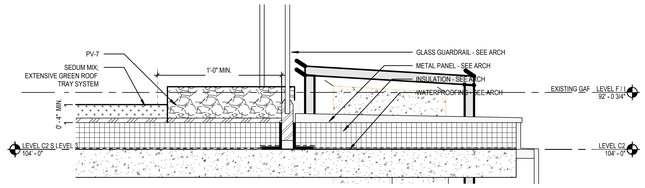
7 GREEN ROOF C2 PLANTER
1" = 1'-0"



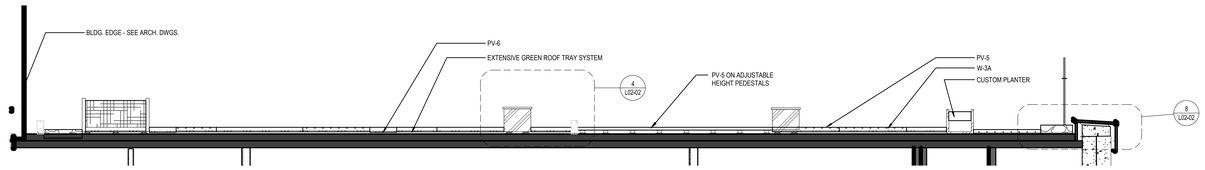
4 GREEN ROOF @ BENCH PLANTER, TYP.
1/2" = 1'-0"



6 GREEN ROOF AXON DETAIL



8 GUARDRAIL DETAIL @ ROOF C2
1" = 1'-0"



2 GREEN ROOF C2 N/S SECTION
1/4" = 1'-0"

PLANTING KEY (ROOFS)

GROUNDCOVER

DE FL	Deschamphia flexuousa	Wavy Hairgrass
LI SP	Liatris spicata	Blazing Star
PA VI	Panicum virgatum 'Northwind'	Northwind Switch grass
RU FU	Rudbeckia fulgida 'Goldstrum'	Black eyed Susan
VA AN	Vaccinium angustifolium	Lowbush Blueberry

GREEN SEDUM MIX	Sedum acre 'Golden Carpet' Sedum album 'France' Sedum floriferum 'Weihenstephaner's Gold' Sedum kamtschaticum Sedum sexangulare Sedum spurium 'Summer Glory' Sedum spurium 'John Creech' Sedum takesimensis
RED SEDUM MIX	Sedum acre 'Octoberfest' Sedum album 'Coral Carpet' Sedum floriferum 'Weihenstephaner's Gold' Sedum spurium 'Dragon's Blood' Sedum spurium 'Fuldaglut' Sedum spurium 'Voodoo'

PAVING TYPES

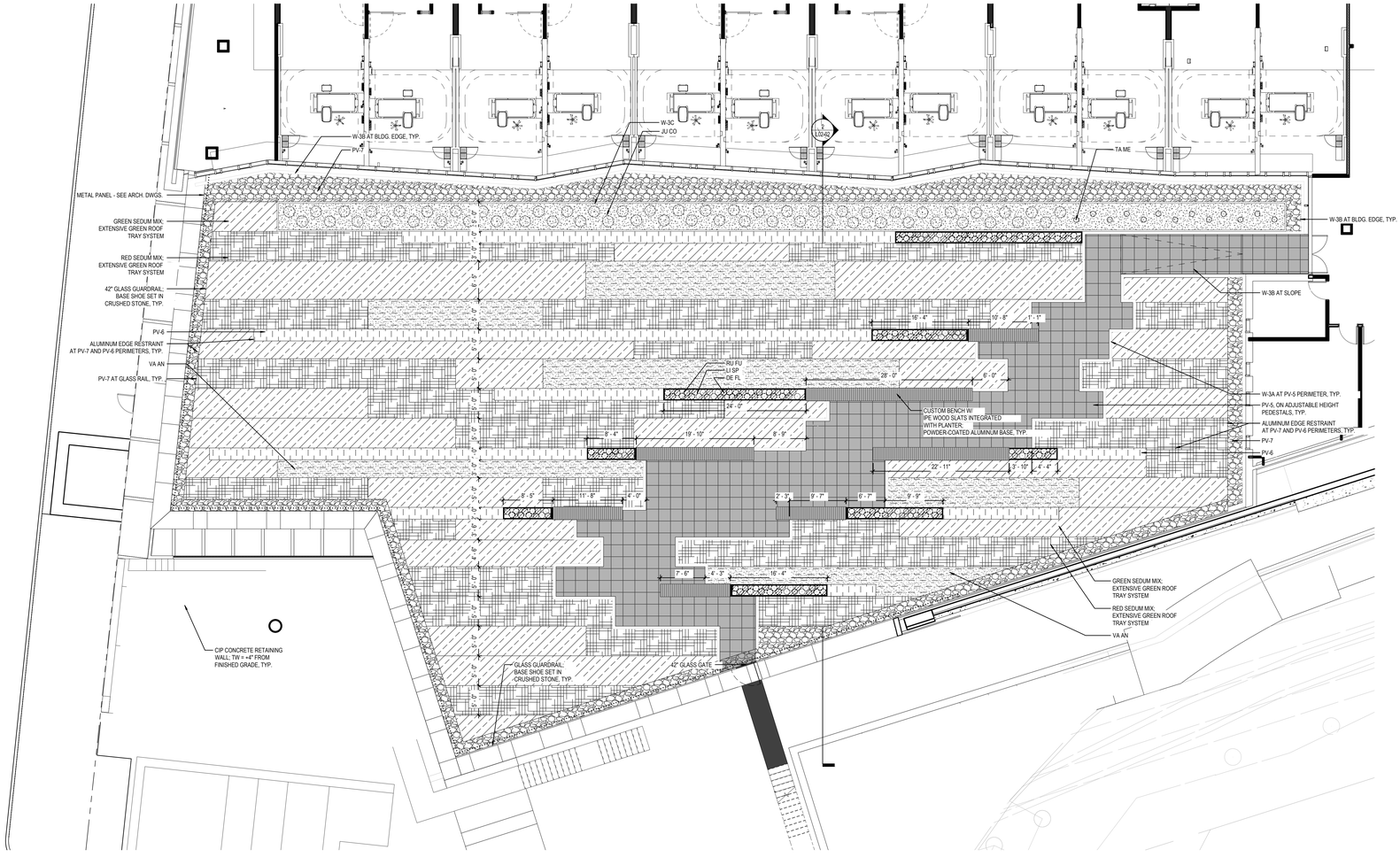
PV-1A	CONCRETE PAVEMENT - PED
PV-1B	CONCRETE PAVEMENT - VEH
PV-2	CONCRETE PAVEMENT BANDING
PV-3A	VEH STONE PAVER TYPE 1
PV-3B	VEH STONE PAVER TYPE 2
PV-4A	PED STONE PAVER TYPE 1
PV-4B	PED STONE PAVER TYPE 2
PV-5	ROOF PAVER ASSEMBLY
PV-6	CRUSHED STONE - MINI SLATE
PV-7	CRUSHED STONE - PEA STONE
PV-8	CRUSHED STONE - JUMBO SLATE

WALL TYPES

W-1	6" WIDTH GRANITE CURB
W-1R	6" WIDTH RADIAL GRANITE CURB
W-2	STONE VENEER RETAINING WALL
W-3A	PRECAST CONCRETE CURB TYPE A
W-3B	PRECAST CONCRETE CURB TYPE B
W-3C	PRECAST CONCRETE CURB TYPE C
W-4	CONCRETE EDGE RESTRAINT

*SEE GENERAL SHEET FOR MATERIAL DESCRIPTION

* MATERIAL PATTERNS IN THE DRAWINGS DO NOT REFLECT ACTUAL PAVEMENT PATTERNS.



1 ENLARGED PLAN - C2 GREEN ROOF
1/8" = 1'-0"

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CLIENT

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Portland, ME 04102

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Sebago Technics
75 John Roberts Road, Suite
South Portland, ME 04106

STRUCTURAL ENGI/ BUILDING ENVELOPE CONSULTANT
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

CONSTRUCTION MANAGER
TURNER CONSTRUCTION
2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
VDA (Van Deusen & Associates)
101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

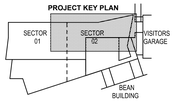
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

REGISTERED LANDSCAPE ARCHITECT
WILLIAM T. CONNAUGHTON
LA 1208
STATE OF MAINE
9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
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CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	WTC

TITLE
SITE PLAN
GREEN ROOF
CONGRESS STREET EXPANSION

SHEET NUMBER

C05-02

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LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	BUILDING	
	EDGE PAVEMENT	
	PAVEMENT SAWCUT	
	EDGE CONCRETE	
	CURB LINE	
120 118	CONTOURS	120
X120.00	SPOT GRADE	+120.00
	RETAINING WALL	
	DECIDUOUS TREE	
	CONIFEROUS TREE	
	SIGN	
G	GAS	G
	GAS GATE VALVE	
G	GAS METER	
G	GAS MANHOLE	
W	WATER	W
	WATER GATE VALVE	
	WATER SHUT OFF	
	HYDRANT	
W	WATER MANHOLE	
S	SANITARY SEWER	S
S	SANITARY MANHOLE	
SD	STORM DRAIN	SD
UD	UNDER DRAIN	UD
D	DRAINAGE MANHOLE	
	CATCH BASIN	
OHU	OVERHEAD UTILITY	OHU
UGU	UNDERGROUND UTILITY	UGU
T	TRANSFORMER PAD	T
E	ELECTRICAL MANHOLE	
T	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	
	RIPRAP	
	INLET PROTECTION	
	PAVEMENT RECONSTRUCTION	

DUCT BANK LEGEND

A DUCT BANK "A"
(2) 2" CONDUIT (CMP, CITY OF PORTLAND) STREET LIGHT GUY FEED
(5) 4" CONDUIT (MMC)
(3) 4" CONDUIT (SPECTRUM CATV)
(2) 4" CONDUIT (FAIRPOINT)

B DUCT BANK "B"
(3) 4" CONDUIT (SPECTRUM CATV)

C DUCT BANK "C"
(2) 2" CONDUIT (CMP) FOR STREET LIGHTING
(4) 4" CONDUIT (MMC)
(2) 4" CONDUIT (FAIRPOINT)

D DUCT BANK "D"
(4) 4" CONDUIT (FAIRPOINT)

E DUCT BANK "E"
(2) 4" CONDUIT (FAIRPOINT)
(2) 2" CONDUIT (CMP, CITY OF PORTLAND)
(4) 4" CONDUIT (MMC)

F DUCT BANK "F"
(2) 4" CONDUIT (FAIRPOINT)
(4) 4" CONDUIT (MMC)

G DUCT BANK "G"
(3) 4" CONDUIT (SPECTRUM CATV)
(3) 5" CONDUIT (CMP)

H DUCT BANK "H"
(2) 4" EXISTING CONDUIT (FAIRPOINT) TO POLE 7 EXTEND TO POLE 5 IN DUCT BANK I-K-M

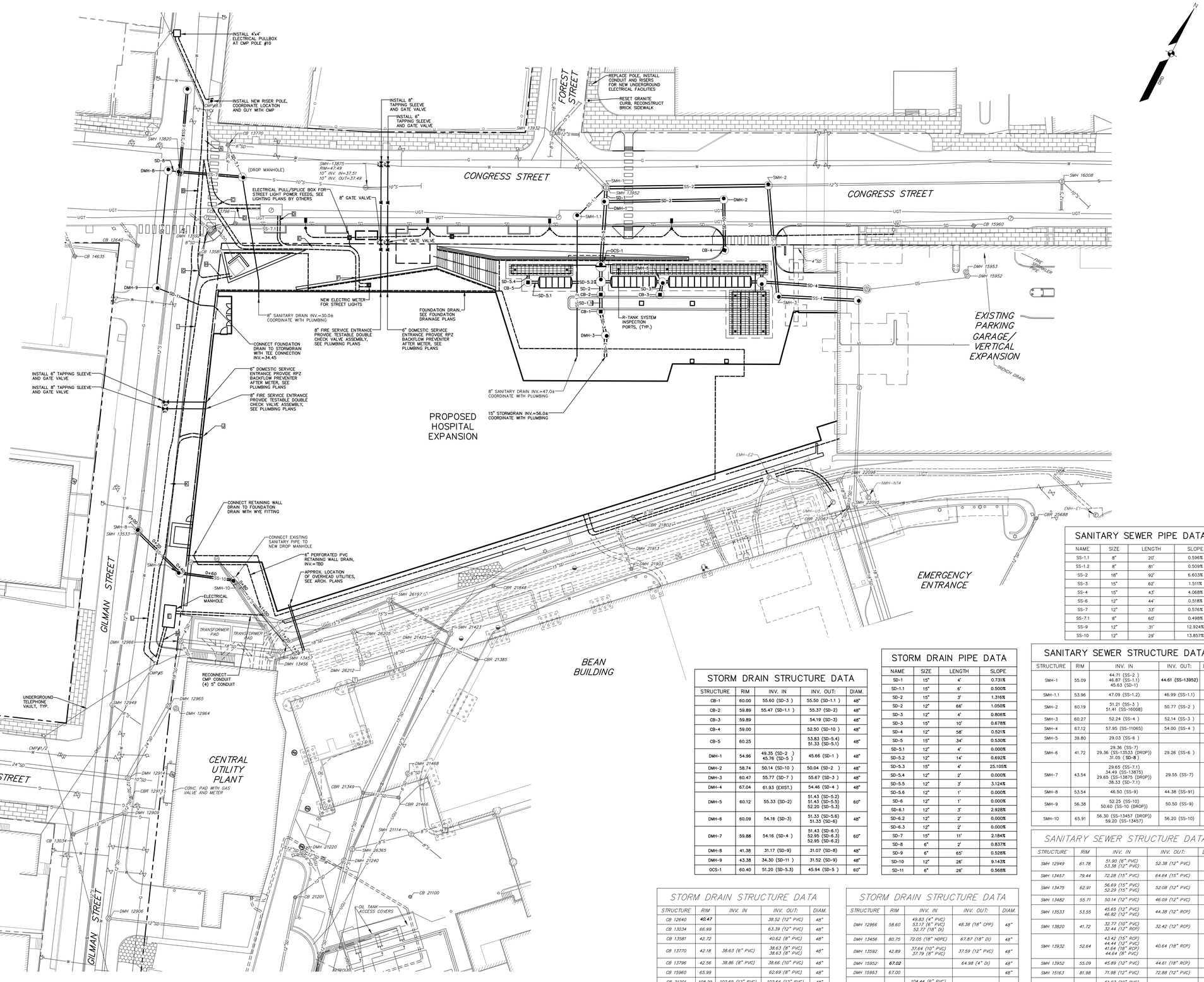
I DUCT BANK "I"
(3) 4" CONDUIT (SPECTRUM CATV)
(3) 5" CONDUIT (CMP)
(2) 4" CONDUIT (FAIRPOINT)

J DUCT BANK "J"
(1) 4" CONDUIT (SPECTRUM)

K DUCT BANK "K"
(3) 4" CONDUIT (SPECTRUM CATV)
(3) 5" CONDUIT (CMP)
(2) 4" CONDUIT (FAIRPOINT) FROM CABINET TO POLE 5
(2) 4" CONDUIT (FAIRPOINT) FROM POLE 5 TO BUILDING
(4) 4" CONDUIT (MMC)

L DUCT BANK "L"
(3) 4" CONDUIT (SPECTRUM CATV)
(4) 4" CONDUIT (MMC)
(2) 4" CONDUIT (FAIRPOINT) FROM CABINET TO POLE 5
(2) 4" CONDUIT (FAIRPOINT) FROM POLE 5 TO BUILDING

M DUCT BANK "M"
(3) 5" CONDUIT (CMP)



SANITARY SEWER PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SS-1.1	8"	20'	0.596%
SS-1.2	8"	81'	0.509%
SS-2	18"	92'	6.603%
SS-3	15"	62'	1.511%
SS-4	15"	43'	4.068%
SS-6	12"	44'	0.518%
SS-7	12"	33'	0.576%
SS-7.1	8"	60'	0.498%
SS-9	12"	31'	12.924%
SS-10	12"	29'	13.857%

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-1	60.00	55.60 (SD-3)	55.50 (SD-1.1)	48"
CB-2	59.89	55.47 (SD-1.1)	55.37 (SD-2)	48"
CB-3	59.89		54.19 (SD-3)	48"
CB-4	59.00		52.50 (SD-10)	48"
CB-5	60.25		53.83 (SD-5.4) 51.33 (SD-5.1)	48"
DMH-1	54.96	49.35 (SD-2 45.76 (SD-5)	45.66 (SD-1)	48"
DMH-2	58.74	50.14 (SD-10)	50.04 (SD-2)	48"
DMH-3	60.47	55.77 (SD-7)	55.67 (SD-3)	48"
DMH-4	67.04	61.93 (EXIST.)	54.46 (SD-4)	48"
DMH-5	60.12	55.33 (SD-2)	51.43 (SD-5.2) 51.43 (SD-5.5) 52.20 (SD-5.3)	60"
DMH-6	60.09	54.16 (SD-3)	51.33 (SD-5.6) 51.33 (SD-6)	48"
DMH-7	59.88	54.16 (SD-4)	51.43 (SD-6.1) 52.95 (SD-6.3) 52.95 (SD-6.2)	60"
DMH-8	41.38	31.17 (SD-9)	31.07 (SD-8)	48"
DMH-9	43.38	34.30 (SD-11)	31.52 (SD-9)	48"
OCS-1	60.40	51.20 (SD-5.3)	45.94 (SD-5)	60"

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-1	15"	4'	0.731%
SD-1.1	15"	6'	0.500%
SD-2	15"	3'	1.316%
SD-2	12"	66'	1.050%
SD-3	12"	4'	0.806%
SD-3	15"	10'	0.678%
SD-4	12"	58'	0.521%
SD-5	15"	34'	0.530%
SD-5.1	12"	4'	0.000%
SD-5.2	12"	14'	0.692%
SD-5.3	15"	4'	25.105%
SD-5.4	12"	2'	0.000%
SD-5.5	12"	3'	3.124%
SD-5.6	12"	1'	0.000%
SD-6	12"	1'	0.000%
SD-6.1	12"	3'	2.928%
SD-6.2	12"	2'	0.000%
SD-6.3	12"	2'	0.000%
SD-7	15"	11'	2.184%
SD-8	6"	2'	0.837%
SD-9	6"	65'	0.528%
SD-10	12"	26'	9.143%
SD-11	6"	26'	0.568%

SANITARY SEWER STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
SMH-1	55.09	44.71 (SS-2) 46.87 (SS-1.1) 45.63 (SD-1)	44.61 (SS-13952)	48"
SMH-1.1	53.96	47.09 (SS-1.2)	46.99 (SS-1.1)	48"
SMH-2	60.19	51.21 (SS-3) 51.41 (SS-16008)	50.77 (SS-2)	48"
SMH-3	60.27	52.24 (SS-4)	52.14 (SS-3)	48"
SMH-4	67.12	57.95 (SS-11065)	54.00 (SS-4)	48"
SMH-5	39.80	29.03 (SS-6)		48"
SMH-6	41.72	29.36 (SS-7) 29.36 (SS-13533 (DROP)) 31.05 (SD-8)	29.26 (SS-6)	48"
SMH-7	43.54	29.65 (SS-7.1) 34.49 (SS-13875) 29.65 (SS-13875 (DROP)) 38.33 (SD-7.1)	29.55 (SS-7)	48"
SMH-8	53.54	46.50 (SS-9)	44.38 (SS-91)	48"
SMH-9	56.38	52.25 (SS-10) 50.60 (SS-10 (DROP))	50.50 (SS-9)	48"
SMH-10	65.91	56.30 (SS-13457 (DROP)) 59.20 (SS-13457)	56.20 (SS-10)	48"

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB 12640	**40.47**		38.52 (12" PVC)	48"
CB 13034	66.99		63.39 (12" PVC)	48"
CB 13581	42.72		40.62 (8" PVC)	48"
CB 13770	42.18	38.63 (6" PVC)	38.63 (8" PVC) 38.63 (8" PVC)	48"
CB 13796	42.56	38.86 (8" PVC)	38.66 (10" PVC)	48"
CB 15960	65.99		62.69 (8" PVC)	48"
CB 21201	108.29	102.69 (12" PVC)	102.64 (12" PVC)	48"
CB 26560	108.54		102.69 (12" PVC)	48"
CBR 21349	106.08	97.88 (12" PVC) 98.41 (12" CPP)	97.08 (15" HDPE)	48"
CBR 21385	106.32		102.63 (15" HDPE)	48"
CBR 21466	106.75	102.75 (6" PVC)	99.40 (12" PVC)	48"
CBR 21802	107.94		105.05 (8" CPP)	48"
CBR 21848	106.49	100.35 (15" CPP)	100.16 (18" HDPE)	48"
CBR 22087	115.13	108.88 (15" CPP) 106.38 (18" RCP) 106.53 (6" PVC)	106.37 (18" CPP)	48"
CBR 25688	125.20		121.67 (12" CPP)	48"
DMH 12906	72.45	62.96 (12" PVC) 67.07 (12" RCP)	63.08 (12" RCP)	48"
DMH 12909	66.75	60.15 (12" RCP) 59.95 (12" PVC)	59.90 (12" PVC)	48"
DMH 12914	65.09	57.39 (12" PVC) 59.74 (10" CPP) 49.37 (24" CPP)	49.31 (24" CPP)	48"
DMH 12964	65.52			48"
DMH 12965	64.52	47.80 (18" CPP)	49.80 (24" CPP)	48"

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
DMH 12966	58.60	49.83 (4" PVC) 53.17 (6" PVC) 52.77 (18" DI)	48.38 (18" CPP)	48"
DMH 13456	80.75	72.05 (18" HDPE)	67.87 (18" DI)	48"
DMH 13592	42.89	37.64 (10" PVC) 37.79 (8" PVC)	37.59 (12" PVC)	48"
DMH 15952	**67.02**		64.98 (4" DI)	48"
DMH 15953	67.00			48"
DMH 21220	108.04	104.44 (6" PVC) 87.36 (12" RCP) 94.86 (12" RCP)	86.99 (12" PVC)	48"
DMH 21240	107.93	101.68 (12" RCP) 101.68 (12" PVC)	101.58 (12" CPP)	48"
DMH 21425	106.58	101.79 (15" HDPE) 96.27 (15" HDPE)	96.24 (18" HDPE)	48"
DMH 21468	**106.93**	103.99 (6" PVC)	103.94 (6" PVC)	48"
DMH 21903	110.18		107.30 (8" PVC)	48"
DMH 21913	**110.33**	107.30 (8" PVC) 102.76 (18" PVC) 107.25 (18" PVC) 101.85 (18" CPP)	101.84 (15" CPP)	48"
DMH 22098	115.18	106.03 (18" CPP)	105.99 (18" CPP)	48"
DMH 25531	130.05	110.05 (12" PVC)	109.44 (18" RCP)	48"
DMH 25556	128.73	110.87 (12" PVC) 121.03 (12" CPP)	110.11 (12" PVC)	48"
DMH 25575	128.66	121.31 (12" CPP)	121.21 (12" CPP)	48"
DMH 26205	89.94	83.67 (18" HDPE) 83.72 (6" PVC) 84.60 (18" HDPE)	83.64 (18" HDPE)	48"
DMH 26212	97.74	87.11 (18" HDPE)	87.11 (18" HDPE)	48"

SANITARY SEWER STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
SMH 12949	61.78	51.90 (6" PVC) 53.38 (12" PVC)	52.38 (12" PVC)	48"
SMH 13457	79.44	72.28 (15" PVC)	64.64 (15" PVC)	48"
SMH 13475	62.91	56.69 (15" PVC) 52.29 (15" PVC)	52.08 (12" PVC)	48"
SMH 13482	55.71	50.14 (12" PVC)	46.09 (12" PVC)	48"
SMH 13533	53.55	45.65 (12" PVC) 46.82 (12" PVC)	44.38 (12" RCP)	48"
SMH 13820	41.72	32.77 (10" PVC) 32.44 (12" RCP)	32.42 (12" RCP)	48"
SMH 13932	52.64	43.42 (15" RCP) 44.44 (12" PVC) 41.64 (18" RCP) 44.64 (8" PVC)	40.64 (18" RCP)	48"
SMH 16047	**72.79** 72.94	64.59 (8" PVC) 64.57 (8" PVC) 69.76 (4" PVC) 64.29 (8" RCP)	64.19 (10" PVC)	48"
SMH 16091	77.67	69.37 (8" PVC)	69.34 (8" PVC)	48"
SMH 16094	75.92	69.15 (8" PVC)	69.05 (8" PVC)	48"
SMH 21114	107.75	99.95 (8" PVC) 99.86 (8" PVC)	99.60 (8" PVC)	48"
SMH 21423	106.57	97.17 (12" PVC)	86.18 (12" PVC)	48"
SMH 22095	115.44	108.75 (18" PVC)	108.49 (15" PVC)	48"
SMH 25522	130.11	117.21 (15" PVC)	117.16 (15" PVC)	48"
SMH 25558	128.59	110.01 (12" PVC)	110.00 (12" PVC)	48"
SMH 26197	88.26	83.62 (12" PVC) 80.53 (12" PVC) 82.56 (15" CPP) 83.62 (15" PVC)	80.51 (15" PVC)	48"
SMH 26365	107.74	97.99 (8" PVC) 98.01 (12" PVC)	97.74 (12" PVC)	48"
SMH 26367	130.04	109.83 (12" PVC) 109.87 (15" PVC)	109.76 (18" PVC)	48"

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CLIENT

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Portland, ME 04102

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
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75 John Roberts Road, Suite 1A,
South Portland, ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

CONSTRUCTION MANAGER
TURNER CONSTRUCTION
2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
VDA (Van Deusen & Associates)
101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

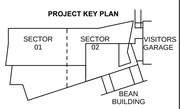
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE — DANIEL L. RILEY No. 10961 — REGISTERED PROFESSIONAL ENGINEER — 10/30/18

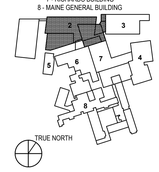
KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
3 - VISITOR GARAGE
4 - EAST TOWER
5 - CENTRAL UTILITY PLANT
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING



CITY SUBMITTAL NO. 2
OCTOBER 30, 2018

NO	ISSUE	DATE
2	CITY SUBMITTAL	10/30/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE

UTILITY PLAN CONGRESS STREET EXPANSION

SHEET NUMBER

C11-01

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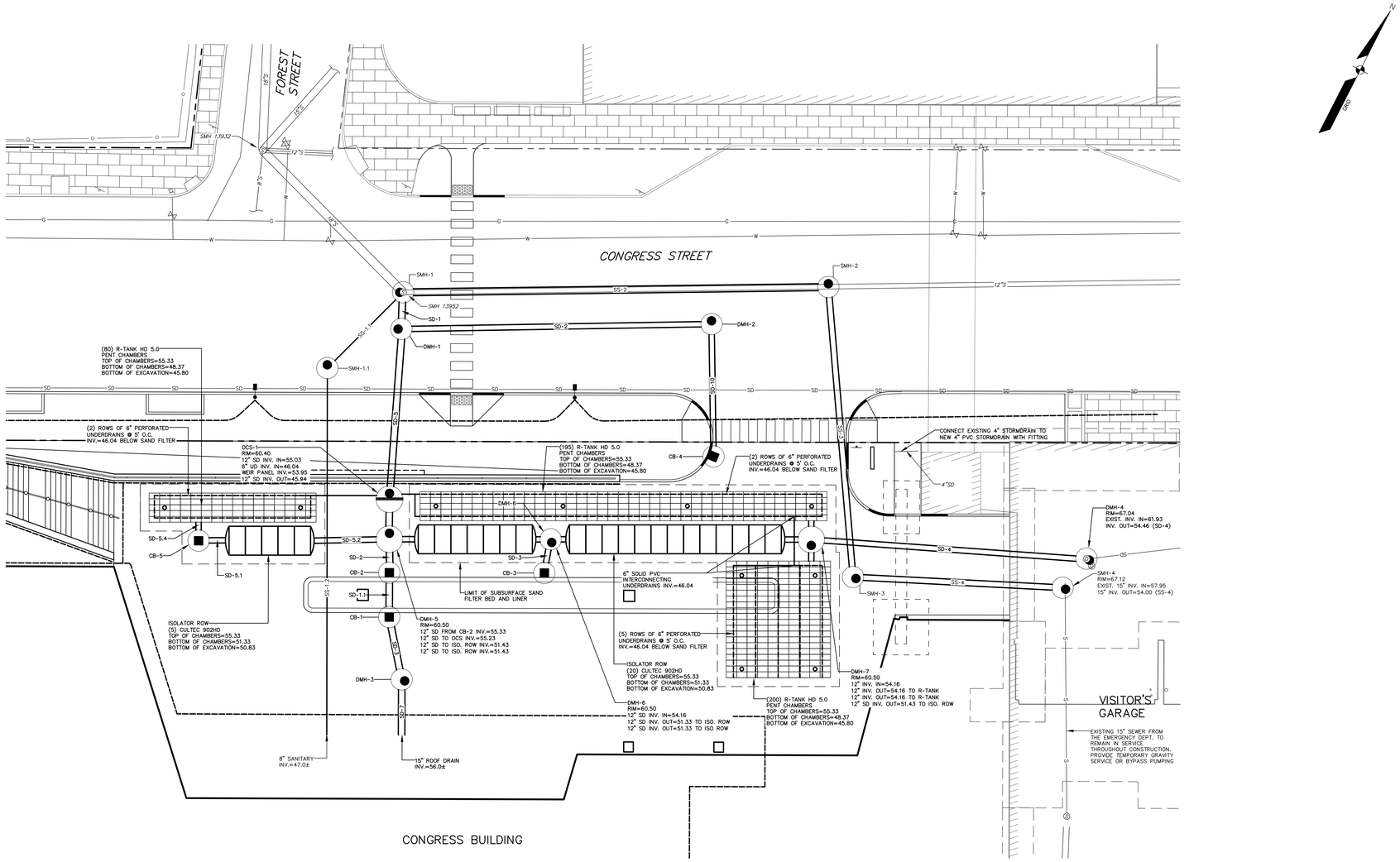
1546612.dwg, TAB:U1 - CONGRESS

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	BUILDING	
	EDGE PAVEMENT	
	PAVEMENT SAWCUT	
	EDGE CONCRETE	
	CURB LINE	
--120--	CONTOURS	120
×120.00	SPOT GRADE	+120.00
	RETAINING WALL	
	DECIDUOUS TREE	
	CONIFEROUS TREE	
	SIGN	
G	GAS	G
	GAS GATE VALVE	
	GAS METER	
	GAS MANHOLE	
W	WATER	W
	WATER GATE VALVE	
	WATER SHUT OFF	
	HYDRANT	
	WATER MANHOLE	
S	SANITARY SEWER	S
	SANITARY MANHOLE	
SD	STORM DRAIN	SD
UD	UNDER DRAIN	UD
	DRAINAGE MANHOLE	
	CATCH BASIN	
OHU	OVERHEAD UTILITY	OHU
UGU	UNDERGROUND UTILITY	UGU
	TRANSFORMER PAD	T
	ELECTRICAL MANHOLE	
	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	
	RIPRAP	
	INLET PROTECTION	



SANITARY SEWER STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
SMH 139.32	52.64	43.42 (15" RCP) 44.44 (12" PVC) 41.64 (18" RCP) 44.64 (8" PVC)	40.64 (18" RCP)	48"
SMH 139.52	55.09	45.89 (12" PVC)	44.61 (18" RCP)	48"

SANITARY SEWER STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
SMH-1	55.09	44.71 (SS-2) 46.87 (SS-1.1) 45.63 (SD-1)		48"
SMH-1.1	53.96	47.09 (SS-1.2)	46.99 (SS-1.1)	48"
SMH-2	60.19	51.21 (SS-3) 51.41 (SS-16008)	50.77 (SS-2)	48"
SMH-3	60.27	52.24 (SS-4)	52.14 (SS-3)	48"
SMH-4	67.12	57.95 (SS-11065)	54.00 (SS-4)	48"

SANITARY SEWER PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SS-1.1	8"	20'	0.596%
SS-1.2	8"	81'	0.509%
SS-2	18"	92'	6.603%
SS-3	15"	62'	1.511%
SS-4	15"	43'	4.068%

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-1	60.00	55.60 (SD-3)	55.50 (SD-1.1)	48"
CB-2	59.89	55.47 (SD-1.1)	55.37 (SD-2)	48"
CB-3	59.89		54.19 (SD-3)	48"
CB-4	59.00		52.50 (SD-10)	48"
CB-5	60.25		53.83 (SD-5.4) 51.33 (SD-5.1)	48"
DMH-1	54.96	49.35 (SD-2) 45.76 (SD-5)	45.66 (SD-1)	48"
DMH-2	58.74	50.14 (SD-10)	50.04 (SD-2)	48"
DMH-3	60.47	55.77 (SD-7)	55.67 (SD-3)	48"
DMH-5	60.12	55.33 (SD-2)	51.43 (SD-5.2) 51.43 (SD-5.5) 52.20 (SD-5.3)	60"
DMH-6	60.09	54.16 (SD-3)	51.33 (SD-5.6) 51.33 (SD-6)	48"
DMH-7	59.88	54.16 (SD-4)	51.43 (SD-6.1) 52.95 (SD-6.3) 52.95 (SD-6.2)	60"

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-1	15"	4'	0.731%
SD-1.1	15"	6'	0.500%
SD-2	15"	3'	1.316%
SD-2	12"	66'	1.050%
SD-3	12"	4'	0.806%
SD-3	15"	10'	0.678%
SD-4	12"	58'	0.521%
SD-5	15"	34'	0.530%
SD-5.1	12"	4'	0.000%
SD-5.2	12"	14'	0.692%
SD-5.3	15"	4'	25.105%
SD-5.4	12"	2'	0.000%
SD-5.5	12"	3'	3.124%
SD-5.6	12"	1'	0.000%
SD-6	12"	1'	0.000%
SD-6.1	12"	3'	2.928%
SD-6.2	12"	2'	0.000%
SD-6.3	12"	2'	0.000%
SD-7	15"	11'	2.184%
SD-8	6"	2'	0.837%
SD-9	6"	65'	0.528%
SD-10	12"	26'	9.143%
SD-11	6"	26'	0.568%

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MaineHealth

Maine Medical Center
22 Bramhall Street
Portland, ME 04102

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Sebago Technics Inc.
75 John Roberts Road, Suite 1A,
South Portland, ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
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Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
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COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

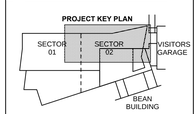
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 12967
REGISTERED PROFESSIONAL ENGINEER
10/30/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
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4 - EAST TOWER
5 - CENTRAL UTILITY PLANT
6 - BEAN BUILDING
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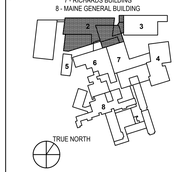
8 - MAINE GENERAL BUILDING



CITY SUBMITTAL NO. 2
OCTOBER 30, 2018

NO	ISSUE	DATE
2	CITY SUBMITTAL	10/30/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE

UTILITY PLAN MAIN ENTRANCE CONGRESS STREET EXPANSION

SHEET NUMBER

C30-01

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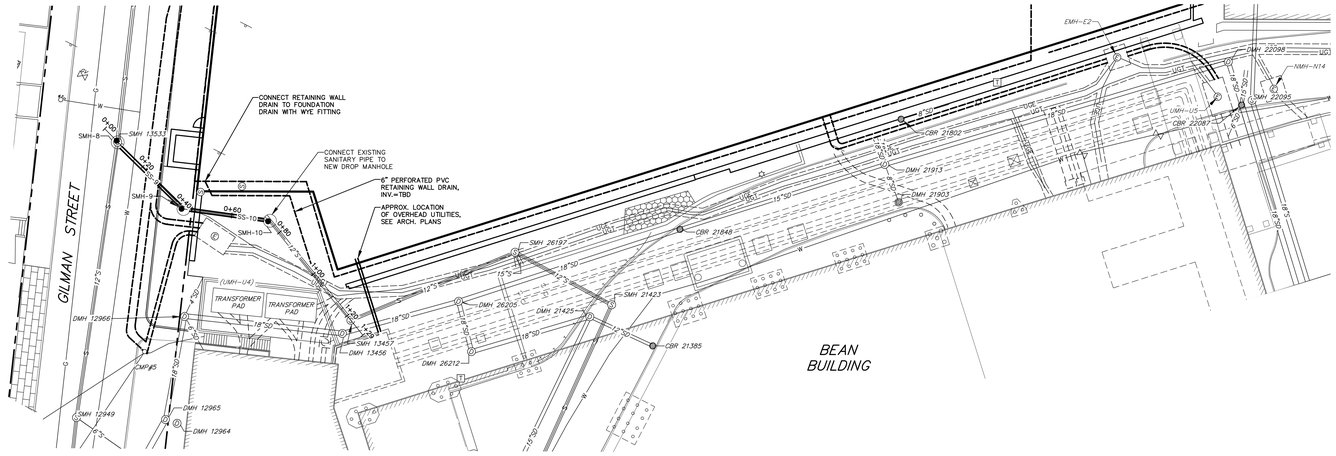
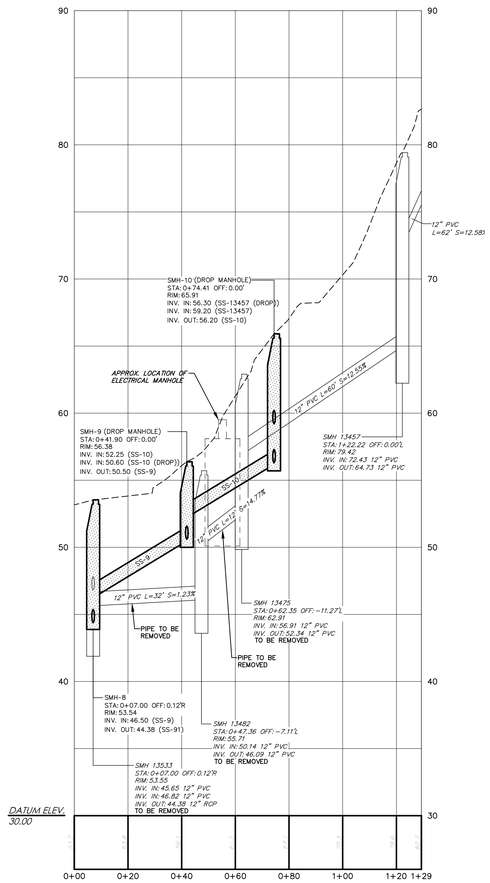
1546602.4wp, TAB:U-CONGRESS-10



PLAN: UTILITY CORRIDOR
STA. 0+00 TO STA. 2+68
SCALE: 1"=20'

SANITARY SEWER PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SS-9	12"	31'	12.924%
SS-10	12"	29'	13.857%



PROFILE: UTILITY CORRIDOR
STA. 0+00 TO STA. 2+68
SCALE: 1"=20' HORIZ.
1"=4' VERT.

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	BUILDING	
	EDGE PAVEMENT	
	PAVEMENT SAWCUT	
	EDGE CONCRETE	
	CURB LINE	
120 118	CONTOURS	120
×120.00	SPOT GRADE	+120.00
	RETAINING WALL	
	DECIDUOUS TREE	
	CONIFEROUS TREE	
	SIGN	
G	GAS	G
	GAS GATE VALVE	
	GAS METER	
G	GAS MANHOLE	
W	WATER	W
	WATER GATE VALVE	
	WATER SHUT OFF	
	HYDRANT	
W	WATER MANHOLE	
S	SANITARY SEWER	S
S	SANITARY MANHOLE	
SD	STORM DRAIN	SD
UD	UNDER DRAIN	UD
D	DRAINAGE MANHOLE	
	CATCH BASIN	
OHU	OVERHEAD UTILITY	OHU
UGU	UNDERGROUND UTILITY	UGU
T	TRANSFORMER PAD	T
E	ELECTRICAL MANHOLE	
T	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	
	RIPRAP	
	INLET PROTECTION	
	PAVEMENT RECONSTRUCTION	

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Portland, ME 04102

CONSULTANTS

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South Portland, ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

CONSTRUCTION MANAGER
TURNER CONSTRUCTION
2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
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101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

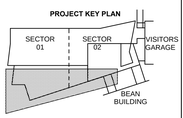
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE — DANIEL L RILEY No. 10107 — REGISTERED PROFESSIONAL ENGINEER — 9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
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4 - EAST TOWER
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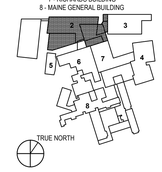
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING



CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE

PLAN & PROFILE - UTILITY CORRIDOR CONGRESS STREET EXPANSION

SHEET NUMBER

C30-02

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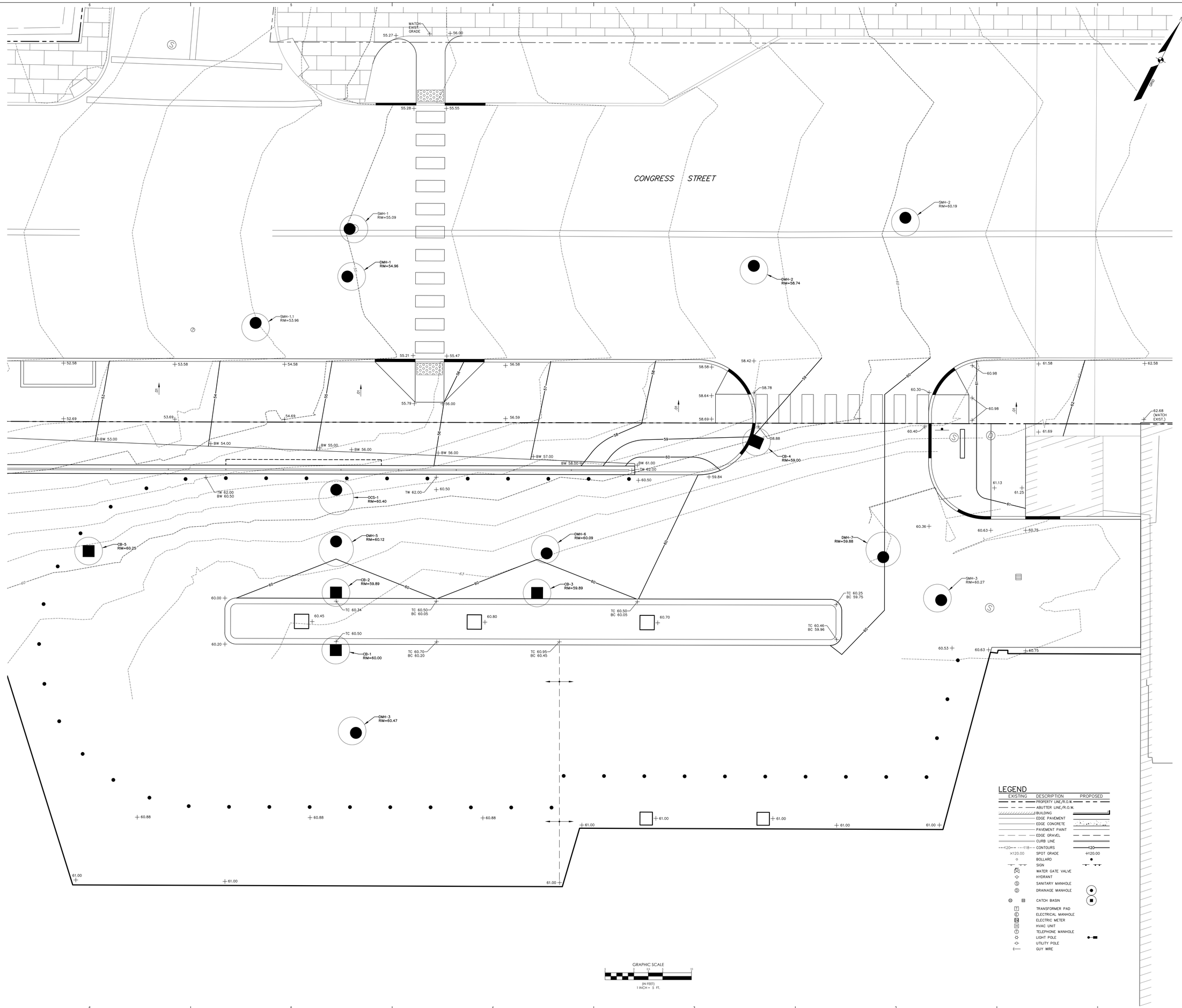
152189.02.dwg, TAB:P-CONGRESS



LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	BUILDING	
	EDGE PAVEMENT	
	EDGE CONCRETE	
	PAVEMENT PAINT	
	EDGE GRAVEL	
	CURB LINE	
120 118	CONTOURS	120
×120.00	SPOT GRADE	+120.00
	BOLLARD	
	SIGN	
	WATER GATE VALVE	
	HYDRANT	
	SANITARY MANHOLE	
	DRAINAGE MANHOLE	
	CATCH BASIN	
	TRANSFORMER PAD	
	ELECTRICAL MANHOLE	
	ELECTRIC METER	
	HVAC UNIT	
	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	

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Portland, ME 04102

CONSULTANTS

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Sebago Technics Inc.
75 John Roberts Road, Suite 1A,
South Portland, ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
Simpson Gumpertz & Heger Inc.
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Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

CONSTRUCTION MANAGER
TURNER CONSTRUCTION
2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
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101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

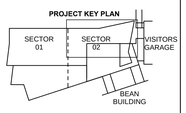
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 14697
LICENSED PROFESSIONAL ENGINEER
10/30/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
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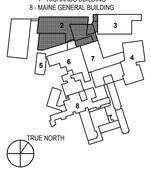

CITY SUBMITTAL NO. 2
OCTOBER 30, 2018

NO	ISSUE	DATE
2	CITY SUBMITTAL	10/30/2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	DLR

TITLE
GRADING PLAN UPPER CONGRESS STREET EXPANSION

SHEET NUMBER

C40-01

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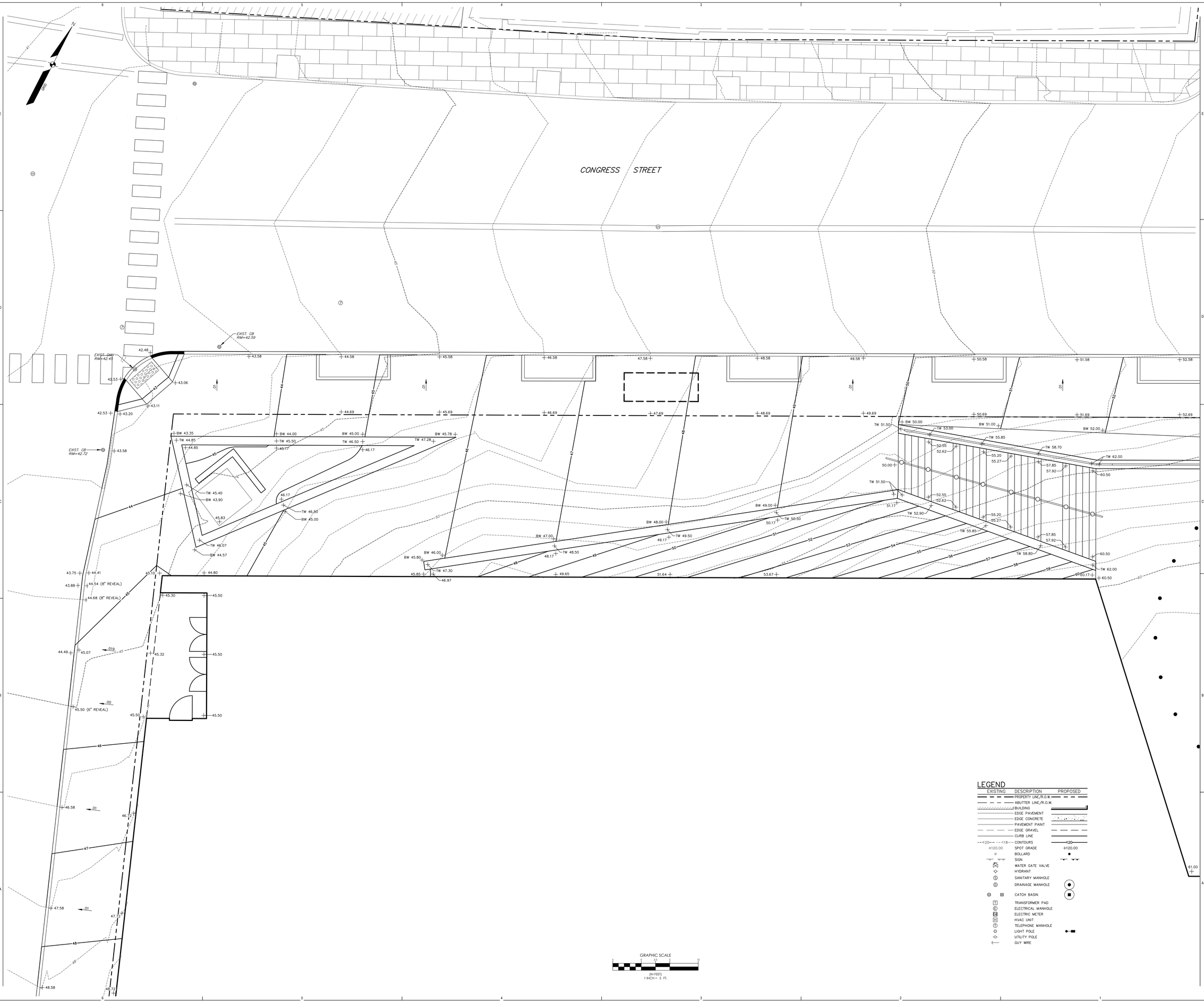

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	BUILDING	
	EDGE PAVEMENT	
	EDGE CONCRETE	
	PAVEMENT PAINT	
	EDGE GRAVEL	
	CURB LINE	
120 118	CONTOURS	120
×120.00	SPOT GRADE	+120.00
	BOLLARD	
	SIGN	
	WATER GATE VALVE	
	HYDRANT	
	SANITARY MANHOLE	
	DRAINAGE MANHOLE	
	CATCH BASIN	
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	ELECTRIC METER	
	HVAC UNIT	
	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	

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Portland, ME 04102

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MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

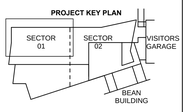
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 14647
LICENSED
PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

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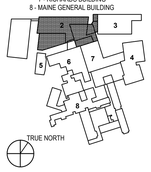

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	DLR

TITLE

GRADING PLAN LOWER CONGRESS STREET EXPANSION

SHEET NUMBER

C40-02

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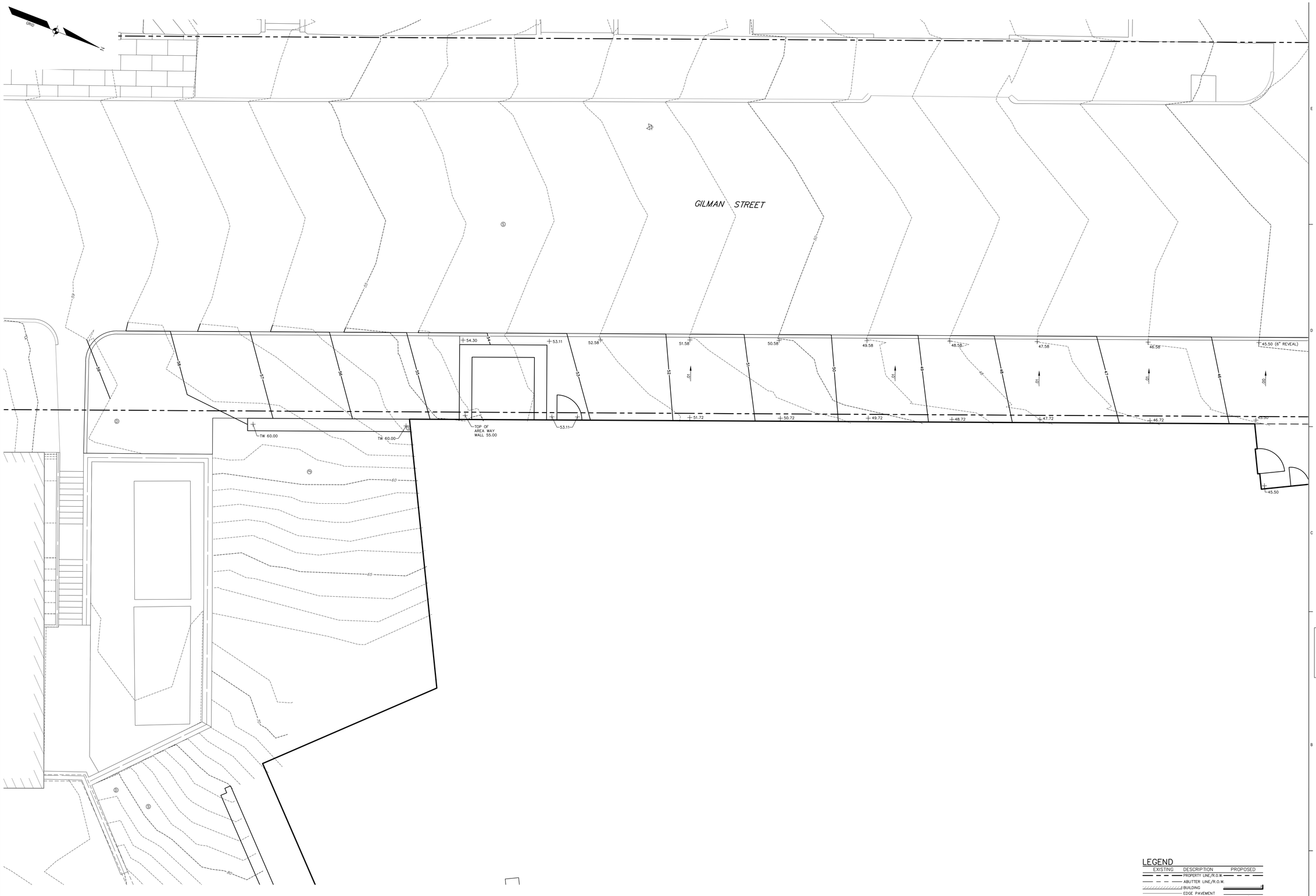
1546602.dwg, TAB:02



LEGEND

EXISTING	DESCRIPTION	PROPOSED
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	EDGE CONCRETE	
	PAVEMENT PAINT	
	EDGE GRAVEL	
	CURB LINE	
120 118	CONTOURS	120
×120.00	SPOT GRADE	+120.00
	BOLLARD	
	SIGN	
	WATER GATE VALVE	
	HYDRANT	
	SANITARY MANHOLE	
	DRAINAGE MANHOLE	
	CATCH BASIN	
	TRANSFORMER PAD	
	ELECTRICAL MANHOLE	
	ELECTRIC METER	
	HVAC UNIT	
	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	

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D.G. Jones International
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Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

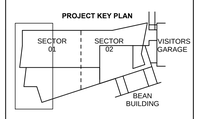
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 14007
LICENSED
PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

PROJECT KEY PLAN



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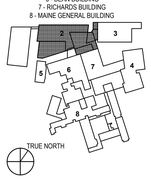

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	DLR

TITLE

GRADING PLAN GILMAN AREA, CONGRESS STREET EXPANSION

SHEET NUMBER

C40-03

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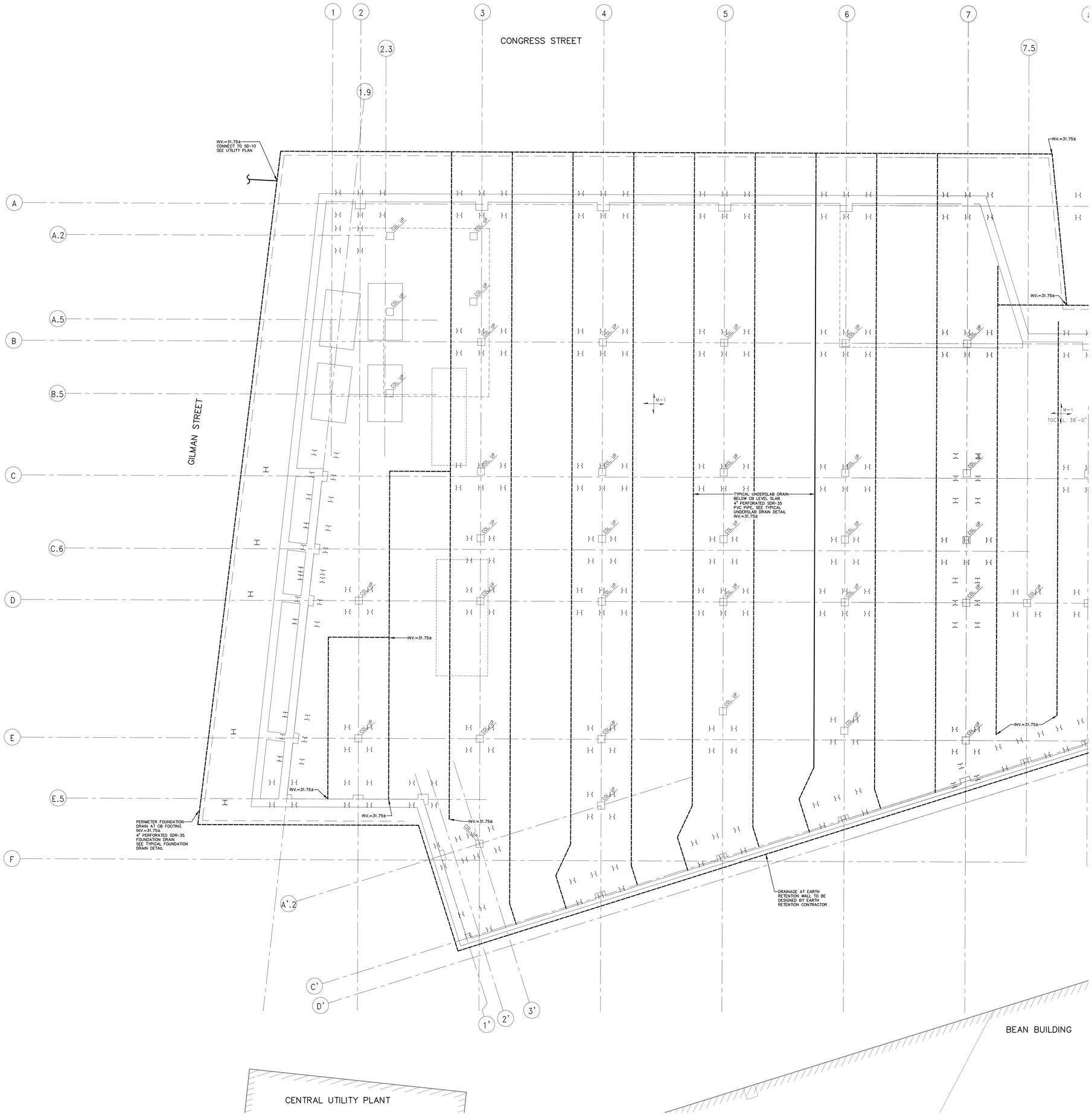
1546602.dwg, TAB:G3



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PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

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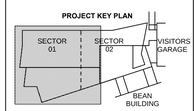

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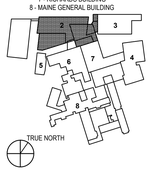

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TITLE

LEVEL B FOUNDATION DRAINAGE PLAN, SECTOR 1 CONGRESS STREET EXPANSION

SHEET NUMBER

C10-11

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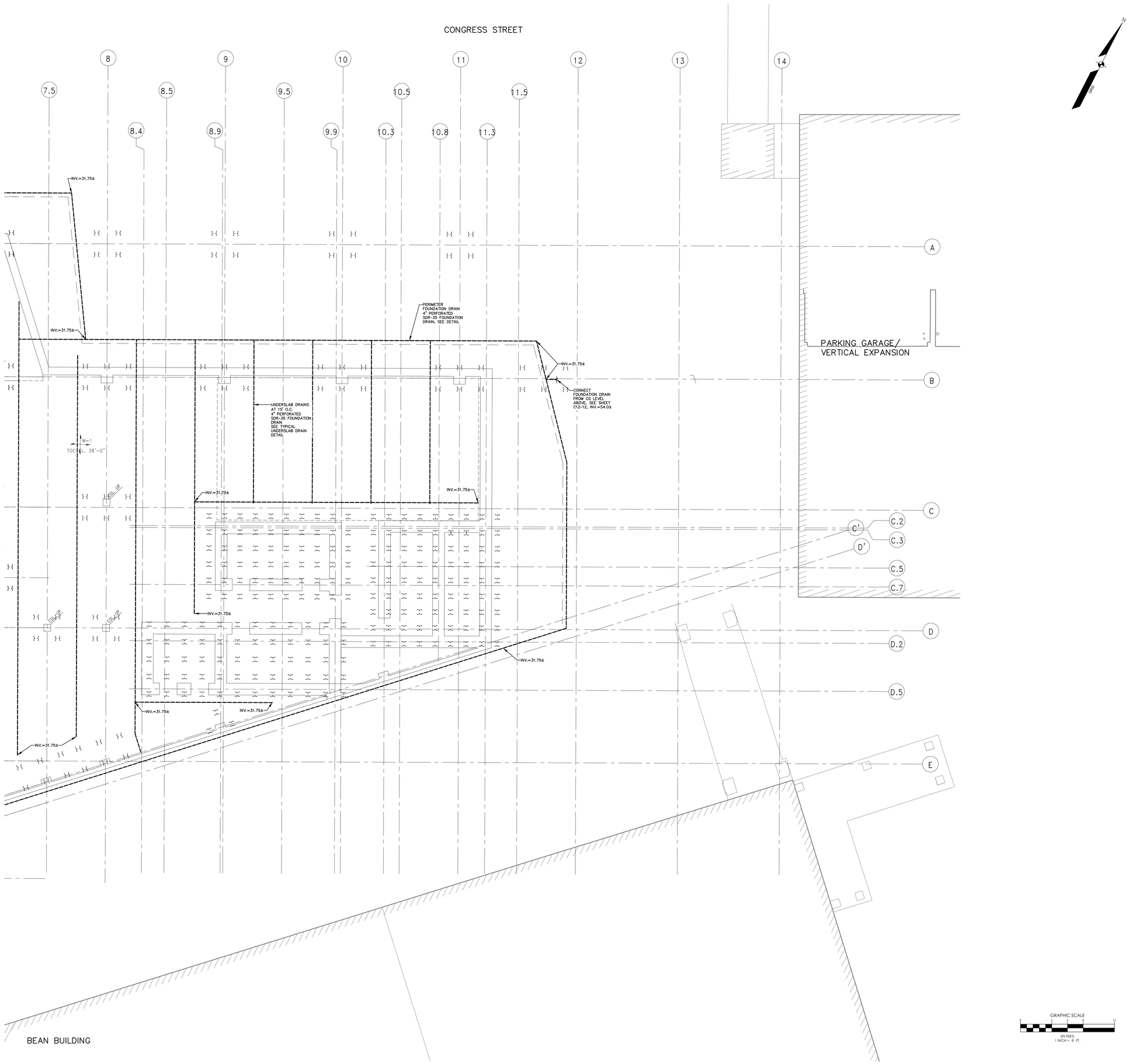

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PROJECT TITLE

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DANIEL L. RILEY
No. 14697
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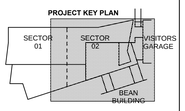
9/25/18

KEY PLANS

PROJECT KEY PLAN



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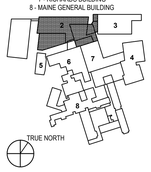

CITY SUBMISSION
SEPTEMBER 25, 2018

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Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE
LEVEL B FOUNDATION DRAINAGE PLAN, SECTOR 2 CONGRESS STREET EXPANSION

SHEET NUMBER

C10-12

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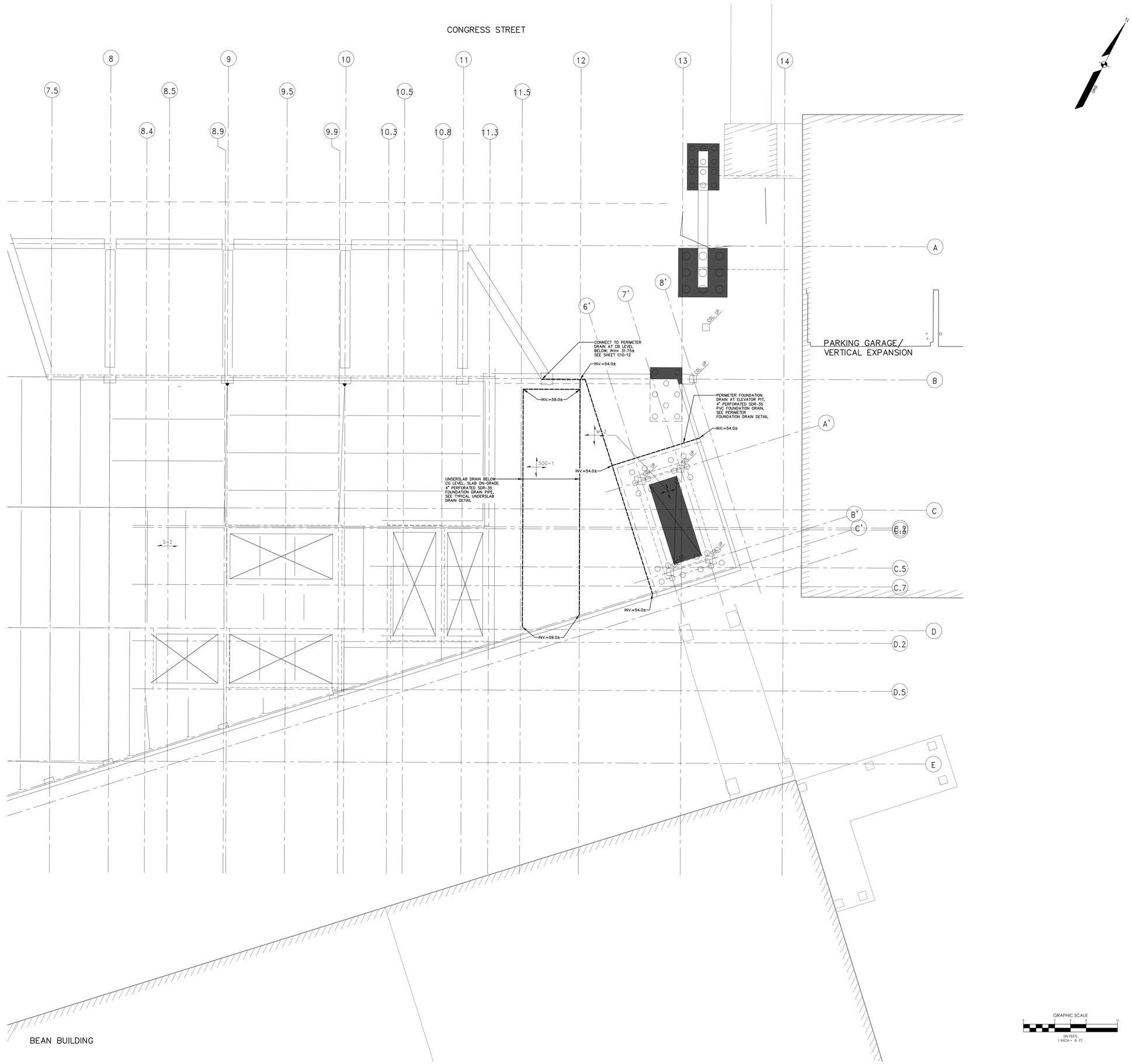

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DANIEL L. RILEY
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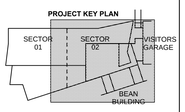
LICENSED PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

PROJECT KEY PLAN



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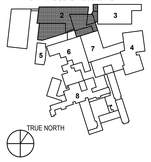

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE
LEVEL 1 FOUNDATION DRAINAGE PLAN, SECTOR 2 CONGRESS STREET EXPANSION

SHEET NUMBER

C12-12

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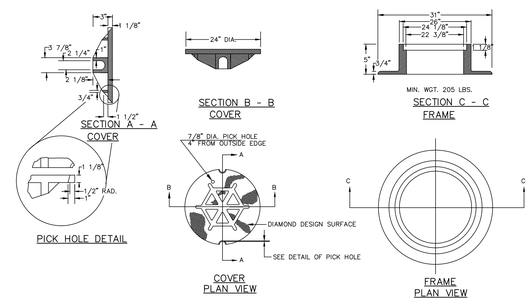
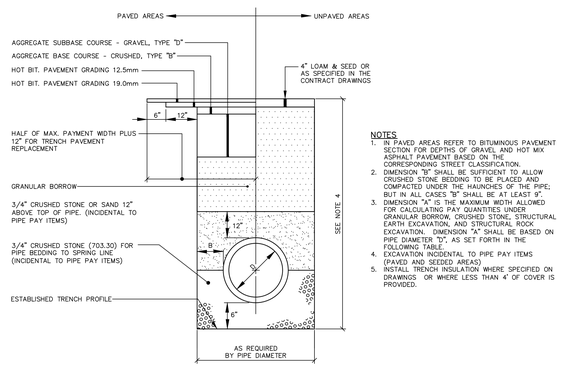
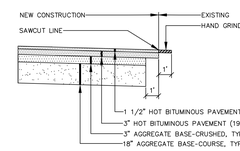


TYPICAL "A" CAST IRON MANHOLE COVER AND FRAME
NOT TO SCALE

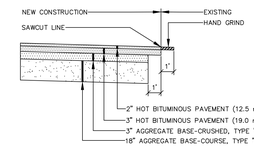


NOTES
1. IN PAVED AREAS REFER TO BITUMINOUS PAVEMENT SECTION FOR DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT BASED ON THE CORRESPONDING STREET CLASSIFICATION.
2. DIMENSION "B" SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES "B" SHALL BE AT LEAST 9".
3. DIMENSION "A" IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION "A" SHALL BE BASED ON PIPE DIAMETER "D", AS SET FORTH IN THE FOLLOWING TABLE.
4. EXCAVATION INCIDENTAL TO PIPE PAY ITEMS (PAVED AND SEEDED AREAS)
5. INSTALL TRENCH INSULATION WHERE SPECIFIED ON DRAWINGS OR WHERE LESS THAN 4' OF COVER IS PROVIDED.

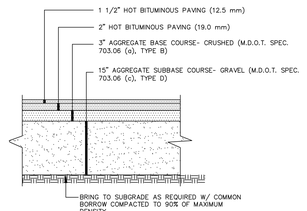
TYPICAL PIPE INSTALLATION DETAIL
NOT TO SCALE



PAVEMENT BUTT JOINT (LOCAL STREET)
NOT TO SCALE

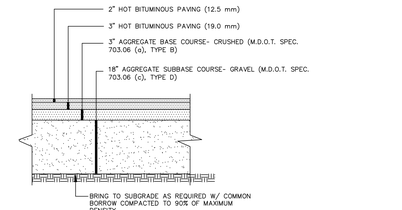


PAVEMENT BUTT JOINT (CONGRESS STREET)
NOT TO SCALE



NOTES:
1. COMPACT GRAVEL SUBBASE, BASE COURSE TO 95% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

TYPICAL ROADWAY SECTION (LOCAL STREET)
NOT TO SCALE



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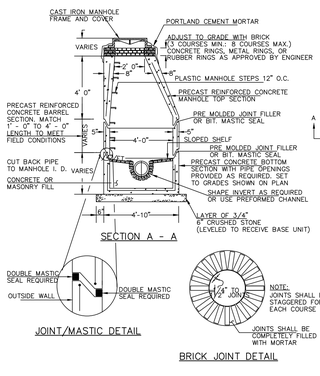
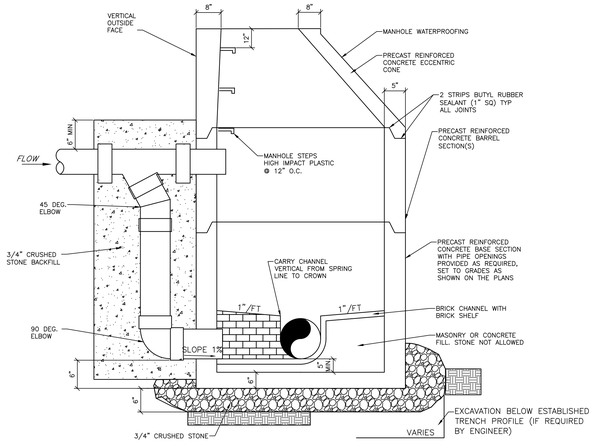
TYPICAL ROADWAY SECTION - CONGRESS STREET
NOT TO SCALE

NOTE:
MANHOLE CHANNELS REQUIRING CHANGE OF ALIGNMENT, TO BE BUILT ON SMOOTH RADIUS. CHANNEL TO BE SHAPED TO ACCEPT ADDITIONAL INLET PIPES.



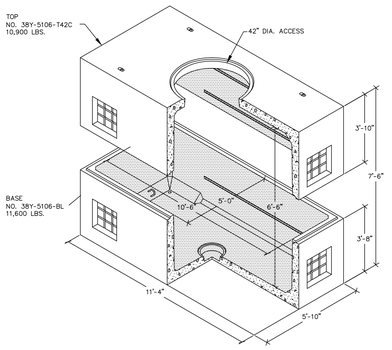
PRECAST CONCRETE MANHOLE TYPE "A"
NOT TO SCALE

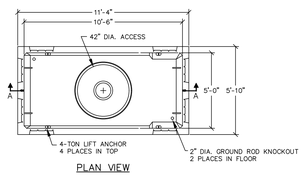


NOTES:

1. MANHOLE CHANNELS REQUIRING CHANGE IN ALIGNMENT ARE TO BE BUILT ON A SMOOTH RADIUS. IF SIDE PIPES ENTER CHANNEL, SHAPE TO RECEIVE ADDED SIDE FLOW.
2. USE FLAT SLAB TOP MANHOLE WHEN THE DIFFERENCE BETWEEN INVERT AND RIM IS LESS THAN 6'-0" AND WHEN MANHOLE DIAMETER IS GREATER THAN 4'-0".
3. ALL BACKFILL WITHIN 3 FEET OF STRUCTURE SHALL BE SELECT FILL PLACED IN 8" MAXIMUM LIFTS.

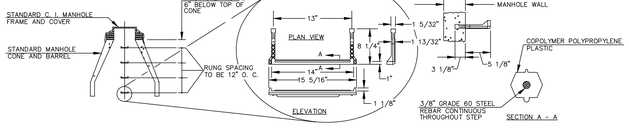
OUTSIDE DROP SANITARY MANHOLE DETAIL
NOT TO SCALE



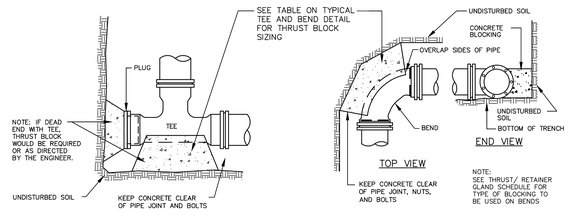


PLAN VIEW

CONCRETE THRUST BLOCK SIZE REQUIREMENTS				
		SQ. FT. OF BEARING ON UNDISTURBED SOIL		
FITTINGS		90° BENDS	45° BENDS	TEES AND PLUGS
PIPE SIZE	6"	4.0	2.0	3.0
	8"	8.0	4.0	6.0
	12"	15	10	10

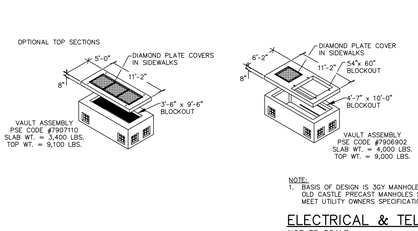


PLASTIC MANHOLE STEPS
NOT TO SCALE



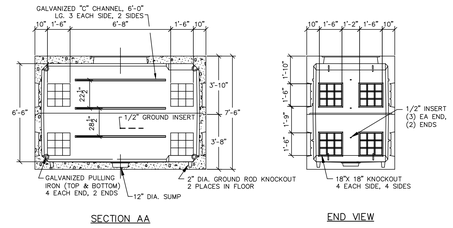
NOTE:
SEE THRUST/ RETAINER GLAND SCHEDULE FOR TYPE OF BLOCKING TO BE USED ON BENDS

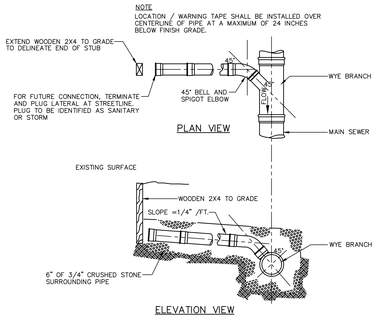
TEE & BEND BLOCKING
NOT TO SCALE



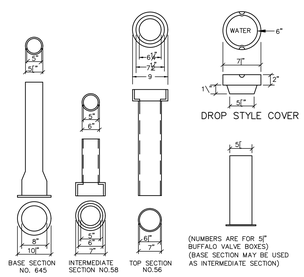
NOTE:
1. BASIS OF DESIGN IS 3GY MANHOLE BY OLD CASTLE PRECAST MANHOLES SHALL MEET UTILITY OWNERS SPECIFICATIONS.

ELECTRICAL & TELECOMMUNICATIONS MANHOLE
NOT TO SCALE

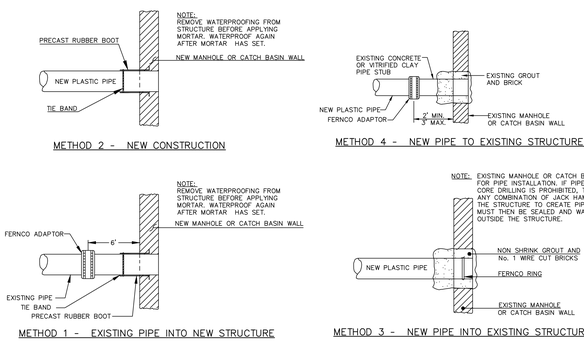




TYPICAL SEWER LATERAL WYE CONNECTION
NOT TO SCALE



VALVE BOX & COVER
NOT TO SCALE



PLASTIC PIPE CONNECTION
NOT TO SCALE

TABLE OF DIMENSIONS
PVC, TRUSS, CMP, & POLYETHYLENE PIPE

D	A	B	C	VOL. BASE /100' UNSHEETED O. D. SOCKET
8"	3'- 0"	1'- 1 1/2"	0'- 1/2"	7.358 10 3/8"
10"	3'- 0"	1'- 0 3/8"	0'- 0 5/8"	7.658 12 1/2"
12"	3'- 0"	0'- 11 3/8"	0'- 0 5/8"	7.933 14 1/2"
14"	3'- 0"	0'- 10 3/8"	0'- 0 5/8"	8.178 16 3/4"
16"	3'- 0"	0'- 9 1/4"	0'- 0 3/4"	8.447 19"
18"	3'- 0"	0'- 8 1/4"	0'- 0 3/4"	8.663 21 1/8"
20"	3'- 0"	0'- 7 3/8"	0'- 0 3/4"	8.815 23 3/8"
24"	3'- 1 3/4"	0'- 6"	0'- 0 7/8"	9.633 27 3/4"
27"	3'- 5 1/4"	0'- 6"	0'- 1 1/8"	10.959 31 1/8"
30"	3'- 8 1/4"	0'- 6"	0'- 1 1/8"	12.156 34 1/2"
33"	3'- 11 1/4"	0'- 6"	0'- 1 1/8"	13.151 38 1/8"
36"	4'- 2 3/4"	0'- 6"	0'- 1 3/8"	14.910
A = WIDTH OF UNSHEETED TRENCH				

TABLE OF DIMENSIONS
REINFORCED CONCRETE PIPE

D	A	B	C	VOL. BASE /100' UNSHEETED O. D. BELL
12"	3'- 0"	0'- 10"	0'-2"	8.319 20 1/4"
15"	3'- 0"	0'- 8 1/4"	0'- 2 1/4"	8.626 24 1/8"
18"	3'- 0"	0'- 6 1/2"	0'- 2 1/2"	8.925 28"
21"	3'- 0 1/2"	0'- 6"	0'-2 3/4"	9.266 31 7/8"
24"	3'- 8"	0'- 6"	0'- 3"	11.235 35 3/4"
27"	3'- 9 1/2"	0'- 6"	0'- 3 1/4"	12.655
30"	4'- 1"	0'- 6"	0'- 3 1/2"	14.120
33"	4'- 4 1/2"	0'- 6"	0'- 3 3/4"	15.722
36"	4'- 8"	0'- 6"	0'- 4"	17.338
42"	5'- 3"	0'- 6"	0'- 4 1/2"	20.726
48"	5'- 10"	0'- 6"	0'- 5"	24.483
54"	6'- 5"	0'- 6"	0'- 5 1/2"	28.404
60"	7'- 0"	0'- 6"	0'- 6"	32.607
66"	7'- 7"	0'- 6"	0'- 6 1/2"	37.074
72"	8'- 2"	0'- 6"	0'- 7"	41.886
78"	8'- 9"	0'- 6"	0'- 7 1/2"	46.881
84"	9'- 4"	0'- 6"	0'- 8"	52.149
90"	9'- 11"	0'- 6"	0'- 8 1/2"	57.769
96"	10'-6"	0'- 6"	0'- 9"	63.552
27" in. THROUGH 96 in. INCLUSIVE - TONGUE & GROOVE JOINTS				

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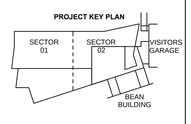
COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801
MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

PROJECT TITLE
Congress Street Building
22 Bramhall Street
Portland ME 04102

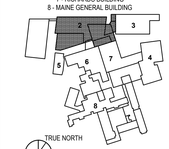
STATE OF MAINE — DANIEL L RILEY — No. 9999 — REGISTERED PROFESSIONAL ENGINEER — 9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN
1 - NOT USED
2 - CONGRESS STREET
3 - VISITOR GARAGE
4 - EAST TOWER
5 - CENTRAL UTILITY PLANT
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING



CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE
DETAILS CONGRESS STREET EXPANSION

SHEET NUMBER
C30-03

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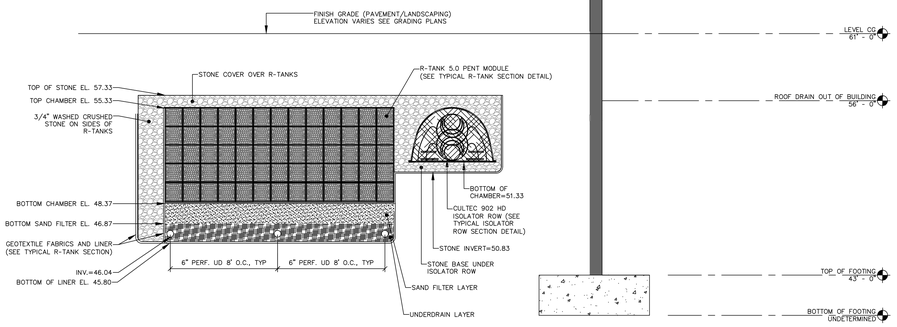
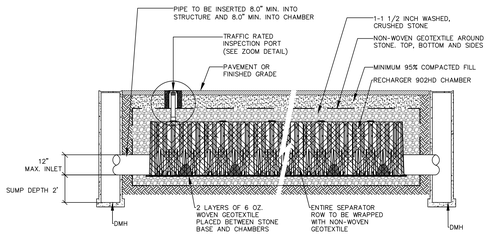


SUBSURFACE SAND FILTER SECTION
NOT TO SCALE



TYPICAL ISOLATOR ROW CROSS SECTION
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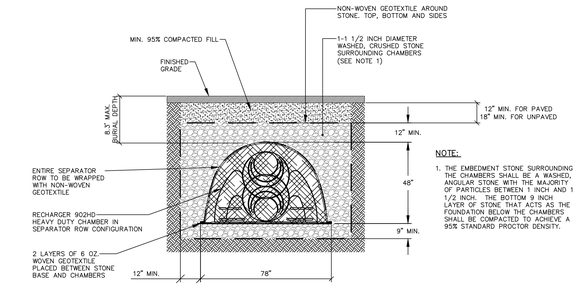
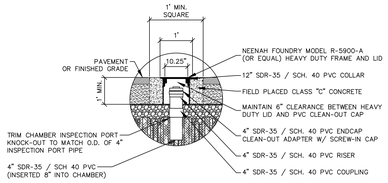
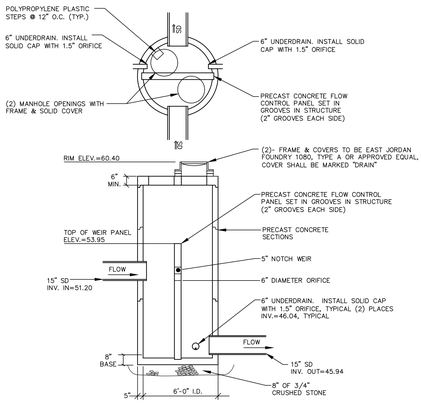


NOTE:
1. THE EMBEDMENT STONE SURROUNDING THE CHAMBERS SHALL BE A WASHED, ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 1 INCH AND 1 1/2 INCH. THE BOTTOM 9 INCH LAYER OF STONE, THAT ACTS AS THE FOUNDATION BELOW THE CHAMBERS SHALL BE COMPACTED TO ACHIEVE A 95% STANDARD PROCTOR DENSITY.

TYPICAL ISOLATOR ROW SECTION
NOT TO SCALE

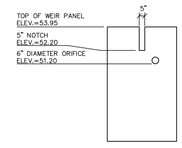


ISOLATOR ROW INSPECTION PORT
NOT TO SCALE



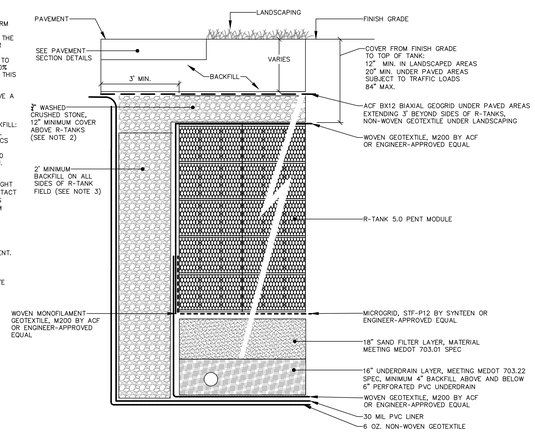
NOTES:
1. SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER APPROVAL.
2. STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.

OUTLET CONTROL STRUCTURE (OCS-1)
NOT TO SCALE

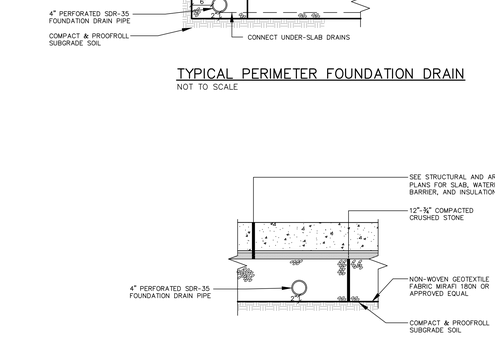


WEIR PANEL (OCS-1)
NOT TO SCALE

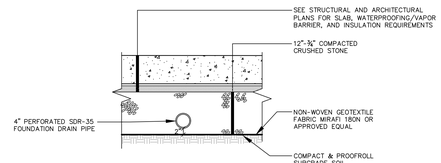
NOTES:
1. THE SAND FILTER MATERIAL SHALL BE A UNIFORM MIX, FREE OF STONES LARGER THAN 2 INCHES, STUMPS, ROOTS, OR OTHER SIMILAR OBJECTS. THE MATERIAL SHALL MEET THE SPECIFICATIONS FOR MDOT AGGREGATE SAND (MDOT #703.01). THIS AGGREGATE SAND SHALL BE MIXED WITH LOAM TO ACHIEVE A MATERIAL WITH BETWEEN 8% AND 10% PASSING THE #200 SIEVE. THE LOAM USED IN THIS MIXTURE SHALL HAVE LESS THAN 2% CLAY CONTENT. THIS 18 INCH LAYER OF SAND FILTRATION MEDIA SHALL BE PLACED TO ACHIEVE A LEVEL OF COMPACTION BETWEEN 92% AND 95% STANDARD PROCTOR DENSITY.
2. FIRST 12" COVER MUST BE FREE DRAINING BACKFILL: 3/4" WASHED CRUSHED STONE. ADDITIONAL FILL MAY BE STRUCTURAL FILL: STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4, A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT ACF ENVIRONMENTAL IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).
3. SIDE BACKFILL: 24" MIN. OF FREE DRAINING BACKFILL: STONE <1.5". MUST BE FREE FROM LUMPS, DEBRIS AND OTHER SHARP OBJECTS. SPREAD EVENLY TO PREVENT R-TANK™ MOVEMENT. COMPACT SIDE BACKFILL WITH POWERED MECHANICAL COMPACTOR IN 12" LIFTS.
4. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK MODULE SHEET.



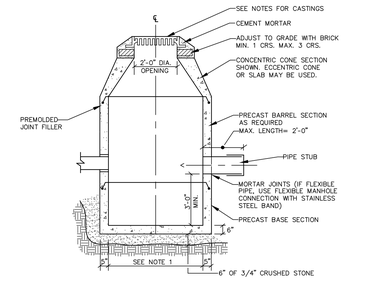
TYPICAL R-TANK^{HD} SECTION
NOT TO SCALE



TYPICAL PERIMETER FOUNDATION DRAIN
NOT TO SCALE

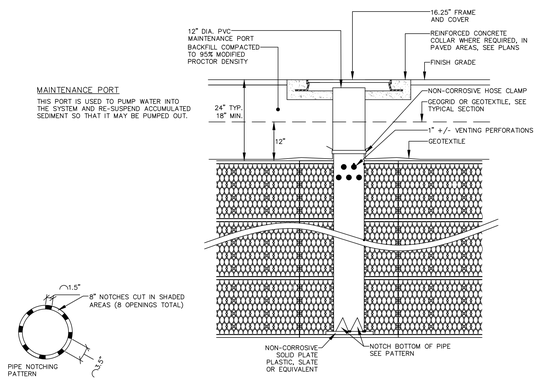


TYPICAL UNDER SLAB DRAIN
NOT TO SCALE

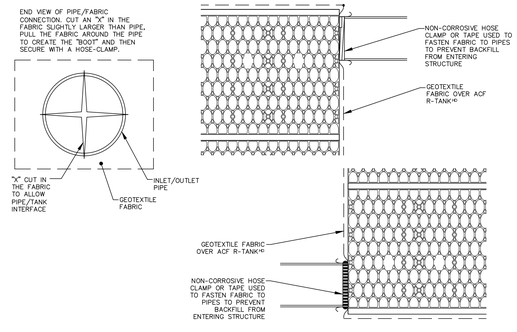


NOTES:
1. 4'-0" I.D. TYPICAL. SOME STRUCTURES MAY REQUIRE LARGER I.D. PROVIDE SHOP DRAWINGS.
2. DRAINAGE STRUCTURES TO BE DESIGNED FOR H-20 LOADING.
3. PIPE SIZES AND INVERTS AS NOTED ON PLANS.
4. CATCH BASIN FRAME AND GRATE TO BE NEENAH FOUNDRY R-2554, OR APPROVED EQUAL.

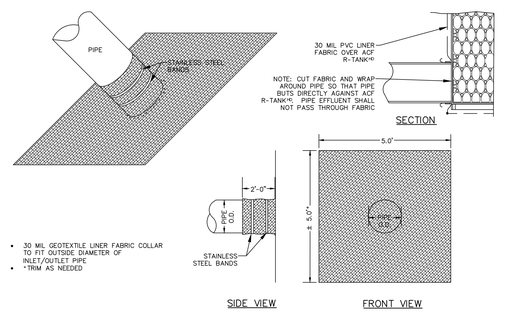
TYPICAL CATCH BASIN
NOT TO SCALE



R-TANK^{HD} TYPICAL MAINTENANCE PORT
NOT TO SCALE



R-TANK^{HD} TYPICAL TANK INLET/OUTLET DETAIL
NOT TO SCALE



- 30 MIL GEOTEXTILE LINER FABRIC COLLAR TO FIT OUTSIDE DIAMETER OF INLET/OUTLET PIPE
- *TRIM AS NEEDED

GEOTEXTILE PIPE BOOT FOR R-TANK^{HD}
NOT TO SCALE

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MEDICAL EQUIPMENT PLANNING
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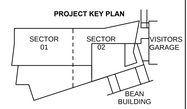
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE — DANIEL L. RILEY No. 9999 — PROFESSIONAL ENGINEER — 10/30/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
3 - VISITOR GARAGE
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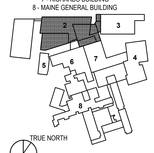

TRUE NORTH

CITY SUBMITTAL NO. 2
OCTOBER 30, 2018

NO	ISSUE	DATE
2	CITY SUBMITTAL	10/30/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE
DETAILS STORMWATER SYSTEM CONGRESS STREET EXPANSION

SHEET NUMBER
C30-04

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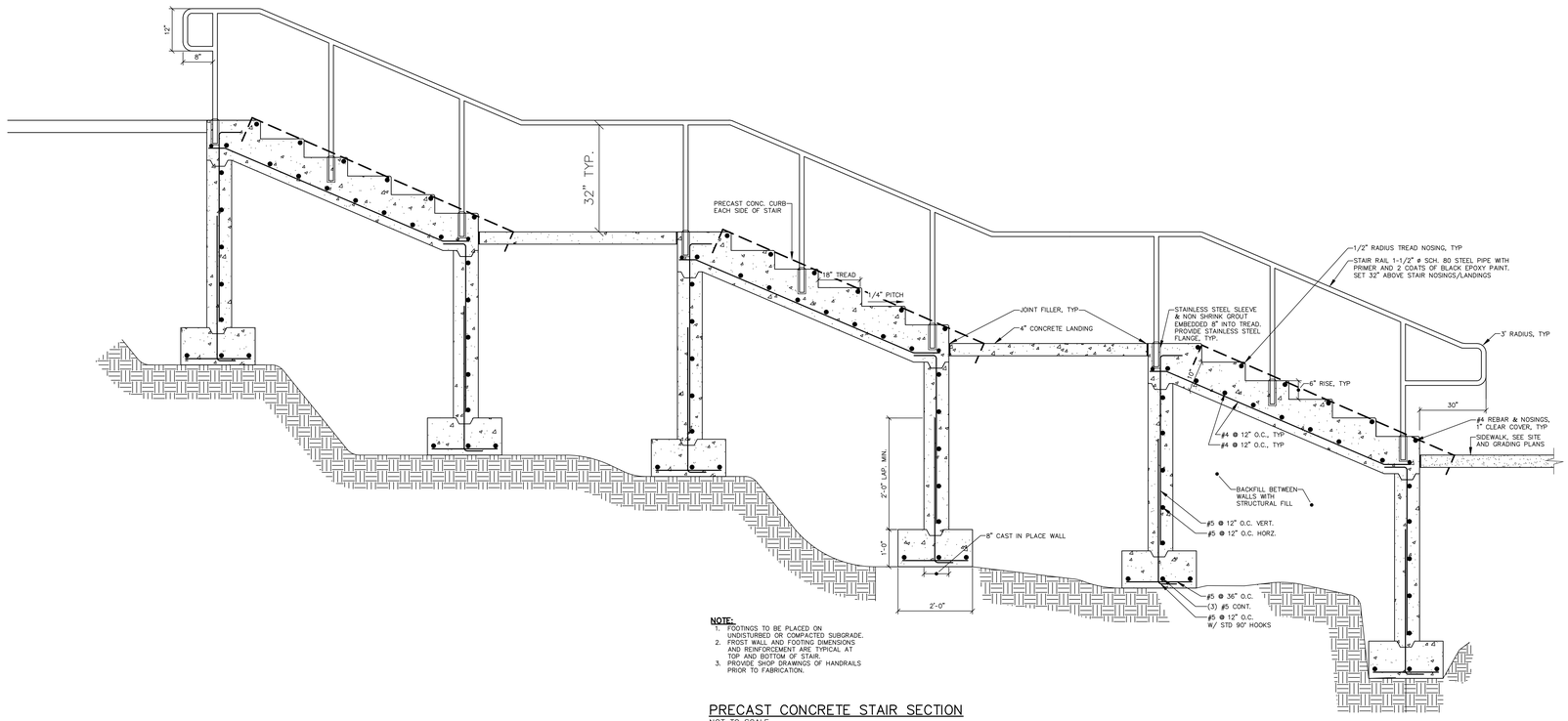

NOTE:
1. FOOTINGS TO BE PLACED ON UNDISTURBED OR COMPACTED SUBGRADE.
2. FROST WALL AND FOOTING DIMENSIONS AND REINFORCEMENT ARE TYPICAL AT TOP AND BOTTOM OF STAIR.
3. PROVIDE SHOP DRAWINGS OF HANDRAILS PRIOR TO FABRICATION.

PRECAST CONCRETE STAIR SECTION
NOT TO SCALE

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Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

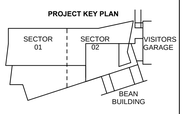
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 14667
LICENSED
PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

PROJECT KEY PLAN



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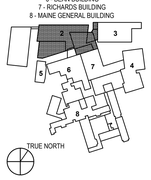

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL/MAM
Checked	DLR
Approved	DLR

TITLE
DETAILS
STAIR SECTION
CONGRESS STREET EXPANSION

SHEET NUMBER

C30-05

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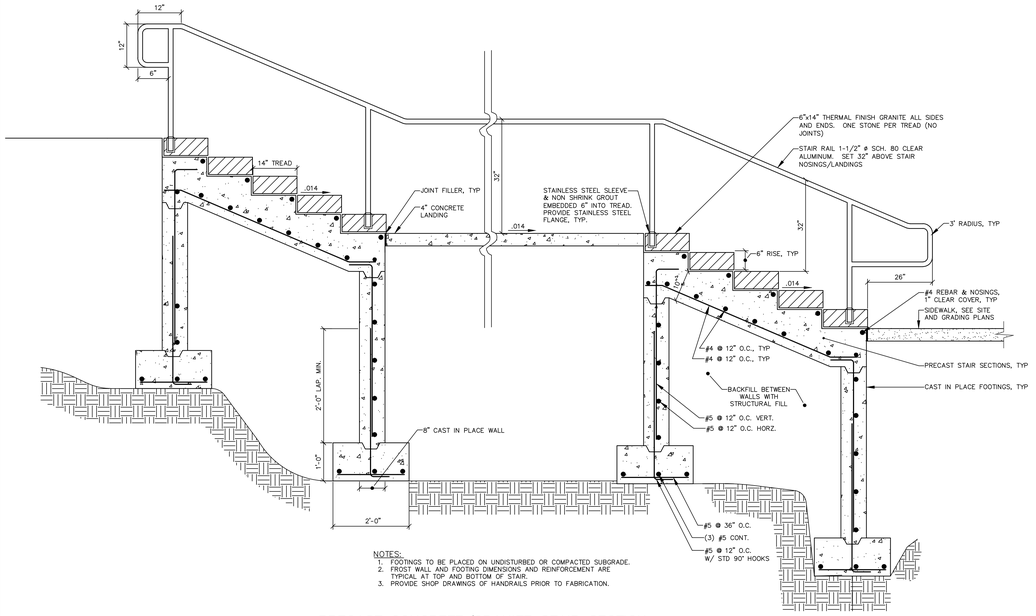
154660-CONGRESS.dwg, TAB: WALLS



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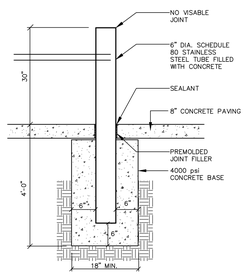
PRECAST CONCRETE/GRANITE STAIR SECTION
NOT TO SCALE



STAINLESS STEEL BOLLARD
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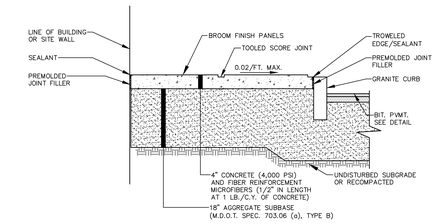
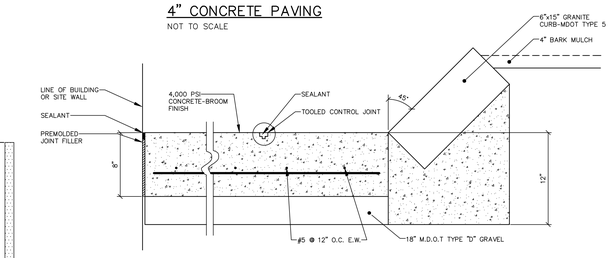
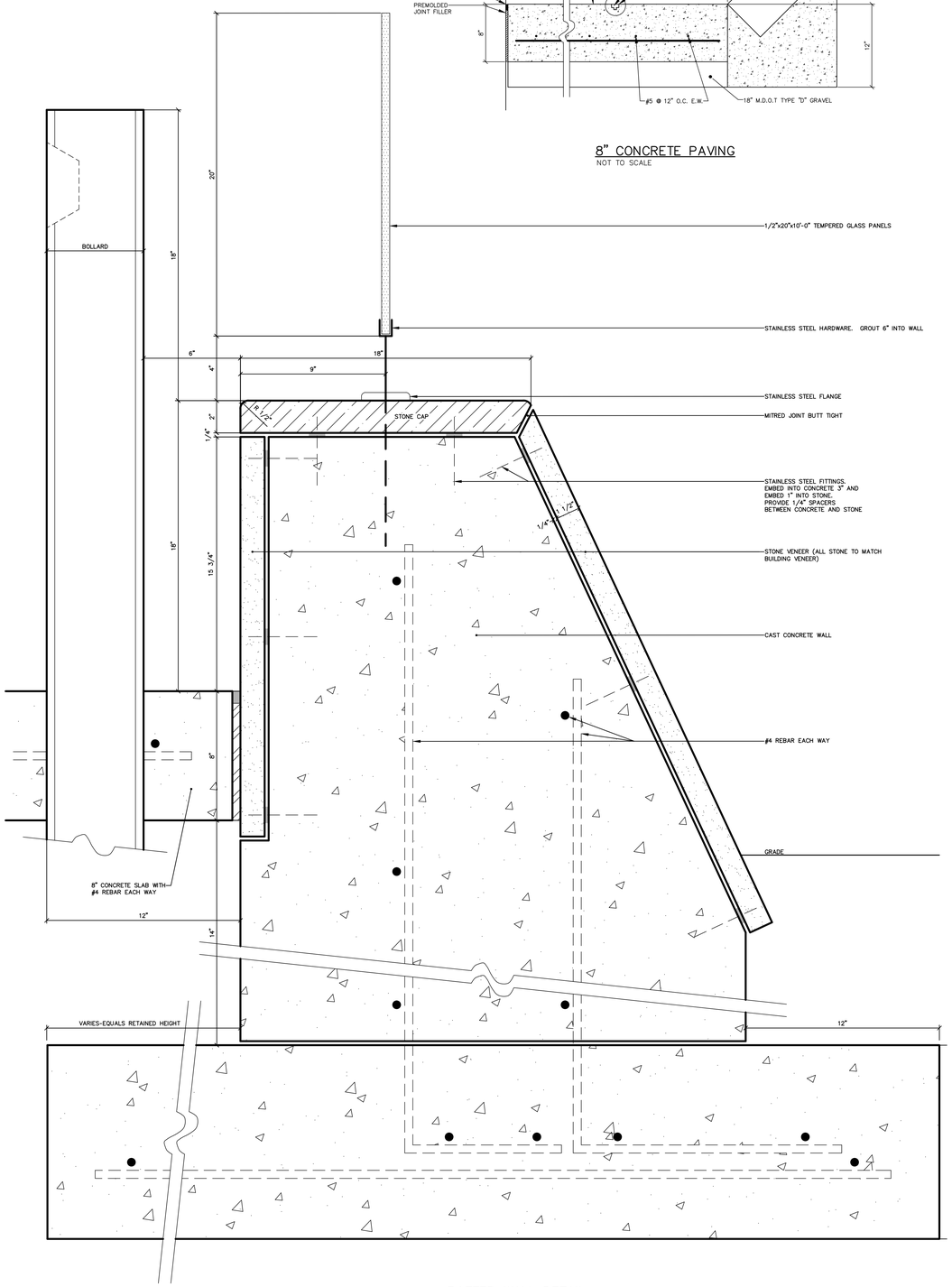
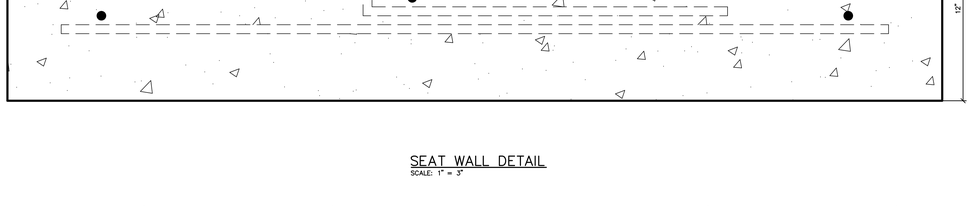


4" CONCRETE PAVING
NOT TO SCALE



8" CONCRETE PAVING
NOT TO SCALE





SEAT WALL DETAIL
SCALE: 1" = 3"

BATTER WALL DETAIL
SCALE: 1" = 3"

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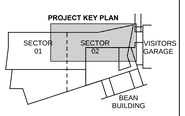
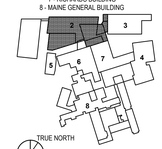
KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
3 - VISITOR GARAGE
4 - EAST TOWER
5 - CENTRAL UTILITY PLANT
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING



CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	JAR
Checked	WTC
Approved	DLR

TITLE

WALL DETAILS UPPER/LOWER PLAZA CONGRESS STREET EXPANSION

SHEET NUMBER

C30-06

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EROSION CONTROL MEASURES

PRE-CONSTRUCTION PHASE

PRIOR TO CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE DOWNGRADIENT EDGE OF ANY AREA TO BE DISTURBED AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE DISTURBED AREA. SEDIMENT BARRIERS SHOULD BE INSTALLED DOWNGRADIENT OF SOIL OR SEDIMENT STOCKPILES AND STORMWATER PREVENTED FROM RUNNING ONTO THE STOCKPILE. MAINTAIN THE SEDIMENT BARRIERS BY REMOVING ACCUMULATED SEDIMENT, OR REMOVING AND REPLACING THE BARRIER, UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. WHERE A DISCHARGE TO A STORM DRAIN INLET OCCURS, IF THE STORM DRAIN CARRIES WATER DIRECTLY TO A SURFACE WATER AND YOU HAVE AUTHORITY TO ACCESS THE STORM DRAIN INLET, YOU MUST INSTALL AND MAINTAIN PROTECTION MEASURES THAT REMOVE SEDIMENT FROM THE DISCHARGE.

PRIOR TO CONSTRUCTION, PROPERLY INSTALL A STABILIZED CONSTRUCTION ENTRANCE (SCE) AT ALL POINTS OF EGRESS FROM THE SITE. THE SCE IS A STABILIZED PAD OF AGGREGATE, UNDERLAIN BY A GEOTEXTILE FILTER FABRIC, USED TO PREVENT TRAFFIC FROM TRACKING MATERIAL AWAY FROM THE SITE ONTO PUBLIC ROWS. MAINTAIN THE SCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PREPARE A DETAILED SCHEDULE AND MARKED UP PLAN INDICATING AREAS AND COMPONENTS OF THE WORK AND KEY DATES SHOWING DATE OF DISTURBANCE AND COMPLETION OF THE WORK. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE MUNICIPAL STAFF. THREE COPIES OF THE SCHEDULE AND MARKED UP PLAN SHALL BE PROVIDED TO THE MUNICIPALITY THREE DAYS PRIOR TO THE SCHEDULED PRE-CONSTRUCTION MEETING. SPECIAL ATTENTION SHALL BE GIVEN TO THE 14 DAY LIMIT OF DISTURBANCE IN THE SCHEDULE ADDRESSING TEMPORARY AND PERMANENT VEGETATION MEASURES.

CONSTRUCTION AND POST-CONSTRUCTION PHASE

DURING CONSTRUCTION

1. INSPECTION AND CORRECTIVE ACTION:
   INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION CONTROL MEASURES, MATERIALS STORAGE AREAS THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. INSPECT THESE AREAS AT LEAST ONCE A WEEK AS WELL AS BEFORE AND WITHIN 24 HOURS AFTER A STORM EVENT (RAINFALL). AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT THE INSPECTIONS.
2. MAINTENANCE:
   IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE REPAIRED, THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NO LATER THAN THE END OF THE NEXT WORKDAY. IF ADDITIONAL BMPS OR SIGNIFICANT REPAIR OF BMPS ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.
3. DOCUMENTATION:
   KEEP A LOG (REPORT) SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE LOG MUST INCLUDE THE NAME(S) AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, AND THE DATE(S) OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLES ACCESS POINTS TO THE PARCEL. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE LOG THE CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN.

   THE LOG MUST BE MADE ACCESSIBLE TO DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.

POST-CONSTRUCTION

1. PLAN:
   CARRY OUT AN APPROVED INSPECTION AND MAINTENANCE PLAN THAT IS CONSISTENT WITH THE MINIMUM REQUIREMENTS OF THIS SECTION. THE PLAN MUST ADDRESS INSPECTION AND MAINTENANCE OF THE PROJECTS PERMANENT EROSION CONTROL MEASURES AND STORMWATER MANAGEMENT SYSTEMS. THE PLAN MAY BE COMBINED WITH THE PLAN LISTED IN SECTION 2(A) OF THIS APPENDIX. SEE SECTION 7(C)(2) FOR SUBMISSION REQUIREMENTS.
2. INSPECTION AND MAINTENANCE:
   ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT THE INSPECTIONS. THE FOLLOWING FACILITIES, AND MEASURES MUST BE INSPECTED AND IDENTIFIED DEFICIENCIES MUST BE CORRECTED: AREAS, FACILITIES, AND MEASURES OTHER THAN THOSE LISTED BELOW MAY ALSO REQUIRE INSPECTION ON A SPECIFIC SITE. INSPECTION OR MAINTENANCE TASKS OTHER THAN THOSE DISCUSSED BELOW MUST BE INCLUDED IN THE MAINTENANCE PLAN DEVELOPED FOR A SPECIFIC SITE.
3. REGULAR MAINTENANCE:
   CLEAR ACCUMULATIONS OF WINTER SAND IN PARKING LOTS AND ALONG ROADWAYS AT LEAST ONCE A YEAR, PREFERABLY IN THE SPRING. ACCUMULATIONS ON PAVEMENT MAY BE REMOVED BY PAVEMENT SWEEPING. ACCUMULATIONS OF SAND ALONG ROAD SHOULDERS MAY BE REMOVED BY GRADING EXCESS SAND TO THE PAVEMENT EDGE AND REMOVING IT MANUALLY OR WITH A FRONT-END LOADER. GRADING OF GRAVEL ROADS, OR GRADING OF THE GRAVEL SHOULDERS OF GRAVEL OR PAVED ROADS, MUST BE ROUTINELY PERFORMED TO ENSURE THAT STORMWATER DRAINS IMMEDIATELY OFF THE ROAD SURFACE TO ADJACENT BUFFER AREAS OR STABLE DITCHES, AND IS NOT IMPEDED BY ACCUMULATIONS OF GRADED MATERIAL ON THE ROAD SHOULDER OR BY EXCAVATION OF FALSE DITCHES IN THE SHOULDER. IF WATER BANS OR OPEN-TOP CULVERTS ARE USED TO DIVERT RUNOFF FROM ROAD SURFACES, CLEAN-OUT ANY SEDIMENTS WITHIN OR AT THE OUTLET OF THESE STRUCTURES TO RESTORE THEIR FUNCTION.
4. DOCUMENTATION:
   KEEP A LOG (REPORT) SUMMARIZING INSPECTIONS, MAINTENANCE, AND ANY CORRECTIVE ACTIONS TAKEN. THE LOG MUST INCLUDE THE DATE ON WHICH EACH INSPECTION OR MAINTENANCE TASK WAS PERFORMED, A DESCRIPTION OF THE INSPECTION FINDINGS OR MAINTENANCE COMPLETED, AND THE NAME OF THE INSPECTOR OR MAINTENANCE PERSONNEL PERFORMING THE TASK. IF A MAINTENANCE TASK REQUIRES THE CLEAN-OUT OF ANY SEDIMENTS OR DEBRIS, INDICATE WHERE THE SEDIMENT AND DEBRIS WAS DISPOSED AFTER REMOVAL. THE LOG MUST BE MADE ACCESSIBLE TO THE DEPARTMENT STAFF AND A COPY PROVIDED TO THE DEPARTMENT UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST FIVE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.

EROSION CONTROL APPLICATIONS & MEASURES

THE PLACEMENT OF EROSION CONTROL MEASURES SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED WITHIN THE CURRENT MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION CHAPTER 500 RULES, THE DEPARTMENTS BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS IN THE PLAN SET. EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE THE ACTIVITY BEGINS. MEASURES MUST REMAIN IN PLACE AND FUNCTIONAL UNTIL THE SITE IS PERMANENTLY STABILIZED. ADEQUATE AND TIMELY TEMPORARY AND PERMANENT STABILIZATION MEASURES MUST BE TAKEN.

1. POLLUTION PREVENTION:
   WHENEVER PRACTICABLE; NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE PLACE BETWEEN 30 FEET AND 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE UNDISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, EROSION CONTROLS MUST BE DOUBLED. IF DISTURBANCE ACTIVITIES TAKE PLACE LESS THAN 30 FEET FROM ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE UNDISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, EROSION CONTROLS MUST BE DOUBLED AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 48 HOURS.
2. TEMPORARY MULCHING:
   ALL DISTURBED AREAS SHALL BE MULCHED WITH MATERIALS SPECIFIED BELOW PRIOR TO ANY STORM EVENT. ALL DISTURBED AREAS NOT FINAL GRADED WITHIN 7 DAYS SHALL BE MULCHED. ALSO, AREAS THAT HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED, SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING. EROSION CONTROL BLANKETS ARE RECOMMENDED TO BE USED AT THE BASE OF GRASSED WATERWAYS AND DITCHES GREATER THAN 5% MULCH ANCHORING SHOULD BE USED ON SLOPES GREATER THAN 5% AFTER SEPTEMBER 15TH OF THE CONSTRUCTION YEAR (SEE WINTER EROSION CONTROL NOTES).
   TYPES OF MULCH:
   HAY OR STRAW: SHALL BE APPLIED AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE).
   EROSION CONTROL MIX: SHALL BE PLACED EVENLY AND MUST PROVIDE 100% SOIL COVERAGE. EROSION CONTROL MIX SHALL BE APPLIED SUCH THAT THE THICKNESS ON SLOPES 3:1 OR LESS IS 2 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THE THICKNESS ON SLOPES BETWEEN 3:1 AND 2:1 SHALL BE 4 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THIS SHALL NOT BE USED ON SLOPES GREATER THAN 2:1.
   EROSION CONTROL BLANKET: SHALL BE INSTALLED SUCH THAT CONTINUOUS CONTACT BETWEEN THE MAT AND THE SOIL IS OBTAINED. INSTALL BLANKETS AND STAPLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3. SOIL STOCKPILES:
   STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.
4. NATURAL RESOURCES PROTECTION:
   ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE STABILIZED USING TEMPORARY MULCHING (AS DESCRIBED IN PART 1. OF THIS SECTION) OR OTHER NON-ERODIBLE COVER WITHIN 48 HOURS OF EXPOSURE OR PRIOR TO ANY STORM EVENT. SEDIMENT BARRIERS (AS DESCRIBED IN PART 4. OF THIS SECTION) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. IF DISTURBANCE TAKES PLACE LESS THAN 30 FEET FROM A PROTECTED RESOURCE AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TO THE RESOURCE, PERMETER EROSION CONTROLS MUST BE DOUBLED.
5. SEDIMENT BARRIERS:
   PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS SHALL BE STAKED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. SEDIMENT BARRIERS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 85%-90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION.

   SILT FENCE: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE EFFECTIVE HEIGHT OF THE FENCE SHALL NOT EXCEED 36 INCHES. IT IS RECOMMENDED THAT SILT FENCE BE REMOVED BY CUTTING THE FENCE MATERIALS AT GROUND LEVEL SO AS TO AVOID ADDITIONAL SOIL DISTURBANCE.

   HAY BALES: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. BALES SHALL BE WIRE-BOUND OR STRING-TIED AND THESE BINDINGS MUST REMAIN PARALLEL WITH THE GROUND SURFACE DURING INSTALLATION TO PREVENT DETERIORATION OF THE BINDINGS. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

   EROSION CONTROL MIX: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE MIX SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4 INCHES IN DIAMETER. THE MIX COMPOSITION SHALL MEET THE STANDARDS DESCRIBED WITHIN THE MDEP BEST MANAGEMENT PRACTICES. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER.

   CONTINUOUS CONTAINED BERM: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THIS SEDIMENT BARRIER IS EROSION CONTROL MIX PLACED WITHIN A SYNTHETIC TUBULAR NETTING AND PERFORMS AS A STURDY SEDIMENT BARRIER THAT WORKS WELL ON HARD GROUND SUCH AS FROZEN CONDITIONS, TRAVELED AREAS OR PAVEMENT. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER.
6. TEMPORARY CHECK DAMS:
   SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. CHECK DAMS ARE TO BE PLACED WITHIN DITCHES/ SWALES AS SPECIFIED ON THE DESIGN PLANS IMMEDIATELY AFTER FINAL GRADING. CHECK DAMS SHALL BE 2 FEET HIGH. TEMPORARY CHECK DAMS MAY BE REMOVED ONLY AFTER THE ROADWAYS ARE PAVED AND THE VEGETATED SWALE ARE ESTABLISHED WITH AT LEAST 85%-90% OF VIGOROUS PERENNIAL GROWTH. THE AREA BENEATH THE CHECK DAM MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER REMOVAL OF THE CHECK DAM.

STONE CHECK DAMS: SHOULD BE CONSTRUCTED OF 2 TO 3 INCH STONE AND PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAT THE OUTER EDGES.

HAY BALE CHECK DAMS: WE DO NOT RECOMMEND THE USE OF HAY BALES AS CHECK DAMS.

MANUFACTURED CHECK DAMS: MANUFACTURED CHECK DAMS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF AUTHORIZED BY THE PROPER LOCAL, STATE OR FEDERAL REGULATING AGENCIES. THESE UNITS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.

1. STORMDRAIN INLET PROTECTION:
   INLET PROTECTION SHALL BE PLACED AROUND A STORMDRAIN DROP INLETOR CURB INLET PRIOR TO PERMANENT STABILIZATION OF THE IMMEDIATE AND UPSTREAM DISTURBED AREAS. THEY SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENTS AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES. ANY RESULTANT PONDING OF WATER FROM THE PROTECTION METHOD MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES.

   HAY BALE DROP INLET PROTECTION: WE DO NOT RECOMMEND THE USE OF HAY BALES AS INLET PROTECTION.

   CONCRETE BLOCK AND STONE INLET SEDIMENT FILTER (DROP OR CURB INLET): SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE HEIGHT OF THE CONCRETE BLOCK BARRIER CAN VARY BUT MUST BE BETWEEN 12 AND 24 INCHES TALL. A MINIMUM OF 1 INCH CRUSHED STONE SHALL BE USED.

   MANUFACTURED SEDIMENT BARRIERS AND FILTER (DROP OR CURB INLET): MANUFACTURED FILTERS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. STABILIZED CONSTRUCTION EXIT:
   PRIOR TO CLEARING AND/OR GRUBBING THE SITE A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED WHEREVER TRAFFIC WILL EXIT THE CONSTRUCTION SITE ONTO A PAVED ROADWAY IN ORDER TO MINIMIZE THE TRACKING OF SEDIMENT AND DEBRIS FROM THE CONSTRUCTION SITE ONTO PUBLIC ROADWAYS. THE ENTRANCES AND ADJACENT ROADWAY AREAS SHALL BE PERIODICALLY SWEPT OR WASHED TO FURTHER MINIMIZE THE TRACKING OF MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA. STABILIZED CONSTRUCTION EXITS SHALL BE CONSTRUCTED IN AREAS SPECIFIED ON THE PLANS AND AS DETAILED ON THE PLANS.
3. DUST CONTROL:
   DUST CONTROL DURING CONSTRUCTION SHALL BE ACHIEVED BY THE USE OF A WATERING TRUCK TO PERIODICALLY SPRINKLE THE EXPOSED ROADWAY AREAS AS NECESSARY TO REDUCE DUST DURING THE DRY MONTHS. APPLYING OTHER DUST CONTROL PRODUCTS SUCH AS CALCIUM CHLORIDE OR OTHER MANUFACTURED PRODUCTS ARE ALLOWED IF AUTHORIZED BY THE PROPER LOCAL, STATE AND/OR FEDERAL REGULATING AGENCIES. HOWEVER, IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO MITIGATE DUST AND SOIL LOSS FROM THE SITE.
4. TEMPORARY VEGETATION:
   TEMPORARY VEGETATION SHALL BE APPLIED TO DISTURBED AREAS THAT WILL NOT RECEIVE FINAL GRADING FOR PERIODS UP TO 12 MONTHS. THIS PROCEDURE SHOULD BE USED EXTENSIVELY IN AREAS ADJACENT TO NATURAL RESOURCES. SEEDBED PREPARATION AND APPLICATION OF SEED SHALL BE CONDUCTED AS INDICATED IN THE PERMANENT VEGETATION SECTION OF THIS NARRATIVE. SPECIFIC SEEDS (FAST GROWING AND SHORT LIVING) SHALL BE SELECTED FROM THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL DATED 3/2003 OR LATER. ALTERNATIVE EROSION CONTROL MEASURES SHOULD BE USED IF SEEDING CAN NOT BE DONE BEFORE SEPTEMBER 15TH OF THE CONSTRUCTION YEAR.
5. PERMANENT VEGETATION:
   REVEGETATION MEASURES SHALL COMMENCE IMMEDIATELY UPON COMPLETION OF FINAL GRADING OF AREAS TO BE LOAMED AND SEEDED. THE APPLICATION OF SEED SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR. PLEASE REFER TO THE WINTER EROSION CONTROL NOTES FOR MORE DETAIL. REVEGETATION MEASURES SHALL CONSIST OF THE FOLLOWING:

   SEEDBED PREPARATION:
   A. FOUR (4) INCHES OF LOAM SHALL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE. LOAM SHALL BE FREE OF SUBSOIL, CLAY LUMPS, STONES AND OTHER OBJECTS OVER 2 INCHES OR LARGER IN ANY DIMENSION, AND WITHOUT WEEDS, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
   B. SOILS TESTS SHALL BE TAKEN AT THE TIME OF SOIL STRIPPING TO DETERMINE FERTILIZATION REQUIREMENTS. SOILS TESTS SHALL BE TAKEN PROMPTLY AS TO NOT INTERFERE WITH THE 14-DAY LIMIT ON SOIL EXPOSURE. BASED UPON TEST RESULTS, SOIL AMENDMENTS MUST BE INCORPORATED INTO THE SOIL PRIOR TO FINAL SEEDING. IN LIEU OF SOIL TESTS, SOIL AMENDMENTS MAY BE APPLIED AS FOLLOWS:

ITEM	APPLICATION RATE
10-20-20 FERTILIZER (N-P2O5-K2O OR EQUAL)	18.4 LBS./1,000 S.F.
GROUND LIMESTONE (50% CALCIUM & MAGNESIUM OXIDE)	138 LBS./1,000 S.F.

   C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH PROPER EQUIPMENT. ROLL THE AREA TO FIRM THE SEEDBED EXCEPT ON CLAY OR SILTY SOILS OR COARSE SAND.

   APPLICATION OF SEED:
   A. SEEDING: SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR. GENERALLY A SEED MIXTURE MAY BE APPLIED AS FOLLOWS: (MDEP SEED MIX 2 IS DISPLAYED)

SEED TYPE	APPLICATION RATE
CREEPING RED FESCUE	0.46 LBS./1,000 S.F. (20 LBS./ACRE)
REDTOP	0.05 LBS./1,000 S.F. (2 LBS./ACRE)
TALL FESCUE	0.46 LBS./1,000 S.F. (20 LBS./ACRE)
TOTAL:	0.97 LBS./1,000 S.F. (42 LBS./ACRE)

   NOTE: A SPECIFIC SEED MIXTURE SHOULD BE CHOSEN TO MATCH THE SOILS CONDITION OF THE SITE. VARIOUS AGENCIES CAN RECOMMEND SEED MIXTURES. MDEP RECOMMENDED SEED MIXTURES ARE IN THE EROSION AND SEDIMENT CONTROL BMP MANUAL DATED 3/2003 OR LATER.

   B. HYDROSEEDING: SHALL BE CONDUCTED ON PREPARED AREAS WITH SLOPES LESS THAN 2:1. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. RECOMMENDED SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.

   C. MULCHING: SHALL COMMENCE IMMEDIATELY AFTER SEED IS APPLIED. REFER TO THE TEMPORARY MULCHING SECTION OF THIS NARRATIVE FOR DETAILS.

SODDING:

FOLLOWING SEEDBED PREPARATION, SOD CAN BE APPLIED IN LIEU OF SEEDING IN AREAS WHERE IMMEDIATE VEGETATION IS MOST BENEFICIAL SUCH AS DITCHES, AROUND STORMWATER DROP INLETS AND AREAS OF AESTHETIC VALUE. SOD SHOULD BE LAID AT RIGHT ANGLES TO THE DIRECTION OF FLOW AT THE LOWEST ELEVATION. SOD SHOULD BE ROLLED OR TAMPED DOWN TO EVEN OUT THE JOINTS ONCE LAID DOWN. WHERE FLOW IS PREVALENT THE SOD MUST BE PROPERLY ANCHORED DOWN. IRRIGATE THE SOD IMMEDIATELY AFTER INSTALLATION. IN MOST CASES, SOD CAN BE INSTALLED DURING ANY NON-FROZEN PERIOD OF THE CONSTRUCTION YEAR, HOWEVER, REFER TO THE WINTER EROSION CONTROL NOTES FOR ANY ACTIVITIES AFTER OCTOBER 1ST.

TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION:

WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

STANDARDS FOR TIMELY STABILIZATION:

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE CONTRACTOR WILL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. THE MDEP WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 8% (12.5H:1V) TO BE A SLOPE. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT WILL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX AS DESCRIBED IN ITEM 2(C.) OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM 2(D.) OF THIS STANDARD.
B. STABILIZE THE SLOPE WITH SOD -- THE CONTRACTOR WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY NOVEMBER 15. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).
C. STABILIZE THE SLOPE WITH EROSION CONTROL MIX -- THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF EROSION CONTROL MIX ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE EROSION CONTROL MIX, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. DO NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 1H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
D. STABILIZE THE SLOPE WITH STONE RIPRAP -- THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

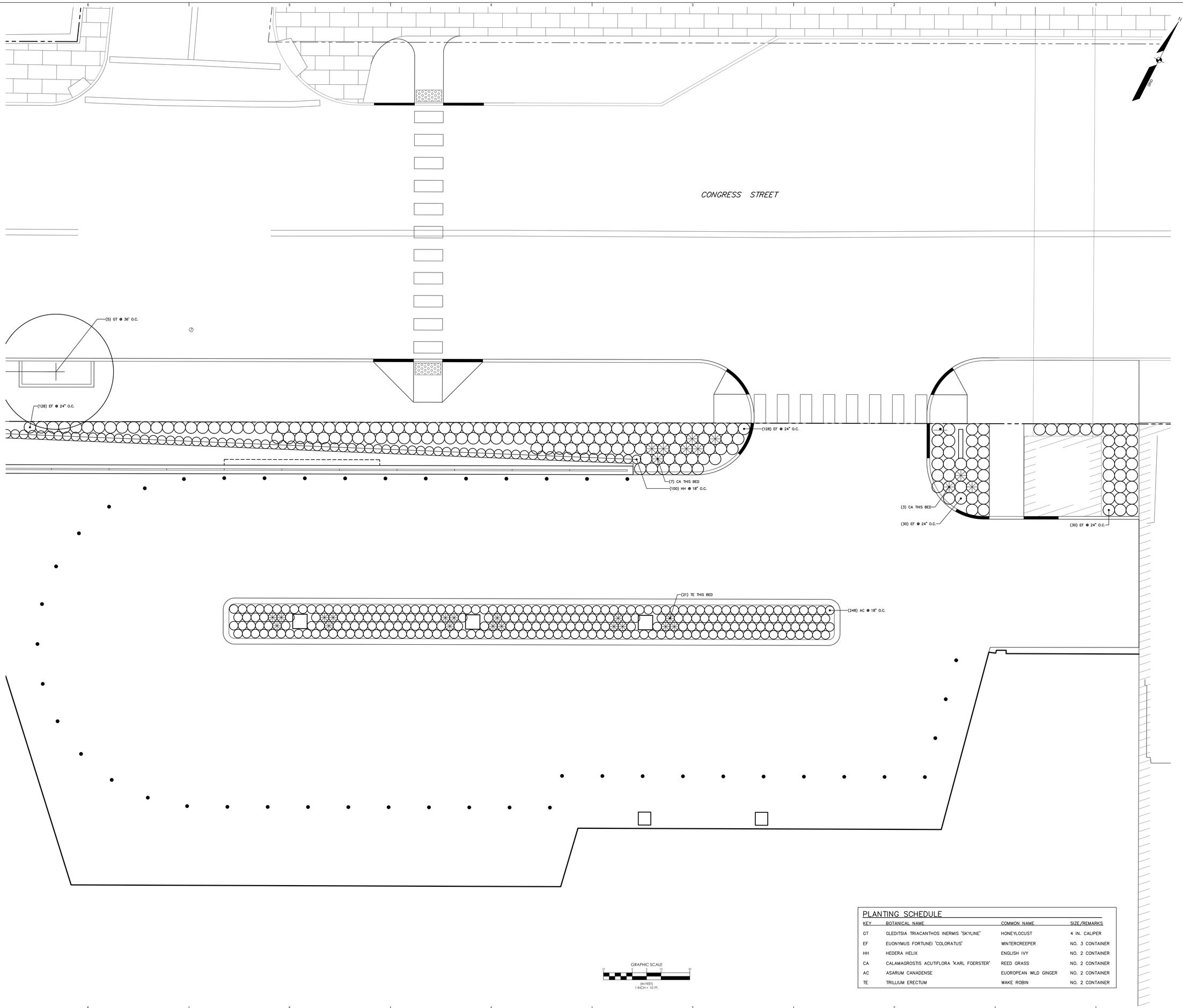
STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS -- BY SEPTEMBER 15 THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 8% IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:

A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE APPLICANT WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM 3(C.) OF THIS STANDARD.
B. STABILIZE THE SOIL WITH SOD -- THE APPLICANT WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
C. STABILIZE THE SOIL WITH MULCH -- BY NOVEMBER 15 THE APPLICANT WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE APPLICANT WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.
D. STABILIZE THE SOIL WITH EROSION CONTROL MIX -- THE CONTRACTOR WILL PLACE A MINIMUM TWO-INCH LAYER OF EROSION CONTROL MIX ON THE SOIL BY NOVEMBER 15. PRIOR TO PLACING THE EROSION CONTROL MIX, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE.

CONSTRUCTION SCHEDULE

SITE IMPROVEMENTS WILL MOST LIKELY BEGIN IN _____ DEPENDING UPON FINAL PERMIT APPROVAL. THE FOLLOWING SCHEDULE IS ANTICIPATED:

1.	ESTIMATED CONSTRUCTION TIME:	-- MONTHS
2.	EROSION CONTROL MEASURES PLACED	WEEK 1 - WEEK 2
3.	SITE CLEARING AND GRUBBING	WEEK 2 - WEEK 5
4.	CONSTRUCTION OF ROAD SUBBASE FOR ACCESS	WEEK 5 - WEEK 13
5.	STORMWATER MANAGEMENT AREA CONSTRUCTION	WEEK 7 - WEEK 9
6.	UTILITY IMPROVEMENTS AND ROADWAY CONSTRUCTION	WEEK 7 - WEEK 24
7.	MULCH SPREA



PLANTING SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE/REMARKS
GT	GLEDITSIA TRIACANTHOS INERMIS 'SKYLINE'	HONEYLOCUST	4 IN. CALIPER
EF	EUONYMUS FORTUNEI 'COLORATUS'	WINTERCREEPER	NO. 3 CONTAINER
HH	HEDERA HELIX	ENGLISH IVY	NO. 2 CONTAINER
CA	CALAMAGROSTIS ACUTIFLORA 'KARL FOERSTER'	REED GRASS	NO. 2 CONTAINER
AC	ASARUM CANADENSE	EUOROPEAN WLD GINGER	NO. 2 CONTAINER
TE	TRILLIUM ERECTUM	WAKE ROBIN	NO. 2 CONTAINER

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CLIENT

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MaineHealth

Maine Medical Center
22 Bramhall Street
Portland, ME 04102

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Sebago Technics Inc.
75 John Roberts Road, Suite 1A,
South Portland, ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

CONSTRUCTION MANAGER
TURNER CONSTRUCTION
2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
VDA (Van Deusen & Associates)
101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

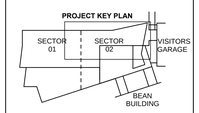
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

REGISTERED LANDSCAPE ARCHITECT
WILLIAM T. CONWAY
1995
STATE OF MAINE
9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

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3 - VISITOR GARAGE
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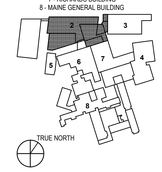
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING



CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9-25-2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	DLR

TITLE

LANDSCAPE PLAN UPPER, CONGRESS STREET EXPANSION

SHEET NUMBER

C50-01

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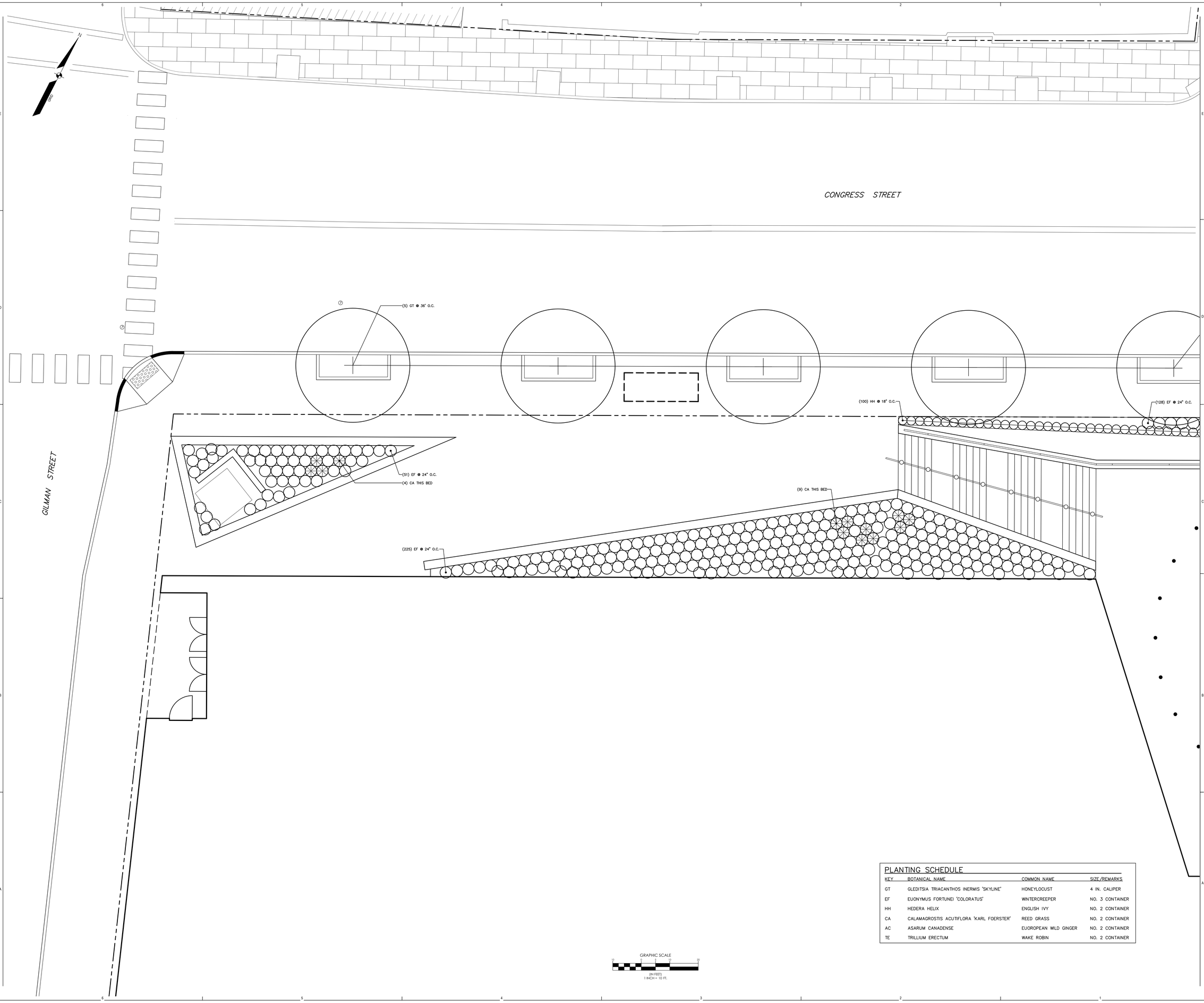
152189.2.dwg, TAB: L1



PLANTING SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE/REMARKS
GT	GLEDITSIA TRIACANTHOS INERMIS 'SKYLINE'	HONEYLOCUST	4 IN. CALIPER
EF	EUONYMUS FORTUNEI 'COLORATUS'	WINTERCREEPER	NO. 3 CONTAINER
HH	HEDERA HELIX	ENGLISH IVY	NO. 2 CONTAINER
CA	CALAMAGROSTIS ACUTIFLORA 'KARL FOERSTER'	REED GRASS	NO. 2 CONTAINER
AC	ASARUM CANADENSE	EUOROPEAN WILD GINGER	NO. 2 CONTAINER
TE	TRILLIUM ERECTUM	WAKE ROBIN	NO. 2 CONTAINER

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)
1 INCH = 10 FT.

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CLIENT

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Maine Medical Center
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Portland, ME 04102

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Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

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TURNER CONSTRUCTION
2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
VDA (Van Deusen & Associates)
101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

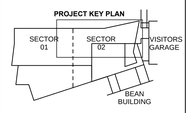
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

REGISTERED LANDSCAPE ARCHITECT
WILLIAM T. CONWAY
STATE OF MAINE
9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

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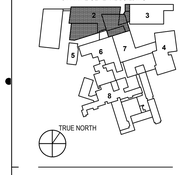

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9-25-2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	DLR

TITLE
LANDSCAPE PLAN LOWER CONGRESS STREET EXPANSION

SHEET NUMBER
C50-02

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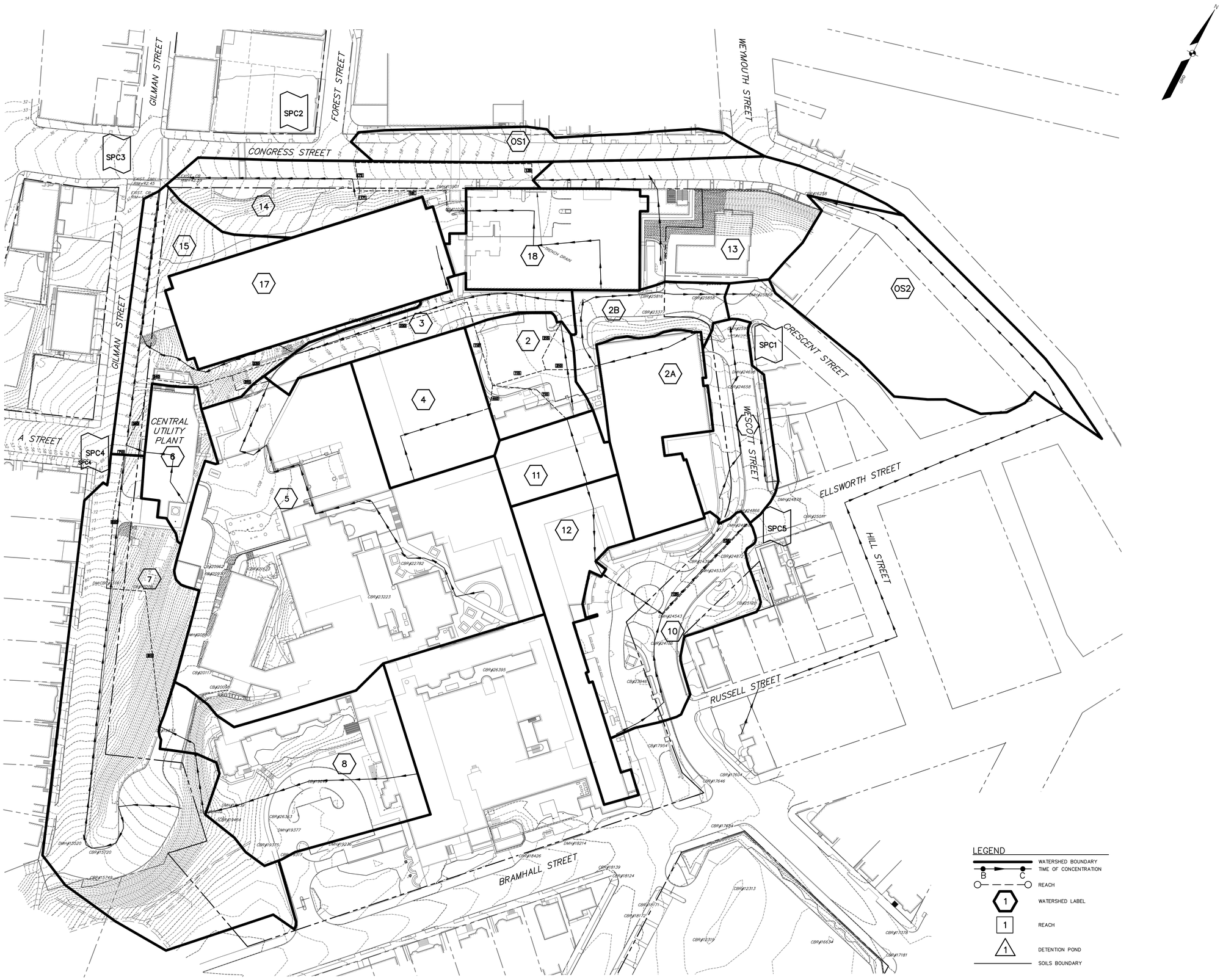
152189.2.dwg, TAB1.L2



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CLIENT

Maine Medical Center
MaineHealth

Maine Medical Center

22 Bramhall Street
Portland, ME 04102

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Sebago Technics Inc.
75 John Roberts Road, Suite 1A,
South Portland, ME 04106

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Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

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AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

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2 Seaport Lane, Suite 200, Boston, MA 02210

ELEVATOR CONSULTANT
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101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

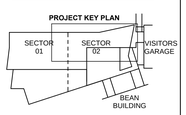
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 14667
LICENSED
PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

PROJECT KEY PLAN



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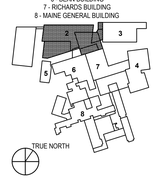

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	MAL
Checked	WTC
Approved	DLR

TITLE

PRE DEVELOPMENT CAMPUS WATERSHED PLAN, CONGRESS STREET EXPANSION

SHEET NUMBER

C60-01

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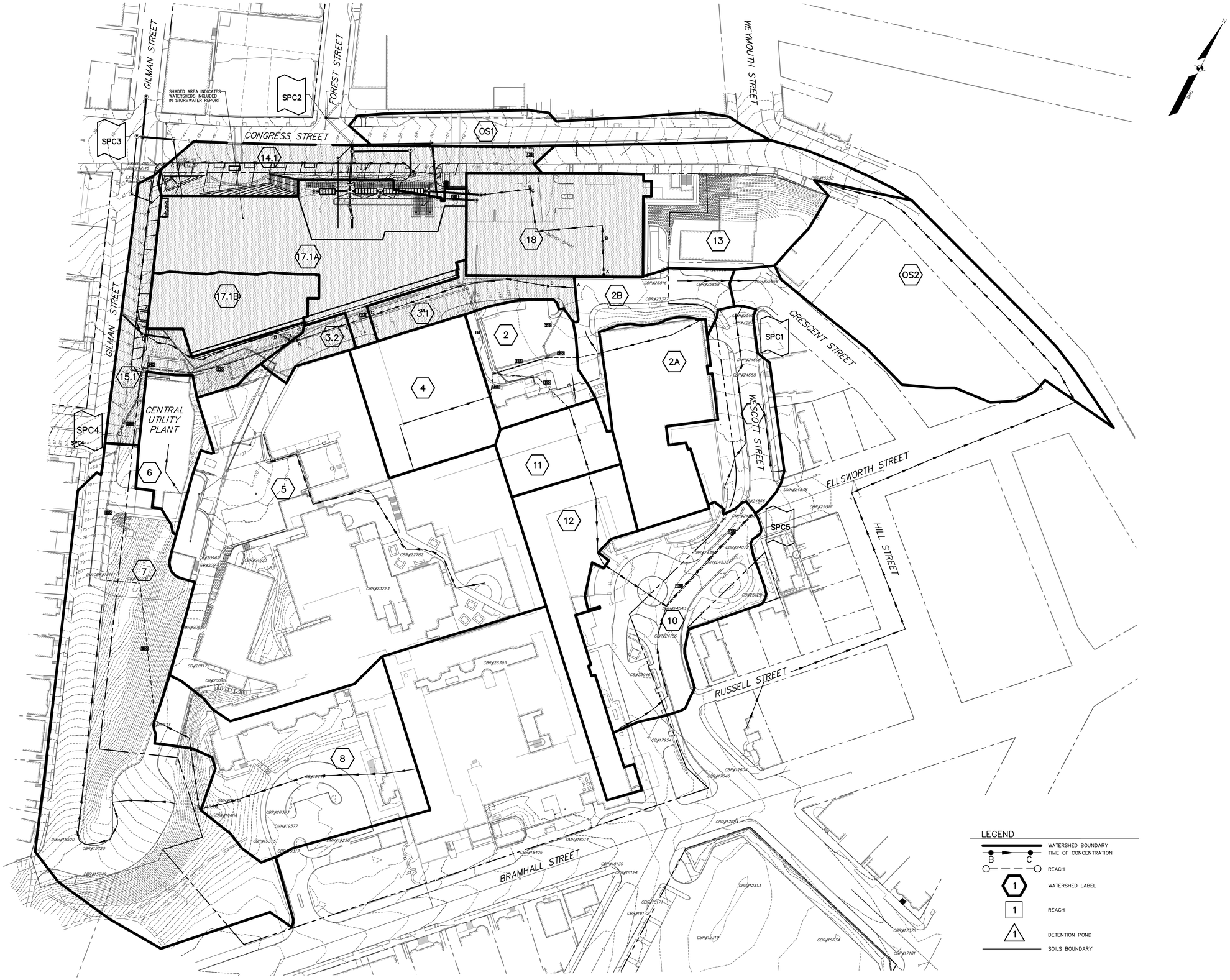
15466S\MP2.dwg, TAB: OVERALL-PRE



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CLIENT

Maine Medical Center
MaineHealth

Maine Medical Center

22 Bramhall Street
Portland, ME 04102

CONSULTANTS

CIVIL/ LANDSCAPE ARCHITECT
Sebago Technics Inc.
75 John Roberts Road, Suite 1A,
South Portland, ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
Simpson Gumpertz & Heger Inc.
41 Seyon Street, Building 1, Suite 500,
Waltham, MA 02453

MEPFP ENGINEER/CODE/LOW VOLTAGE
AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

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2 Seaport Lane, Suite 200, Boston, MA 02210

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VDA (Van Deusen & Associates)
101 Summer Street, 4th Floor, Boston, MA 02110

COST ESTIMATOR
D.G. Jones International
3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

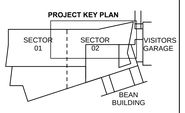
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 14607
LICENSED PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

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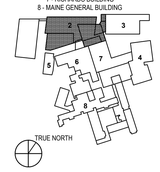

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	DJS
Checked	WTC
Approved	DLR

TITLE

POST DEVELOPMENT CAMPUS WATERSHED PLAN, CONGRESS STREET EXPANSION

SHEET NUMBER

C60-02

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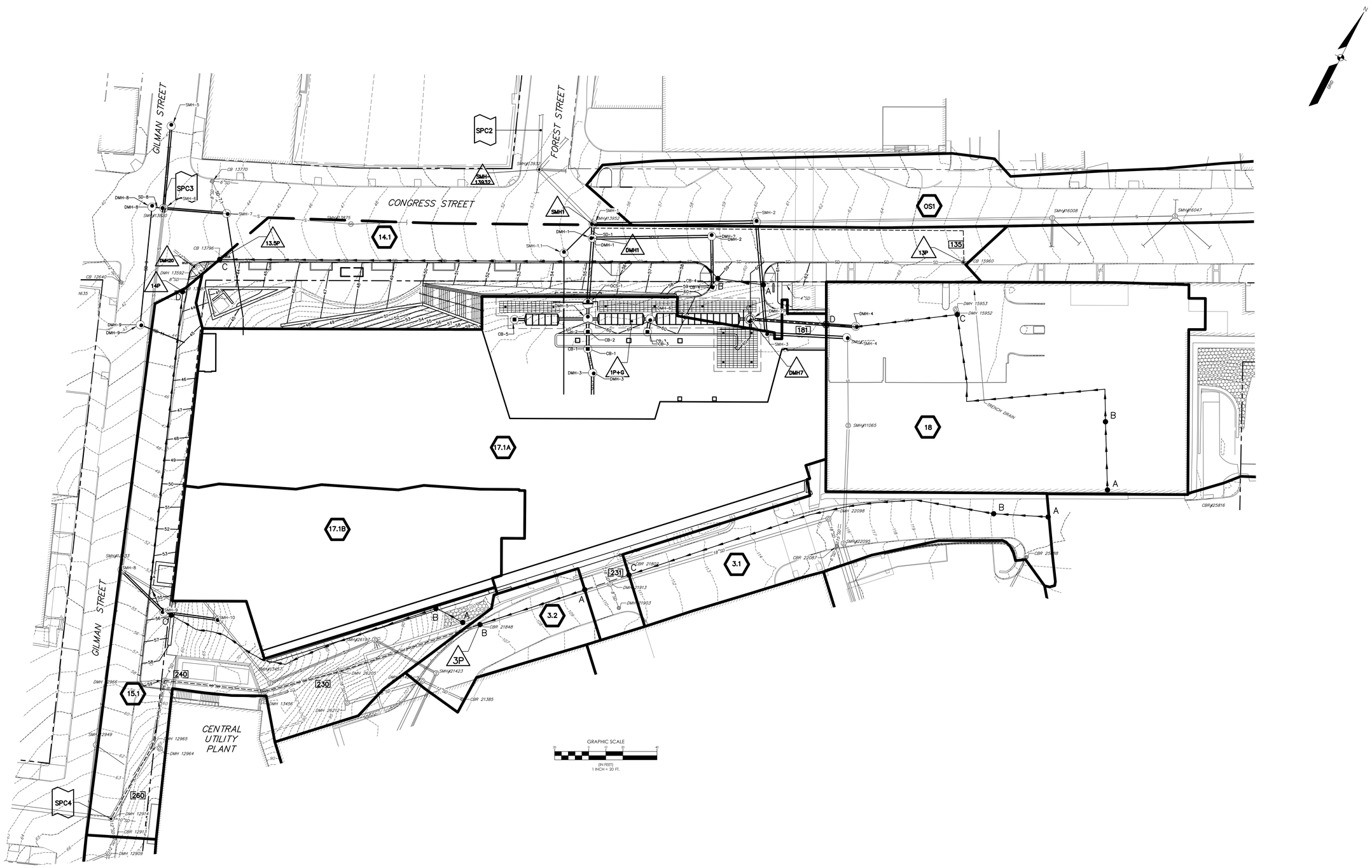
15466SWP2.dwg, TAB:OVERALL-POST



LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- REACH
- WATERSHED LABEL
- REACH
- DETENTION POND
- SOILS BOUNDARY

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CLIENT

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Maine Medical Center
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Portland, ME 04102

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AKF Group LLC
99 Bedford Street, 2nd Floor, Boston, MA 02111

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COST ESTIMATOR
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3 Baldwin Green Common,Suite 202, Woburn, MA 01801

MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

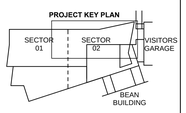
PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

STATE OF MAINE
DANIEL L. RILEY
No. 14667
LICENSED PROFESSIONAL ENGINEER
9/25/18

KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

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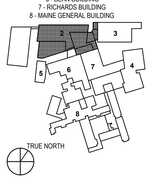

CITY SUBMISSION
SEPTEMBER 25, 2018

NO	ISSUE	DATE
1	CITY SUBMISSION	9/25/2018

Job Number	152189.000
Drawn	DJS
Checked	WTC
Approved	DLR

TITLE

POST DEVELOPMENT WATERSHED PLAN, CONGRESS STREET EXPANSION

SHEET NUMBER

C60-03

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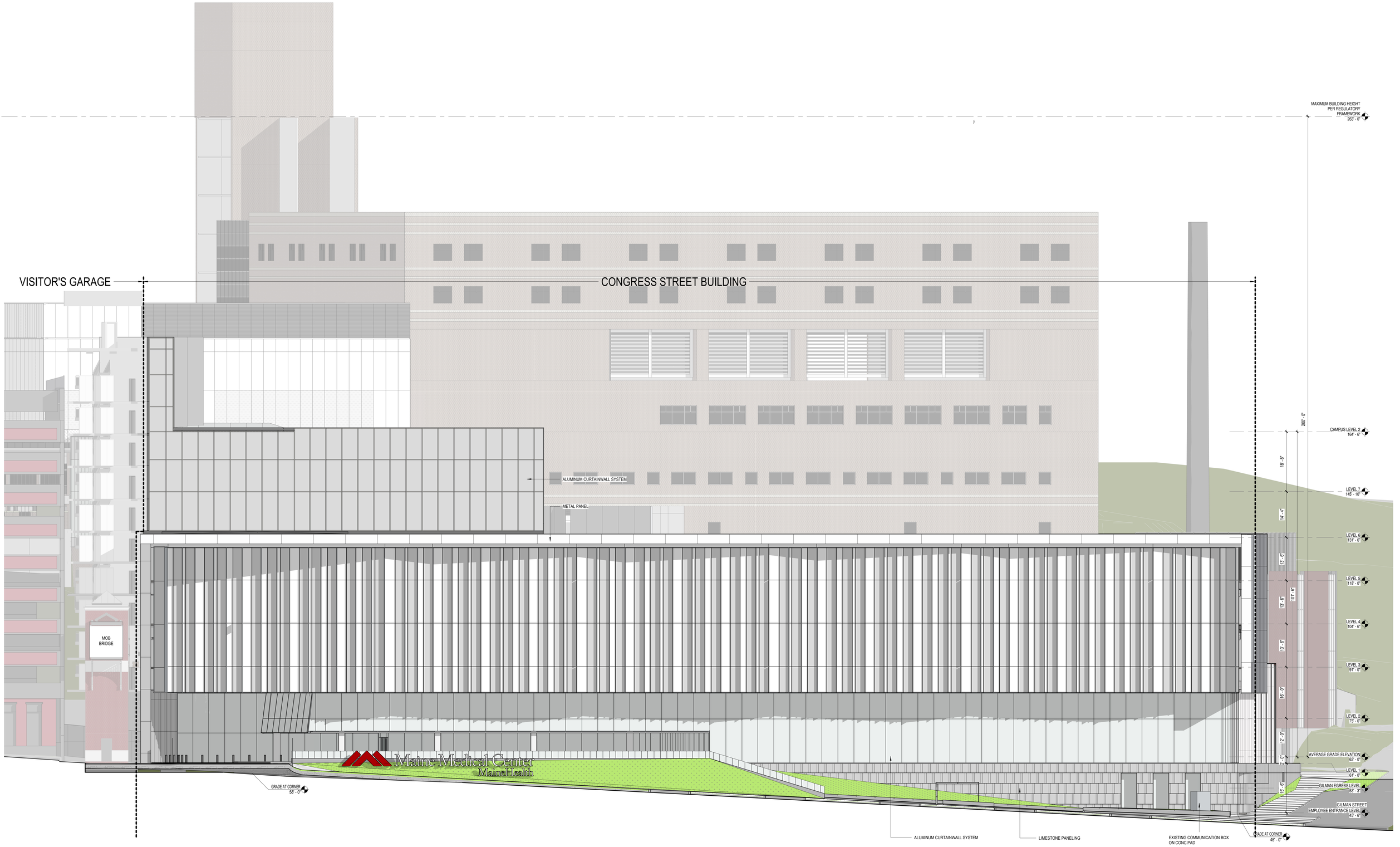
154665\WP2.dwg, TAB:POST

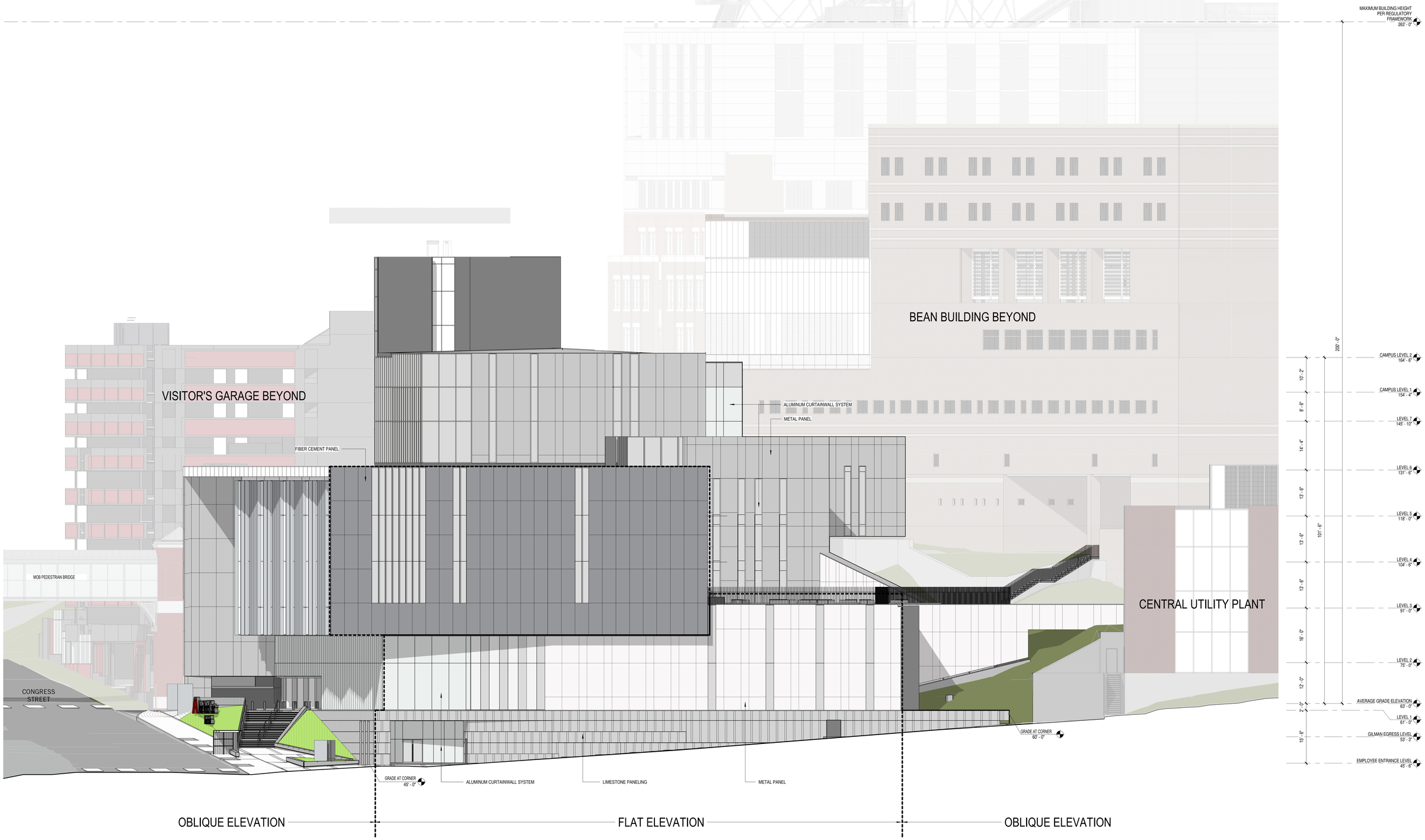


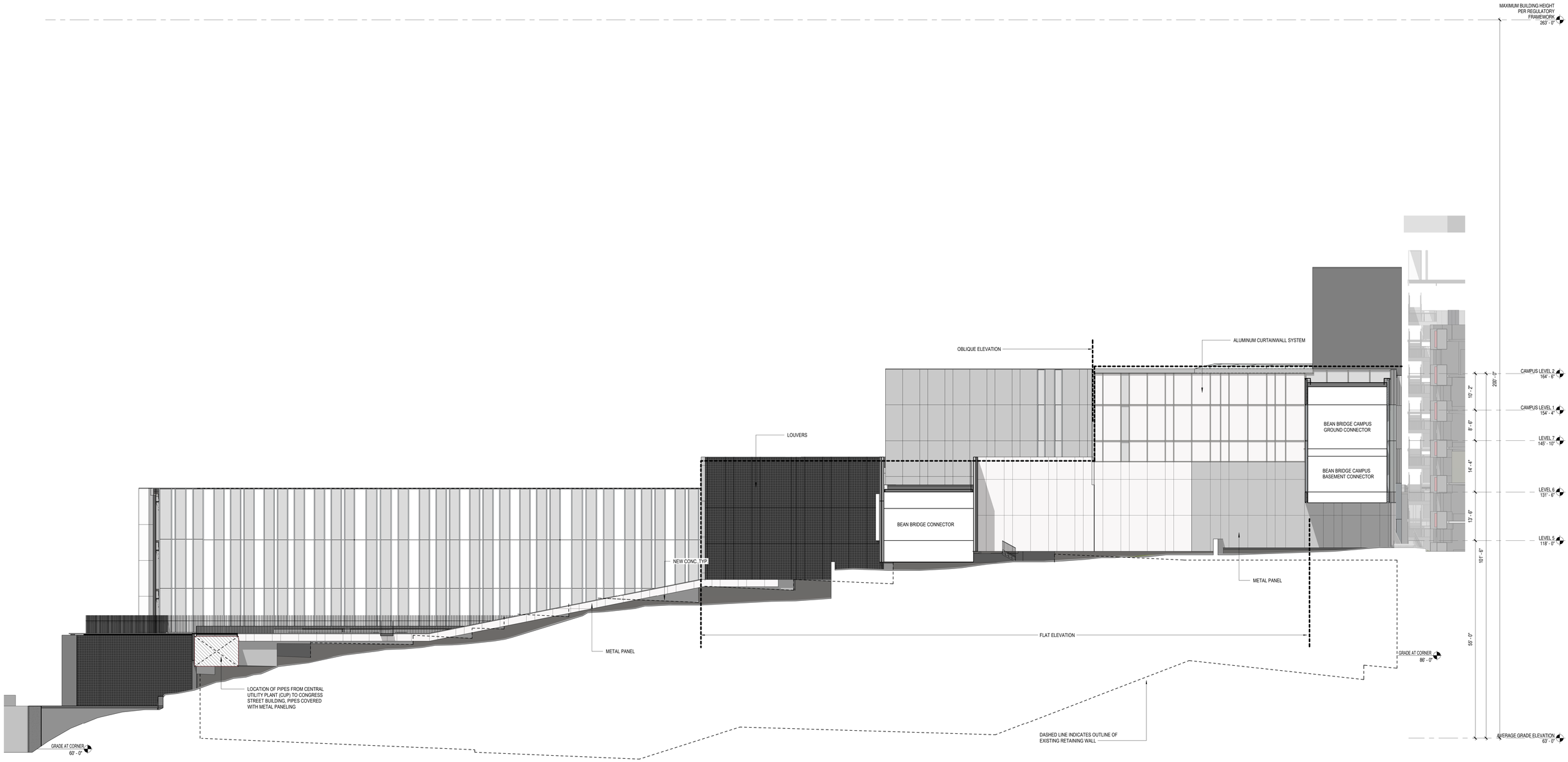
Maine Medical Center
MaineHealth

Congress Street Building

EXTERIOR ELEVATION - NORTH

PERKINS+WILL


MAXIMUM BUILDING HEIGHT PER REGULATORY FRAMEWORK 263' - 0"
BEAN BUILDING BEYOND
VISITOR'S GARAGE BEYOND
ALUMINUM CURTAINWALL SYSTEM
METAL PANEL
FIBER CEMENT PANEL
MOB PEDESTRIAN BRIDGE
CENTRAL UTILITY PLANT
CONGRESS STREET
GRADE AT CORNER 45' - 0"
ALUMINUM CURTAINWALL SYSTEM
LIMESTONE PANELING
METAL PANEL
GRADE AT CORNER 60' - 0"
OBLIQUE ELEVATION
FLAT ELEVATION
OBLIQUE ELEVATION
200' - 0"
10' - 2"
9' - 8"
14' - 4"
13' - 9"
13' - 9"
13' - 9"
13' - 9"
16' - 0"
12' - 0"
2' - 0"
9' - 1"
CAMPUS LEVEL 2 164' - 6"
CAMPUS LEVEL 1 154' - 4"
LEVEL 7 140' - 10"
LEVEL 6 131' - 6"
LEVEL 5 118' - 0"
LEVEL 4 104' - 6"
LEVEL 3 91' - 0"
LEVEL 2 75' - 0"
AVERAGE GRADE ELEVATION 63' - 0"
LEVEL 1 61' - 0"
GILMAN EGRESS LEVEL 53' - 3"
EMPLOYEE ENTRANCE LEVEL 45' - 6"

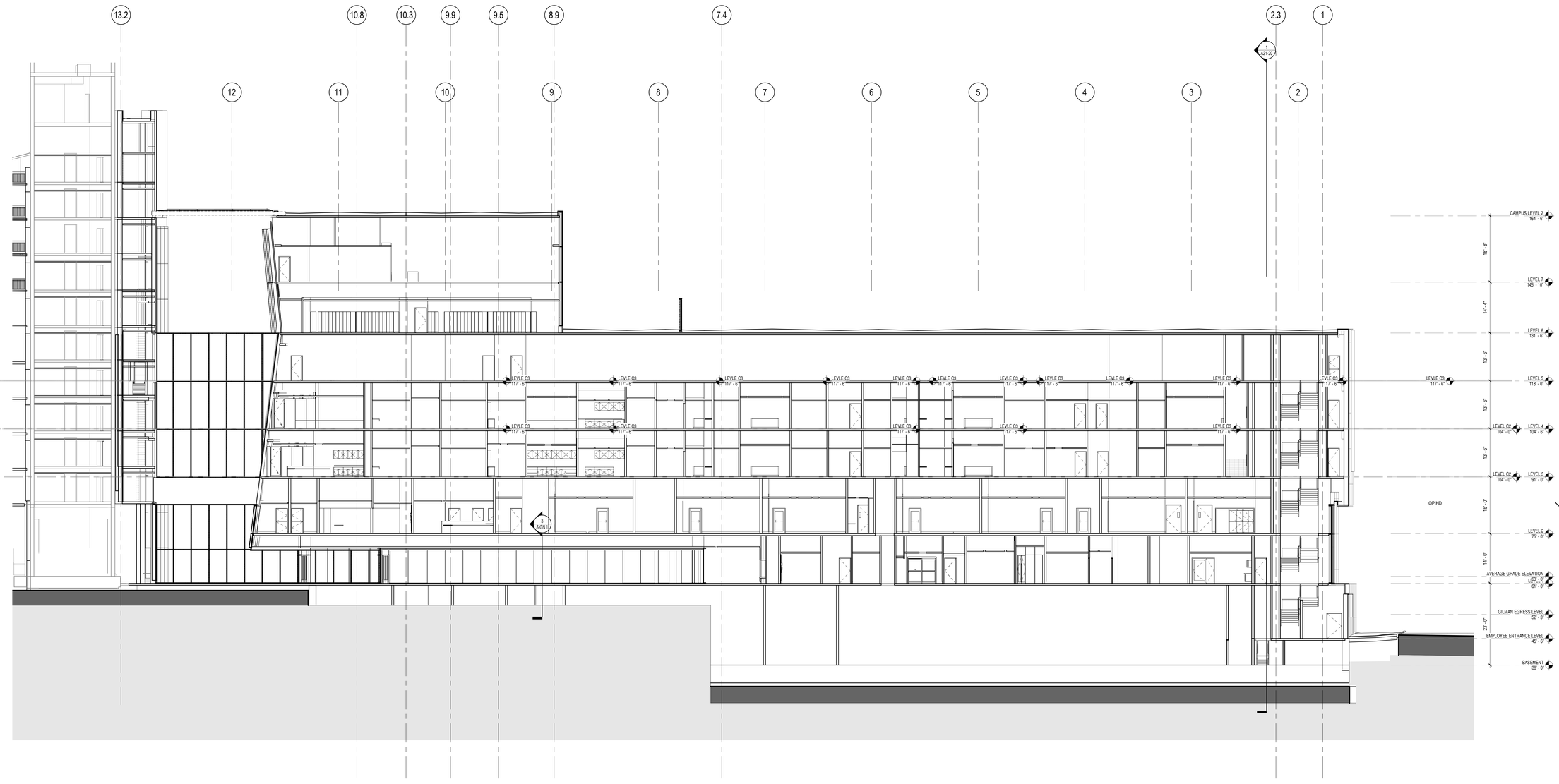


Maine Medical Center
MaineHealth

Congress Street Building

EXTERIOR ELEVATION - SOUTH

PERKINS+WILL



1 BUILDING SECTION EAST / WEST (LOOKING SOUTH)
3/32" = 1'-0"

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www.perkinswill.com

CLIENT

Maine Medical Center
MaineHealth

LEED DOCUMENTATION

22 Bramhall Street
Portland ME 04102

CONSULTANTS

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Sebago Technics
75 John Roberts Road, Suite 1A, South Portland ME 04106

STRUCTURAL ENG/ BUILDING ENVELOPE CONSULTANT
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AKF Group LLC
99 Bedford Street, 2nd Floor, Boston MA 02111

CONSTRUCTION MANAGER
Turner Construction
2 Seaport Lane, Suite 200, Boston MA 02210

ELEVATOR CONSULTANT
VDA (Van Deusen & Associates)
101 Summer Street, 4th Floor, Boston MA 02110

COST ESTIMATOR
D. G. Jones International
3 Baldwin Green Common, Suite 202, Woburn MA 01801

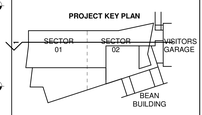
MEDICAL EQUIPMENT PLANNING
Mitchell Planning
630 Dundee Road, Suite 340, Northbrook IL 60062

PROJECT TITLE

Congress Street Building
22 Bramhall Street
Portland ME 04102

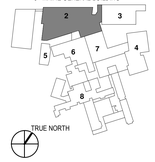
KEY PLANS

PROJECT KEY PLAN



OVERALL KEY PLAN

1 - NOT USED
2 - CONGRESS STREET
3 - VISITOR GARAGE
4 - EAST TOWER
5 - CENTRAL UTILITY PLANT
6 - BEAN BUILDING
7 - RICHARDS BUILDING
8 - MAINE GENERAL BUILDING



TRUE NORTH

CONSTRUCTION DOCUMENTS
PROGRESS SET

NO	ISSUE	DATE
1	PROGRESS SET	09/07/2018

Job Number	152189.000
Drawn	TEAM
Checked	DS/RS
Approved	JK

TITLE

E-W BUILDING SECTIONS

SHEET NUMBER

A21-10

Copyright 2018 @ Perkins + Will

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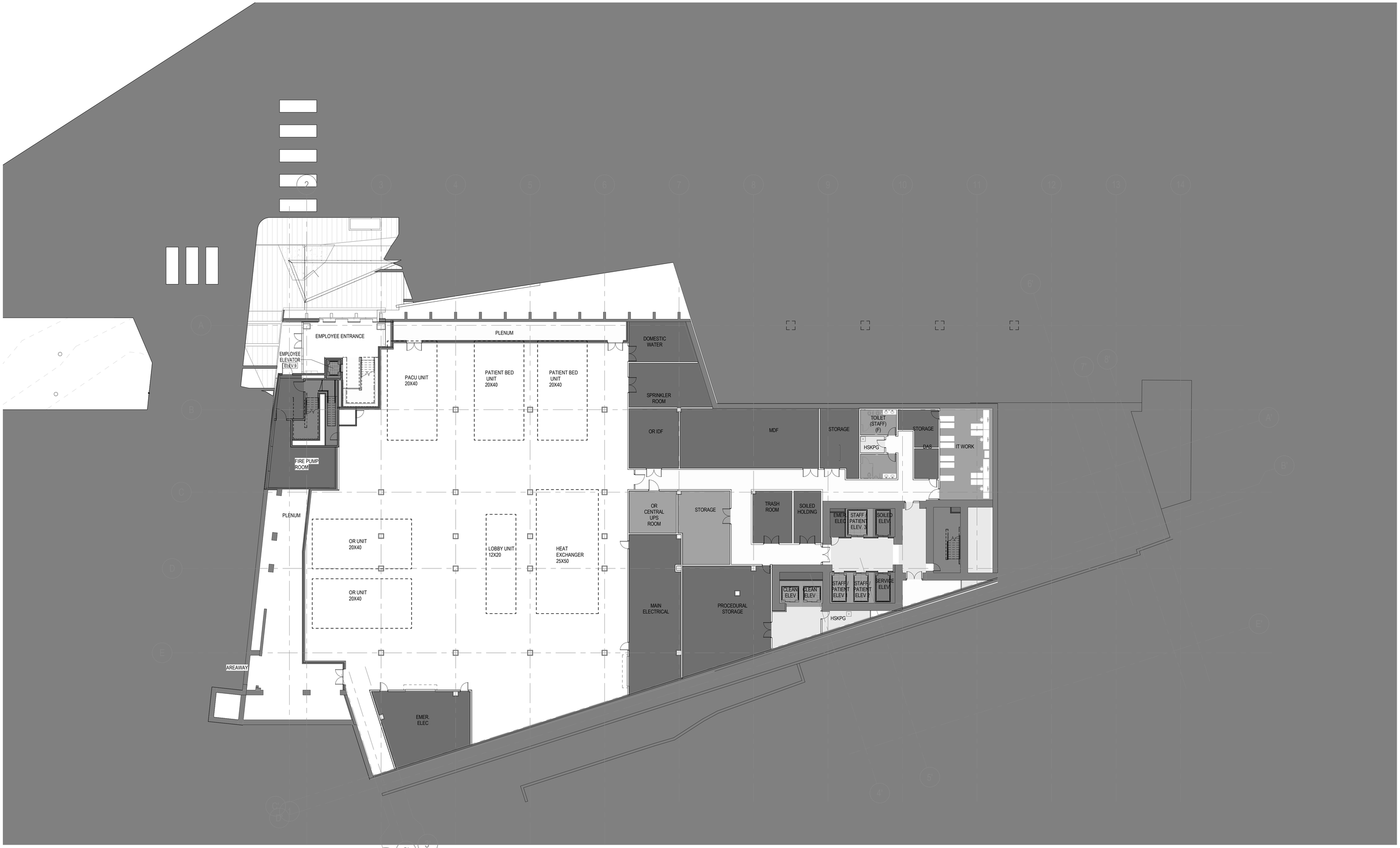
152189-MMC-Congress IS-V2017_detached.rvt



1/16" = 1'-0"

Maine Medical Center
MaineHealth

Congress Street Building
LEED DOCUMENTATION

LEVEL B PLAN

PERKINS+WILL

CONSTRUCTION DOCUMENTS

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1/16" = 1'-0"

Maine Medical Center
MaineHealth

Congress Street Building
LEED DOCUMENTATION

LEVEL 1 PLAN

PERKINS+WILL

CONSTRUCTION DOCUMENTS

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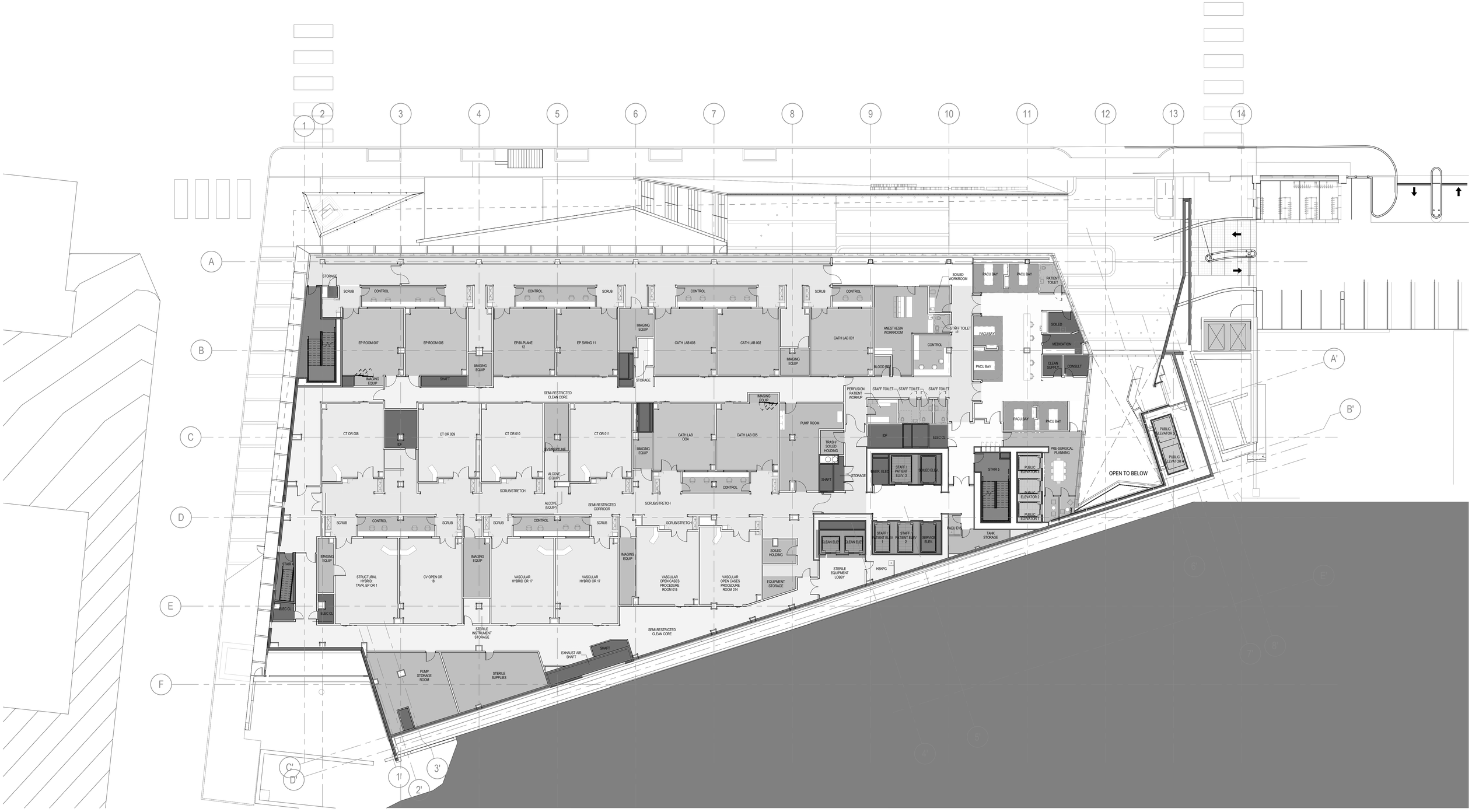

1/16" = 1'-0"

Maine Medical Center
MaineHealth

Congress Street Building
LEED DOCUMENTATION

LEVEL 2 PLAN

PERKINS+WILL

CONSTRUCTION DOCUMENTS

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1/16" = 1'-0"

Maine Medical Center
MaineHealth

Congress Street Building
LEED DOCUMENTATION

LEVEL 3 PLAN

PERKINS+WILL

CONSTRUCTION DOCUMENTS

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1/16" = 1'-0"

Maine Medical Center
MaineHealth

Congress Street Building
LEED DOCUMENTATION

LEVEL 4 PLAN

PERKINS+WILL

CONSTRUCTION DOCUMENTS

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1/16" = 1'-0"

Maine Medical Center
MaineHealth

Congress Street Building
LEED DOCUMENTATION

LEVEL 5 PLAN (BRAMHALL SUB-BASEMENT LEVEL)

PERKINS+WILL

CONSTRUCTION DOCUMENTS

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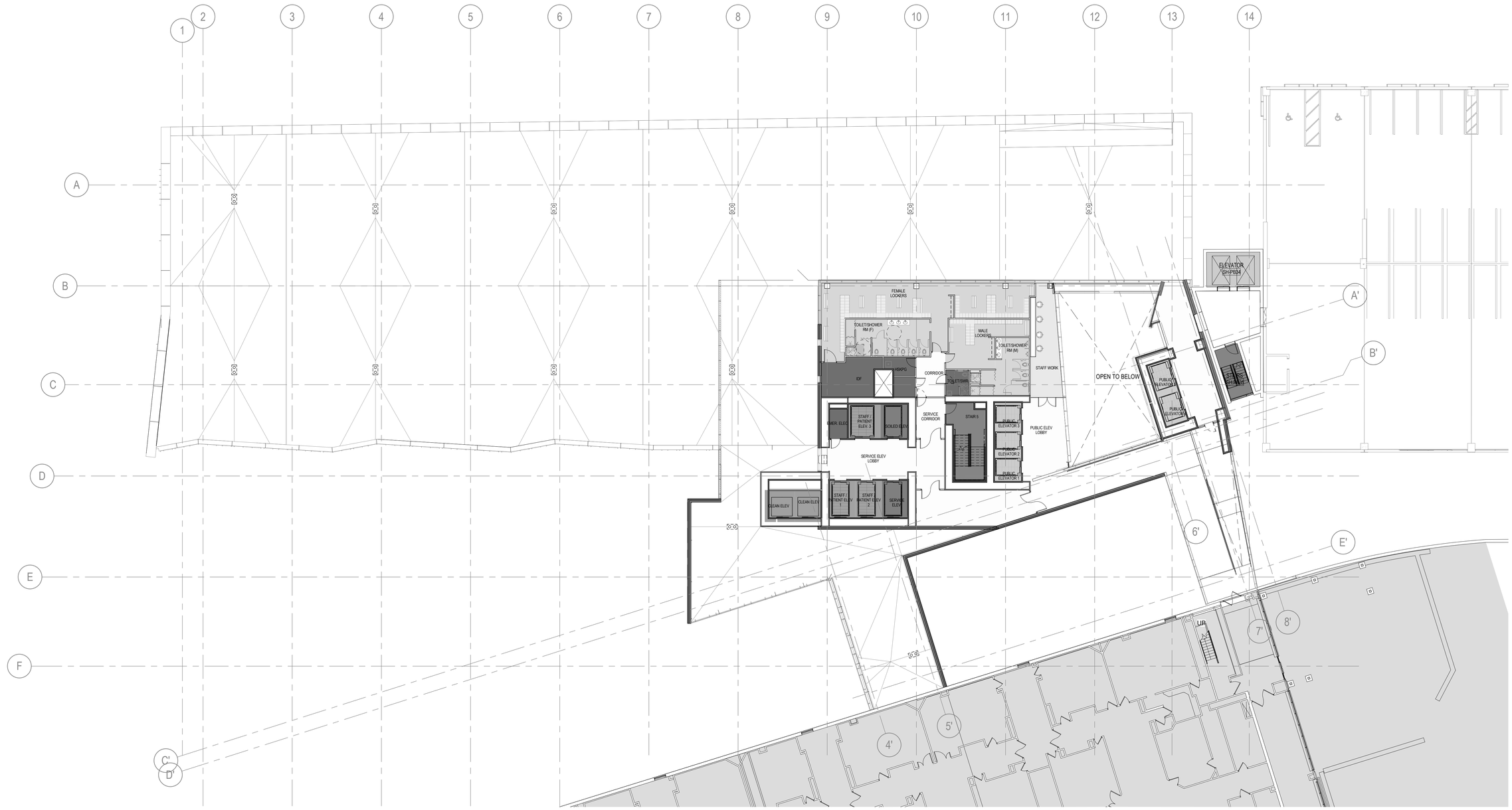

1/16" = 1'-0"

Maine Medical Center
MaineHealth

Congress Street Building
LEED DOCUMENTATION

LEVEL 6 PLAN (BRAMHALL BASEMENT LEVEL)

PERKINS+WILL

CONSTRUCTION DOCUMENTS

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2
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4
5
6
7
8
9
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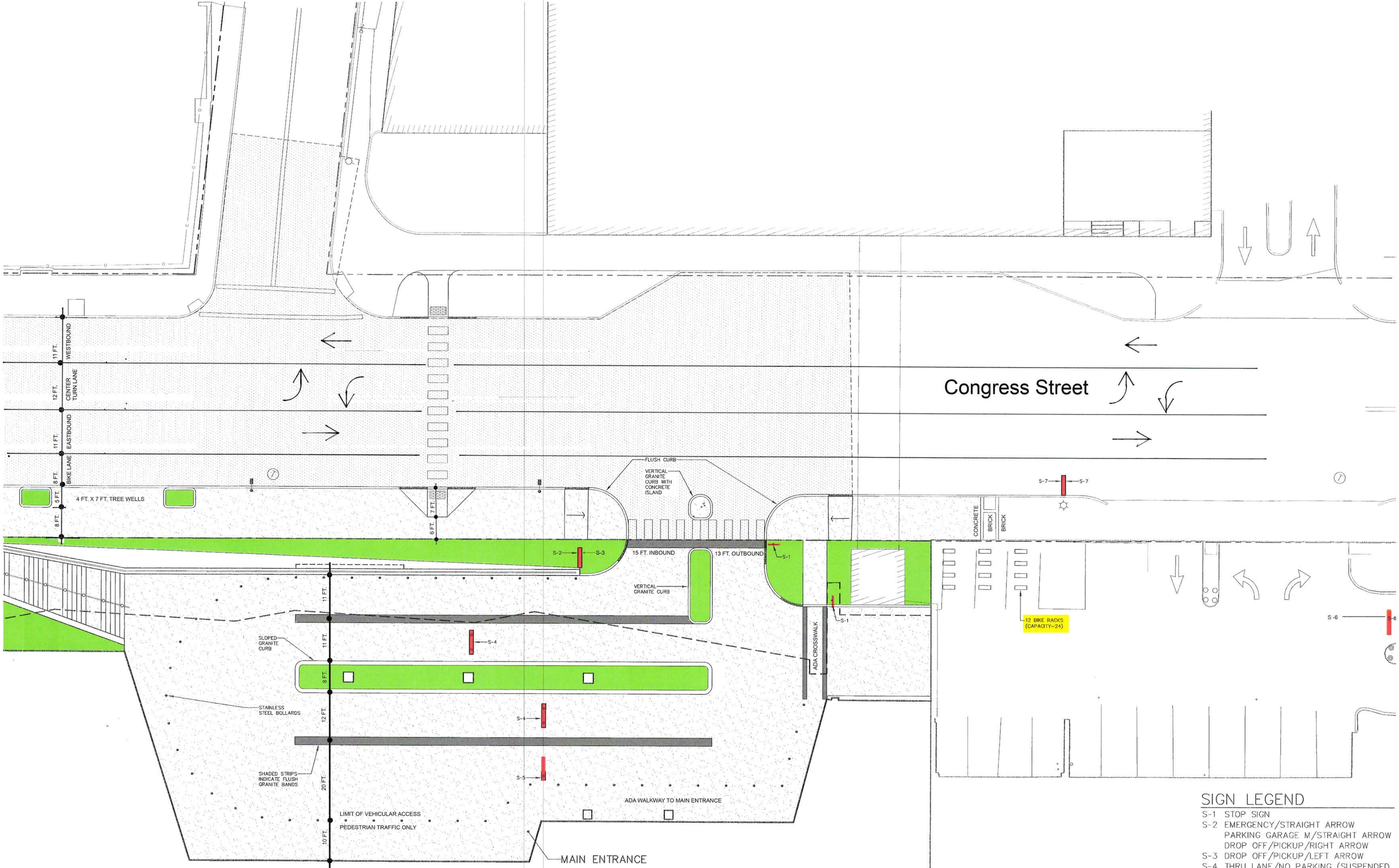
11
12
13
14
A
B
C
D
E
F
A'
B'
C'
D'
E'
7'
8'
56 seats
PUBLIC TOILET(F)
HSKPG
IDF
ELEC CL
MECH. ACESS
STAFF TOILET
PUBLIC TOILET (M)
EMER. ELEC
STAFF / PATIENT ELEV 3
OILED ELEV
STAIR 5
SERVICE CORRIDOR
PUBLIC ELEVATOR
PUBLIC ELEVATOR
PUBLIC ELEVATOR
SERVICE ELEV LOBBY
STAFF / PATIENT ELEV
STAFF / PATIENT ELEV
SERVICE ELEV
CORRIDOR
OPEN TO BELOW
CONNECTOR
ELEVATORS (SHAFTS)
EXIST VISITOR GARAGE ELEV LOBBY
PUBLIC ELEVATOR
PUBLIC ELEVATOR
STAIRS
UP
4'
5'

1/16" = 1'-0"

Maine Medical Center

Saeng
Thai House
Eat In - Take Out
780 - 0900 780 - 0911
3Q



SIGN LEGEND

- S-1 STOP SIGN
- S-2 EMERGENCY/STRAIGHT ARROW PARKING GARAGE M/STRAIGHT ARROW DROP OFF/PICKUP/RIGHT ARROW
- S-3 DROP OFF/PICKUP/LEFT ARROW
- S-4 THRU LANE/NO PARKING (SUSPENDED FROM CEILING ABOVE
- S-5 DROP OFF/PICKUP (SUSPENDED FROM CEILING ABOVE)
- S-6 DROP OFF/PICKUP/STRAIGHT ARROW EXIT/RIGHT ARROW (SUSPENDED FROM GARAGE CEILING)
- S-7 EXISTING PARK SIGN TO REMAIN

Vehicles entering the site at the patient drop-off / pick-up area will be directed right to travel around the loop. A median will be constructed at the site access to prevent drivers from directly accessing the visitor garage without going around the loop. As the vehicles complete their drop-off or pick-up, they will have the choice of going straight to exit onto Congress Street or turning right to enter the visitor garage. This design allows vehicle interconnection between the patient loop and visitor garage without recirculating onto Congress Street, which can further reduce congestion and increase safety. Vehicles wishing to park and not drop-off or pick-up can use the existing full movement access to the visitor garage onto Congress St..

There will be exterior signage and interior signage that supports the traffic flow described above. Exterior signs will differentiate the Congress St patient pick-up / drop-off from the existing patient and visitor garage entrance. Signs within the existing patient and visitor garage will direct exiting traffic and traffic intending to pick-up a patient. Signs within the circle drive will direct traffic intending to exit the site and traffic intending to enter the patient and visitor parking garage. In addition to signs supporting the traffic flow, traffic exiting the patient and visitor garage will have a stop sign to support safe pedestrian access to the building's entrance.

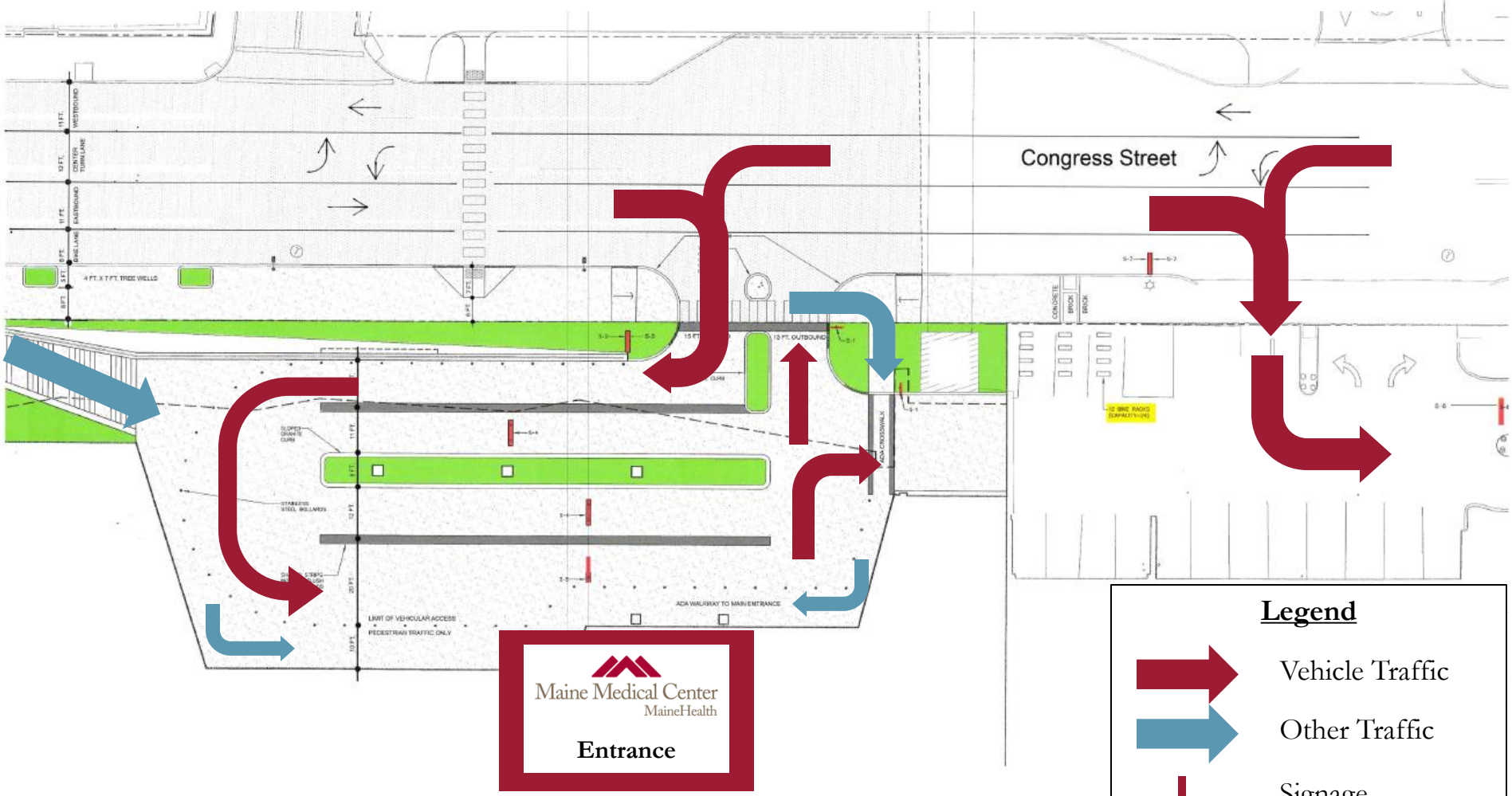
There is enough length within the entrance loop for approximately 11 vehicles to queue on-site without backing onto Congress Street. Traffic engineers observed the exiting entrance on Bramhall St to better understand the frequency and volume of queueing at a MMC entrance. Traffic engineers observed a maximum of 9 queued vehicles. The volume of patient pick-ups and drop-offs will be split between the existing entrance and the proposed new entrance in the future.

MMC intends to support the operations of the Congress St. entrance with valet service. Valet parking will improve the flow of the circular drive. In addition, valet attendants will assist individuals who do not wish to take advantage of the service by providing directions when needed.

At the October 23, 2018 Planning Board workshop, a planning board member commented that snow melters would be an excellent addition to the Congress St. entrance. MMC will be adding snow melters to this entrance.

MMC will continue to support the patient arrival experience by communicating with patients and their families in advance of scheduled appointments. These communications include details about the correct hospital entrance and parking location.

Patient or Visitor Arrival



Act with kindness and compassion.

Be an active listener.

Be a role model.

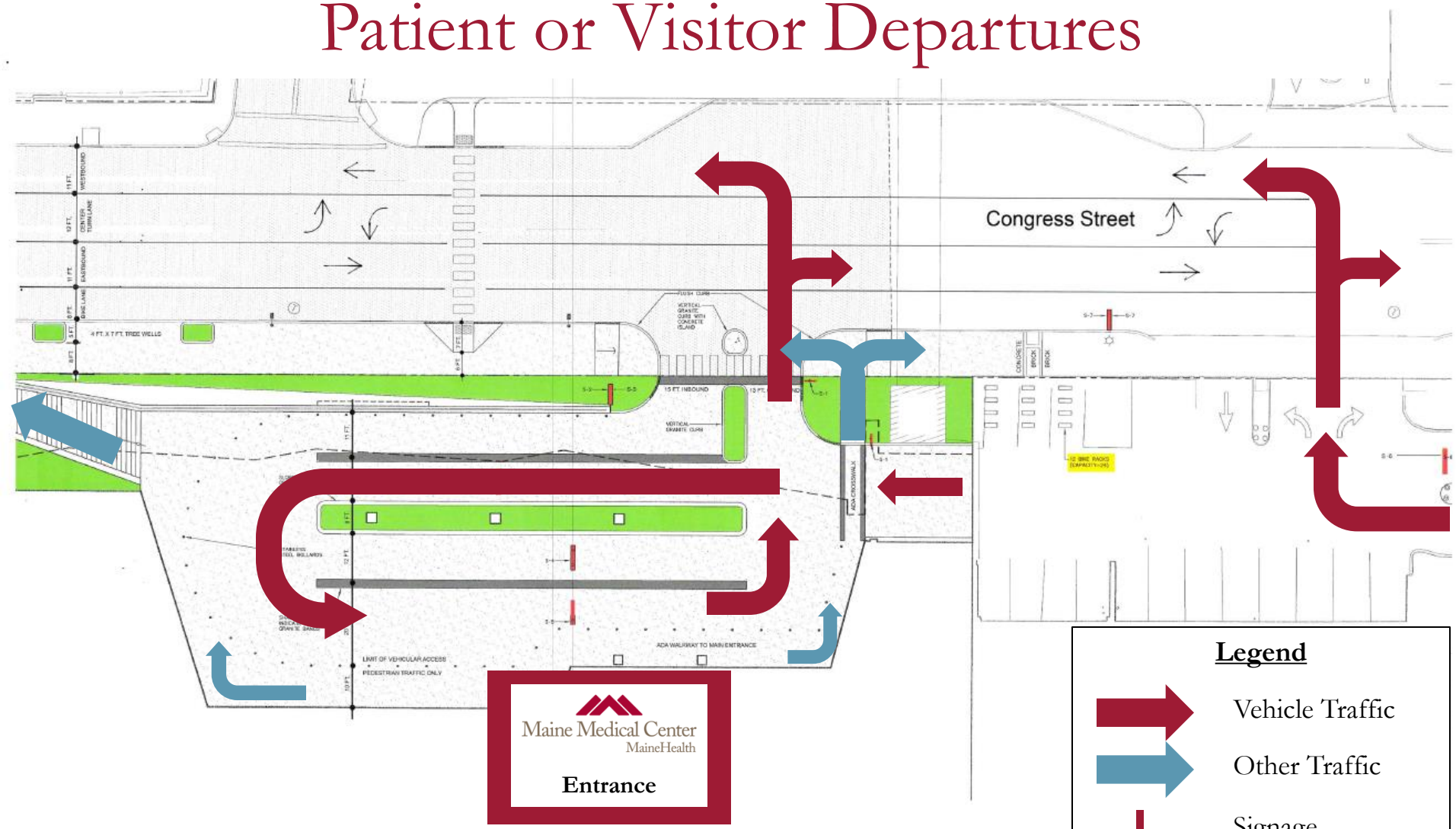
Set high standards.

Take responsibility.

Embrace change.

Maine Medical Center
MaineHealth

Patient or Visitor Departures



Act with kindness and compassion.

Be an active listener.

Be a role model.

Set high standards.

Take responsibility.

Embrace change.

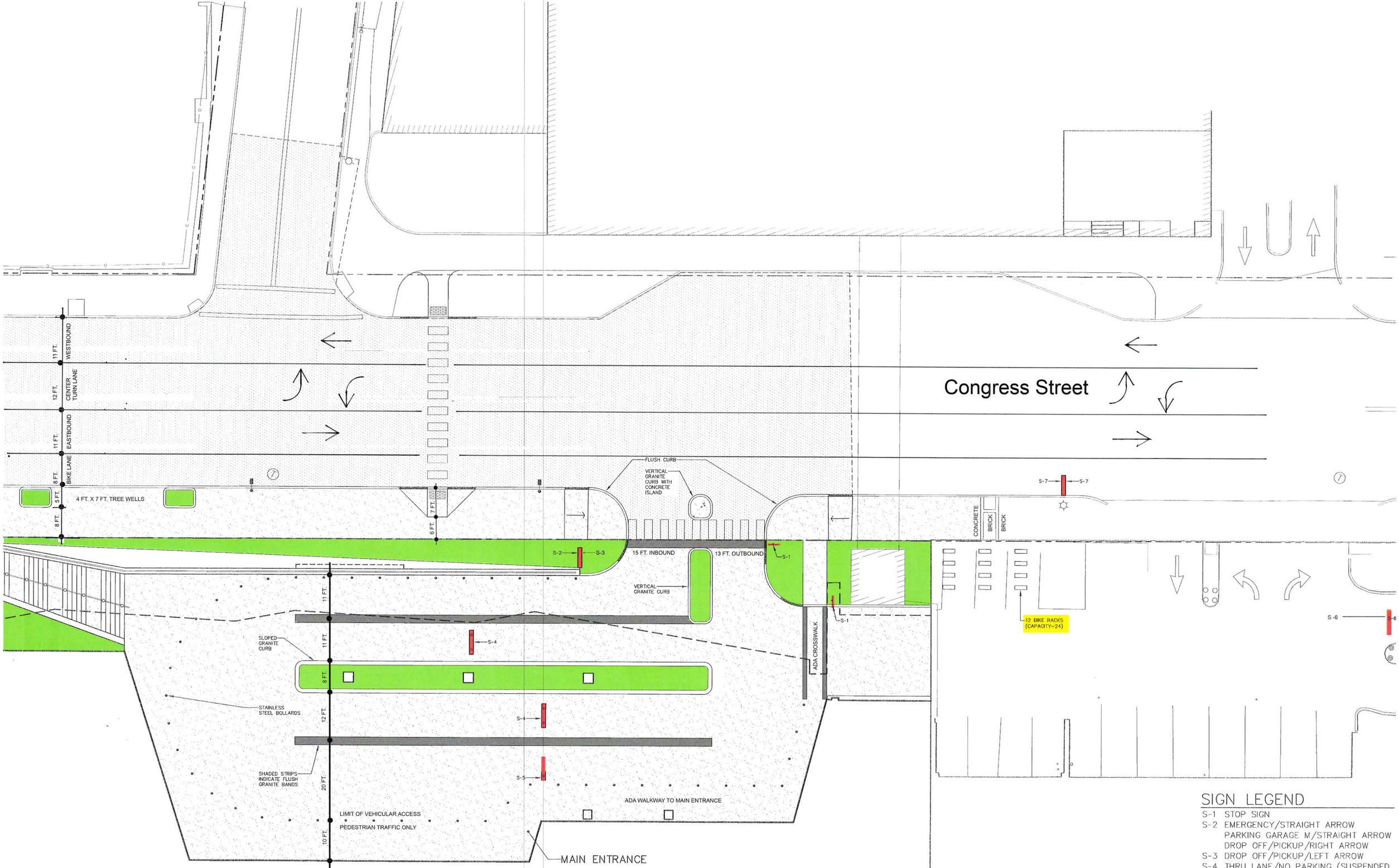
Maine Medical Center
MaineHealth

Congress Street

8 FT. PARKING
12 FT. WESTBOUND
12 FT. EASTBOUND
10 FT. BIKE LANE
8 FT.
4 FT. X 7 FT. TREE WELLS
7 FT.
6 FT.
FLUSH CURB
VERTICAL GRANITE CURB WITH CONCRETE ISLAND
S-2
S-3
15 FT. INBOUND
13 FT. OUTBOUND
S-1
VERTICAL GRANITE CURB
11 FT.
11 FT.
8 FT.
12 FT.
20 FT.
10 FT.
SLOPED GRANITE CURB
S-4
STAINLESS STEEL BOLLARDS
S-4
SHADED STRIPS INDICATE FLUSH GRANITE BANDS
S-5
LIMIT OF VEHICULAR ACCESS
PEDESTRIAN TRAFFIC ONLY
ADA WALKWAY TO MAIN ENTRANCE
MAIN ENTRANCE
ADA CROSSWALK
S-1
S-7
S-7
CONCRETE
BRICK
BRICK
12 BIKE RACKS (CAPACITY=24)
S-6

SIGN LEGEND

S-1 STOP SIGN
S-2 EMERGENCY/STRAIGHT ARROW
PARKING GARAGE M/STRAIGHT ARROW
DROP OFF/PICKUP/RIGHT ARROW
S-3 DROP OFF/PICKUP/LEFT ARROW
S-4 THRU LANE/NO PARKING (SUSPENDED FROM CEILING ABOVE
S-5 DROP OFF/PICKUP (SUSPENDED FROM CEILING ABOVE)
S-6 DROP OFF/PICKUP/STRAIGHT ARROW
EXIT/RIGHT ARROW (SUSPENDED FROM GARAGE CEILING)
S-7 EXISTING PARK SIGN TO REMAIN



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- S-6 DROP OFF/PICKUP/STRAIGHT ARROW EXIT/RIGHT ARROW (SUSPENDED FROM GARAGE CEILING)
- S-7 EXISTING PARK SIGN TO REMAIN

Memorandum
Planning and Urban Development Department
Planning Division

To:	Sean Dundon, Chair and Members of the Planning Board
From:	Christine Grimando, Senior Planner
Date:	November 9, 2018
Re:	Medical and Adult Use Zoning Text Amendments
Meeting Date:	November 13, 2018

I. INTRODUCTION

The State of Maine recently legalized adult use (recreational) marijuana and made significant changes to the Medical Use of Marijuana Act, both of which have land use implications. In response to these changes, the November 13th workshop is focused on zoning amendments for both medical and adult use marijuana. The draft amendment (Attachment 1) includes proposed new uses, locations, dimensional standards as well as supplemental use standards. Zoning districts impacted by the text amendment include the B-2, B-2b, B-2c, B-3, B-3c, B-7, B-4, I-H, I-L, I-Lb, I-M and I-Mb. Provisions for small scale marijuana caregivers as home occupations would also regulate activities in residential zones.

The proposed amendments strive to balance both the desires of a burgeoning new sector of the local economy with reasonable limits on location, size, and performance standards. The zoning amendments serve to significantly update the City's medical marijuana standards and provide a unified zoning framework for both medical and adult use marijuana. Below is an overview of existing regulations and proposed new text amendments.

II. BACKGROUND

Portland has had regulations in place for medical marijuana since 2010. It's a simple framework, consisting of defined uses and zones where those uses are permitted or conditionally permitted. The two definitions are *Registered medical marijuana dispensary* and *Registered medical marijuana cultivation facility*:

Registered medical marijuana dispensary: *"Registered medical marijuana dispensary" or "dispensary" means a not-for-profit entity registered under 22 M.R.S.A. section 2428 that acquires, possesses, cultivates, manufactures, delivers, transfers, transports, sells, supplies or dispenses marijuana or related supplies and educational materials to registered patients who have designated the dispensary to cultivate marijuana for their medical use, and the registered primary caregivers of those patients.*

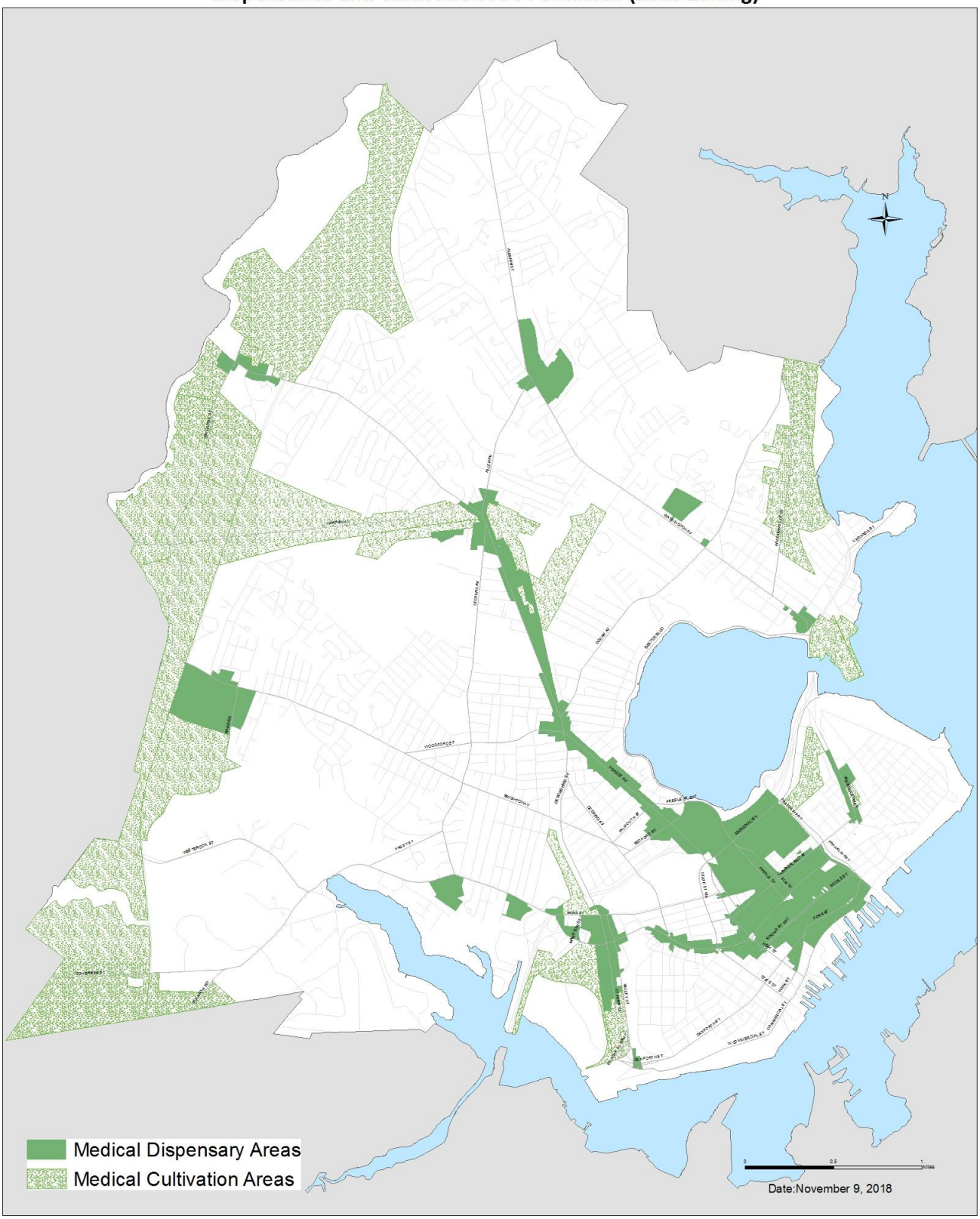
Registered medical marijuana cultivation facility: *"Registered medical marijuana cultivation facility" means a facility registered under 22 M.R.S.A. section 2428 that cultivates and manufactures marijuana or related supplies for a "registered medical marijuana dispensary" under common management and operating under the same state and local license(s).*

These two existing uses are currently permitted in the following zones:

Table 1, Existing medical marijuana uses/zones

Use	Zones Permitted
Registered medical marijuana dispensaries	B2, B2b (conditional use), B2c (conditional use), B3, B3c, B7
Registered medical marijuana cultivation facilities	B4, IH, IL, ILb, IM, IMb

Current Areas Where Medical Marijuana Dispensaries and Cultivation Are Permitted (2010 Zoning)



There have been changes to State law since 2010 that necessitate changes both to Maine medical marijuana law and to address the legalization of adult use (recreational) marijuana. In October 2018, the Council adopt a moratorium on new caregiver medical marijuana retail stores, manufacturing facilities, testing facilities, and grow facilities (see Attachment 2 for a summary of state marijuana law and considerations that informed the moratorium and Attachment 3 for the adopted moratorium) to provide time for the City to develop appropriate standards. The goal is to have a zoning framework in place by expiration by the time of the moratorium's expiration on December 13th.

III. PROCESS

Planning staff has participated in an internal working group to consider the multi-disciplinary implications of local regulation of both adult use and medical marijuana, including, life safety, code enforcement, permitting, licensing, and zoning. There has also been council workshop and a public hearing on the moratorium, including a discussion on the overall approach to zoning amendments. Staff has also met with various individuals within the medical and adult use marijuana industry, including representatives of dispensaries, caregivers, testing facilities, cultivation and manufacturing.

In addition to development a zoning framework, the City is developing a licensing framework, the ultimate timing and final substance of which is contingent on state rulemaking. Recreational marijuana will not become effective until the State and City pass a comprehensive licensing scheme. Implementing adult use marijuana zoning prior to licensing allows the City create a land use framework for adult use marijuana that will be effective as soon as licensing is implemented and that will provide clarity and guidance for those planning to pursue adult use marijuana-related businesses.

IV. PROPOSED ZONING

Our recommended approach for implementation of adult use and expanded medical marijuana zoning is to build off of the existing geographic framework for dispensaries and cultivation, adding new definitions and use categories to supplement the existing two marijuana-related definitions in the Land Use Code. These include *Marijuana, Marijuana Cultivation, Testing Facility*, *Marijuana Manufacturing Facility*, and *Caregiver Retail*, and *Adult Use Retail*. No change is proposed to the location of dispensaries. Retail stores are proposed where dispensaries are currently permitted, and testing, cultivation and manufacturing are proposed for the same zones as the current use of *Registered medical marijuana cultivation facility,* which currently encompasses manufacturing as well as cultivation. The uses proposed as part of the current text amendment are proposed for the following zones:

Table 2, Proposed marijuana uses by zone:

Use	Zones Permitted
Marijuana cultivation facility	B4, IH, IL, ILb, IM, IMb
Marijuana manufacturing facility	B4, IH, IL, ILb, IM, IMb
Marijuana retail store	B2, B2b (conditional use), B2c (conditional use), B3, B3c, B7
Marijuana testing facility	B4, IH, IL, ILb, IM, IMb
Registered dispensary	B2, B2b (conditional use), B2c (conditional use), B3, B3c, B7

Though the existing medical marijuana zoning forms the geographic framework for where new uses would be permitted, recommendations for new zoning regulations include new size caps for certain uses, such as a maximum retail store size and maximum square footage tiers for cultivation facilities to reflect the intended intensities of the respective industrial zones. Recommendations are included for regulating small scale caregivers as home occupations, a use previously regulated under State law but only recently something municipalities have

the ability to regulate.

The draft zoning amendment does not distinguish between adult use and medical marijuana where the uses converge, creating unified performance standards and scale limits as much as possible – medical retail and adult use retail, for instance, though they will have different licensing requirements, are anticipated to have similar needs from a land use policy perspective, and warrant similar consideration of size limits and performance standards. Similarly, medical and adult use cultivation, manufacturing, and testing warrant similar treatment.

V. NEXT STEPS

A final draft of the proposed text amendments incorporating Planning Board direction will be presented at an upcoming public hearing. In addition to incorporating feedback from the Board following the November 13th workshop, Staff is continuing to clarify some of the standards included in the ordinance draft, including refinement of definitions, additional detail for the Supplemental Standards (Sec. 14-411.(b)/page 6), and suitable size tiers manufacturing facilities, cultivation facilities, and retail stores.

Additional maps to illustrate the uses by zones will be presented at the November 13th workshop.

VI. ATTACHMENTS

1. Draft Text Amendment 11-9-2018
2. Background Memo form Corporation Counsel
3. Adopted Moratorium
4. Map of areas currently permitting medical marijuana uses (2010 Zoning)

Division 1. Generally

…

Sec. 14-47, Definitions

Marijuana cultivation facility. A cultivation facility required to be licensed pursuant to 22 M.R.S. § 201 or any other facility engaged primarily in the business of planting, propagation, growing, harvesting, drying, curing, grading, trimming or other processing of marijuana for use or sale. Marijuana cultivation facility does not include a marijuana manufacturing facility or small scale caregiver.

Marijuana manufacturing facility. A manufacturing facility required to be licensed pursuant to 22 M.R.S. § 2423-F or 28-B M.R.S. § 201.

Marijuana product. Marijuana Product as defined by 22 M.R.S.A. §2422 or 28-B M.R.S.A., §102.

Marijuana retail store. A retail establishment licensed to sell marijuana, marijuana products, immature marijuana plants and seedlings to adult use or medical marijuana customers. A marijuana retail store is only authorized as a principal use, and is not permitted as an accessory use. No retail sales of products that are not marijuana, marijuana products, immature marijuana plants or seedlings shall be permitted to collocate in a marijuana retail store as a principal or accessory use. A marijuana retail store may not exceed a maximum gross floor area of X square feet.

Marijuana testing facility. A facility licensed to develop, research and test marijuana, marijuana products and other substances as defined by 22 M.R.S.A. §2422 or 28-B M.R.S.A., §102.

~~**Registered medical marijuana cultivation facility**: "Registered medical marijuana cultivation facility" means a facility registered under 22 M.R.S.A. §2428 that cultivates and manufactures marijuana or related supplies for a "registered medical marijuana dispensary" under common management and operating under the same state and local license(s).~~

~~Registered medical marijuana dispensary: "Registered medical marijuana dispensary" or "dispensary" means a not-for-profit entity registered under 22 M.R.S.A. section 2428 that acqueris, possesses, cultivates, manufactures, delivers, transfers, transports, sells, supplies or dispenses marijuana or related supplies and educational materials to registered patients who have designated the dispensary to cultivate marijuana for their medical use, and the registered primary caregivers of those patients.~~

Small scale marijuana caregiver. A registered caregiver who sells or dispenses marijuana to no more than an average of five individual registered patients in any one week; does not process or manufacture marijuana using chemicals or solvents; and who cultivates no more than 1) 30 mature marijuana plants and 60 immature marijuana plants where located in a single-family dwelling or 2) 15 mature marijuana plants and 30 immature marijuana plants where located in any other type of residential building.

Registered dispensary. A registered medical marijuana dispensary as defined by 22 M.R.S.A. §2422..

Registered patient. As defined by 22 M.R.S.A. §2422.

…

Division 10. B-2, B-2b and B-2c Community Business Zones

…

Sec. 14-182. Use Table

….

Group[1]	Use	B-2[2]	B-2b	B-2c
B	Marijuana retail store	Y	C	C
B	Registered dispensary ~~medical marijuana dispensaries~~	Y	C	C

…

Division 12. B-3, B-3b and B-3c Downtown Business Zones

Sec. 14-217. Permitted uses

(a) The following uses are permitted in the B-3, B-3b and B-3c zones:

…

2. Business:

…

r. Registered dispensary ~~medical marijuana dispensaries.~~

s. Marijuana retail store

…

Division 12.5. B-4 Commercial Corridor Zones

…

Sec. 14-229.11. Permitted uses.

The following uses are permitted in the B-4 zone:
(a) Business:

27. ~~Registered medical~~ Marijuana cultivation facility~~ies~~ (maximum gross floor area of X square feet).

24. Marijuana manufacturing facility.

25. Marijuana testing facility.

…

Division 13. I-L and I-Lb Industrial Zones

…

Sec. 14-232. Permitted uses

The following uses are permitted whether provided by private or public entities in the I-L ~~low impact industrial~~ zone and the I-Lb zone:

…

(r) ~~Registered medical~~ Marijuana cultivation facility~~ies~~ (maximum gross floor area of X square feet).

…

(x) Marijuana manufacturing facility.

(y) Marijuana testing facility.

…

Division 14. I-M, I-Ma and I-Mb Industrial Zones

…

Sec. 14-247. Permitted uses

The following uses are permitted whether provided by private or public entities in the I-M moderate impact industrial zone, the I-Ma and the I-Mb zone:

…

(v) ~~Registered medical~~ Marijuana cultivation facility~~ies~~ (maximum gross floor area of X square feet).

…

(z) Marijuana manufacturing facility.

(z+) Marijuana testing facility.

…

Division 17. B-7 Mixed Development District Zone

…

Sec. 14-295. Permitted uses

The following uses are permitted in the B-7 zone:

(a) Commercial:

…

22. Registered dispensary ~~medical marijuana dispensaries~~

…

27. Marijuana retail store

…

Division 15. I-H and I-Hb Industrial Zones

Sec. 14-262. Permitted uses

The following uses are permitted whether provided by private or public entities in the ~~high impact industrial~~ I-H zone and the I-Hb zone:

(t) ~~Registered medical~~ Marijuana cultivation facility~~ies~~ (maximum gross floor area of X square feet).

…

(x) Marijuana manufacturing facility.

(y) Marijuana testing facility.

…

DRAFT

Division 24. Use Regulations and Exceptions

Sec. 14-401. Generally

The requirements of this article shall be subject to the use regulations and exceptions of this division.

…

Sec. 14-410. Home occupation.

Purpose. The purpose of home occupations is to allow the secondary and incidental use of a residence for the conduct of appropriate occupations whose external activity levels and impacts are so limited as to be compatible with the residential character of the neighborhood.

(a) In connection with the operation of a home occupation, within a dwelling unit, the following requirements shall be met:

1. A home occupation shall not occupy more than five hundred (500) square feet of floor area or more than twenty-five (25) percent of the total floor area of such a dwelling unit, whichever is less, or in the case of licensed family day care homes, or home babysitting services, to accommodate not more than six (6) children plus two (2) children after school and having no nonresidential employees;
2. There shall be no outside storage of goods and materials nor shall there be exterior displays, or display of goods visible from the outside;
3. Storage of materials related to the home occupation shall count as a part of the occupancy limitations in subsection (a)1 above, but shall not constitute a dominant part of such occupancy provided, however, storage of such materials or products in garages or other accessory structures is prohibited;
4. Exterior signs shall be limited to one (1) nonilluminated sign not exceeding a total area of two (2) square feet, affixed to the building and not projecting more than one (1) foot beyond the building;
5. Any exterior alterations to the residence shall be compatible with the architecture of the building and maintain the residential appearance by virtue of exterior materials, lighting, and signs;
6. *Off-street parking:* Off-street parking is required as provided in division 20 (off-street parking) of this article;
7. The home occupation shall not produce offensive noise, vibration, smoke, dust or other particulate matter, odorous matter, heat, humidity, glare or other objectionable effects;
8. There shall be no more than one (1) nonresident employed in the home occupation, provided, however, family day care or home babysitting services shall have no nonresident employees;
9. No traffic shall be generated by the home occupation in greater volumes than would normally be expected in a residential neighborhood;
10. No motor vehicle exceeding a gross vehicle weight of six thousand (6,000) pounds shall be stored on the property in connection with the home occupation.

(b) No residence shall be occupied, altered or used for any home occupation except the following:

1. Accountants and auditors;
2. Answering services (telephone);
3. Architects;
4. Artists and sculptors;
5. Authors and composers;
6. Computer programming;
7. Custodial services;
8. Custom furniture repair and upholstering;
9. Dentists, doctors, therapists, and health care practitioners;
10. Direct mail services;
11. Dressmakers, seamstresses and tailors;
12. Engineers;
13. Family planning services;
14. Hairdressers (limited to no more than two (2) hair dryers);
15. Home crafts, such as model making, rug weaving, lapidary work, cabinet making, weaving, ceramics;
16. Interior decorators;
17. Lawyers, justices of the peace and notary publics;
18. Licensed family day care home or babysitting services;
19. Musicians or music teachers, including group instruction not to exceed six (6) students at any time but not including performances or band rehearsals, which shall meet the following requirements in addition to those set forth in subsection (a) of this section:

    a. Electronic amplification is prohibited;
    b. The applicant shall demonstrate that noise attenuation is provided which minimizes perception of sound at property lines at all times during the use. Noise attenuation measures may include, but are not limited to, insulation, double-pane windows, air conditioners or any combination of these or similar noise attenuation measures;
    c. Hours of operation shall be limited to 8:30 a.m. to 9:30 p.m.

20. Office facility of a minister, rabbi, or priest;
21. Photographic studios;
22. Professional counseling and consulting services;
23. Professional research services;
24. Sales persons provided that no retail or wholesale transactions are made on the premises;
25. Small appliance repair;
26. Snow plowing provided that only one (1) snow plow vehicle is stored on or generated from the site;
27. Special tutoring or instruction (not to exceed three (3) pupils at any given time);
28. Stenographic and other clerical services.
29. Small scale marijuana caregiver, except that no more than one small scale caregiver may operate out of any one residence.

(c) A home occupation that is not listed in paragraph (b) of this section but is similar to and no more objectionable than those home occupations listed in that paragraph, shall be permitted as a conditional use subject to the requirements of paragraph (a) of this section and section 14-474 (conditional use) of this article. This provision shall not include veterinarians, kennels, animal raising, funeral homes, retail uses including antique shops, restaurants, dancing studios, towing services, repair and painting of automobiles as home occupations.

Sec. 14-411. Marijuana Use Regulations

The following standards apply to the following marijuana-related uses: Marijuana cultivation facilities, Marijuana manufacturing facilities, Marijuana product, Marijuana retail store, Marijuana testing facility, Registered caregiver and Registered dispensaries. Marijuana-related uses shall comply with all other applicable local and state requirements in addition to the standards below.

(a) Location Criteria

1. Neither a marijuana cultivation facility, a marijuana manufacturing facility, a marijuana testing facility, a marijuana store or a registered dispensary may be located within 500 feet of a preexisting public school, private school, or a public preschool program, as defined by 20-A M.R.S.A. §1. Distance shall me measured from nearest property line of the respective marijuana-related use and the property line of the lot containing the public school, private school, or public preschool program.

2. Neither a marijuana cultivation facility, a marijuana manufacturing facility, a marijuana testing facility, a marijuana store or a registered dispensary may be located within 200 feet of the following residential zones: R-1, R-2, R-3, R-4, R-5, R-5A, R-6, R-6A, or R-7. Distance shall me measured from nearest property line of the respective marijuana-related use and the nearest applicable residential zone boundary.

(b) Supplemental Standards

1. Marijuana-related uses may only be permitted within a fully enclosed building and shall not be visible from the exterior of the building.
2. No outside storage of marijuana, marijuana products, or related supplies is permitted.
3. No drive-through service or delivery service are permitted for marijuana-related uses.
4. No marijuana or marijuana product shall be smoked, eaten or otherwise consumed or ingested on the premises where sold.
5. An operating plan shall be provided addressing the following:
   a. wastewater;
   b. disposal of waste;
   c. security at the premises.
6. An odor control plan shall be provided that provides adequate ventilation so as to prevent pesticides, insecticides or other chemicals used in the cultivation or processing of marijuana or marijuana related products from being dispersed or released outside the premises. The plan shall further provide for resulting odors, smoke, vapor, fumes, gases and particulate matter from marijuana or its processing or cultivation to be effectively confined to the premises.
7. Hours of operation for Marijuana retail stores, Registered dispensaries, and Registered caregivers shall be limited to 8:00 a.m. to 9:00 PM.

Sec. ~~14-411~~14-412. – Sec. 14-420. Reserved.

MEMORANDUM

TO:	City Council; Mayor Strimling
FROM:	Anne Torregrossa, Associate Corporation Counsel
DATE:	September 20, 2018
RE:	Summary of Status of Medical Marijuana Laws as they Relate to the Proposed Medical Marijuana Moratorium

Staff is recommending that the Council adopt a moratorium on new caregiver medical marijuana retail stores, manufacturing facilities, testing facilities, and grow facilities of a certain size. The moratorium would apply retroactively to all pending applications for these uses, so long as those applications were filed after July 9, 2018. If the Council adopts the proposed moratorium with the retroactivity provision intact, the effect would be to put the pending applications on hold. Those pending applications would then be taken up once the City has had a chance to adopt a comprehensive set of ordinances for this industry. The resulting ordinances would govern which of the new provisions would apply to the currently pending applications.

The need for, and timing of, this moratorium arises out of the passage of two bills in the legislature relating to new caregiver uses – LD 238 and LD 1539 – which were passed over the governor's veto on July 9, 2018. For years, the scope and authority of a municipality to regulate registered medical marijuana caregivers has been unclear under state statute. However, with the emergency passage of LD 238, municipalities explicitly received authorization to regulate registered caregivers for the first time. LD 238 provides that, "Pursuant to the home rule authority . . . a municipality may regulate registered primary caregivers, registered dispensaries, marijuana testing facilities and manufacturing facilities . . ." 22 M.R.S. § 2423-A(14). In addition to the provisions for local control, LD 238 also made some changes to the law surrounding marijuana testing facilities and caregiver manufacturing facilities. Importantly, although the law contemplates that the state will enact a full licensing and regulatory scheme for testing and manufacturing facilities, it allows those facilities to begin operating without the safeguards.

LD 1539, on the other hand, was not passed as an emergency, and will not take effect until December 13, 2018. LD 1539 is a much more robust and detailed bill. LD 1539 adds in significant detail about the process for registration of caregivers (similar to licensing) at the state level, allows the state to share certain information with local code officers, has annual reporting requirements, and changes some requirements for dispensaries. It also authorizes caregiver retail stores for the first time.[1] Unlike LD 238, which allows manufacturing and testing facilities to open before the state can get its licensing in place, LD 1539 requires municipal approval before manufacturing, testing, or retail stores can open (an "opt-in" clause). LD 1539 also provides that all retail stores, registered dispensaries, marijuana testing facilities, and manufacturing facilities are grandfathered if they are open and "operating with municipal approval in the municipality" prior to December 13. Once LD 1539 goes into effect, no more caregiver facilities may open until the City enacts its

[1] While caregiver retail stores are not currently permitted, some caregivers have been "cycling" their fifth patient so that they are essentially selling to anyone who walks through their door. In May of this year, new regulations by DHHS went into effect that made this practice more difficult for anyone operating a separate storefront, but it has not stopped the practice. The distinction between caregivers who are cycling their fifth patient and those who are operating a retail store is not clarified in state law.

licensing program (a so-called "opt-in" provision). However, any facilities that have opened up with municipal approval are allowed to continue and are "grandfathered." This means that manufacturing and testing facilities have a short window within which to open –between July 9, 2018 and December 13, 2018 – or they have to wait until the City implements a fully developed licensing scheme.

This memo summarizes the current gaps in state and local legislation that indicate the need for a moratorium. It also summarizes the standards to enact a moratorium, state law governing retroactivity, and the City provisions for emergency passage. Finally, more detailed summaries of LD 238 and LD 1539 are attached.

I. GAPS IN STATE LAW AND PURELY LOCAL REQUIREMENTS

LD 238 and LD 1539 have created a strange situation where manufacturing and testing facilities have an incentive to rush to establish a permitted presence in the gap between July 9, 2018 and December 13, 2018. If they do so, they will gain grandfathered status and will also not need to wait for local licensing to be up and running. However, those establishments will be coming in at a time where there is relatively little state regulation, and minimal local regulation.

A. Gaps in State Law

At the state level, the more detailed restrictions and requirements are found in LD 1539, which will not go into effect for another three months. This includes important requirements about labeling, packaging, tracking, record keeping and reporting, education, and signage. None of the caregiver facilities that open between now and December will be subject to those requirements.

Further, none of the rules for either bill have been developed. LD 238, for example, contemplates specific rules for testing facility director qualification requirements and security requirements. It also requires rules for manufacturing facilities including registration of the facility and key players, extraction using inherently hazardous substances, director qualifications, security, a disposal plan, record keeping, and educational materials. Looking at the existing rules currently in place for dispensaries, there are many gaps in regulation that we can expect the state to fill with rulemaking.

Finally, while LD 238 requires ISO[2] certification for labs and NFPA 2018 standards for manufacturing facilities using inherently hazardous substances, there is no one at the state level checking those certifications, and no one yet trained at the City level to do so. Similarly, although there are background check requirements and criminal history disqualifications, because there is no licensing scheme, no one is doing those checks to ensure that new businesses cropping up are being run by appropriate personnel. The Department of Administration and Financial Services, the state agency that will be running this program, still needs to get its regulatory and enforcement arms up and running.

[2] ISO is the International Organization for Standardization and is a third party who puts out international standards on various topics.

B. Local Requirements

In addition to the anticipated state law, rules, and licensing, there are purely local requirements that will need to be put into place. Some anticipated proposals will include:

- Zoning requirements to ensure that facilities open in appropriate locations and that there is no disproportionate impact on certain areas;
- Separation requirements from schools and other sensitive uses for all types of facilities;
- Separation requirements for retail stores from each other, from dispensaries, and from adult use stores;
- Separation requirements for manufacturing and cultivation facilities from residential properties to mitigate odor concerns;
- Odor mitigation requirements;
- Safety requirements;
- Provisions anticipating the switch from medical to adult use facilities in the future;
- Capping the size of facilities to avoid pushing out other industries;
- Licensing scheme to consider qualifications, likely including criminal history as well as financial and technical capacity; and
- Fire and life safety requirements in addition those that currently apply to manufacturing facilities using inherently hazardous substances.

Other places that have implemented more robust marijuana programs than Maine have already felt the growing pains of inadequate planning. One refrain that staff and I consistently heard from Colorado and other jurisdictions was to get out ahead of the industry with regulations in order to avoid negative impacts on residents and businesses. Frequently cited consequences were the clustering of facilities, the concentration of facilities in low income areas, significant changes to neighborhoods, inadequate building and fire regulations, the improper citing of facilities without thought to traffic, crime, and other impacts, and the need to be able to address an ever-evolving industry. The State of Colorado and a marijuana cultivation facility have been embroiled in litigation that has already gone up on appeal to the Tenth Circuit Court of Appeals over a complaint by neighbors of the facility who claim that the smell interferes with the enjoyment of their property. Maine also has a pending case where a condo owner has sued her neighbors for the nuisance created from the smell of marijuana.

In addition to clear regulations, staff needs training. They need resources to be able to evaluate applications in this relatively new industry. They also need education to be able to enforce even existing state laws, let alone anticipated new laws, rules, and ordinances. Most importantly, staff needs training on how to do all of this with an eye towards safety for themselves and the public. Examples of issues that have already arisen include improper storage and disposal of plants; manufacturing and testing facilities with inadequate fire and life safety protections and questionable operations; mobile testing facilities; electrical system overloads; and neighborhood impacts.

II. STANDARDS FOR MORATORIA, RETROACTIVITY IN MORATORIA AND ORDINANCES, AND EMERGENCY PASSAGE

The standards for moratoria, retroactivity, and emergency passage are all very deferential to the municipal officers.

A. Moratorium Standards

A municipal moratorium may be enacted for up to 180 days if it is needed, "Because the application of existing comprehensive plans, land use ordinances or regulations or other applicable laws, if any, is inadequate to prevent serious public harm from residential, commercial or industrial development in the affected geographic area." 30-A M.R.S. § 4356(1)(B). "Absent evidence to the contrary, a moratorium, like any other municipal ordinance, is presumptively valid." *Minster v. Gray*, 584 A.2d 646, 649 (Me. 1990). Any party who challenges a moratorium must establish "the complete absence of any state of facts that would support the need for the enactment." *Id.*, *quoting Tisei v. Town of Ogunquit*, 491 A.2d 564, 569 (Me. 1985). The absence of adequate zoning or other regulatory requirements has been upheld as an adequate justification for a moratorium. *See id* (moratorium on mobile home parks acceptable).

Without the proposed moratorium, caregiver testing and manufacturing facilities will have an incentive to rush into the market before LD 1539 goes into effect so that they will be "grandfathered" and allowed to continue operating. Until the state and the City establish their regulatory and licensing scheme, these businesses will operate with very little oversight or guidance.

B. Retroactivity Standards

State law provides that generally, "actions and proceedings pending at the time of the passage, amendment or repeal of an Act or ordinance are not affected thereby." 1 M.R.S. § 302. However, the Law Court has explained that § 302 "does not expressly or impliedly prohibit municipalities from applying ordinances retroactively." *Portland v. Fisherman's Wharf Assocs. II*, 541 A.2d 160, 164 (Me. 1988). Instead, it is simply a rule of statutory construction that does not apply where the legislative body (here, the City Council) is clear on its desire to make the legislation apply retroactively. *Kittery Retail Ventures, LLC v. Town of Kittery*, 2004 ME 65, ¶ 17.

The law in Maine is quite permissive in allowing municipalities to enact legislation that has retroactive application. In fact, in "neither the submission of a development application, nor the issuance of a development permit, establishes vested rights" that would prevent retroactivity. *Kittery Retail Ventures, LLC*, 2004 ME 65, ¶ 24. Additionally, a party's "mere reliance on the language of an existing ordinance, or the incurrence of preliminary expenses to satisfy application requirements, is not sufficient" to change the municipality's rights in this respect. *Id.*

If the moratorium is not made retroactive, the applications for three additional extraction facilities and one testing lab will continue to move forward and be processed.[3] If these facilities open before December 13, 2018, they will be grandfathered and will be operating in an environment with minimal standards and oversight.

C. Emergency Passage

Ordinarily, City ordinances take effect 30 days after passage. However, the Council has the authority to pass emergency ordinances. The charter provides:

> The city council may, by vote of at least seven (7) of its members, pass emergency ordinances, orders, or resolves to take effect at the time indicated therein, but such emergency ordinances, orders, or resolves shall contain a section in which the emergency is set forth and defined, provided, however, that the declaration of such emergency by the city council shall be conclusive.

City of Portland Charter Art. III, § 11. This standard does not require an imminent threat of significant harm, or some other heightened standard. The Council's determination of the need for emergency passage is final.

If the moratorium is not passed as an emergency, then additional manufacturing and testing facilities will have an incentive to rush in to get permitted in the additional 30-day period before the moratorium takes place. Additionally, larger cultivation facilities, where multiple caregivers are sited at the same location, will have the same incentive. As discussed above, both state and local requirements have significant gaps that are needed to protect residents, existing business, neighborhoods, and customers of the new facilities themselves. Also, the short time frame may encourage businesses who do not have fully developed resources, business plans, or knowledge to rush into the market to hold their place.

[3] It is unlikely that the retail store application will be granted, given that retail stores are not yet allowed under state law.

ATTACHMENT A
LD 238 – CAREGIVER TESTING AND MANUFACTURING

LD 238 paves the way for manufacturing facilities, and also provides additional requirements for testing facilities. While the bill specifically contemplates a state licensing scheme, it allows these facilities to move forward without state licensing.

A. Testing Facilities.

Testing facilities have been allowed for several years under state law, although it was previously unclear whether they could open in the absence of state rules and licensing. LD 238 clarified that testing facilities could open without state approval, and also added the requirement that labs be accredited to ISO/IEC 17025 standards. As discussed above, it also made it clear that the City could regulate these facilities. Under current state law, testing facilities must:

(1) Dispose of marijuana residue in a manner that prevents diversion of marijuana to persons not authorized to possess marijuana tested by the facility;
(2) House and store marijuana in the facility's possession or control during the process of testing, transport or analysis in a manner to prevent diversion, theft or loss;
(3) Label marijuana being transported to and from the facility with the following statement: "For Testing Purposes Only"; [and]
(4) Maintain testing results as part of the facility's business books and records.

22 M.R.S. § 2423-A(10)(C). Testing facilities must also "obtain and must be able to produce, upon demand of the department or a municipal code enforcement officer, documentation of the facility's accreditation pursuant to standard ISO/IEC 17025 of the International Organization for Standardization by a 3rd-party accrediting body." 22 M.R.S. § 2423-A(10)(E). This ISO standard largely governs documentation of processes and procedures.

State statute specifically contemplates that the State will further develop rules regarding "(1) Marijuana testing facility director qualification requirements; (2) Required security for marijuana testing facilities; and (3) Requirements for the licensing, certifying or other approval of marijuana testing facilities." 22 M.R.S. § 2423-A(10)(D). The state has not promulgated any of these rules, and there are no specific requirements in these areas.

B. Caregiver Manufacturing Facilities.

Although caregivers have been allowed to extract and manufacture marijuana products, LD 238 fleshes out the requirements for stand-alone manufacturing for caregivers. State law distinguishes between caregiver manufacturing facilities that engage in extraction using "inherently hazardous substances," and those that do not. Inherently hazardous substance is defined as "a liquid chemical; a compressed gas; carbon dioxide; or a commercial product that has a flash point at or lower than 38 degrees Celsius or 100 degrees Fahrenheit, including, but not limited to, butane, propane and diethyl ether. 'Inherently hazardous substance' does not include any form of alcohol or ethanol." 22 M.R.S. § 4-D.

Caregivers who do not extract using inherently hazardous substances are not subject to NFPA 2018 standards and are subject to only a few requirements. State statute requires that they "Shall dispose of marijuana used in the manufacturing process in a manner that prevents diversion of marijuana to persons not authorized to possess marijuana or marijuana products possessed by the facility and in accordance with rules adopted by the department," and must also label their product with certain information. 22 M.R.S. § 2423-F(4)(D), (9).

Caregivers who do use inherently hazardous substances are subject to additional requirements, including:

(1) Certification from a professional engineer licensed in this State of the safety of the equipment used for marijuana extraction and the location of the equipment and the professional engineer's approval of the standard operating procedures for the marijuana extraction;
(2) Documentation from a professional engineer licensed in this State or a state or local official authorized to certify compliance that the equipment used for marijuana extraction and the location of the equipment comply with state law and all applicable local and state building codes, electrical codes and fire codes, including the chapters of the most recent National Fire Protection Association Fire Code relating to marijuana extraction facilities; [and]
(3) Documentation from the manufacturer of the marijuana extraction system or a professional engineer licensed in this State showing that a professional grade, closed-loop extraction system that is capable of recovering the solvents used to produce marijuana concentrate is used by the person or entity.

22 M.R.S. § 2423-F(3)(A). Officers and employees of manufacturing facilities using inherently hazardous substances must also pass a criminal background check. 22 M.R.S. § 2423-F(8)(B). The facilities must also "maintain records of all transactions for a minimum of one year after the date of the transaction." 22 M.R.S. § 2423-F(12).

The State is required to adopt rules specifically addressing the following:

A. Requirements for the registration of a manufacturing facility and the principal officers, board members and employees of a registered manufacturing facility;
B. Requirements for engaging in marijuana extraction using inherently hazardous substances;
C. Manufacturing facility director or principal officer qualification requirements;
D. Required security for manufacturing facilities;
E. Requirements of a disposal plan for marijuana used in the manufacturing process;
F. Minimum record-keeping requirements, including an annual audit requirement; and
G. Minimum content of educational materials provided to the recipient of the marijuana products or marijuana concentrate.

22 M.R.S. § 2423-F(10). Again, the State has not promulgated any of these rules, and there are no specific requirements with respect to manufacturing facilities in these areas.

ATTACHMENT B
LD 1539 – CAREGIVER RETAIL STORES
AND ADDITIONAL REGULATION

A. Caregiver Retail Stores.

One of the more significant changes in LD 1539, is that it explicitly authorizes registered caregivers to operate a retail store. Currently, retail stores are not permitted, although the distinction between a caregiver who is cycling his or her fifth patient and one who is operating a retail store is unclear. This issue may be dealt with at the state level through rule making, or the City could address it through ordinances.

B. Manufacturing of Edibles

LD 1539 also implements several specific protections around the production of edible marijuana products. Among other requirements, edibles must be manufactured so that cannabinoid content and marijuana concentrate is consistent throughout the product; may not be manufactured in the shape of a human, animal, or fruit; may not contain additives that are toxic or harmful to humans or that are designed to make the product appeal to persons under 21; and may not be added to a trademarked food or drink product except under limited circumstances.

C. Additional Restrictions

LD 1539 has very specific packaging requirements for marijuana sold in a retail transaction, including that it be:

A. Prepackaged in child-resistant and tamper-evident packaging or placed in child-resistant and tamper-evident packaging with a signifier that the package contains harvested marijuana at the final point of sale to a qualifying patient;
B. Prepackaged in opaque packaging or an opaque container or placed in opaque packaging or an opaque container with a signifier that the package contains harvested marijuana at the final point of sale to a qualifying patient;
C. Packaged in a container with an integral measurement component and child-resistant cap if the marijuana product is a multiserving liquid; and

. . .

Any package required under this subsection that contains edible marijuana products must include a signifier that the package contains harvested marijuana.

It also includes specific packaging restrictions, including that marijuana sold may not be:

A. Labeled or packaged in violation of a federal trademark law or regulation or in a manner that would cause a reasonable consumer confusion as to whether the harvested marijuana was a trademarked product;
B. Labeled or packaged in a manner that is specifically designed to appeal particularly to a person under 21 years of age;

C. Labeled or packaged in a manner that obscures identifying information on the label or uses a false or deceptive label;
D. Sold or offered for sale using a label or packaging that depicts a human, animal or fruit.

The new law will also require testing in certain situations, the distribution of educational materials, plant tracking and labeling, and significant record keeping requirements. It also limits signs, advertising, and marketing.

Order 69-18/19
Motion to postpone to October 1, 2018: 7-0 (Costa absent, Thibodeau recused and absent)
Amended by adding at the end of the title of the order "and medical marijuana grow facilities", at the end of the fourth whereas, "and 4) grow up to 30 plants per caregiver for medical use"; in the fifth and sixth whereas adding " grow facilities", in the seventh whereas adding "testing facilities, manufacturing facilities, and grow facilities", in the tenth whereas adding "grow facilities", "in the title of Article X adding " and Grow Facilities"; in section 17-124 last paragraph adding "and medical marijuana grow facilities"; in section 17-125 adding "Medical marijuana grow facility means a lot or parcel where more than one registered caregiver is growing medical marijuana for medical use", in 17-127 adding "or medical marijuana grow facility", in Sec. 17-128 "Pursuant to Article II, section 11 of the Portland City Charter, in order to protect the public safety and welfare of the City of Portland," and "be enacted as an Emergency, and begin on October 1, 2018" also adding "until December 13, 2018 for medical marijuana manufacturing facilities, medical marijuana retail stores and medical marijuana testing facilities. This moratorium shall begin on October 1, 2018 and continue until February 1, 2019 for medical marijuana grow facilities." Lastly by deleting section 17-129 and the two following Be It Further Ordered paragraphs: 8-0 on 10/1/2018 (Councilor Thibodeau recused)

Passage as amended: 8-0 on 10/1/2018 (Councilor Thibodeau recused)

Effective 10/1/2018

ETHAN K. STRIMLING (MAYOR)
BELINDA S. RAY (1)
SPENCER R. THIBODEAU (2)
BRIAN E. BATSON (3)
JUSTIN COSTA (4)

CITY OF PORTLAND
IN THE CITY COUNCIL

KIMBERLY COOK (5)
JILL C. DUSON (A/L)
PIOUS ALI (A/L)
NICHOLAS M. MAVODONES, JR (A/L)

AMENDMENT TO THE PORTLAND CITY CODE CHAPTER 17 RE: MORATORIUM ON MEDICAL MARIJUANA RETAIL STORES, MEDICAL MARIJUANA TESTING FACILITIES, AND MEDICAL MARIJUANA MANUFACTURING FACILITIES, AND MEDICAL MARIJUANA GROW FACILITIES

WHEREAS, the Maine Medical Use of Marijuana Act (the "Act"), codified in the Maine Revised Statutes in Title 22, Chapter 558-C, authorizes registered caregivers to possess, cultivate, and transfer medical marijuana to qualifying patients, as those terms are defined by 22 M.R.S. § 2422; and

WHEREAS, on July 9, 2018 the Maine Legislature enacted as emergency legislation PL 2017, c. 447 (LD 239), An Act to Amend the Maine Medical Marijuana Law, which expressly recognizes municipal home rule authority to regulate registered caregiver operations; and

WHEREAS, on July 9, 2018, the Maine Legislature also enacted PL 2017, c. 452 (LD 1539), An Act to Amend Maine's Medical Marijuana Law ("LD 1539"); and

WHEREAS, LD 1539 includes express authorization for registered caregivers to 1) operate retail stores for the sale of harvested medical marijuana to qualifying patients, 2) conduct marijuana testing for research and development purposes, 3) manufacture marijuana products and marijuana concentrates for distribution to patients, and 4) grow up to 30 plants per caregiver for medical use; and

WHEREAS, the unregulated location and operation of medical marijuana retail stores, testing facilities, manufacturing facilities and grow facilities within the City of Portland (the "City") raises legitimate and substantial questions about the impact of such activity on the City, including questions as to compatibility with existing land uses and developments in the City; the sufficiency of municipal infrastructure to accommodate such activity; and the possibility of unlawful sale of medical marijuana and medical marijuana products; and

WHEREAS, as a result of the foregoing issues, the location and operation of medical marijuana retail stores, testing facilities, and manufacturing facilities, and grow facilities within the City have potentially serious implications for the health, safety and welfare of the City and its residents; and

WHEREAS, existing ordinances are insufficient to prevent serious public harm that could result from the unregulated development of medical marijuana retail stores, testing facilities, manufacturing facilities, and grow facilities; and

WHEREAS, the City needs time to understand the impact of the amendments to the Act on the City's existing rules and ordinances regarding, among other things, zoning, land use, and fire and life safety requirements; and

WHEREAS, in the judgment of the City Council, the foregoing findings and conclusions constitute an emergency within the meaning of 30-A M.R.S. § 4356 requiring immediate legislative action; and

WHEREAS, a temporary prohibition on medical marijuana retail stores, testing facilities, and manufacturing facilities, and grow facilities is therefore appropriate in order to determine what regulations, if any, are necessary within the City as a result of the amendments to the Act:

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF PORTLAND, that the Portland City Code is hereby amended by adding an Article, to be numbered X, which said Article reads as follows:

ARTICLE X. MORATORIUM ON MARIJUANA CAREGIVER RETAIL STORES, TESTING FACILITIES, AND MANUFACTURING FACILITIES, AND GROW FACILITIES

Sec. 17-124. Necessity.

Municipalities are authorized by 30-A M.R.S. § 4356(1)(a) and (b) to enact moratoria for the following reasons:

a. To prevent a shortage or an overburden of public facilities that would otherwise occur during the effective period of the moratorium or that is reasonably foreseeable as a result of any proposed or anticipated development; or

b. Because the application of existing comprehensive plans, land use ordinances or regulations or other applicable laws, if any, is inadequate to prevent public harm from residential, commercial or industrial development in the affected geographic area.

In accordance with 30-A M.R.S. § 4356(1)(a) and (b) and for the reasons stated above, the Portland City Council hereby finds that a moratorium on medical marijuana retail stores, medical marijuana testing facilities, medical marijuana manufacturing facilities, and medical marijuana grow facilities is necessary and warranted in the City of Portland.

Sec. 17-125. Definitions.

Except as otherwise provided, the following definitions shall apply to this Article:

Marijuana extraction means the process of extracting marijuana concentrate from harvested marijuana using water,

lipids, gases, solvents or other chemicals or chemical processes.

Manufacturing or manufacture means the production, drying, blending, infusing, compounding or other preparation of marijuana and marijuana products, including the preparation of food, drink, or similar products from marijuana or marijuana products. Manufacturing includes, but is not limited to, marijuana extraction or preparation by means of chemical synthesis.

Medical marijuana grow facility means a lot or parcel where more than one registered caregiver is growing medical marijuana for medical use.

Medical marijuana manufacturing facility means an establishment that manufactures marijuana and marijuana products produced by a registered caregiver. Medical marijuana manufacturing facility does not include a single registered caregiver who solely manufactures marijuana and marijuana products out of marijuana legally grown by that caregiver for distribution to that caregiver's own patients.

Medical marijuana retail store means an establishment having the attributes of a typical retail establishment, such as, but not limited to, signage, regular business hours, accessibility to the public, regular sales to more than five individual qualifying patients in any one week, and sales directly to the consumer of the product. This includes, but is not limited to, an establishment meeting the definition of a retail establishment in Sec. 14-47 of this Code that is used by a registered caregiver to offer harvested medical marijuana or marijuana products for sale to qualifying patients.

Medical marijuana testing facility means an establishment that tests marijuana produced by a registered caregiver. Medical marijuana testing facility does not include a single registered caregiver who solely tests the marijuana legally grown by that caregiver for distribution to that caregiver's own patients.

Sec. 17-126. Conflicts/Savings Clause.

Any provisions of this Code that are inconsistent or conflicting with the provisions of this Article are hereby repealed to the extent applicable for the duration of this

moratorium. If any section or provision of this Code is declared by any court of competent jurisdiction to be invalid, such a declaration shall not invalidate any other section or provision.

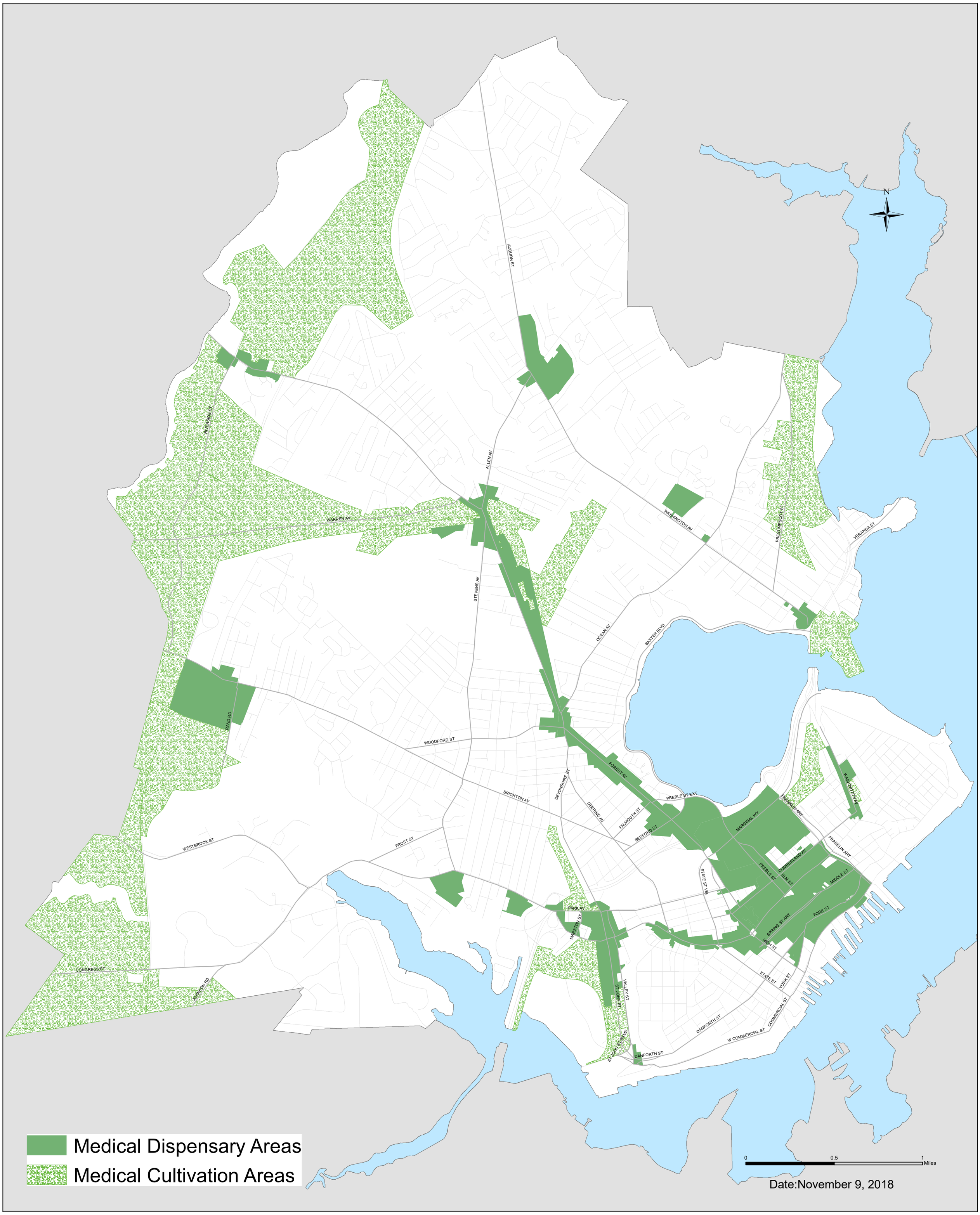
Section 17-127. Violations.

If any medical marijuana retail store, medical marijuana testing facility, medical marijuana manufacturing facility, or medical marijuana grow facility is established in violation of this Article, it shall be subject to the penalties provided for in Sec. 1-15 of this Code.

Sec. 17-128. Term.

Pursuant to Article II, section 11 of the Portland City Charter, in order to protect the public safety and welfare of the City of Portland, this moratorium shall be enacted as an Emergency, and begin on October 1, 2018 and continue until December 13, 2018 for medical marijuana manufacturing facilities, medical marijuana retail stores and medical marijuana testing facilities. This moratorium shall begin on October 1, 2018 and continue until February 1, 2019 for medical marijuana grow facilities. It may be extended for additional 180 day periods by the City of Portland in accordance with 30-A M.R.S. § 4356(2).

Current Areas Where Medical Marijuana Dispensaries and Cultivation Are Permitted (2010 Zoning)



PLANNING BOARD REPORT
PORTLAND, MAINE

Division 7.1 and Division 7.2 Island Residential Text Amendments
City of Portland, Applicant

Submitted to: Portland Planning Board Public Hearing Date: November 13, 2018	Prepared by: Matthew Grooms, Planner Date: November 8, 2018

I. INTRODUCTION

The City of Portland is proposing a minor text amendment to two of the City's Island Residential zones, the IR-1 and IR-2 zones, to remove and/or edit conditional use requirements requiring that accessory dwelling units (ADUs) pertaining to unit size, tenancy and affordability requirements. This proposal, as first suggested by the group Homestart, a 501 (c) 3 non-profit community-based committee of Peaks Island residents, is intended to facilitate the creation and maintenance of affordable housing opportunities within Portland's island communities, with particular focus on Peaks Island.

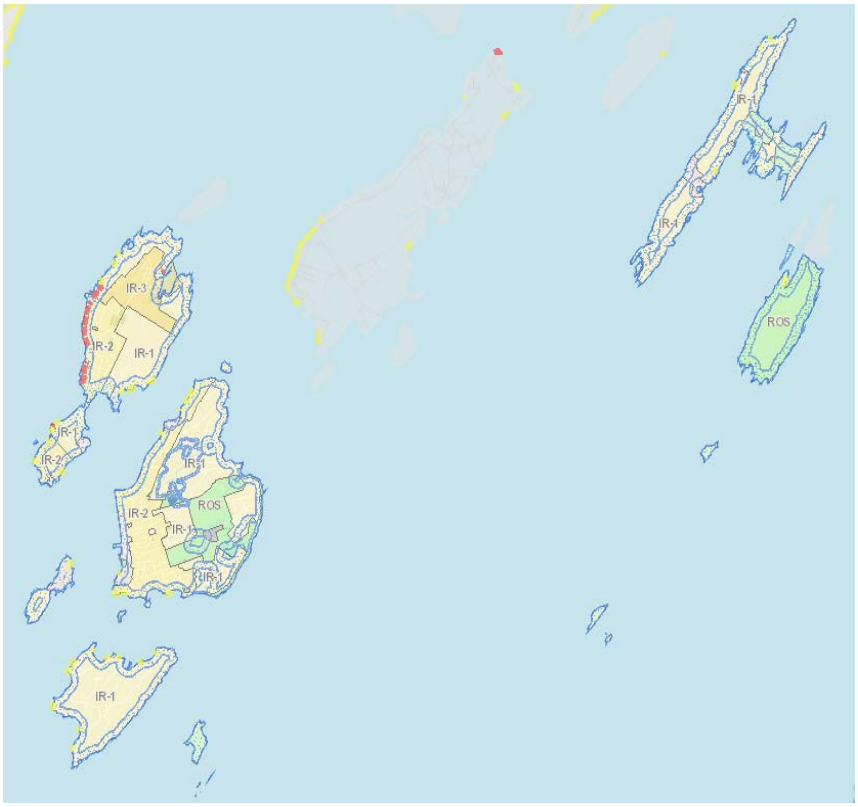


Figure 1: Locations of the IR-1 and IR-2 Zones, to be impacts by the proposed amendments

A Planning Board Workshop was held on October 9, 2018 for initial consideration, and City staff have since made additional amendments responding to feedback from the Board and public.

Notice of this Public Hearing appeared in the Portland Press Herald on November 5th and 6th, 2018, and notices were distributed electronically to the interested citizen list. At the time of the writing of this memo, four public comments were received.

II. BACKGROUND

A. Process Prior to City Sponsored Text Amendments

For the purposes of this discussion and as described in the conditional use standards for both the IR-1 and IR-2 Island Residential zones, an accessory dwelling unit (ADU) is a dwelling unit that exists as part of a single-family or multi-family dwelling, that is subordinate in size and designed to maintain the appearance of either a single-family or multi-family dwelling. The unit includes its own independent living facilities, including provision for sleeping, cooking and sanitation and is designed for residential occupancy by one or more people, independent of the primary dwelling unit(s).

The City had been contacted by HomeStart, a 501 (c) 3 nonprofit community-based committee of Peaks Island residents whose mission is "to work to create and maintain affordable housing opportunities for the residents of Peaks Island, Maine", requesting changes to the ADU ordinance as related to Peaks Island. To support their goal, HomeStart has proposed four strategies for consideration:

- Improve the current provisions for Accessory Dwelling Units (ADU's)
- Allow the space in older buildings that have been used residentially to be reconfigured to create additional dwelling units but only if at least half of the units are affordable to year-round residents.
- Reduce the side setback requirements and increase the coverage limits for building on smaller "lots of record" if the units will be affordable to year-round residents.
- Reduce the off-street parking required for affordable residential units

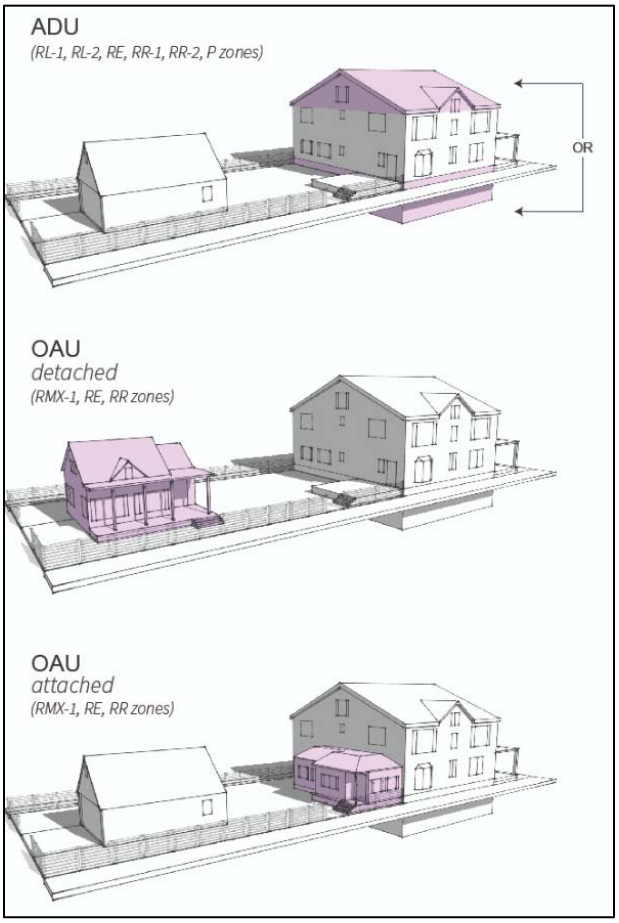


Figure 2: Example ADU Configurations. Note: The IR-1 and IR-2 zones only permit internal or attached ADUs.

Source: City of Boulder, CO

In March of 2018, HomeStart, in coordination with City staff provided a brief of draft text amendments to the City's Housing Committee that addressed each of the aforementioned concepts. The proposed amendment, which can be viewed in Attachment 1, included; reducing the square footage of accessory dwelling units from four hundred (400) to three hundred (300) square feet; removing the requirement that either the accessory or principal dwelling unit be owner-occupied; allowing the accessory unit to be located in an unattached accessory building; requiring the maximum rent to be affordable to households earning up to 115% area median income (AMI); and deed restricting the accessory unit for a term of twenty years through an Affordable Housing Agreement (AHA). These proposed changes have influenced the City's Housing Committee to direct staff in developing a new, city-

wide accessory dwelling unit (ADU) ordinance that would decrease the number of obstacles faced by property owners in developing ADUs and expand opportunities for their development. City-wide changes are currently under development and will be submitted as one of the limited policy changes proposed as part of Phase I of ReCode Portland. A web page with information about this subject is available at: https://www.recodeportland.me/accessory-dwelling-units/

In the meantime, in order to take advantage of short-term opportunities, HomeStart has requested that staff proceed with a smaller subset of amendments, which if approved, would go into effect prior to consideration of the city-wide ADU ordinance. The City has agreed to sponsor these amendments as a means of increasing affordable housing supply within the City, with the understanding that these amendments would later be incorporated into the city-wide ADU ordinance if adopted.

B. Planning Board Workshop (10.09.2018)

On October 9, 2018, A Planning Board Workshop was held to discuss a minor set of text amendments to the IR-1 and IR-2 Island Residential zones. The City, which agreed to sponsor these amendments, initially limited the proposal to removing the owner occupancy requirement (instead requiring that units be the occupant's primary residence), reducing the tenancy period down to six (6) months and prohibiting short-term rentals. The City indicated that these changes would permit HomeStart to proceed with an affordable housing project that had been identified, while allowing more time for a comprehensive review of other HomeStart proposals, which could then be incorporated into a city-wide ADU ordinance.

At the workshop, members of the Board, along with several members of both HomeStart and the public, voiced concerns that the amendments as proposed by staff did not sufficiently address existing barriers that prevented the construction of ADUs as affordable housing units for year-round residents. Particular concerns included:

- Reduction of tenancy period from one (1) year to six (6) months would result in many units becoming Summer/Winter rentals.
- Minimum unit size of 400 square feet (existing language) could and should be reduced to 300 square feet to provide greater flexibility.
- Requiring that both the primary and accessory unit be the occupants' primary residence was not in line with HomeStart's proposal that the accessory unit be the occupants' primary residence.
- Lack of affordability requirements would prevent low-income island residents from being able to afford an ADU developed under these regulations.
- ADUs should be permitted within accessory structures
- HomeStart had included a number of additional proposals not pertaining to the development of ADUs, which included:
    - More clearly defined parameters for development on non-conforming lots on Peaks Island
    - Conversion of larger underutilized buildings in the IR-1 and IR-2 zones for multi-family residential development
    - Standards for the redevelopment of smaller vacant lots or 'lots of record'
    - Reduced off-street parking standards

Following this workshop, the Board directed staff to work with HomeStart members and explore these concepts more closely as part of this text amendment. Several of these recommendations have since been drafted into the proposed amendments, and the staff met with HomeStart on November 7, 2018, to discuss the amendment in more detail and make final changes prior to the public hearing.

III. PROPOSED TEXT AMENDMENTS

A. Existing Zoning – Purpose Statements

1. Division 7.1 IR-1 Island Residential Zone

The purpose of the IR-1 Island Residential zone is to provide for low intensity residential, recreation, and rural uses in the less developed areas of the islands, in order to preserve the rustic character of the islands, to protect groundwater resources and natural and scenic areas, and to permit only appropriate low intensity development in areas lacking adequate public facilities and services.

2. Division 7.2 IR-2 Island Residential Zone

The purpose of the IR-2 Island Residential zone is to protect the character of existing developed residential neighborhoods on the islands and to allow infill where there are adequate public services available. Expansion or extension of an existing IR-2 zone should be strictly limited, generally focused toward areas adjacent to existing village IR-2 areas, and restricted by such factors as adequacy of access, whether adequate water will be available for private use and for fire protection, and whether soils in the areas are adequate for subsurface water disposal or whether public sewers are available.

B. Proposed Amendments

1. Section 14-145.2(a)1. – IR-1 Text Amendment

1. Accessory dwelling unit within and clearly subordinate to a principal single-family detached dwelling or legal multi-family dwelling, provided that:

a. The accessory unit shall be no more than thirty-five (35) percent of the gross habitable floor area of the building and shall have a minimum floor area of three hundred ~~four hundred~~ (300~~400~~) square feet;

b. Lot area shall be seventy thousand (70,000) square feet, or on Peaks Island be an existing lawfully non-conforming lot as of May 1, 2015;

***c.** There shall be no open outside stairways or fire escapes above the ground floor;*

d. Any additions or exterior alterations such as façade materials, building form, roof pitch and exterior doors shall be designed to be compatible with the architectural style of the building and preserve the single-family appearance of the building. The exterior design of new construction including façade materials, building form, roof pitch and exterior doors shall have a single-family appearance;

e. A lower level dwelling unit shall have a minimum two-thirds of its floor-to-ceiling height above the average adjoining ground level;

f. Except on Peaks Island, ~~Either~~ the accessory unit or the principal dwelling unit shall be occupied by the owner of the lot on which the principal building is located, except for bonafide temporary absences. On Peaks Island, neither the accessory unit or the

principal dwelling unit shall be used for short-term rentals as defined under Sec. 6-150.1;

g. *All sanitary waste shall be disposed of by a public sewer, subsurface sewerage system or other method in compliance with state and local regulations;*
h. *~~For a~~Accessory units created on Peaks Island on existing lawfully non-conforming lots as of May 1, 2015:*
    i. *Shall remain under common ownership with the primary unit of the lot;*
    ii. *Shall not be sold as condominium units or otherwise separated from the ownership of the pre-existing unit of the site;*
    iii. *Shall be rented to households earning up to 100% of AMI and be subject to income verification as further outlined in implementing regulations for Division 30;*
    iv. *Shall be rented on an annual basis and may not be used for seasonal ~~or weekly~~ rentals; and*
    v. *Shall be built within the principal building or as an attachment in accordance with subsection (d).*
    vi. *Shall not be rented for more than the rent permitted at 80% of Area Median Income under the Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing or policy.*
    vii. *Shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing for a term of not less than twenty (20) years.*
    viii. *Shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.*

2. Section 14-145.9(a)1. – IR-2 Text Amendment

1. *Accessory dwelling unit within and clearly subordinate to a principal single-family detached dwelling or legal multi-family dwelling, provided that:*
    a. *The accessory unit shall be no more than thirty-five (35) percent of the gross habitable floor area of the building and shall have a minimum floor area of three hundred ~~four hundred~~ (300~~400~~) square feet;*
    b. *Lot area shall be thirty thousand (30,000) square feet, or on Peaks Island be an existing lawfully non-conforming lot as of May 1, 2015;*
    c. *There shall be no open outside stairways or fire escapes above the ground floor;*
    d. *Any additions or exterior alterations such as façade materials, building form, roof pitch and exterior doors shall be designed to be compatible with the architectural style of the building and preserve the single-family appearance of the building. The exterior design of new construction including façade materials, building form, roof pitch and exterior doors shall have a single-family appearance;*
    e. *A lower level dwelling unit shall have a minimum two-thirds of its floor-to-ceiling height above the average adjoining ground level;*
    f. *Except on Peaks Island, ~~Either~~ the accessory unit or the principal dwelling unit shall be occupied by the owner of the lot on which the principal building is located, except for bonafide temporary absences. On Peaks Island, neither the accessory unit or the principal dwelling unit shall be used for short-term rentals as defined under Sec. 6-150.1;*

g. All sanitary waste shall be disposed of by a public sewer, subsurface sewerage system or other method in compliance with state and local regulations;

h. ~~For a~~Accessory units created on Peaks Island on existing lawfully non-conforming lots as of May 1, 2015:

i. Shall remain under common ownership with the primary unit of the lot;

ii. Shall not be sold as condominium units or otherwise separated from the ownership of the pre-existing unit of the site;

iii. Shall be rented to households earning up to 100% of AMI and be subject to income verification as further outlined in implementing regulations for Division 30;

iv. Shall be rented on an annual basis and may not be used for seasonal or short-term rentals as defined under Sec. 6-150.1.~~weekly rentals~~; and

v. Shall be built within the principal building or as an attachment in accordance with subsection (d).

vi. Shall not be rented for more than the rent permitted at 80% of Area Median Income under the Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing or policy.

vii. Shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing for a term of not less than twenty (20) years.

viii. Shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

3. Discussion of Proposed Text Amendments

As stated in the introduction, the goal of HomeStart with their initial proposal was to revamp the Island ADU requirements to facilitate the creation and maintenance of new affordable housing that would be suitable to year-round residents. To achieve this, they advocated for a broad range of amendments not only pertaining to ADUs, but also conversion of large underutilized buildings for multi-family development, development of small 'lots of record' and reduced parking standards. In discussions with HomeStart, the City has agreed to sponsor a limited number of these recommendations regarding the development of ADUs, with the exception of permitting ADUs in accessory structures. While other recommendations as mentioned are worthy of further consideration, the City has identified that these, and reuse of accessory structures for ADUs, would require significantly more research, analysis and outreach as they have broader policy implications, and are not prepared to pursue those at this time.

Following the previous workshop, the staff coordinated with HomeStart to better understand their needs and adopted several additional recommendations, such as a reduced minimum unit size, reversion back to a one-year minimum tenancy period, and rewording of the primary residency requirement. At first, the staff were hesitant to introduce affordability requirements, as an ADU is considered a 'naturally occurring affordable housing' unit, due to its small size and tenancy requirements. Further, the added obligation of confirming incomes and eligibility and negotiating an 'Affordable Housing Agreement' (AHA) adds additional administrative burden and may be seen as a further obstacle in developing ADUs.

HomeStart has indicated that the affordability requirements were a key component of their initial proposal

and that they were negotiated with members of the community. As a result, the staff have agreed to include these requirements, slightly changing the income and rental limits to reflect perceived need on Peaks Island. As drafted, the affordability requirements only apply to ADUs being developed on non-conforming lots on Peaks Island, and would not apply to principal dwelling units or ADUs being developed on conforming lots on Peaks Island or other islands.

As mentioned at the Workshop, the staff were also considering an amendment to Division 20, Off-Street Parking Standards, to reduce the overall parking requirement for ADUs. Initially, prior to consideration of affordability requirements, the staff were contemplating reduction of the parking requirement to one (1) parking space for the ADU, in line with the suggestion made by HomeStart. Upon adding the affordability requirement however, this need was removed, as Section 14-332.2(b) already permits this, stating:

> Incentives for affordable housing - parking reductions: For each low-income or workforce housing unit for rent or sale within an eligible project under the Affordable Housing Ordinance established in Division 30 of this article, no more than one (1) parking space shall be required. The planning board may establish a parking requirement for affordable housing units for rent or sale within an eligible project that is less than one (1) parking space per affordable housing unit, regardless of the size of the structure.

IV. COMPREHENSIVE PLAN

The City's ordinance states that any rezoning must be consistent with the City's Comprehensive Plan. In forming its recommendation to the City Council, the Board will need to make a finding on whether the proposal is consistent with the Comprehensive Plan. As seen below, the staff have identified below a number of the specific Comprehensive Plan goals and policies which are suggested as being relevant to the proposed text amendments to the IR-1 and IR-2 zones.

The central vision of Portland's Plan 2030 is represented by the venn diagram demonstrating the integral interrelation of the community's core belief that Portland is equitable, sustainable, connected, dynamic, authentic and secure. The vision conveys the message of the City's need to balance many competing needs to assure the advance of the vision as a unified concept. In this instance, that the City's goals for job growth and transforming Portland through orderly growth and development be balanced with needs for connectivity of the street grid, sustainability of infrastructure and the ability to maintain that infrastructure, and security in the sense of public safety.

As currently written, the IR-1 and IR-2 zones are specifically concerned with maintaining and enhancing the uniquely rural and rustic appearance of housing in Portland's island communities. At the same time, the state's housing goal is "to encourage and promote affordable decent housing for all Maine citizens", which would include full-time residents within Maine's island communities. The proposed text amendment, intended to relax restrictions on ADUs, is an ideal solution to these disparate challenges and achieves multiple aims of the City's Comprehensive Plan, as seen below.

1. Build on Existing Programs
    a. Reinforce existing housing tools, policies, and programs while continuing to explore emerging best practices
    b. Continue to implement best practices in workforce and affordable housing development such as the Housing Trust Fund, inclusionary zoning and other tools.

2. Remove Housing Barriers
    a. Evaluate whether current zoning allows for new development consistent with historic patterns of form, density and/or use, as well as whether it allows for priority growth areas
    b. Assess the impact of current parking requirements on housing development, and evaluate the suitability of fee-in-lieu programs for some neighborhoods
    c. Allow for a range of housing models in City codes, whether small units, co-housing, or others that may suit changing needs and demographics

3. Promote Sustainability
    a. Encourage rehabilitation of existing historic buildings and materials

4. Support Age-Friendly Housing Options
    a. Support programs and tools that facilitate aging safely in place
    b. Create, promote, and facilitate safe, affordable, and practical housing solutions that will meet the evolving needs of Portland residents as they age

5. Adapt Affordable Housing
    a. Pursue new opportunities for increased energy efficiency, increased densities, mixed incomes, and greater connectivity to surrounding neighborhoods

6. Support Island Communities
    a. Support land use tools that encourage year-round residences in existing and new housing on Portland's islands, while maintaining their unique character and environment.

Accessory dwelling units at present, are permitted as a conditional use within almost all of Portland's residential zones. Recognized as a means of increasing the affordable housing supply, residential density, and opportunities for multi-generational families to occupy one property, ADU ordinances have been adopted in cities nation-wide and are a prominent, non-subsidy based affordable housing tool. This text amendment builds upon that framework in a manner that is tailored to Portland's island communities. Whereas the existing language focuses heavily on preservation of the unique and historic housing stock and development patterns, the proposed amendments are for the benefit of year-round island residents who

seek stable and affordable housing that is currently limited by standards of the existing ordinance, namely the requirement that either the principal or accessory unit be owner-occupied.

V. PUBLIC COMMENT

Staff has received three public comments on the proposed text amendments to date. Prior to the initial workshop, the two comments received pertained to the original proposal, and were largely concerned with the six (6) month tenancy period, and related concerns that the units could be rented as seasonal or short-term rentals. A third public comment was received from Greater Portland Landmarks regarding parking requirements, particularly that having an parking requirements for ADUs would be undesirable.

In response to these comments, staff would note that at this time, no changes are proposed to the tenancy period, and with these amendments, short-term and seasonal rentals would now be prohibited. Regarding parking, now that affordability requirements are being introduced, eligible units are required to provide no more than one (1) parking space, and there is an avenue clearly defined for gaining further relief. Looking at ADUs generally, it is anticipated that parking will be addressed in a city-wide ADU ordinance, that would either reduce or eliminate existing requirements.

VI. STAFF RECOMMENDATION

The staff recommends that the Planning Board find the proposed text amendments to be consistent with the Comprehensive Plan and recommend to the City Council adoption of the proposed text amendments.

VII. PROPOSED MOTION

On the basis of the material provided in this report, public testimony, a review of applicable policies, and other information, the Planning Board finds that the proposed text amendments to Division 7.1 IR-1 and Division 7.2 IR-2 Island Residential Zones [**are**/**are not**] consistent with the Comprehensive Plan and [**recommends**/**does not recommend**] adoption of the proposed amendment to the City Council.

VIII. ATTACHMENTS

1. Housing Committee Report – March 2018
2. Proposed Text Amendments to Portland Land Use Code, Div. 7.1 IR-1 Island Residential Zone
3. Proposed Text Amendments to Portland Land Use Code, Div. 7.2 IR-2 Island Residential Zone
4. Public Comments
    a. PC1: Elizabeth Remage Healey (10.07.2018)
    b. PC2: Caron Chess (10.09.2018)
    c. PC3: Greater Portland Landmarks (11.07.2018)

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

TO: Councilor Duson, Chair
Members of the Housing Committee

FROM: Victoria Volent, Housing Program Manager

DATED: March 19, 2018

SUBJECT: HomeStart Proposed Text Amendments

Introduction

HomeStart is a 501(c) 3 nonprofit community-based committee of Peaks Island residents whose mission is "to work to create and maintain affordable housing opportunities for the residents of Peaks Island, Maine". To support their goal, HomeStart has proposed four strategies for consideration:

- Improve the current provisions for Accessory Dwelling Units (ADU's)
- Allow the space in older buildings that have been used residentially to be reconfigured to create additional dwelling units but only if at least half of the units are affordable to year round residents
- Reduce the side setback requirements and increase the coverage limits for building on smaller "lots of record" if the units will be affordable to year-round residents
- Reduce the off-street parking required for affordable residential units

Homestart has suggested these strategies to build on recommendations they made in 2015. Their 2015 suggestions informed the package of "encourage and ensure" zoning changes made at that time, which included the inclusionary zoning ordinance, but also some changes to relax regulations of affordable ADU's on Peaks Island and the R-5 zone on the mainland.

Division 7.1 IR-1 Island Residential Zone

The purpose of the IR-1 island residential zone is to provide for low intensity residential, recreational, and rural uses in the less developed areas of the islands, in order to preserve the rustic character of the islands, to protect groundwater resources and natural and scenic areas, and to permit only appropriate low intensity development in areas lacing adequate public facilities and services. Division 7.1 IR – 1 includes sections 14-145.1 through 14-145.6.

Division 7.2 IR-2 Island Residential Zone

The purpose of the IR-2 island residential zone is to protect the character of existing developed residential neighborhoods on the islands and to allow infill where there are adequate public services available. Expansion or extension of an existing IR-2 zone should be strictly limited, generally focused toward areas adjacent to existing village IR-2 areas, and restricted by such factors as adequacy of access, whether adequate water will be available for private use and for fire protection, and whether sols in the area are adequate for subsurface water disposal or whether public sewers are available. Division 7.2 IR-2 includes sections 14-145.7 through 14-145.22

Accessory Dwelling Units

The proposed changes to Division 7.1 IR-1 section 14-145.3 (a) 1 include; reducing the square footage of accessory dwelling units from four hundred (400) to three hundred (300) square feet; removing the requirement that either the accessory unit or the principal dwelling unit shall be occupied by the owner of the lot; allowing the accessory unit to be located in an unattached accessory building; requiring the maximum rent to be affordable to households earning up to 115% AMI; and deed restricting the accessory unit for a term of twenty years through an Affordable Housing Agreement.

Reconfiguration of large, older residential buildings

The changes to Division 7.1 IR-1 section 14-145.5 (a), and Division 7.2 IR-2 section 14-145-8 are proposed amendments to allow the reconfiguration of large (1,200 square feet of gross floor area), older (pre 1985) residential buildings to include one or more additional dwelling units in the principal building and/or in an existing accessory building. The proposed amendments also provide for; minimum lot, and building standards; maximum rent and sale prices; twenty year deed restrictions; and a provision that at least fifty percent of the dwelling units in the reconfigured building(s) be occupied by a household meeting the income restrictions outlined in the City's Inclusionary Zoning Ordinance.

The amendment to section 14-145.5 (a) Minimum Lot Size would also allow the reconfiguration of large, older residential buildings on lots served by both on-site water and sewage disposal. Under these conditions, the minimum lot size requirement would be 20,000 square feet.

Division 25. Space and Bulk Regulations and Exceptions

The requirements of this article are subject to the Space and Bulk Regulations and Exceptions of Division 25. Division 25 includes section 14-433 Lots of Record and Accessory Dwelling Structure Setbacks for Existing Buildings.

Development of "lots of record"

The proposed change to section 14-433 is the inclusion of an amendment designed to enhance feasible development of small, vacant lots if they meet specific requirements. The amendments only pertain to lots of record as of July 15, 1985 located in the IR-1 or IR-2 Zone on Peaks Island intended for use as a single family residence. The dwelling units would be occupied by households earning up 120% of the Area Median Income (AMI) and deed restricted for twenty years through an Affordable Housing Agreement.

Zone	Min. lot size	Street Frontage	Set-backs	Max. lot coverage
IR-1	40,000 SF with public water; 60,000 SF without public water	n/a if meets applicable yard and min. lot dimensions	30'- front 30'- rear 20'- side	20%
IR-2	20,000 SF with both off-site water and sewage	n/a if meets applicable yard and min. lot dimensions	25' – front 25' – rear 20' - side	20%
Proposed IR-1 and IR-2 amendments	5,000 SF if served by both public sewer and water; 10,000 SF if served by on-site sewage system and public water	45'	10' – rear 10' - side	Less than 40%; unless subject to shoreland zoning then 20%

Section 14-433 is further proposed for amendment by adding a new subsection that allows two adjacent lots of records as of July 15, 1985 located in the IR-1 or IR-2 Zone of Peaks Island to be used as a two-family rental or homeownership dwelling unit. At least one unit would be occupied by a household earning up to 120% of the Area Median Income (AMI) and deed restricted for twenty years.

Zone	Min. lot size	Street Frontage	Set-backs	Max. lot coverage
Proposed IR-1 and IR-2 amendment	10,000 SF with both public sewer and water; 20,000 SF is served by on-site sewage and public water	95'	15' – rear 15' - side	Less than 40%; unless subject to shoreland zoning then 20%

Off Street Parking Requirements

The proposed amendment to section 14-332.1 would add a subsection to reduce the parking requirement for affordable, deed restricted housing units in the IR-1, and IR-2 zone from two spaces per unit to one space per unit. The proposed amendment to Section 14.332.1 (f) would allow one parking space for each dwelling unit that is deed restricted as affordable housing.

Conclusion

Portland's Comprehensive Plan, *Portland's Plan 2030*, acknowledges the City of Portland is actively engaged in efforts to encourage housing preservation and creation, for all income levels and household sizes, through policy initiatives and public/ nonprofit partnerships. The proposals presented by HomeStart in their report *Suggested Amendments to the Portland Zoning Ordinance to Facilitate the Development of More Affordable, Year-Round Housing on Peaks Island* is in keeping with the Comprehensive Plan's directive to create housing for all income levels through policy initiatives. Further, within the Housing Chapter of the Comprehensive Plan is the recommendation to support island communities by "support(ing) land use tools that encourage year-round residences in existing and new housing on Portland's islands, while maintaining their unique character and environment".

Attachments:

HomeStart Suggested Amendments to the Portland Zoning Ordinance (revised Oct 15, 2017)
HomeStart Overview of Draft Amendments (June 28, 2017)
HomeStart Rationale for HomeStart's Suggested Zoning Ordinance Amendments (Aug 29, 2017)

Revised October 15, 2017

Suggested Amendments to the Portland Zoning Ordinance to Facilitate the Development of More Affordable, Year-Round Housing on Peaks Island

HomeStart has identified four concepts for possible amendments to the City of Portland's Zoning Ordinance to facilitate the development of year-round housing that is more affordable. The objective in proposing these amendments is to create opportunities for the creation of affordable, year-round housing by removing obstacles in the current zoning requirements that regulate residential uses on Peaks Island. The four concepts are:

- Reduce the off-street parking required for affordable residential units
- Improve the existing Accessory Dwelling Unit ordinance based on community feedback since its enactment 3 years ago
- Based on community requests to make better use of existing housing , allow larger homes built before 1985 to be reconfigured to create additional dwelling units but only if at least half of the units are affordable to year-round residents
- Reduce the side setback requirements and increase the coverage limits for single family homes on smaller "lots of record" if the units will be affordable to year-round residents

In addition, per community request, wording has been added to all proposed amendments that specifies that no new affordable housing may be used for seasonal, weekly or daily rentals.

The HomeStart Zoning Advisory Committee (ZAC) developed draft amendments to revise the Zoning Ordinance to address these four concepts. The Board of HomeStart reviewed the draft amendments and has voted to recommend them to the Peaks Island Council with some minor revisions.

Draft Zoning Ordinance Amendments

Here are HomeStart's proposed ordinance amendments to address the four concepts. Since these are changes to the existing ordinance, the proposed revisions are shown in underline and strike through format. When text is proposed to be added to the ordinance, it is underlined. And when existing text is proposed to be deleted, it is struck through.

1. Accessory Dwelling Unit (ADUs) – The following amendments are designed to make the ADU provisions that were adopted a few years ago more useable:

I-R1 Zone Amendment:

Amend Sec. 14-145.3(a)1. to read:

1. Accessory dwelling unit within, except as provided in g.v. below, and clearly subordinate to a principal single-family detached dwelling or legal multi-family dwelling., provided that:

a. The accessory unit shall be no more than thirty-five (35) percent of the gross habitable floor area of the building and shall have a minimum floor area of three ~~four~~ hundred (34~~4~~00) square feet;

b. Lot area shall be seventy thousand (70,000) square feet, or on Peaks Island be an existing lawfully non-conforming lot as of May 1, 2015;

c. There shall be no open outside stairways or fire escapes above the ground floor;

d. Any additions or exterior alterations such as facade materials, building form, roof pitch and exterior doors shall be designed to be compatible with the architectural style of the building and preserve the single-family appearance of the building. The exterior design of new construction including facade materials, building form, roof pitch and exterior doors shall have a single-family appearance;

e. A lower level dwelling unit shall have a minimum two-thirds of its floor-to-ceiling height above the average adjoining ground level;

f.~~Either the accessory unit or the principal dwelling shall be occupied by the owner of the lot on which the principal building is located, except for bonafide temporary absences;~~

f~~g~~. All sanitary waste shall be disposed of by a public sewer, subsurface sewerage system or other method in compliance with state and local regulations; and

g~~h~~. ~~For~~ Properties containing accessory units ~~created~~ on Peaks Island on existing lawfully non-conforming lots as of May 1, 2015 shall comply with the following additional requirements:

i. The primary unit and the accessory unit shall ~~Shall~~ remain under common ownership ~~with the primary unit on the lot~~;

ii. Neither unit shall ~~Shall not~~ be sold as a condominium unit~~s~~ or otherwise separated from the ownership of the entire property ~~pre-existing unit on the site~~;

iii. One of the units shall be occupied by a household ~~Shall be rented households~~ earning up to 100% of AMI and be subject to income verification as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing ~~as further outlined in implementing regulations~~;

iv. The accessory unit shall be occupied ~~Shall be rented~~ as the occupant's primary residence as defined in the City's Inclusionary Zoning Implementation Guidelines and may not be rented out for short or long term periods, including seasonal, weekly or daily rentals, to other households~~on an annual basis~~;

v. The accessory unit shall ~~Shall~~ be built within the principal building, ~~or~~ as an attachment to the principal building, or in an accessory building in accordance with subsection (d);

vi.The maximum rent for the accessory unit shall not exceed one hundred fifteen percent (115%) of the Affordable Monthly Rent determined in accordance with the City's Inclusionary Zoning Implementation

Guidelines for Developers of Rental Housing;
vii. The accessory unit shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing for a term of not less than twenty (20) years, and
viii. The owner of the property shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

I-R2 Zone Amendment:

Amend Sec. 14-145.9(a)1. to read:

1. Accessory dwelling unit within, except as provided in g.v. below, and clearly subordinate to a principal single-family detached dwelling or legal multi-family dwelling., provided that:

a. The accessory unit shall be no more than thirty-five (35) percent of the gross habitable floor area of the building and shall have a minimum floor area of three ~~four~~ hundred (34~~4~~00) square feet;
b. Lot area shall be thirty thousand (30,000) square feet, or on Peaks Island be an existing lawfully non-conforming lot as of May 1, 2015;
c. There shall be no open outside stairways or fire escapes above the ground floor;
d. Any additions or exterior alterations such as facade materials, building form, roof pitch and exterior doors shall be designed to be compatible with the architectural style of the building and preserve the single-family appearance of the building. The exterior design of new construction including facade materials, building form, roof pitch and exterior doors shall have a single-family appearance;
e. A lower level dwelling unit shall have a minimum two-thirds of its floor-to-ceiling height above the average adjoining ground level;
f. ~~Either the accessory unit or the principal dwelling shall be occupied by the owner of the lot on which the principal building is located, except for bonafide temporary absences;~~
fg. All sanitary waste shall be disposed of by a public sewer, subsurface sewerage system or other method in compliance with state and local regulations; and
gh. ~~For~~ Properties containing accessory units ~~created~~ on Peaks Island on existing lawfully non-conforming lots as of May 1, 2015 shall comply with the following additional requirements:

i. The primary unit and the accessory unit shall ~~Shall~~ remain under common ownership ~~with the primary unit on the lot~~;
ii. Neither unit shall ~~Shall not~~ be sold as a condominium unit~~s~~ or otherwise separated from the ownership of the entire property ~~pre-existing unit on the site~~;
iii. One of the units shall be occupied by a household ~~Shall be rented households~~ earning up to 100% of AMI and be subject to income verification as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing ~~as further outlined in~~

~~implementing regulations~~;
iv. The accessory unit shall be occupied ~~Shall be rented~~ as the occupant's primary residence as defined in the City's Inclusionary Zoning Implementation Guidelines and may not be rented out for short or long term periods, including seasonal, weekly or daily rentals, to other households~~on an annual basis~~;
v. The accessory unit shall ~~Shall~~ be built within the principal building, ~~or~~ as an attachment to the principal building, or in an accessory building in accordance with subsection (d);
vi. The maximum rent for the accessory unit shall not exceed one hundred fifteen percent (115%) of the Affordable Monthly Rent determined in accordance with the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing;
vii. The accessory unit shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing for a term of not less than twenty (20) years, and
viii. The owner of the property shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

2. Reconfiguration of large, older residential buildings – The following amendments allow the existing floor area in large, older buildings in both the I-R1 and I-R2 Districts to be reconfigured to create more dwelling units as long as they meet certain requirements. The provisions for the two districts are slightly different recognizing the difference in the lot sizes in the two districts:

I-R1 Zone Amendment:

Amend Sec. 14-145.5(a) by adding a new subsection 9. which shall read:

9. Notwithstanding the provisions Sec. 14.145-2 Permitted use and subsection 1 of Sec. 14-145.5(a)1, a property on Peaks Island existing as of April 1, 2017 that meets the following requirements may be reconfigured to create one or more additional dwelling units in the principal building and/or in an existing accessory building:

a. The lot was developed and used as a residential property prior to April 1, 1985;
b. The principal building has at least one thousand two hundred (1,200) square feet of gross floor area;
c. The lot has a minimum of six thousand five hundred (6,500) square feet of area if the lot is served by the public water system and/or the public sewer system and twenty thousand (20,000) square feet of area if the lot is served by both on-site water supply and sewage disposal;
d. The lot is or will be served by the public sewer systems or an on-site subsurface sewage disposal system meeting the requirements of the Maine Subsurface Wastewater Disposal Rules for the proposed use;
e. The property does not discharge any stormwater to the sanitary sewer system or any such discharge will be corrected as part of the reconfiguration of the building;
f. The reconfiguration of the property to create additional dwelling unit(s) shall not

expand the exterior building envelop of the existing structures except as follows:

1)Minor additions with not more than ten percent (10%) of the existing floor area of the building are permitted to accommodate additional access to the building and/or to comply with local, state and/or federal safety and accessibility requirements, and

2)The installation of windows and dormers is permitted provided that the alterations maintain the character of the building;

g. The reconfiguration shall maintain the character of the structure and except as provided for in f. shall not significantly alter the exterior appearance of the structure;

h. The dwelling units in the reconfigured building(s) may be rented or may be sold as condominium units or otherwise separated from the ownership of the entire property;

i. At least fifty percent (50%) of the dwelling units in the reconfigured building(s) shall be occupied by a household meeting the income requirements set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing if the unit(s) will be rented or the City's Inclusionary Zoning Implementation Guidelines for Developers of Homeownership Housing if the unit(s) will be sold;

j.The affordability requirement of i. shall apply for a minimum of twenty (20) years and shall be subject to verification as set forth in the City's guidelines;

k.All affordable units in the reconfigured building(s) shall be the occupant's primary residence as defined in the City's Inclusionary Zoning Implementation Guidelines and may not be rented out for short or long term periods, including seasonal, weekly or daily rentals, to other households

l.The maximum rent for the units occupied by income qualified households shall not exceed one hundred fifteen percent (115%) of the Affordable Monthly Rent determined in accordance with the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing;

m.The maximum sales price for units occupied by income qualified households shall be based on the City's Inclusionary Zoning Implementation Guidelines for Developers of Ownership Housing; and

n.If the affordable unit(s) is rented, the owner of the property shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

I-R2 Zone Amendment:

Amend Sec. 14-145.11(a) by adding a new subsection 8. which shall read:

8.Notwithstanding the provisions Sec. 14.145-8 Permitted use and subsection 1 of Sec. 14-145.11(a)1, a property on Peaks Island existing as of April 1, 2017 that meets the following requirements may be reconfigured to create one or more additional dwelling units in the principal building and/or in an existing accessory building:

a.The lot was developed and used as a residential property prior to April 1, 1985;

b.The principal building has at least one thousand two hundred (1,200) square feet of gross floor area;

c.The lot has a minimum of six thousand five hundred (6,500) square feet of area;

d. The lot is or will be served by the public sewer systems or an on-site subsurface

sewage disposal system meeting the requirements of the Maine Subsurface Wastewater Disposal Rules for the proposed use;

e. The property does not discharge any stormwater to the sanitary sewer system or any such discharge will be corrected as part of the reconfiguration of the building;

f. The reconfiguration of the property to create additional dwelling units shall not expand the exterior building envelop of the existing structures except as follows:

1) Minor additions with not more than ten percent (10%) of the existing floor area of the building are permitted to accommodate additional access to the building and/or to comply with local, state and/or federal safety and accessibility requirements, and

2) The installation of windows and dormers is permitted provided that the alterations maintain the character of the building;

g. The reconfiguration shall maintain the character of the structure and except as provided for in f. shall not significantly alter the exterior appearance of the structure;

h. The dwelling units in the reconfigured building(s) may be rented or may be sold as condominium units or otherwise separated from the ownership of the entire property;

i. At least fifty percent (50%) of the dwelling units in the reconfigured building(s) shall be occupied by a household meeting the income requirements set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing if the unit(s) will be rented or the City's Inclusionary Zoning Implementation Guidelines for Developers of Homeownership Housing if the unit(s) will be sold;

j. The affordability requirement of i. shall apply for a minimum of twenty (20) years and shall be subject to verification as set forth in the City's guidelines;

k. All affordable units in the reconfigured building(s) shall be the occupant's primary residence as defined in the City's Inclusionary Zoning Implementation Guidelines and may not be rented out for short or long term periods, including seasonal, weekly or daily rentals, to other households;

l. The maximum rent for the units occupied by income qualified households shall not exceed one hundred fifteen percent (115%) of the Affordable Monthly Rent determined in accordance with the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing;

m. The maximum sales price for units occupied by income qualified households shall be based on the City's Inclusionary Zoning Implementation Guidelines for Developers of Ownership Housing; and

n. If the affordable unit(s) is rented, the owner of the property shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

3. Development of "lots of record" – The following amendments are designed to make it more feasible to develop small vacant lots if they meet certain requirements:

Amend Section 14-433 by adding a new subsection 4. to read:

4. In addition to the provisions of subsection 3. a lot of record as of July 15, 1985 that is located in the I-R1 or I-R2 Zone on Peaks Island may be used for a single-family home provided that the lot and the proposed home meets all of the following requirements:

a. The lot contains a minimum of five thousand (5,000) square feet of area if served by the public sewer system or ten thousand (10,000) square feet if served by an on-site sewage disposal system meeting the requirements of the Maine Subsurface Wastewater Disposal Rules for the proposed use;
b. The lot has a minimum of forty-five (45) feet of street frontage;
c. The side and rear yards will be a minimum of ten (10) feet;
d. The lot coverage will be less than forty percent (40%) unless the lot is subject to shoreland zoning in which case the maximum coverage shall be twenty percent (20%);
e. The home will be served by the public water system;
f. The home shall be occupied by a household earning up to 120% of AMI and be subject to income verification as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Homeownership Housing;
g. The home shall be occupied as the occupant's primary residence as defined in the City's Inclusionary Zoning Implementation Guidelines and may not be rented out for short or long term periods, including seasonal, weekly or daily rentals, to other households;
h. The home shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Homeownership Housing for a term of not less than twenty (20) years.

Amend Section 14-433 by adding a new subsection 5. to read:

5. In addition to the provisions of subsection 3. two adjacent lots of record as of July 15, 1985 that are located in the I-R1 or I-R2 Zone on Peaks Island may be used for a two-family home in which the units are side-by-side provided that the combined lots and the proposed building meets all of the following requirements:
a. The combined lots contain a minimum of ten thousand (10,000) square feet of area if served by the public sewer system or twenty thousand (20,000) square feet if served by an on-site sewage disposal system meeting the requirements of the Maine Subsurface Wastewater Disposal Rules for the proposed use;
b. The combined lots have a minimum of ninety-five (95) feet of street frontage;
c. The side and rear yards will be a minimum of fifteen (15) feet;
d. The lot coverage will be less than forty percent (40%) unless the lot is subject to shoreland zoning in which case the maximum coverage shall be twenty percent (20%);
e. The home will be served by the public water system;
f. At least one of the units shall be occupied by a household earning up to 120% of AMI and be subject to income verification as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Homeownership Housing;
g. Both units shall be occupied as the occupant's primary residence as defined in the City's Inclusionary Zoning Implementation Guidelines and may not be rented out for short or long term periods, including seasonal, weekly or daily rentals, to other households;
h. If the units will be sold, the affordable unit shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Homeownership Housing for a term of not less than twenty (20) years;
i. If the unit(s) will be rented, the affordable unit(s) shall be subject to an Affordable

Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing for a term of not less than twenty (20) years; and

j.If the affordable unit(s) is rented, the owner of the property shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

4. **Off-Street Parking Requirements** – The following amendments propose reducing the parking requirement for affordable housing units in the I-R1, I-R2, and I-B Districts from two spaces per unit to one space per unit:

Amend Sec. 14.332.1 by adding a new subsection (l) to read:

(l) *I-R1 and I-R2 Zones*: Residential uses shall provide a minimum of one (1) parking space for each dwelling unit that meets the housing affordability provisions of the I-R1 or I-R2 Zones.

Amend Sec. 14.332.1 by revising subsection (f) to read:

(f) *I-BR1, Island Business Zone*: Off-street parking shall be required at twenty-five (25%) percent of the required number of number of parking spaces for specified uses as provided in division 20 (off-street parking) of this article, except ~~that~~ residential uses ~~shall meet the full parking requirement~~ shall provide a minimum of one (1) parking space for each dwelling unit that meets the housing affordability provisions of the I-B Zone.

June 28, 2017

Overview of Draft Amendments to Facilitate the Development of More Affordable, Year-Round Housing on Peaks Island

Following HomeStart's February workshop on possible concepts for revising the Zoning Ordinance, HomeStart formed a Zoning Advisory Committee (ZAC). The concepts discussed at the February workshop were:

- Improve the current provisions for Accessory Dwelling Units
- Allow two-family homes but only if at least one of the units is affordable to year-round residents
- Allow larger single-family homes to be reconfigured to create additional units but only if at least half of the units are affordable to year-round residents
- Reduce the side setbacks for building a home on a smaller "lot of record" if the home will be affordable to year-round residents
- Reduce the off-street parking required for residential uses

The task of the ZAC was to develop draft amendments to revise the Zoning Ordinance to address these concepts based on the feedback from the workshop. This group met a number of times and has developed a set of possible ordinance amendments for further community review and input. The following sections provide an overview of the draft ordinance amendments – the full text of the draft amendments is available on HomeStart's website and will be discussed at the second community workshop on Thursday July 20th.

1. Accessory Dwelling Unit (ADUs) – The proposed amendments are designed to make the ADU provisions that were adopted a few years ago more useable. Here is an overview of the proposed changes:

- The minimum size of an ADU is reduced from 400 SF to 300 SF
- The owner of the property no longer has to live there
- The income and rent are tied to the City's affordable housing provisions

2. Reconfiguration of large, older residential buildings – The proposed amendments allow the existing floor area in large, older residential buildings in both the I-R1 and I-R2 Districts to be reconfigured to create more dwelling units as long as they meet certain requirements. The following is an overview of the provisions:

- The lot must have been developed and used for residential activity prior to 1985 and the building must have a minimum of 1,200 SF of floor area
- The lot must have a minimum of 6,500 SF if connected to the sewer and 20,000 SF if served by a septic system
- The space in both the principal building and any accessory buildings such as a garage can be used to create one or more additional dwelling units
- No stormwater can be discharged to the sewer system

- The building must maintain its character and can only have minimal changes to the exterior
- At least 50% of the units must be occupied as their permanent residence by residents meeting the income requirements of the City's affordable housing provisions

3. Development of "lots of record" – The proposed amendments are designed to make it more feasible to develop small vacant lots if they meet certain requirements. Here is an overview of the proposed amendments:

- Lots of record with a minimum of 5,000 Sf if connected to the sewer or 10,000 if served by a septic system can be developed as an affordable single-family home
- The side setbacks are reduced to 10 feet
- The portion of the lot that can be covered by impervious surface is increased to 40% outside of Shoreland areas where it stays at 20%
- The unit must be occupied by residents with an income of up to 120% of the AMI reflecting the higher cost of living on the island and be used as their permanent residence
- If there are two adjacent lots of record that could be developed using this provision, the lots can be combined and a side-by-side two-family home built on the combined lots
- At least one of the units in the two-family home must be occupied by residents with an income of up to 120% of the AMI and the requirements of the City's affordable housing provisions and used as their permanent residence

4. **Off-Street Parking Requirements** – The proposed amendments reduce the parking requirement for affordable housing units in the I-R1, I-R2, and I-B Districts from two spaces per unit to one space per unit

August 29, 2017

Rationale for HomeStart's Suggested Zoning Ordinance Amendments

Accessory Dwelling Units

Rationale for an ordinance amendment: The Land Use Code contains special provisions for accessory dwelling units (ADUs) in the I-R1 and I-R2 Zones on Peaks Island. However there are internal inconsistencies in the provisions and the existing provisions present obstacles for their use. As a result, no one has taken advantage of the provision to create an ADU. The suggested amendments are intended to correct the internal inconsistencies and make the provisions more usable.

Utilization of Existing Residential Properties

Rationale for an ordinance amendment: The I-R1 and I-R2 Districts contain some older larger residential properties. These homes may be oversized for the current owners or are buildings that are no longer needed for their prior use. These properties offer the potential to expand the year-round housing supply through their creative reuse by utilizing the existing floor area for the creation of additional but smaller dwelling units. The Portland ordinance treats all dwelling units the same – a large five bedroom single-family home is treated the same as a small studio or one-bedroom apartment even though the impacts are quite different. This is especially important in terms of water use and sewage loading which are highly correlated to the number of occupants in the unit. One bedroom units have fewer occupants on average than do four or five bedroom homes. Therefore it makes sense to allow the reconfiguration of the floor space in existing larger residential properties to create more but smaller units. For example a single-family home with 4 bedrooms could be converted into two units each with two bedrooms. This would not significantly change the sewage discharge but would give a property owner more options for what to do with the property.

Development of Lots of Record

Rationale for an ordinance amendment: The minimum lot size provisions in the I-R1 and I-R2 do not to apply to "lots of record" existing as of 1985 that meet the requirements of Section 14-433. However the allowed development of smaller lots of record is constrained by the requirement that development on those lots still conform to the 1985 lot frontage requirement, the current setback requirements and the current maximum lot coverage requirements. The requirement for 20 foot side setbacks makes the typical small lot with 50 feet of frontage unable to utilize this provision. Similarly the 20% limit on lot coverage makes it difficult for many of the small "lots of record" to utilize this provision. These requirements are especially problematic for lots in the I-R2 Zone since these are the very lots that offer the greatest potential for expanding the supply of lower cost, year-round housing on Peaks Island.

Off-Street Parking Requirements

Rationale for an ordinance amendment: Division 20 of Chapter 14 Land Use of the Code of Ordinances establishes off-street parking requirements for uses within the City. Section 14-332 establishes a basic standard for parking for residential uses citywide of 2 spaces per dwelling unit for new construction and 1 additional space per unit when an additional dwelling unit or an accessory unit is created. The ordinance provides for some exceptions to this requirement and some reductions. The code currently recognizes that the use of cars on the islands differs from the mainland and exempts planned developments in the I-R3 District from providing off-street parking and allows reduced parking for nonresidential uses in the I-R1 (sic) Island Business District. Since the ownership and use of motor vehicles on the islands is significantly different than uptown, the off-street parking requirement for new affordable residential units in the IR-1 and IR-2 Districts should be reduced to 1 parking space per dwelling unit.

IR-1 Draft Text Amendments – ATT. 2

DIVISION 7.1. IR-1 ISLAND RESIDENTIAL ZONE

Sec. 14-145.3. Conditional uses.

The following uses are permitted only upon the issuance of a conditional use permit, subject to the provisions of section 14-474 (conditional uses) of this article and any special provisions, standards or requirements specified below:

(a) *Residential:*

1. Accessory dwelling unit within and clearly subordinate to a principal single-family detached dwelling or legal multi-family dwelling, provided that:

   a. The accessory unit shall be no more than thirty-five (35) percent of the gross habitable floor area of the building and shall have a minimum floor area of three ~~four~~ hundred (300~~400~~) square feet;

   b. Lot area shall be seventy thousand (70,000) square feet, or on Peaks Island be an existing lawfully non-conforming lot as of May 1, 2015;

   c. There shall be no open outside stairways or fire escapes above the ground floor;

   d. Any additions or exterior alterations such as facade materials, building form, roof pitch and exterior doors shall be designed to be compatible with the architectural style of the building and preserve the single-family appearance of the building. The exterior design of new construction including facade materials, building form, roof pitch and exterior doors shall have a single-family appearance;

   e. A lower level dwelling unit shall have a minimum two-thirds of its floor-to-ceiling

height above the average adjoining ground level;

f. Except on Peaks Island, ~~Either~~ the accessory unit or the principal dwelling shall be occupied by the owner of the lot on which the principal building is located, except for bonafide temporary absences~~;~~. On Peaks Island, neither the accessory unit or the principal dwelling unit shall be used for short-term rentals as defined under Sec. 6-150.1;

g. All sanitary waste shall be disposed of by a public sewer, subsurface sewerage system or other method in compliance with state and local regulations; and

h. ~~For a~~Accessory units created on Peaks Island on existing lawfully non-conforming lots as of May 1, 2015:

i. Shall remain under common ownership with the primary unit on the lot;

ii. Shall not be sold as condominium units or otherwise separated from the ownership of the pre-existing unit on the site;

iii. Shall be rented to households earning up to 100% of AMI and be subject to income verification as further outlined in implementing regulations for Division 30;

iv. Shall be rented on an annual basis and may not be used for seasonal ~~or weekly~~ rentals; and

v. Shall be built within the principal building or as an attachment in accordance with subsection (d).

vi. Shall not be rented for more than the rent permitted at 80% of Area Median Income under the Inclusionary Zoning

Implementation Guidelines for Developers of Rental Housing or policy.

vii. Shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing for a term of not less than twenty (20) years.

viii. Shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

IR-2 Draft Text Amendments – ATT. 3

DIVISION 7.2. IR-2 ISLAND RESIDENTIAL ZONE

Sec. 14-145.9. Conditional uses.

The following uses are permitted only upon the issuance of a conditional use permit, subject to the provisions of section 14-474 (conditional uses) of this article and any special provisions, standards or requirements specified below:

(a) Residential:

1. Accessory dwelling unit within and clearly subordinate to a principal single-family detached dwelling or legal multi-family dwelling provided that:

   a. The accessory unit shall be no more than thirty-five (35) percent of the gross floor area of the principal building and shall have a minimum floor area of three ~~four~~ hundred (300~~400~~) square feet;

   b. Lot area shall be thirty thousand (30,000) square feet, or on Peaks Island be an existing lawfully non-conforming lot as of May 1, 2015;

   c. There shall be no open outside stairways or fire escapes above the ground floor;

   d. Any additions or exterior alterations such as facade materials, building form, roof pitch, and exterior doors shall be designed to be compatible with the architectural style of the building and preserve the single-family appearance of the building. The exterior design of new construction including facade materials, building form, roof pitch and exterior doors shall have a single-family appearance;

   e. A lower level dwelling unit shall have a minimum two-thirds of its floor-to-ceiling

height above the average adjoining ground level;

f. Except on Peaks Island, ~~Either~~ the accessory unit or the principal dwelling shall be occupied by the owner of the lot on which the principal building is located, except for bona fide temporary absences~~;~~ On Peaks Island, neither the accessory unit or the principal unit shall be used for short-term rentals as defined under Sec. 6-150.1;

g. All sanitary waste shall be disposed of by a public sewer, subsurface sewerage system or other method in compliance with state and local regulations; and

h. ~~For a~~Accessory units created on Peaks Island on existing lawfully non-conforming lots as of May 1, 2015:

i. Shall remain under common ownership with the primary unit on the lot;

ii. Shall not be sold as condominium units or otherwise separated from the ownership of the pre-existing unit on the site;

iii. Shall be rented to households earning up to 100% of AMI and are subject to income verification as further outlined in implementing regulations for Division 30;

iv. Shall be rented on an annual basis and may not be used for seasonal ~~or weekly~~ rentals; and

v. Shall be built within the principal building or as an attachment in accordance with subsection (d).

vi. Shall not be rented for more than the rent permitted at 80% of Area Median Income under the Inclusionary Zoning Implementation Guidelines for

Developers of Rental Housing or policy.

vii. Shall be subject to an Affordable Housing Agreement as set forth in the City's Inclusionary Zoning Implementation Guidelines for Developers of Rental Housing for a term of not less than twenty (20) years.

viii. Shall provide the occupant of the affordable unit with a written description of the occupancy requirements for the unit.

Google Groups

Proposed text amendments for IR-1 and IR-2

Elizabeth Remage-Healey <remagehealey@gmail.com> Oct 7, 2018 10:46 PM
Posted in group: **Planning Board**

Members of the Planning Board:

As the president of Homestart, the affordable housing organization on Peaks Island, I am writing regarding the text amendments proposed for IR -1 and IR-2.

Homestart has worked for over 2 years to develop 4 minor changes to existing zoning on Peaks that support more affordable year round housing towards the goal of a healthy diverse mix of year round island residents. Our proposals have received wide community support, and we appreciate the help and support of Portland's Planning and Urban Development staff throughout this process. In particular we appreciate their effort to forward these text amendments to you regarding one of our items, Accessory Dwelling Units on the island ,even while the recode of ADU zoning in the rest of the city is still in process.

One part of their text amendment does concern us greatly however - the proposal to decrease the minimum rental period for an ADU from one year to 6 months. This would completely undercut our fundamental goal of creating year round affordable housing.

Several items to note:

1. We already have many options for less than one year rentals. Known as winter rentals, they are affordable until the tenants have to move out to make room for much higher paying summer renters. They do NOT support people making a home on Peaks.
2. The original Peaks ADU ordinance as well as our proposed changes were always specified for existing lots much smaller than current zoning of Peaks allows - but ONLY on the condition that a year round affordable unit be created.
3. The changes we proposed a year ago are described in the attachment. Please note the repeated mention of year round affordable housing.
4. Portland's Comprehensive Plan includes the goal of "support(ing) land use tools that encourage year round residences in existing and new housing on Portland's islands."

I don't know where the idea of 6 month minimum rental came from. I know that it did NOT come from any Peaks resident at any of our community meetings, Zoning Advisory Committee meetings or at the Peaks Island Council.

Planning Director Jeff Levine has indicated that he has no problem changing the minimum rental time back to one year. Please concur by restoring the one year minimum.

I am happy to answer any questions you may have at the Tuesday workshop.

Thank you.
Betsey Remage-Healey 10.7.18

Google Groups

Workshop today: ADU text Peaks Island

caron chess <caronchess2327@gmail.com> Oct 9, 2018 12:10 PM
Posted in group: **Planning Board**

---------- Forwarded message ---------
From: **caron chess** <caronchess2327@gmail.com>
Date: Tue, Oct 9, 2018, 10:54 AM
Subject: ADU text Peaks Island
To: caron chess <caronchess2327@gmail.com>

Members of the Planning Board:

Renting on Peaks Island is a nightmare because it is near impossible to find year-round housing. I know this first-hand. I lived in a year-round rental that the landlord is selling.

I am fortunate that I could reach out to previous landlords, who had an opening. But I need to leave for the summer, moving all my belongings into storage.

But I am very fortunate. I hopefully will not need to move for more than month or two. Most winter rentals run from late September until maybe May. Starting as early as February, the island listservs are full of pleas for year-round housing so renters don't have to move off the island in May and find someplace to live until October.

This is an untenable situation for those who work on the island or have children. I personally know families who have had to leave after they lost their year-round rental. This means our school loses students. When our school loses students, our elementary school is at great risk of being closed by the Board of Ed.

I also know people who worked on the island and were vital members of our community. But they had to leave because they could not find year-round housing.

Also, the text Homestart submitted was the result of a lengthy participatory process, involving public meetings and an advisory committee. Six-month leases would never have been supported by Islanders.

If landlords can lease ADUs for less than a year, then ADUs become part of the seasonal problem, and not a solution for workforce housing. You must restore the previous text that stipulates ADUs must be year-round.

I also must raise the issue of purchases of properties as investments for rentals as limited as a day. As you can imagine, this places even more pressure on our horrible rental situation. As members of the Planning Board, you are quite familiar with this issue. But our solutions will need to be different than the rest of Portland. We do not have land for developers, but we do have a history of island families renting their homes for part of a summer. The solution may be limiting short-term rentals to those whose primary residence is on the Island. BUT Islanders will need to draft language with input from staff and you, as we did with ADUs.

I am happy to discuss this further at today's workshop.

Caron Chess

242 Island Ave, apt 4 Peaks Island. Caron Chess2327@gmail.com

PC3

Google Groups

Zoning Text Amendment to the IR1 and IR2 Zones

Julie Larry <jlarry@portlandlandmarks.org> Nov 7, 2018 11:39 AM
Posted in group: **Planning Board**

Dear Chair Dundon and members of the Planning Board,

Landmarks is concerned about the proposed requirement for an ADU parking space as stated in the 11/9 agenda summary: "The amendments also include a one year minimum rental period for an ADU, short-term rentals are expressly prohibited, an ADU must have a minimum 300 sf and one parking space".

- Is this intended to be an off-street parking space?
- As discussed at the 10/9 workshop session and in the staff report for that meeting the intent was to pursue a change to Division 20, the City's Off-Street Parking Requirements, which would specifically articulate that no off-street parking is required for an accessory dwelling unit.

While parking may be a concern on some islands, this provision makes little sense on several of the islands included in the IR1 and IR2 zones, like Little Diamond, Cushing Island, and House Island, where the entire island is a local historic district. We hope that there might be some way to alleviate that requirement on islands where parking would not be part of the island's character or to eliminate the provision for a parking space altogether.

Thank you for considering our concerns.

Julie Larry

Director of Advocacy

Greater Portland Landmarks

93 High Street

Portland, ME 04101

207-774-5561 ext. 102

GREATER PORTLAND LANDMARKS

Help shape preservation in Greater Portland - Take our research survey!

HOMESTART

Affordable Housing for Peaks Island

November 9, 2018

Sean Dundon, Chair
Members of the Planning Board

Dear Portland Planning Board,

Unfortunately none of the members of the Peaks Island Homestart board is able to attend the Planning Board meeting this coming Tuesday, November 13 where amendments to the current ADU zoning on Peaks Island (IR-1 and IR-2) will be presented. We have met with the City Planning staff and support the amendments as written.

We do have reservations about the maximum rentals per the 2018 HUD guidelines - they have increased significantly this year to the point of not being all that affordable ! However, they are what we presented to the community so we will go ahead with them for now. We hope to alert the community to this situation and get a chance for further input by the time they come to the City Council for review and public comment.

Thank you for your consideration of these amendments.

Sincerely,

Betsey R. Healey

Betsey Remage-Healey
President

Memorandum
Planning and Urban Development Department
Planning Division

To:	Sean Dundon, Chair and Members of the Portland Planning Board
From:	Shukria Wiar, Planner
Date:	November 13, 2018
Re:	Recommendation to Table – 90 Johnson Road; Transport Leasing Corporation, Applicant

The Planning Authority is requesting that the Planning Board table the agenda item regarding the final review of 90 Johnson Road. The applicant is no longer proposing to phase the project. Tabling the item will allow additional time for the applicant to submit final revisions to their application and additional time for City staff review.

PROPOSED MOTION

On the basis of the recommendation of the Planning Authority, the Planning Board moves to table the public hearing.

PLANNING BOARD REPORT
PORTLAND, MAINE

Site Plan and Subdivision Amendment
94 Walnut Street
Level III Site Plan and Subdivision Review
PL-000370-2018
JP Sheridan, LLC

Submitted to: Portland Planning Board Public Hearing Date: November 13, 2018	Prepared by: Shukria Wiar, Planner Date: November 9, 2018

I. INTRODUCTION

JP Sheridan, LLC has submitted a Level III Amendment application for site plan and subdivision review for their property at 94 Walnut Street (refer to Applicant's submission). The building will be a two-story structure, with a car garage on the ground floor and the apartments above. The purpose of this amendment is to create an additional residential unit, as well as add a parking space to the site plan.

The Planning Board held a public hearing on February July 21, 2017 and approved the project with conditions of approval, please see approval letter (Attachment 1). The original proposal is to construct a new building with three residential units and three-car garage underneath. The new building will be two stories. As part of the amendment, the applicant now wants to increase the units from three to four.

The original subdivision approval with the waivers and conditions still applies. The Planning Board will review the proposed amended plan against the Subdivision and Site Plan Ordinance of Land Use Code. The project will not be reviewed against the design manual since no exterior alternations are proposed.

Applicant Name	JP Sheridan, LLC
Consultants	
Agent Representative	Eric Dube of Casco Bay Engineering
Engineer	Eric Dube of Casco Bay Engineering
Surveyor	John Schwanda of Owen Haskell Inc.
Architect	Anne Callender, Whipple • Callender Architects

II. PROJECT DATA

Existing Zoning	B-2b Commercial Business Zone
Existing Use	Residential
Proposed Use	Residential- Apartments for Rental
Proposed Development Program	4 residential units
- Bedroom Mix	2 two-bedroom units, 1 three-bedroom unit, 1 studio unit
Parcel Size	5,759 SF
Proposed Parking	3 spaces in garage, one exterior.

	Existing	*Proposed*
Building Footprint	621 SF	1,932 SF
Building Floor Area	621 SF	5,506 SF
Impervious Surface Area	1,886 SF	3,182 SF
Parking Spaces (on site)	4	4
Bicycle Parking Spaces	0	0
Estimated Cost of Project	$1,000,000	

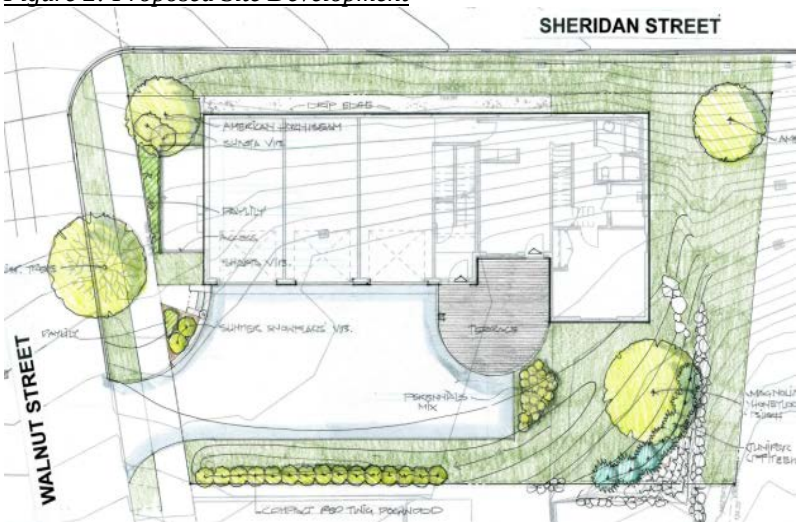
III. EXISTING CONDITIONS

existing curb cut on Walnut Street. Currently the parcel has a one-story, three-car garage, which will be demolished. The site is surrounded by single-family and multifamily homes. The property does have an extended curb cut that is shared with an existing adjacent lot.

IV. PROPOSED DEVELOPMENT

The proposal, including floor plans and elevations, are included in the plan set and have been revised to address staff concerns. The development project is proposed as new construction of a two-story building with a three-car garage on the ground floor, the four apartments above, and one external parking space are proposed on site. At two stories high, the scale of this building will be in balance the residential uses of the street and neighborhood.

Figure 2: Proposed Site Development



Vehicle access is proposed from Walnut Street via the existing drive shared with the existing house. Three parking spaces are proposed and bicycle parking will be accommodated within the garages. No external spaces are proposed on site. The parking area is not visible from Sheridan Street and slightly visible from Walnut Street since it is tucked-away in the building.

The building is proposed at the sidewalk on Walnut Street with no direct entrance from Walnut Street. The only entrance to the building is off a 'court yard' that is approximately 20 feet from Walnut Street. A covered porch is proposed over the main building entrance, two balconies are shown on the northern façade, and a gabled roof with three separate dormers, which is similar to other buildings along the street. No direct entrance is proposed off of Sheridan Street.

V. PUBLIC COMMENT

Upon receipt of the subject site plan application, staff noticed property owners within 500 feet of the site and placed a legal ad in the *Portland Press Herald* newspaper in accordance with requirements. One hundred and seventy-eight (178) notices were sent to area residents. A notice also appeared in the November 5th and 6th, 2018 editions of the *Portland Press Herald.*

The applicant is not required to hold a neighborhood meeting since the amendment is for an amendment to an approved subdivision. As of the date of writing this report, staff has not received any written public communication pertaining to this application.

VI. RIGHT, TITLE AND INTEREST AND FINANCIAL/TECHNICAL CAPACITY

a. The owner of the property is JP Sheridan LLC. The applicant has provided a copy of a short form quitclaim deed,

recorded at the Cumberland County Registry of Deeds (Book 33444 Page 11), which demonstrates their right, title and interest in the property.

b. The estimated cost of the development was $1,000,000. The applicant had submitted a letter from Camden National Bank, dated June 12, 2017, as demonstration of their financial and technical capacity to complete the proposed development.

VII. ZONING ASSESSMENT

The proposed project is to build a two-story, three-unit apartment building and is a permitted use in the B-2b zone since the zone allows multi-family dwellings. Under the zone all of the dimensional requirements are being met. For off street parking, Division 20 requires one parking space per unit for residential uses on the peninsula. Four parking spaces are shown.

VIII. DEVELOPMENT REVIEW

A. SUBDIVISION PLAN AND RECORDING PLAT REQUIREMENTS (Section 14-496)

The applicant has submitted a recording plat. The final plat has been revised to reflect the one new unit and any waivers and conditions of approval that relate to the subdivision plan. William Scott, City Surveyor has reviewed the revised plat and states that the applicant label State Plane Coordinates on at least two of the lot corners.

B. SUBDIVISION (Section 14-497)

As an amendment to an approved subdivision, the subject application is subject to conformance with the applicable standards of the subdivision ordinance.

Section 14-496 (c) states:

> *Alterations to an approved plot. The planning authority may approve alterations to an approved recording plat when all of the following conditions are met; otherwise, a new subdivision plat must be submitted to the Planning Board:*
>
> *1. The rearrangement of lot lines does not increase the number of lots within a block or other subdivision unit or area;*
> *2. The alteration will not affect any street, alley, utility easement or drainage easement;*
> *3. The alteration meets all of the minimum requirements of this article, article III of this chapter on zoning and other applicable state and local codes:*
> *4. The alteration is approved by the public works authority and the fire department.*
>
> *Such approved alterations shall be properly recorded in the registry within thirty (30) days thereof or they shall be null and void. Recording of approved alterations also shall be in accordance with the requirements of 30-A M.R.S.A. Section 4406.*

Based on the application submitted, the project does not meet all of the above standards and therefore this application is before the Planning Board for review. The thirty (30) day recording applies to both Planning Authority and Planning Board review of amended subdivision plans.

As state before, the July 25, 2017 Planning Board approval of this project with all relevant waivers and conditions of approval remain in effect. The proposed amended plan has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below.

1. Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) I), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)
   As part of the amendment application, there are no proposed increase in site improvements or disturbance, so the Staff finds the proposed project in conformance with this standard.

2. Sufficient Water Available (Section 14-497 (a) 2 and 3)
   The applicant has demonstrated in the original proposal that the project had sufficient water available, which can handle the additional three units. The project is currently served by the Portland Water District.

3. Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)
   Tom Errico, P.E. Ty Lin has reviewed the original proposal. The proposed project is not anticipated to cause unreasonable traffic congestion. The staff finds the proposed project is in conformance with this standard.

4. Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)
   The applicant is not proposing any new utilities services as part of this amendment and it is currently served by the City's sewer system. In the original application, the City of Portland has confirmed that the sewer system has sufficient capacity. Lauren Swett, P.E. Woodard and Curran, had reviewed the stormwater management plan finds the proposal to meet city standards. The staff finds the proposal is in conformance with this standard for the additional one unit.

5. Scenic Beauty, Natural, Historic, Habitat and other Resources (Section 14-497 (a) 8)
   The proposal site is within an historic district and is in an urban neighborhood surrounded by a variety of residential building types. The proposed building does not impact the natural beauty of the area or adversely affect any significant wildlife habitat, rare or irreplaceable natural areas, or any public access to the shoreline. The staff finds the proposal in conformance with this standard.

6. Comprehensive Plan (Section 14-497 (a) 9)
   The staff has identified the following goals and policies which are relevant to the proposed housing development and finds the proposal in conformance with the Comprehensive Plan:

   Housing: A Livable City
   State Goals: To encourage and promote affordable decent, housing opportunities for all Maine citizens

   Local Goals:
   - Increase, preserve, and modify the overall supply of housing City-wide to meet the needs, preferences and financial capabilities of all Portland households.
   - Encourage additional contextually-appropriate housing density in and proximate to neighborhood centers, concentrations of services, and transit nodes and corridors as a means of supporting complete neighborhoods.
   - Pursue policies to enable people who work in Portland to have the option to live in Portland.
   - Encourage quality, sustainable design in new housing development.

   Goals from Future Strategies:
   9. Adopt Affordable Housing
   - Pursue new opportunities for increased energy efficiency, increased densities, mixed incomes, and greater connectivity to surrounding neighborhoods.

C. SITE PLAN STANDARDS (Section 14-526)

The proposed amended plan has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff review and comments are listed below.

1. Transportation Standards
   Impact on surrounding street systems, access and circulation, public transit access, and parking were reviewed under the original application by Tom Errico, P.E. TY Lin. The amendments to the site plan for

the additional one unit does not affect the transportation standards except an additional parking space is required for the new residential unit as part of the application. Mr. Errico requests the following:

I have reviewed the application documents as it relates to adding a surface parking space in the driveway area. The applicant shall provide a plan that depicts the parking space with dimensions and an auto-turn analysis that documents adequate on-site circulation can occur without backing onto Walnut Street.

2. Environmental Quality Standards
   a. *Preservation of Significant Natural Features and Landscaping and Landscape Preservation*
   Jeff Tarling, City Arborist, had reviewed the landscaping plan as part of the original application. The amendment to the site plan does not affect the approved landscaping plan.

   b. *Water Quality, Storm Water Management and Erosion Control*
   Lauren Swett of Woodard and Curran, Consulting Engineer, had reviewed the stormwater management plan as part of the original application. The amendment to the site plan does not affect the stormwater standards.

3. Public Infrastructure and Community Safety Standards
   a. *Public Safety and Fire Prevention*
   Chief Robert Thompson has reviewed the amendment to the plans and does not have any comments.

   b. *Availability and Adequate Capacity of Public Utilities*
   Please see Paragraph VIII (B) Subdivision, above.

4. Site Design Standards
   a. *Zoning Related Design Standards*
   The project at 88 Walnut Street was originally viewed according to the *City of Portland Design Manual* standards by Caitlin Cameron, Urban Designer, Shukria Wiar, Planner, and Deb Andrews, Historic Preservation Program Manager against *the B2 Commercial Business Zones Standards* (Section (d) of the Design Manual) and *Multiple-Family Standards.* The site is within 100' of a historic landmark. As part of the amendment, there is not change to the façade and location of the building, therefore, a design review is not warranted.

IX. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed amendments to the approved Subdivision and Site Plan.

X. PROPOSED MOTIONS

Subdivision Plat

On the basis of the subdivision plat approved on November 13, 2018 with conditions, the application for an amendment, plans, reports, and other information submitted by the applicant, findings and recommendations contained in Planning Board Report for application PL-000370-2018 relevant to the Subdivision Ordinance and other regulations, as well as the Planning Board deliberations and the testimony presented at the Planning Board hearings, the Planning Board finds that the amended plan, when taken together with the original plan and the conditions contained therein (**is** or **is not**) in conformance with the subdivision standards and all other applicable provisions of the land use code, with the following condition of approval:

1. That the applicant shall label State Plane Coordinates on at least two of the lot corners on the subdivision plat prior to recording.

2. That the applicant shall revise the plat to depict the new parking space prior to recording.

Level III Site Plan

On the basis of the site plan approved November 13, 2018 with conditions, the application for an amendment, plans, reports, and other information submitted by the applicant, findings and recommendations contained in Planning Board Report for application PL-000370-2018 relevant to the Site Plan Ordinance and other regulations, as well as the Planning Board deliberations and the testimony presented at the Planning Board hearings, the Planning Board finds that the amended plan, when taken together with the original plan and the conditions contained therein (is or is not) in conformance with the site plan standards and all other applicable provisions of the land use code, with the following condition of approval:

1. The applicant shall revise the site plan to depict the new parking space with dimensions, prior to applying for a building permit.

ATTACHMENTS:

Staff Review Comments and Background Information

1. July 21, 2017 Approval Letter
2. Traffic Engineer Comments (Tom Errico) Dated 11.06.2018
3. City Surveyor (William Scott) Dated 11.06.2018

Applicant's Submittal

A. Summary of Site Plan Amendment application
B. Walnut St. - 88 (PB) 7-25-17
C. Walnut St. - 88 (Report)
D. Planning Board Applicants Document submittal
E. Planning Board Applicants Drawing submittal
F. Walnut Level III Checklist_ Amendment
G. Zoning Analysis Table_94 Walnut

Plans

Civil Plans

Plan P1 Amendment to Level III Site Plan Review Plan & Elevations
Plan P2 Site Utility Plan Amendment to Level III Site Plan Review
Plan P3 Subdivision Plat_Revised_88 Walnut 10-11-18
Plan P4 Turning Template for new Parking

CITY OF PORTLAND, MAINE
PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
David Eaton
Brandon Mazer
Carol Morrissette
Maggie Stanley
Lisa Whited

August 2, 2017

JP Sheridan LLC
Attention: Jake Edwards
PO Box 715
So. Freeport, ME 04078

Whipple Callender Architects
Attention: Anne Callender
PO Box 1276
Portland, ME 04104

Project Name:	Three-family Apartments	Project ID:	2017-099
Address:	88 Walnut Street	CBL:	012 P003 001
Applicant:	JP Sheridan LLC		
Planner:	Shukria Wiar		

Dear Mr. Edwards:

On July 25, 2017, the Planning Board approved the construction of a three-unit residential building at 88 Walnut Street in the East End. The Planning Board reviewed the proposal for conformance with the standards of the Subdivision Ordinance and Site Plan Ordinance, as well as reviewed against the B-2 and B-2b Commercial Business Zone Standards and the Two-Family, Special Needs Independent Living Units, Multiple-Family, Lodging Houses, Bed and Breakfasts, and Emergency Shelters Standards. The Planning Board unanimously 6-0 (Boepple absent) to approve the application with the following waivers and conditions as presented below.

WAIVERS

The Planning Board voted unanimously 6-0 (Boepple absent) to waive the Section14-498 8(a) Sidewalks and Curbs to allow no sidewalk along the parcel on Sheridan Street subject to that the applicant shall contribute to a sidewalk along the Fort Sumner Park frontage for the sidewalk gap with a monetary contribution of, not to exceed, $9,400 (for 104 feet). [1]

The Planning Board voted unanimously 6-0 (Boepple absent) to waive the Technical Manual Section 1.7.1, to allow a separation of 2 feet between the existing driveways.

SUBDIVISION REVIEW

The Planning Board voted unanimously 6-0 (Boepple absent) that the plan is in conformance with the subdivision standards of the Land Use Code, subject to the following conditions of approval:

1. The applicant shall finalize the subdivision plat for review and approval by Corporation Counsel, the Department of Public Services, and the Planning Authority.

SITE PLAN REVIEW

The Planning Board voted unanimously 6-0 (Boepple absent) that the plan is in conformance with the site plan standards of the Land Use, subject to the following conditions of approval:

[1] City Staff Note: The City reserves the right to construct a sidewalk along the frontage of this parcel on Sheridan Street in the future.

1. The applicant shall submit a construction management plan for review and approval by the Department of Public Works and the Planning Authority, and

2. The applicant shall address Lauren Swett's memorandum dated 07.20.2017 comments.

3. Confirmation of ability to serve sewer from DPS should be forwarded to the Planning Authority.

4. That the developer/contractor/subcontractor must comply with conditions of the construction stormwater management plan and sediment and erosion control plan based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. A maintenance agreement for the stormwater drainage system, as attached, or in substantially the same form with any changes to be approved by Corporation Counsel, shall be submitted, signed, and recorded prior to the issuance of a building permit with a copy to the Department of Public Works.

5. The applicant shall provide additional documentation on the extent of utility work and disturbance of the sidewalk along Walnut Street. Final plans meeting the sidewalk materials policy will be submitted for review and approval by the Department of Public Works.

The approval is based on the submitted plans and the findings related to site plan and subdivision review standards as contained in Planning Report for application 2017-099 which is attached.

STANDARD CONDITIONS OF APPROVAL
Please note the following standard conditions of approval and requirements for all approved site plans:

1. **Subdivision Recording Plat** A revised recording plat listing all conditions of subdivision approval must be submitted for review and signature prior to the issuance of a performance guarantee. The performance guarantee must be issued prior to the release of the recording plat for recording at the Cumberland County Registry of Deeds.

2. **Subdivision Waivers** Pursuant to 30-A MRSA section 4406(B)(1), any waiver must be specified on the subdivision plan or outlined in a notice and the plan or notice must be recorded in the Cumberland County Registry of Deeds within 90 days of the final subdivision approval.

3. **Develop Site According to Plan** The site shall be developed and maintained as depicted on the site plan and in the written submission of the applicant. Modification of any approved site plan or alteration of a parcel which was the subject of site plan approval after May 20, 1974, shall require the prior approval of a revised site plan by the Planning Board or the Planning Authority pursuant to the terms of Chapter 14, Land Use, of the Portland City Code.

4. **Separate Building Permits Are Required** This approval does not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Inspection Division.

5. **Site Plan Expiration** The site plan approval will be deemed to have expired unless work has commenced within one (1) year of the approval or within a time period up to three (3) years from the approval date as agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the one (1) year expiration date.

6. **Subdivision Plan Expiration** The subdivision approval is valid for up to three years from the date of

Planning Board approval.

7. **Performance Guarantee and Inspection Fees** A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount and three (3) final sets of plans must be submitted to and approved by the Planning Division and Public Services Department prior to the release of a subdivision plat for recording at the Cumberland County of Deeds, and prior to the release of a building permit, street opening permit or certificate of occupancy for site plans. If you need to make any modifications to the approved plans, you must submit a revised site plan application for staff review and approval.

8. **Defect Guarantee** A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

9. **Preconstruction Meeting** Prior to the release of a building permit or site construction, a pre-construction meeting shall be held at the project site. This meeting will be held with the contractor, Development Review Coordinator, Public Service's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the Development Review Coordinator will confirm that the contractor is working from the approved site plan. The site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the pre-construction meeting.

10. **Department of Public Works Permits** If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

11. **As-Built Final Plans** Final sets of as-built plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*, dwg), release AutoCAD 2005 or greater.

12. **Mylar Copies** Mylar copies of the as-built drawings for the public streets and other public infrastructure in the subdivision must be submitted to the Public Services Dept. prior to the issuance of a certificate of occupancy.

The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Division at 874-8632. All site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Shukria Wiar at 207.756.8083 or via shukriaw@portlandmaine.gov

Sincerely,

Elizabeth Boepple, Chair
Portland Planning Board

Attachments:
1. Lauren Swett Memorandum dated 07.20.2017
2. Planning Board Report

3. Sample Stormwater Maintenance Agreement
4. Performance Guarantee Packet

Electronic Distribution:

cc: Jeff Levine, AICP, Director of Planning and Urban Development
Barbara Barhydt, Development Review Services Manager
Shukria Wiar, Planner
Philip DiPierro, Development Review Coordinator, Planning
Mike Russell, Director of Permitting and Inspections
Ann Machado, Zoning Administrator, Inspections Division
Jonathan Rioux, Inspections Division Deputy Director
Jeanie Bourke, Plan Reviewer/CEO, Inspections Division
Chris Branch, Director of Public Works
Katherine Earley, Engineering Services Manager, Public Works
Keith Gray, Senior Engineer, Public Works
Doug Roncarati, Stormwater Coordinator, Public Works
Greg Vining, Associate Engineer, Public Works
Michelle Sweeney, Associate Engineer, Public Works
John Low, Associate Engineer, Public Works
Jane Ward, Administration, Public Services
Rhonda Zazzara, Field Inspection Coordinator, Public Works
Jeff Tarling, City Arborist, Public Works
Jeremiah Bartlett, Public Works
Keith Gautreau, Fire Department
Daniele West-Chuhta, Corporation Counsel
Thomas Errico, P.E., TY Lin Associates
Lauren Swett, P.E., Woodard and Curran
Christopher Huff, Assessor

Att. 2

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

94 Walnut Street - Revised Site Plan

1 message

Tom Errico <thomas.errico@tylin.com> Thu, Nov 8, 2018 at 2:59 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>

Hi Shukria – I have reviewed the revised site plan with the added parking space and the Applicant's vehicle turning template information. I find conditions to be acceptable but recommend the added parking space be constructed of a paved/hard surface for a minimum of 9'x18'.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

Att. 3

Portland Maine | Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

94 Walnut Street Subdivision Plat (PL-000370-2018)

William Scott <wgs@portlandmaine.gov> Tue, Nov 6, 2018 at 11:07 AM
To: Shukria Wiar <shukriaw@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>

Hi Shukria.

The only thing I would ask for on this plan is that they label State Plane Coordinates on at least two of the lot corners. That's all I noticed.

Thanks.
[Quoted text hidden]

Att. A

WHIPPLE-CALLENDER ARCHITECTS

October 18, 2018

Shukria Wiar, Planner
City of Portland Planning Department
4th Floor, City Hall
389 Congress Street
Portland, ME 04101

RE: **AMENDMENT TO 88/94 WALNUT STREET LEVEL III SITE PLAN**
PROJECT ID: 2017-099
CBL 012-P003-001
PLANNING BOARD APPROVAL: JULY 25, 2017

Dear Shukria -

On behalf of J.P. Sheridan LLC, we are seeking to amendment to our Level III Site Approval for the project currently under construction at 88/94 Walnut Street (Building Permit #2017-01264 and 2018-00032). As approved and permitted, the building is a 3-unit multifamily, with two 2-bedroom apartments above ground level garage bays, and one 3-bedroom townhouse style three level apartment. The 3-bedroom apartment had one bedroom on the lower level and 2 bedrooms on the third level. We would like to partition off the lower level bedroom and bath and make it an efficiency apartment by adding a kitchenette. The interior of the efficiency unit bathroom and kitchen has been laid out to meet Fair Housing Act standards for accessibility.

There would be no change to the building footprint or building elevations. There would be no changes required to the site plan or impervious area. There was a terrace area planned next to the main entry stoop that would become a parking spot for the studio apartment.

OWNER: Jake Edwards
J.P. Sheridan LLC
PO Box 715
South Freeport, ME 04078
207-415-3037

ARCHITECT: Anne Callender
Whipple | Callender Architects
PO Box 1276
Portland, ME 04104
207-775-2696 x 105

BUILDING USE: NFPA - New Apartment Building
IBC - R-2
Three story building
Four apartment units

BUILDING AND PROJECT INFORMATION AS ORIGINALLY SUBMITTED AND APPROVED:
New information is *italicized and underlined*

SQUARE FOOTAGE: TOTAL BUILDING: 5,506 SF + 380 SF PORCHES
1ST FLOOR: 1932 SF
2ND FLOOR: 1932 SF + 274 SF PORCHES
3RD FLOOR: 1642 SF + 106 SF PORCH

CONSTRUCTION TYPES: NFPA type V 000
IBC V B

PROJECT DESCRIPTION:
The project is a new three-story building with ground level parking garages for three cars. One housing unit is a townhouse with an entrance adjacent to the garage bays. The other two units are flats above the garage spaces.

Site is located on the corner of Walnut Street and Sheridan Street. Site is 5,949 square feet in a B2b [Community Business] zone.

The main building façade faces Walnut Street as it is the primary residential street for this lot in the neighborhood. The site is a steep slope from Sheridan Street continuing down to Washington Ave. There is an existing three-car garage on the site that will be removed and the new building will be situated so that the garage bays are built into the hill and will be below the Sheridan Street grade. This allows the greatest distance between the new three family home and an existing single family home at 94 Walnut Street as well as use of the existing driveway and curb cut. The building orientation makes the most of the city views and daylight orientation. It also creates a street presence along Sheridan Street

The building is designed to be in scale with the existing neighborhood single-family homes and uses traditional Portland home detailing. There are 4 single-family homes directly across the street, a single family home to the west on Walnut Street and a historic water district pump house to the east across Sheridan Street. The building is designed to be a story and a half structure if viewed from Sheridan Street. It will have a double decker front porch facing Walnut Street and gable roofs with gabled dormers along Sheridan Street and the driveway side of the building. Siding will be clapboards with traditional trim details and soffited roof overhangs which is consistent with the neighborhood.

RIGHT, TITLE AND INTEREST:

The lot of 88 - 96 Walnut Street was purchased by J.P. Sheridan LLC in the summer of 2016. They have full title and interest in the property.

STATE OR FEDERAL PERMITS:

No State or Federal permits are required for this project.

PORTLAND ZONING – 2009 –Zone B2b:

Sec. 14-182. Permitted uses.
(a) Residential:
1. Attached single-family and two-family dwelling;
2. **Multi-family dwellings;**
3. Handicapped family units;

4. Combined living/working spaces including, but not limited to, artist residences with studio space

Sec. 14-185. Dimensional requirements.

No minimum lot size

Setback requirements

Street frontage - 20' min. **Proposed Building Property has 57' on Walnut**

Front setback - none, **The front porch is setback 2' at one corner**.

Side setback - none for main, 5' for accessory. **Side setback is 23'-9" from property line of the abutter at 94 Walnut.**

Side yard on side street - none. **The building is set back 3' on the Sheridan Street side.**

Rear yard - 10', 5' for accessory, **We are in excess of 10'. Proposed building is placed @16' to 20' from angled rear yard/side yard property line.**

Front yard – 10' max. **We are less than 10'. The front porch is setback 2' at one corner**.

Structure stepbacks

Portions of a structure above 35 feet shall be no closer than 5 feet from the side property line and no closer than 15 feet from the rear property line when such property line abuts a residential zone. **N/A**

Height maximum - 45'. **We do not exceed 45'. The proposed building is 38' to the ridge from the driveway level.**

Maximum impervious surface ratio - for residential uses: none. **Proposed building impervious surface ratio is 55%**

Minimum lot area per dwelling unit – On-peninsula locations: 435 sq ft. **We exceed 435 sq. ft. of lot area per dwelling unit. Proposed building of *4* units requires *1740* sq. ft. lot. Actual lot is 5,949 sq. ft.**

Sec. 14-332. Uses requiring off-street parking.

3. For residential development in the B-2, B-2b, B-2c zones:
   a. One (1) parking space per dwelling unit. **We have one garage for each unit. *Plus one surface parking spot.***

SITE BURDENS:
There are no easements, covenants, right-of-ways, or any other burdens or restrictions to this site.

CONSTRUCTION MANAGEMENT PLAN:
Previously submitted and building is under construction.

TRAFFIC STUDY:
N/A.

SIGNIFICANT NATURAL FEATURES:
There are not significant natural features or habitats located on this site.

SOLID WASTE:
Solid was will consist of ***4*** - 15 gallon bags per week for residential trash pick-up.

FIRE PROTECTION FEATURES:

Sprinkler System installed to NFPA 13R standards
5/8" Type X ceiling/floor separation between garage and habitable spaces (**IBC 460**)
1 hour wall separation between garage and main stair to apartments (**IBC 713.4**)
1 hour wall separation between apartments and stair (**IBC 713.4**)
60 minute doors on automatic door closer from apartments to stair hall (**NFPA 101 30.2.4.6**)
20 minute door between garage and Apt 1 mudroom (**IBC 460**)

HYDRANT LOC: Walnut Street uphill side, opposite side of Sheridan Street intersection

WATER MAINS: Walnut Street has 16" and 20" lines

SITE ACCESS: Access to site, Walnut Street, Sheridan Street and driveway

CODE SUMMARY: NFPA 101 - 2015 - Chapter 30 New Apartment Buildings

- **30.1 General Requirements**
- 30.1.1.1 - The requirements of this chapter shall apply to new buildings or portions thereof used as apartment occupancies.
- 30.1.5 - Classification of Hazard of Contents. The contents of residential occupancies shall be classified as ordinary hazard in accordance with 6.2.2.
- 30.1.7 - Occupant Load. The occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined on the basis of the occupant factors of Table 7.3.1.2 that are characteristics of the use of the space or shall be determined as the maximum probable population of the space under consideration, whichever is greater.
    - Apartment buildings 200 sq.ft. per person (habitable space load 16)

- **30.2 Means of Egress Requirements and Components**
- **30.2.1.2** Means of escape within a dwelling unit shall comply with the provisions of Section 24.2 for one and two family dwellings.
    - **24.2.2 Number and Types of Means of Escape.**
        - In dwellings or dwelling units of two rooms or more, every sleeping room and every living area shall have not less than one primary means of escape and one secondary means of escape.
        - A secondary means of escape shall not be required where one of the following conditions is met:
            1. The bedroom or living area has a door leading directly to the outside of the building at or to the finished ground level.
            2. The dwelling unit is protected throughout by an approved automatic sprinkler system in accordance with 24.3.5

- **30.2.2.1.2** - In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with 30.3.5, exit enclosures shall have a minimum 1-hour fire resistance rating, and doors shall have a minimum 1-hour fire protection rating. **OK. See fire protection features listed above.**

- **30.2.2.3.1** Stairs complying with 7.2.2 shall be permitted.
    - **7.2.2.2.2.1.2 Minimum New Stair Width**.
        A. Where the total occupant load of all stories served by the stair is fewer than 50, the minimum width clear of all obstructions, except

projections not more than 4-1/2" at or below the handrail height on each side, shall be 36".

a. max. ht. of risers 7 in.; min. ht. of riser 4 in.
b. min. tread depth 11 in.
c. min. headroom 6'-8"
d. max. ht. between landings 12 ft.

- **31.2.4 Number of Exits**
- **30.2.4.6** - A single exit shall be permitted in buildings where the total number of stories does not exceed four, provided that all of the following conditions are met:
    1. There are four or fewer dwelling units per story. **We only have 3 stories.**
    2. The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with 30.3.5. **Yes, sprinkler system installed to NFPA 13R standards.**
    3. The exit stairway does not serve more than one-half story below the level of exit discharge. **Exit stairways do not serve below level of exit discharge.**
    4. The travel distance from the entrance door of any dwelling unit to an exit does not exceed 35 ft. **Entrance door of dwelling units open directly into protected exit stair or exterior.**
    5. The exit stairway is completely enclosed or separated from the rest of the building by barriers having a minimum 1-hour fire protection rating. **Exit stairway is protected by 1-hour rated walls, ceilings, and doors.**
    6. All openings between the exit stairway enclosure and the building are protected with self-closing door assemblies having a minimum 1-hour fire protection rating. **Exit stairway doors are self-closing and 1-hour rated.**
    7. All corridors serving as access to exits have a minimum 1-hour fire resistance rating. **Not applicable, as entrance door of dwelling units open directly into protected exit stair or exterior.**
    8. Horizontal and vertical separation having a minimum ½-hour fire resistance rating is provided between dwelling units. **Dwelling units are separated by a minimum ½ hour fire resistance rating.**

- 30.2.6.2 - Travel distance within a dwelling unit (apartment) to a corridor door shall not exceed 125 ft in buildings protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 30.3.5. **We do not exceed 125 ft travel distance and are fully sprinkled.**

- 30.2.9 - Emergency lighting. Emergency lighting in accordance with Section 7.9 shall be provided in all buildings four or more stories in height or with more than 12 dwelling units, unless every dwelling unit has a direct exit to the outside of the building at the finished ground level. **Emergency lighting not required because we are less than 4 stories and less than 12 units.**

- 30.2.10 - Marking of Means of Egress. Means of egress shall have signs in accordance with Section 7.1 in all buildings requiring more than one exit. **Not applicable; only one exit for each dwelling unit.**

- 30.3.2.1 - Hazardous Areas. Any hazardous area shall be protected in accordance with Section 8.7. **According to the hazardous areas listed in Table 30.3.2.1.1, we do not have**

to protect heater rooms, as the fuel-fired heaters are in dwelling units and each only serve one dwelling unit. Garages will be one hour protected and sprinkled.

- 30.3.4.1 – Apartment buildings four or more stories in height or with more than 11 dwelling units, other than those meeting the requirements of 30.3.4.1.2, shall be provided with a fire alarm system in accordance with Section 9.6, except as modified by 30.3.4.2 through 30.3.4.5. **We do not have four or more stories and do not exceed 11 dwelling units, so a fire alarm system is not required.**

- 30.3.4.5 - Smoke Alarms. Smoke alarms shall be installed in accordance with 9.6.2.10 in every sleeping area, outside every sleeping area, in the immediate vicinity of the bedrooms, and on all levels of the dwelling unit, including basements. **Smoke Detectors in every sleeping room, outside every sleeping room, and on all levels.**

- 30.3.4.6 – Carbon Monoxide Alarms and Caron Monoxide Detection Systems.

  30.3.4.6.1 - Carbon monoxide alarms or carbon monoxide detectors in accordance with Section 9.12 and 30.3.4.6 shall be provided in new apartment buildings where either of the following conditions exists:
  1. Dwelling units with communicating attached garages, unless otherwise exempted by 30.3.4.6.3
  2. Dwelling units containing a permanently installed fuel-burning appliance or fuel-burning fireplace.

  30.3.4.6.2 - Where required by 30.3.4.6.1, carbon monoxide alarms or carbon monoxide detectors shall be installed in the following locations:
  1. Outside of each separate dwelling unit sleeping area in the immediate vicinity of the sleeping rooms.
  2. On every occupiable level of a dwelling unit.

  30.3.4.6.3 - Carbon monoxide alarms and carbon monoxide detectors as specified in 30.3.4.6.1 shall not be required in the following locations:
  1. In garages

  Carbon Monoxide Detectors in every sleeping room, outside every sleeping room, and on all levels, excluding garages.

- 30.3.5.13 - Portable Fire extinguishers in accordance with Section 9.9 shall be provided in hazardous areas addressed by 30.3.2.1, unless the building is protected throughout with an approved, supervised automatic sprinkler system in accordance with 30.3.5.2. **Portable fire extinguishers are not required due to sprinkler system.**

IBC- 2015

- **Section 310 Residential Group R**
  - 310.4 Residential Group R-2 occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including: apartment houses
- **Section 312 Utility and Misc. Group U**
  - Private Garages
- **Section 406 Motor-Vehicle-Related Occupancies**

- 406.3.1 Each Private garage shall not be greater than 1,000 sq.f.t in area. Multiple private garages are permitted in a building where each private garage is separated from the other private garages by 1-hour fire barriers in accordance with Section 707 or horizontal assemblies in accordance with section 711, or both.
- 406.3.4 Separation of private garages from dwelling units shall comply with 406.3.4.1 - 406.3.4.3
  - Garages shall be separated from all habitable rooms by not less than a 5/8" Type X gypsum board.
  - Door openings between a private garage and the dwelling unit shall have a fire protection rating of not less than 20 minutes. Doors shall be self-closing and self-latching.
- 406.3.6 Automatic garage door openers shall be listed in accordance with UL325.

- **Section 420 Groups I-1, R-1, R-2, R-3 and R-4**
  - 420.1 General - comply to this section
  - 420.2 Separation walls. Walls separating dwelling units in the same building… shall be constructed as fire partitions in accordance with Section 708.
  - 420.3 Horizontal Separation. Floor assemblies separating dwelling units in the same building…. shall be constructed as horizontal assemblies in accordance with Section 711.
  - 420.5 Automatic sprinkler systems. Group R occupancies shall be equipped throughout with an automatic sprinkler system in accordance with section 903.2.8
  - 420.6 Fire alarm systems and smoke alarms. Fire alarm systems and smoke alarm systems shall be provided in Group R-2 occupancies in accordance with Sections 907.2.9 respectively. Single or multiple-station smoke alarms shall be provided in Groups R-2 in accordance with Section 907.2.11
    - 907.2.9 R-2 ***building is not required to have a manual fire alarm system per criteria listed***
    - 907.2.11.2 single or multiple station smoke alarms shall be installed and maintained at all the following locations:
      - On the ceiling or wall outside of each sleeping area
      - In each bedroom
      - In each story within a dwelling unit

- **Section 501 General Building Heights and Areas**
  - Table 504.3 Allowable Height in feet above grade: Type VB/S13R - 60 feet
  - Table 504.4 Allowable number of stories above grade plane: Type VB/S13R - 3
  - Table 506.2 Allowable area factor in square feet. Type VB/S13R 7,000 s.f.
  - 509.4.2 Protection incidental uses not required to have fire barrier with automatic sprinkler system.

- **Section 601 Types of Construction**
  - Table 601 Fire Resistance Rating Type VB, no fire-resistance rating required for building elements

- **Section 707 Fire Barriers**
  - 707.3.2 Interior exit stairway construction. The fire-resistance rating of the fire barrier separating building areas from an interior exit stairway shall comply with 1023.1
    - 1023.2 fire-resistant rating shall be not less than 1 hour where connecting less than 4 stories.
  - 707.5 Continuity. Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab

or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed space. Joints and voids at intersections shall comply with 707.8 & 707.9

- Exception 707.5 #2 Interior exit stairway required by 1023 shall be permitted to terminate at a top enclosure complying with 713.12
- 713.12 Enclosure at top acceptable with construction of the same fire-resistant rating of the topmost floor penetration, but not less than the fire-resistant rating required for the shaft enclosure.

PO BOX 1276 PORTLAND, MAINE 04104 PH: 207-775-2696 FAX: 207-775-3631 anne@whipplecallender.com

CITY OF PORTLAND, MAINE
PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
David Eaton
Brandon Mazer
Carol Morrissette
Maggie Stanley
Lisa Whited

August 2, 2017

JP Sheridan LLC
Attention: Jake Edwards
PO Box 715
So. Freeport, ME 04078

Whipple Callender Architects
Attention: Anne Callender
PO Box 1276
Portland, ME 04104

Project Name: Three-family Apartments
Address: 88 Walnut Street
Applicant: JP Sheridan LLC
Planner: Shukria Wiar

Project ID: 2017-099
CBL: 012 P003 001

Dear Mr. Edwards:

On July 25, 2017, the Planning Board approved the construction of a three-unit residential building at 88 Walnut Street in the East End. The Planning Board reviewed the proposal for conformance with the standards of the Subdivision Ordinance and Site Plan Ordinance, as well as reviewed against the B-2 and B-2b Commercial Business Zone Standards and the Two-Family, Special Needs Independent Living Units, Multiple-Family, Lodging Houses, Bed and Breakfasts, and Emergency Shelters Standards. The Planning Board unanimously 6-0 (Boepple absent) to approve the application with the following waivers and conditions as presented below.

WAIVERS

The Planning Board voted unanimously 6-0 (Boepple absent) to waive the Section14-498 8(a) Sidewalks and Curbs to allow no sidewalk along the parcel on Sheridan Street subject to that the applicant shall contribute to a sidewalk along the Fort Sumner Park frontage for the sidewalk gap with a monetary contribution of, not to exceed, $9,400 (for 104 feet).

The Planning Board voted unanimously 6-0 (Boepple absent) to waive the Technical Manual Section 1.7.1, to allow a separation of 2 feet between the existing driveways.

SUBDIVISION REVIEW

The Planning Board voted unanimously 6-0 (Boepple absent) that the plan is in conformance with the subdivision standards of the Land Use Code, subject to the following conditions of approval:

1. The applicant shall finalize the subdivision plat for review and approval by Corporation Counsel, the Department of Public Services, and the Planning Authority.

SITE PLAN REVIEW
The Planning Board voted unanimously 6-0 (Boepple absent) that the plan is in conformance with the site plan standards of the Land Use, subject to the following conditions of approval[1]:

1. The applicant shall submit a construction management plan for review and approval by the Department of Public Works and the Planning Authority, and

2. The applicant shall address Lauren Swett's memorandum dated 07.20.2017 comments.

3. Confirmation of ability to serve sewer from DPS should be forwarded to the Planning Authority.

4. That the developer/contractor/subcontractor must comply with conditions of the construction stormwater management plan and sediment and erosion control plan based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. A maintenance agreement for the stormwater drainage system, as attached, or in substantially the same form with any changes to be approved by Corporation Counsel, shall be submitted, signed, and recorded prior to the issuance of a building permit with a copy to the Department of Public Works.

5. The applicant shall provide additional documentation on the extent of utility work and disturbance of the sidewalk along Walnut Street. Final plans meeting the sidewalk materials policy will be submitted for review and approval by the Department of Public Works.

The approval is based on the submitted plans and the findings related to site plan and subdivision review standards as contained in Planning Report for application 2017-099 which is attached.

STANDARD CONDITIONS OF APPROVAL
Please note the following standard conditions of approval and requirements for all approved site plans:

1. **Subdivision Recording Plat** A revised recording plat listing all conditions of subdivision approval must be submitted for review and signature prior to the issuance of a performance guarantee. The performance guarantee must be issued prior to the release of the recording plat for recording at the Cumberland County Registry of Deeds.

2. **Subdivision Waivers** Pursuant to 30-A MRSA section 4406(B)(1), any waiver must be specified on the subdivision plan or outlined in a notice and the plan or notice must be recorded in the Cumberland County Registry of Deeds within 90 days of the final subdivision approval.

3. **Develop Site According to Plan** The site shall be developed and maintained as depicted on the site plan and in the written submission of the applicant. Modification of any approved site plan or alteration of a parcel which was the subject of site plan approval after May 20, 1974, shall

[1] City Staff Note: The City reserves the right to construct a sidewalk along the frontage of this parcel on Sheridan Street in the future.

require the prior approval of a revised site plan by the Planning Board or the Planning Authority pursuant to the terms of Chapter 14, Land Use, of the Portland City Code.

4. **Separate Building Permits Are Required** This approval does not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Inspection Division.

5. **Site Plan Expiration** The site plan approval will be deemed to have expired unless work has commenced within one (1) year of the approval or within a time period up to three (3) years from the approval date as agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the one (1) year expiration date.

6. **Subdivision Plan Expiration** The subdivision approval is valid for up to three years from the date of Planning Board approval.

7. **Performance Guarantee and Inspection Fees** A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount and three (3) final sets of plans must be submitted to and approved by the Planning Division and Public Services Department prior to the release of a subdivision plat for recording at the Cumberland County of Deeds, and prior to the release of a building permit, street opening permit or certificate of occupancy for site plans. If you need to make any modifications to the approved plans, you must submit a revised site plan application for staff review and approval.

8. **Defect Guarantee** A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

9. **Preconstruction Meeting** Prior to the release of a building permit or site construction, a pre-construction meeting shall be held at the project site. This meeting will be held with the contractor, Development Review Coordinator, Public Service's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the Development Review Coordinator will confirm that the contractor is working from the approved site plan. The site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the pre-construction meeting.

10. **Department of Public Works Permits** If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

11. **As-Built Final Plans** Final sets of as-built plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*, dwg), release AutoCAD 2005 or greater.

12. **Mylar Copies** Mylar copies of the as-built drawings for the public streets and other public infrastructure in the subdivision must be submitted to the Public Services Dept. prior to the issuance of a certificate of occupancy.

The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Division at 874-8632. All site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Shukria Wiar at 207.756.8083 or via shukriaw@portlandmaine.gov

Sincerely,

Sean T. Dundon

Sean Dundon, Vice Chair
Portland Planning Board

Attachments:
1. Lauren Swett Memorandum dated 07.20.2017
2. Planning Board Report
3. Sample Stormwater Maintenance Agreement
4. Performance Guarantee Packet

Electronic Distribution:

cc: Jeff Levine, AICP, Director of Planning and Urban Development
Barbara Barhydt, Development Review Services Manager
Shukria Wiar, Planner
Philip DiPierro, Development Review Coordinator, Planning
Mike Russell, Director of Permitting and Inspections
Ann Machado, Zoning Administrator, Inspections Division
Jonathan Rioux, Inspections Division Deputy Director
Jeanie Bourke, Plan Reviewer/CEO, Inspections Division
Chris Branch, Director of Public Works
Katherine Earley, Engineering Services Manager, Public Works
Keith Gray, Senior Engineer, Public Works
Doug Roncarati, Stormwater Coordinator, Public Works
Greg Vining, Associate Engineer, Public Works
Michelle Sweeney, Associate Engineer, Public Works
John Low, Associate Engineer, Public Works
Jane Ward, Administration, Public Services
Rhonda Zazzara, Field Inspection Coordinator, Public Works
Jeff Tarling, City Arborist, Public Works
Jeremiah Bartlett, Public Works
Keith Gautreau, Fire Department
Daniele West-Chuhta, Corporation Counsel
Thomas Errico, P.E., TY Lin Associates
Lauren Swett, P.E., Woodard and Curran
Christopher Huff, Assessor

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MEMORANDUM

TO: Shukria Wiar, Planner
FROM: Lauren Swett, P.E.
DATE: July 30, 2017
RE: J.P. Sheridan, LLC Apartments , Level III Site Plan Application Response to Comments

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Woodard & Curran has reviewed the Level III Site Plan Application Response to Comments for the proposed development located at 88 Walnut Street in Portland, Maine. The project involves the construction of a two-story apartment building with a three car garage on the ground floor and three (3) units above.

Documents Reviewed by Woodard & Curran

- Level III Site Plan Response to Comments and attachments, dated june 20, 2017 prepared by Casco Bay Engineering , on behalf of J.P. Sheridan, LLC Apartments.
- Engineering Plans, dated June 20, 2017 prepared by Casco Bay Engineering , on behalf of J.P. Sheridan, LLC Apartments.

Comments *Comments from prior memos are included in italics*

1) *Per Section 12 of the City's Technical Manual, the Applicant is required to submit a photometric plan demonstrating minimal light trespass from the site.* Applicant has noted that they are working on providing a photometric plan.
2) *In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:*
   a) *Basic Standards: Plans, notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.*
   b) *General Standards: The project will result in an increase in impervious surface. The Applicant is proposing to install a rain garden that will provide adequate treatment for the proposed project. We have the following comments:*
      i) *The Applicant should provide sizing calculations showing that the rain garden has been sized per MaineDEP Stormwater Best Management Practices manual.* The Applicant had noted that sizing calculations were provided, but we do not see sizing calculations for the rain garden in the current submission. The calculations should show that the system has been sized per MaineDEP standards, including water quality volume and area requirements.
   c) *Flooding Standards: The project will result in an increase in impervious surface. The model indicates that peak flows will be reduced in the post-development condition in accordance with the requirements of the Flooding Standard. Note that prior to this project, stormwater was not discharged directly to the City's stormwater infrastructure. The proposed flow is very small, but the City will need to verify capacity, and the Applicant will also be required to provide additional information on how the proposed stormwater connection will be made.* The Applicant has noted that they are coordinating with the City to verify stormwater capacity requirements.
3) *The Stormwater Management Plan should include a stormwater inspection and maintenance plan developed in accordance with and in reference to MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances.* The Applicant has included some information in their stormwater management plan with regards to inspection and maintenance. A detailed plan including

required inspection and maintenance tasks should be developed for the project. The Applicant will be required to execute a stormwater agreement with the City in accordance with the requirements of Chapter 32.

PLANNING BOARD REPORT
PORTLAND, MAINE

Three-unit Apartment Development
88 Walnut Street
Level III Site Plan and Subdivision Review
2017-099
JP Sheridan, LLC

Submitted to: Portland Planning Board Public Hearing Date: July 25, 2017	Prepared by: Shukria Wiar, Planner Date: July 21, 2017

I. INTRODUCTION

JP Sheridan, LLC has submitted a Level III Site Plan and Subdivision application for the construction of a three-unit residential building on a 5,759 square feet "urban infill" site at 88 Walnut Street in the East End. The building will be a two-story structure, with a three-car garage on the ground floor and the three apartments above. Currently there is a parking garage on the site. It is surrounded by multifamily houses. The site is within the Commercial Business B-2b zone.

This proposal is being reviewed as a final plan subject to the Site Plan and Subdivision Ordinance of Land Use Code. The project will also be reviewed against the *B-2 and B-2b Commercial Business Zone Standards* and the *Two-Family, Special Needs Independent Living Units, Multiple-Family, Lodging Houses, Bed and Breakfasts, and Emergency Shelters Standards*.

Two hundred and sixty-seven (267) notices were sent to area residents within 500 feet of the site and the interested party list. A notice also appeared in the June 12th and 13th, 2017 editions of the *Portland Press Herald.*

Applicant Name	JP Sheridan, LLC
Consultants	
Agent Representative	Eric Dube of Casco Bay Engineering
Engineer	Eric Dube of Casco Bay Engineering
Surveyor	John Schwanda of Owen Haskell Inc.
Architect	Anne Callender, Whipple·Callender Architects

II. Summary of Planning Board Workshop

The applicant requested a review and the Planning Board considered the preliminary submission at a workshop on June 22, 2017. The Planning Board members at the workshop supported the proposed project but noted there were a number of concerns listed below and staff has worked with the applicant to address these concerns:

1. Sidewalk Waiver – Generally the Board expressed support of the sidewalk waiver on Sheridan Street, but wanted more information and a creative approach to other potential improvements pedestrian or bicycle improvements.

   Staff Comments – The Staff continues to find feasible a sidewalk along Sheridan Street (refer to Keith Gray, Senior Engineer memo, Attachment 1). The staff met with the applicant on July 20, 2017 to discuss installing the sidewalk and other potential options for sidewalk improvements. The City has identified that the sidewalk along Sheridan on the opposite side of the street has a gap along the frontage of Fort Sumner Park and that the ramps at the Sheridan and Walnut intersection does not have ADA panels. The applicant has stated in their revised waiver request (dated July 21) a willingness to contribute to the construction of the sidewalk gap along the Fort Sumner frontage or contribute to the addition of a rubber tactile pad on the corners of Walnut and Sheridan Streets. Public Works has evaluated the waiver request (Attachment 1) and staff continues to evaluate the cost and viability of the

two alternative options.

2. Main Entrance to Building – The primary building entrance is midblock due to site constraints and building configuration. Several of the Board members supported the entrance at this location and recommended that its prominence be enhanced. A couple of members recommended the applicant create a direct entrance off of Walnut Street for the one unit.

   Staff Comments – The applicant has revised the main entrance to include design features such as building address, lamp post, sidewalk connection with steps, and increased the overhang extending from the sidewalk to the entrance for a more porch-like appearance. According to the applicant, they are not proposing a direct stair to the Walnut Street porch due to the topography and site constraints. The staff has determined that the building does meet the applicable design standards.

3. Building Façade on Sheridan Street – The Board felt that the building façade along Sheridan Street was reading as a back of the building.

   Staff Comments – This façade has not changed much, except that windows are now double hung. Due to privacy constraints, the size of windows stayed the same. The applicant is proposing adding understory landscaping along the Sheridan Street frontage.

4. Guardrails – The Board recommended that the metal guardrails should be removed and replaced with an improved version.

   Staff Comments – The applicant will remove the metal guardrail along the building and add a short section of a wooden one beyond the building.

Project Review

Review	*Applicable Standards*
Site Plan	14-526
Subdivision	14-491
Design Manual	B-2 and B-2b Commercial Business Zones Standards, and (i) Two-Family, Special Needs Independent Living Units, Multiple-Family, Lodging Houses, Bed and Breakfasts, And Emergency Shelters

Requests for Waivers

Waiver Request	*Applicable Standards*
Sidewalk Waiver- To allow no sidewalk on Sheridan Street.	Section14-498 8(a) Sidewalks and curbs*: Sidewalks shall be constructed on each side of each street in accordance with article III of chapter 25. Sidewalks to be used by pedestrians are to be so located as to minimize contacts with normal automotive traffic, with preference given to interior walks away from streets in common open space in block interiors.*
Location and spacing of driveways- To allow driveway spacing of about 3 feet.	Technical Manual Section 1.7.1 Residential development with nine (9) parking spaces or less: *Minimum/maximum driveway width: Any site shall have a minimum driveway width of ten (10) feet and a maximum width of twenty (20) feet measured at the property line. Location of driveway: A driveway shall be located on the lot in a manner to provide a minimum*

	distance of twenty (20) ft spacing between it and adjacent driveways. This spacing shall be measured between edge of driveways at the property line. If the development is a Level III site plan with frontage on an arterial roadway, the standards listed in the table under section 1.6.1.7 shall apply. No more than one (1) driveway shall be permitted.

III. PROJECT DATA

Existing Zoning	B-2b Commercial Business Zone
Existing Use	Residential
Proposed Use	Residential- Apartments for Rental
Proposed Development Program	3 residential units
- Bedroom Mix	2 two-bedroom units, 1 three-bedroom unit
Parcel Size	5,759 SF
Proposed Parking	3 spaces

	Existing	*Proposed*	*Net Change*
Building Footprint	621 SF	1,932 SF	1,311 SF
Building Floor Area	621 SF	5,506 SF	4,885 SF
Impervious Surface Area	1,886 SF	3,182 SF	1,296 SF
Parking Spaces (on site)	3	3	0
Bicycle Parking Spaces	0	0	0
Estimated Cost of Project	$1,000,000		

IV. EXISTING CONDITIONS

The site is 5,759 SF that has an existing curb cut on Walnut Street. Currently the parcel has a one-story, three-car garage, which will be demolished. The site is surrounded by single-family and multifamily homes. The property does have an extended curb cut that is shared with an existing adjacent lot.

Figure 1: Proposed Site

IV. PROPOSED DEVELOPMENT

The proposal, including floor plans and elevations, are included in the plan set and have been revised to address staff concerns. The development project is proposed as new construction of a two-story building with a three-car garage on the ground floor and the three apartments above. At two stories high, the scale of this building will be in balance the

residential uses of the street and neighborhood.

Vehicle access is proposed from Walnut Street via the existing drive shared with the existing house. Three parking spaces are proposed and bicycle parking will be accommodated within the garages. No external spaces are proposed on site. The parking area is not visible from Sheridan Street and slightly visible from Walnut Street since it is tucked-away in the building.

Figure 2: Proposed Site Development

The building is proposed at the sidewalk on Walnut Street with no direct entrance from Walnut Street. The only entrance to the building is off a 'court yard' that is approximately 20 feet from Walnut Street. A covered porch is proposed over the main building entrance, two balconies are shown on the northern façade, and a gabled roof with three separate dormers, which is similar to other buildings along the street. No direct entrance is proposed off of Sheridan Street.

Below are the renderings of the proposed building from the Walnut and Sheridan Streets.

VIEW FROM WALNUT OF WEST SIDE

CORNER OF SHERIDAN AND WALNUT

SHERIDAN STREET ELEVATION

V. PUBLIC COMMENT

As of the writing of this report, two public comments have been submitted, Attachment 5. Both of the public comments state that a sidewalk waiver should not be granted. The applicant did not hold a neighborhood meeting since the subdivision is for three units only; project developments that have five or greater units or lots are required to hold a neighborhood meeting.

VI. RIGHT, TITLE AND INTEREST AND FINANCIAL/TECHNICAL CAPACITY

a. The owner of the property is JP Sheridan LLC. The applicant has provided a copy of a short form quitclaim deed, recorded at the Cumberland County Registry of Deeds (Book 33444 Page 11), which demonstrates their right, title and interest in the property.

b. The estimated cost of the development is $1,000,000. The applicant has submitted a letter from Camden National Bank, dated June 12, 2017, as demonstration of their financial and technical capacity to complete the proposed development.

VII. ZONING ASSESSMENT

The proposed project is to build a two-story, three-unit apartment building and is a permitted use in the B-2b zone since the zone allows multi-family dwellings. Under the zone all of the dimensional requirements are being met. For off street parking, Division 20 requires one parking space per unit for residential uses on the peninsula. Three parking spaces are shown. Under external effects, section 14-167(b), the maximum noise requirement of 55 decibels at lot boundaries shall be maintained.

VIII. DEVELOPMENT REVIEW

A. SITE PLAN SUBMISSION REQUIREMENTS (Section 14-527) and SUBDIVISION PLAT AND RECORDING PLAT REQUIREMENTS (Section 14-496)

The applicant has submitted a draft subdivision plat, Plan ##. The draft plat has been reviewed by the city's surveyor, Bill Scott, who notes,

> *1. The "Boundary Plan for Jon Edwards" is an older plan, dated November 2015 and revised thru April of this year. This plan shows an existing structure on Parcel A and contours, both of which are not shown on the Recording Plat. The "Boundary Plan" is referenced on the Recording Plat.*
>
> *The Recording Plat is the only one of the two that has the "Approved by Planning Board" block for signatures. I'm not sure if any of this is important or not, but I mention it just in case.*
>
> *2. There are no engineering plans included in this set. No grading plan, no utility plan, no gas/water/sewer connections shown to the proposed new house. The plan also does not show the water main location on Sheridan Street.*

A final plat addressing these comments and meeting the requirements of *Section 14-496* has been included as a condition of approval. The plat will also need to note the number of proposed units and associated parking on site and be revised to reflect any waivers and conditions of approval that relate to the subdivision plan. Any waivers granted must be recorded at the Registry of Deeds within 90 days of a Planning Board decision.

B. SUBDIVISION (Section 14-497)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below.

1. *Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) 1), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)*

Plans, notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500. Lauren Swett, P.E. with Woodard and Curran Engineering, has reviewed the erosion and sediment control plan and finds them acceptable.

2. Sufficient Water Available (Section 14-497 (a) 2 and 3)

The project site does not currently have existing water service. A new 2-inch domestic water service will be installed from the new water main in Walnut Street. There is a 16-inch diameter cast iron water main within Walnut Street that is planned for renewal with a 12-inch ductile iron main in the summer of 2017. A public fire hydrant located 100 feet from the site. The Applicant has submitted confirmation of ability to serve water from the Portland Water District.

3. Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)

The applicant is proposing access to the site from an existing curb cut on Walnut Street. This curb cut is about two to three feet from an existing curb cut on the abutting site, and does not meet the driveway separation standard. The Technical Manual Section 1.7.1 Driveway Separation Standard for Residential development with nine (9) parking spaces or less states:

> *Minimum/maximum driveway width: Any site shall have a minimum driveway width of ten (10) feet and a maximum width of twenty (20) feet measured at the property line.*
>
> *Location of driveway: A driveway shall be located on the lot in a manner to provide a minimum distance of twenty (20) ft spacing between it and adjacent driveways. This spacing shall be measured between edge of driveways at the property line. If the development is a Level III site plan with frontage on an arterial roadway, the standards listed in the table under section 1.6.1.7 shall apply.*
>
> *No more than one (1) driveway shall be permitted.*

Keith Gray, Senior Engineer reviewed the proposal's details, including the access, parking, and vehicle circulation (Attachment 1) and states the following regarding the driveway separation:

> *Staff has reviewed the Applicant's request for a waiver from the City's driveway separation requirements. We concur with the request's arguments regarding various site constraints and believe that the proposed location, also the current location, minimizes overall safety issues and challenges with grades and slopes on Walnut Street.*

The proposed project is not anticipated to cause unreasonable traffic congestion.

4. Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)

The applicant has submitted a wastewater capacity application to the Department of Public Works and awaiting on the capacity letter. Once the confirmation letter is available, it should be forwarded to the Planning Authority.

5. Scenic Beauty, Natural, Historic, Habitat and other Resources (Section 14-497 (a) 8)

The proposal site is not within an historic district but is with 100 feet of historic landmark. It is in an urban neighborhood surrounded by a variety of residential building types. The proposed building does not impact the natural beauty of the area or adversely affect any significant wildlife habitat, rare or irreplaceable natural areas, or any public access to the shoreline. Deb Andrews, Historic Preservation Program Manager, participated in the design review and the staff finds the proposal in conformance with this standard.

6. Comprehensive Plan (Section 14-497 (a) 9)

The staff has identified the following goals and policies which are relevant to the proposed housing development and finds the proposal in conformance with the Comprehensive Plan:

Housing: A Livable City

State Goals: To encourage and promote affordable decent, housing opportunities for all Maine citizens

Local Goals:

- Increase, preserve, and modify the overall supply of housing City-wide to meet the needs, preferences and financial capabilities of all Portland households.
- Encourage additional contextually-appropriate housing density in and proximate to neighborhood centers, concentrations of services, and transit nodes and corridors as a means of supporting complete neighborhoods.
- Pursue policies to enable people who work in Portland to have the option to live in Portland.
- Encourage quality, sustainable design in new housing development.

Goals from Future Strategies:

9. Adopt Affordable Housing

- Pursue new opportunities for increased energy efficiency, increased densities, mixed incomes, and greater connectivity to surrounding neighborhoods.

7. Financial Capability (Section 14-497 (a) 10)

The estimated cost of the development is $1,000,000. The applicant has submitted a letter from Camden National Bank, dated June 12, 2017, as demonstration of their financial and technical capacity to complete the proposed development.

C. SITE PLAN STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. Transportation Standards

a. Impact on Surrounding Street Systems and Access and Circulation

See Subdivision, Paragraph VIII (B) (3), above.

b. Construction Management Plan

A construction management plan has not been submitted by the applicant for review but has submitted a narrative of the proposed construction work. All construction needs to be proposed within the limits of the property lines. Submission of a construction management plan has also been included as a condition of approval.

c. Sidewalks

There is an existing concrete sidewalk on Walnut Street and no sidewalk along the site's frontage on Sheridan Street. The applicant is not proposing to install new sidewalk along either of their

Figure 3: Location of Sheridan Street with no sidewalk and associated measurements

frontages on Walnut Street or Sheridan Street. Given the extent of utility work being proposed in the right-of way of Walnut Street, that sidewalk may have to be replaced. The existing sidewalk material policy is brick on Walnut Street and the current plan maintains the existing concrete surface. Accordingly, this may not meet City sidewalk material standards. There is a provision for use of alternative materials if the sidewalk is in good condition and the disturbed section represents less than 50% of the block. It should also be noted that the City Policy is for the driveway apron material to match the sidewalk material. A condition of approval is suggested that seeks additional documentation on the extent of utility work and final plans for review and approval by the Department of Public Works.

a) Sidewalk Waiver Criteria

The applicant is seeking a waiver from installing a sidewalk along the property frontage along Sheridan Street. The sidewalk waiver criteria from the ordinance are listed below.

Sec. 14-506. Modifications.

(a) Except for the requirements set forth in sections 14-498 and 14-499 pertaining to the provision and construction of curbs and sidewalks, the Planning Board if it finds that extraordinary conditions exist or that undue hardship may result from strict compliance with these regulations may vary the regulations so that substantial justice may be done and the public interest secured; provided that such variation will not have the effect of nullifying the intent and purpose of the land development plan and the regulations of this article.

(b) Where the Planning Board or planning authority finds that, for each of the requirements listed below, two or more of the conditions exist with respect to compliance with the requirements set forth in sections 14-498 and 14-499 pertaining to the provision and construction of curbs and/or sidewalks, it may waive, in whole or in part, the regulations so that substantial justice may be done and the public interest secured:

Sidewalks-

1. There is no reasonable expectation for pedestrian usage coming from, going to and traversing the site.
2. There is no sidewalk in existence or expected within 1000 feet and the construction of sidewalks does not contribute to the development of a pedestrian oriented infrastructure.
3. A safe alternative-walking route is reasonably and safely available, for example, by way of a sidewalk on the other side of the street that is lightly traveled.
4. The reconstruction of the street is specifically identified and approved in the first or second year of the current Capital Improvement Program or has been funded through an earlier CIP or through other sources.
5. The street has been constructed or reconstructed without sidewalks within the last 24 months.
6. Strict adherence to the sidewalk requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value.

b) Applicant's Request

The applicant has provided a detail analysis of the how they are meeting these sidewalk criteria. Below is the written analysis from the applicant and please refer to Attachment J for their complete analysis and images:

Request for Waiver for a sidewalk on the Sheridan Street side of the property.

Existing conditions: The 88 Walnut Street property is a corner lot at Walnut and Sheridan. The primary building façade will be facing Walnut Street and the drive access to the site is on Walnut Street. Walnut Street has an existing concrete sidewalk that runs from Washington Ave to North Street. There is no existing sidewalk on the Sheridan Street side of the property but it has granite curbing in place with a guardrail approximately 2' off of the curb. The guardrail protects cars and pedestrians from a very steep slope. It is a 40 to 60% grade change along this edge. There is an existing concrete sidewalk on the east side of Sheridan Street that ends in a crosswalk across Walnut Street.

Under Sec. 14-506 Modifications (b) Paragraphs 1 and 3 under Sidewalks are true for the property.

*1. **No. 1. There is no reasonable expectation for pedestrian usage coming from or going to our site along this street.** Our building does not have any doors on the Sheridan Street side to warrant a sidewalk. The site is a steep slope so that we are building the lower level into the hill. The lower level is where all the entry and garage doors are located. Access will be from Walnut only. The next building on our side of Sheridan is 240' away and the topography transitions from a steep slope to a 26-foot drop-off.*
*2. **No. 3. A safe alternate-walking route is reasonably and safely available on the other side of the street.** There is a sidewalk on the opposite side of the street available for pedestrians which ties into the crosswalk at Walnut.*

We are requesting a variance to the sidewalk due to the following extraordinary conditions: Sec. 14-506 Modifications (a)

1. *Steep grade change on the edge of Sheridan Street. There is a 12'-0" grade change from Sheridan to our driveway elevation. We would need to increase the height of our building foundation and floor-to-floor height to retain the additional fill needed to create a level grade for a sidewalk. Increasing the floor-to-floor height would require more internal stairs that would require we increase the building footprint to accommodate the stairs. All these factors would increase the cost of construction by tens of thousands of dollars.*
2. *Sheridan Street is only a 40' right-of-way, not the 50' City standard. There is only 6' available between property line and existing granite curb for sidewalk and esplanade. This does not meet minimum city standard for the two, so only a sidewalk could be built.*
3. *There is a sidewalk on the opposite side of the street available for pedestrians that runs the length of Sheridan Street from Cumberland to Walnut with the exception of a gap at Fort Sumner park. It intersects Walnut Street "level" so that it provides a safe landing and turning point for handicapped individuals. There is also a crosswalk for Walnut on that side of the road. This would be difficult to achieve on our corner due to the slope intersections of Walnut Street, Sheridan Street and our property. There is a 1'-0" foot drop in an 8'-0" area at the corner. **Please note:** We are happy to contribute to the construction required to bridge the sidewalk gap at Fort Sumner when the City installs that sidewalk or contribute to the addition of a rubber tactile pad on the corner of Walnut and Sheridan, where there is currently none.*
4. *The next building on Sheridan Street on the west side of the road is 240' away from the end of our property and 344' from the intersection of Walnut. There is no sidewalk existing along this stretch. All of it is protected with a guardrail due to a very steep slope. (See topography map below.) [See Attachment J] The property in between is the former Creighton's property. Its only access is from Washington Ave. It is under redevelopment right now with no changes to the building, the lot is now being built out as a 160+ car parking lot, and the new tenant has a 10-year lease, so there is no expectation for a connecting sidewalk in the near future. It would put an undue burden on the property owner to maintain a clear sidewalk in winter months. They would be obligated to shovel over 103' of sidewalk that would in turn place the snow plowed from the street up against our building foundation because of the lack of an esplanade.*

Due to all these unique and extraordinary conditions, we request a waiver on placement of a new sidewalk on Sheridan Street. We will remove the existing guardrail parallel with the house and replace the last 20' of guardrail beyond the edge of the building to the property line with a new wooden guardrail.

c) Staff Analysis

Staff suggested the changes to the foundation, which could accommodate the installation of a sidewalk along Sheridan Street and the staff continues to find this as feasible option at this location. The applicant has addressed this concept in their revised response above. In addition, the staff surveyed the conditions on Sheridan Street and identified the gap in the sidewalk system along the Fort Sumner Park frontage and the lack of ADA panels at the Walnut and Sheridan intersection.

The Planning Board asked the City for more information regarding this waiver, which has been evaluated by Keith Gray (Senior Project Engineer at DPW), Bruce Hyman (Transportation Manager) and Tom Errico (Consultant Traffic Engineer). Mr. Gray has reviewed the application and offers analysis on the sidewalk request waiver (Attachment 1):

The following comments/concerns are in regards to the Sidewalk and Driveway Waivers submitted by the applicant on July 20th, 2017 and July 12th, 2017 respectively. Please feel free to contact me with questions.

Sidewalk Waiver:

The Applicant is requesting a waiver for a sidewalk on the Sheridan Street under Section 14-506 Modifications of the Land Use Ordinance.

Under Sec. 14-506 Modifications (a) the applicant is requesting a sidewalk waiver based on extraordinary conditions of:

1) *Costs associated with increasing the finished floor height (raise the foundation height by 1 to 2 feet) to an elevation that would allow the City to build a sidewalk at a later date if the sidewalk requirement was to be waived.*
    - *The Department of Public Works position is that a sidewalk should be built on Sheridan Street. If the Planning Board decides to waive this requirement; we expect that the allowed construction will not preclude or increase the cost of the future construction of a sidewalk. Therefore, the Department has requested the applicant to raise the foundation (FFE) elevation to an elevation calculated from the high point of the existing curb elevation on Sheridan Street plus approximately 2 feet. We also point out that raising the finish floor elevation (FFE) would improve the site's drainage conditions by directing roof runoff towards Sheridan Street and not towards the proposed foundation or neighboring property.*

2) *Sheridan Street has only a 40-foot ROW with only 6 feet from edge of existing curb to the property line. Applicant states that Sheridan Street does not meet minimum City standards for a sidewalk on that side of the street.*
    - *The Applicant is referring to the Local Street Cross Section from the City's Technical Standards Manual. The referenced cross section is intended for the construction of new streets with a 50-foot right-of-way. Sheridan Street has an existing 40-foot ROW which does not allow for an esplanade between curb line and sidewalk but a 5-foot sidewalk could be constructed without an esplanade as is typical for the rest of the street on both sides.*

3) *There is a sidewalk on the opposite side of Sheridan Street that runs from Cumberland to Walnut Street with the exception of a gap at Fort Sumner Park. The applicant has offered to contribute to the construction required to eliminate the sidewalk gap at Fort Sumner Park along Sheridan Street OR the addition of detectable warning panels on the 2 corners of Walnut and Sheridan Street.*
    - *The Applicant's contribution is valued and would benefit in the construction of the sidewalk along Fort Sumner Park, provided the value of such a contribution would be comparable to the value of constructing a sidewalk along the Applicant's property on Sheridan Street.*

4) *There is no sidewalk on that side of Sheridan Street from the intersection of Sheridan/Walnut to 156 Sheridan Street (344 feet) with no expectation for connection based on current property use and steep grades.*

- *The City has seen a surge in development on progressively challenging sites and it is not unrealistic that the neighboring properties propose development that would require a sidewalk on Sheridan Street, particularly since these properties do not share frontage on another street. When/if this development were to occur, the Applicant's property would provide a vital sidewalk connection to the intersection.*

5) *Burden on the property owner to maintain sidewalk in winter months with snow being plowed against proposed foundation due to lack of esplanade.*
   - *Snow will accumulate close to the foundation regardless of the presence of a sidewalk. To this point, we encourage positive drainage towards the street so melting snow will not back up against the foundation. Additionally, many miles of sidewalk exist in the City without an esplanade and are maintained by private property owners; this is simply not a hardship.*

Under Sec. 14-506 Modifications (b) the applicant is requesting a sidewalk waiver based on meeting two of the six requirements listed for sidewalks:

1) *Condition Number 1 - There is no reasonable expectation for pedestrian usage coming from, going to and traversing the site.*

The proposed building does not have any doors on the Sheridan Street side to warrant a sidewalk.

- *The applicant has provided access from Walnut Street only and no doors are located on Sheridan Street. However, the construction of a sidewalk on Sheridan Street along the applicant's property would provide the necessary link for future continuity that provides enhanced pedestrian usage to and from the site and the general area. It is also the applicant's design (with no doors fronting Sheridan) that creates this condition.*
- *Condition Number 3 - A safe alternative-walking route is reasonably and safely available, for example, by way of a sidewalk on the other side of the street that is lightly traveled. There is a sidewalk on the opposite side of the street available for pedestrians which ties into the crosswalk at Walnut.*
- *The existing sidewalk on the opposite side of Sheridan Street is accessible from the site but would need to be brought up to ADA compliance. The sidewalk runs the length of Sheridan Street from Cumberland to Walnut with the exception of a 100' gap at Fort Sumner Park. The two curb ramps on the corners of Walnut and Sheridan Streets are also not ADA-compliant.*

Thus, the city staff supports installing a sidewalk. The Board's idea of a bike lane was not feasible along Sheridan Street due to the narrow width and on-street parking. As noted above, the staff did identify a gap in the sidewalk system along the Fort Sumner frontage along Sheridan Street (opposite side of the street) and that the two ramps at Sheridan and Walnut lack detectable warning panels. If the Planning Board finds that the applicant has made a sufficient case for waiving the sidewalk along their Sheridan Street frontage under the waiver criteria and/or the hardship criteria, the staff recommends that the other improvements identified in Mr. Gray's memo be considered. The staff is seeking additional input from the Parks and Recreation Department regarding the Fort Sumner frontage and seeking more information from project engineers at DPW regarding a pending sewer separation project that may impact the ADA ramps at the intersection. The staff intends to have more information at the public hearing.

d. Public Transit Access

The public transit requirements do not apply to this project.

e. Parking

There are three parking spaces in the proposed garage, which is located on the side of the property and away from the street. Per zoning, development on the peninsula, is required to have one parking space per unit. This development is meeting the parking standards.

2. Environmental Quality Standards

a. Preservation of Significant Natural Features

There are no known significant natural features on the site.

b. Landscaping and Landscape Preservation

The site will have landscaping along the front of the building as well as a rain garden along the back of the property. The applicant is proposing three trees on the site as part of the development, one in front of the building that will be visible from the right-of way, and one at the rear of the building which may be visible from the street but is a distant away. The street tree requirement would be one tree per unit, or three street trees, in or within 20 feet of the ROW. Additional landscaping is proposed along Sheridan Street. This standard is being met.

c. Water Quality, Storm Water Management and Erosion Control

Currently the stormwater drainage from the site flows southwest along the property before running off onto abutters' property towards Washington Avenue. In this area, there is no separated storm drain system. Instead of draining the stormwater in the City's combined sewer system, the applicant is proposing to infiltrate, retain, and reduce the peak runoff rate that leaves the site. As part of this, a rain garden is proposed on site. This garden is designed to be able to hold runoff from the 2-,10- and 25- year storm.

Under Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. Lauren Swett, P.E. with Woodard and Curran Engineering, has reviewed the drainage plan and stormwater report, and offers her recommendations; please see Attachment 3 for the complete analysis.

> *In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:*
> *a) Basic Standards: Plans, notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.*
> *b) General Standards: The project will result in an increase in impervious surface. The Applicant is proposing to install a rain garden that will provide adequate treatment for the proposed project. We have the following comments:*
>
> > *i) The Applicant should provide sizing calculations showing that the rain garden has been sized per MaineDEP Stormwater Best Management Practices manual. The Applicant had noted that sizing calculations were provided, but we do not see sizing calculations for the rain garden in the current submission. The calculations should show that the system has been sized per MaineDEP standards, including water quality volume and area requirements.*
>
> *c) Flooding Standards: The project will result in an increase in impervious surface. The model indicates that peak flows will be reduced in the post-development condition in accordance with the requirements of the Flooding Standard. Note that prior to this project, stormwater was not discharged directly to the City's stormwater infrastructure. The proposed flow is very small, but the City will need to verify capacity, and the Applicant will also be required to provide additional information on how the proposed stormwater connection will be made. The Applicant has noted that they are coordinating with the City to verify stormwater capacity requirements.*

3. Public Infrastructure and Community Safety Standards

a. Consistency with Master Plans

See Subdivision, Paragraph VIII (B)6 above.

b. Public Safety and Fire Prevention

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance address the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime. The applicant is proposing wall mounted lighting at the front entrance as well as a lamp post at entrance of the driveway.

c. Availability and Adequate Capacity of Public Utilities

The project will be served by the existing utility services located in Walnut Street. The Applicant has contacted the City Department of Public Services requesting ability to serve sewer demand, and awaits response. Confirmation of ability to serve sewer from DPS should be forwarded to the Planning Authority prior to the issuance of a building permit.

4. Site Design Standards

a. Snow and Ice Loading

The applicant has not shown proposed on-site snow storage on the site plans will be hauled off. The applicant has hired a third-party entity to handle the snow removal at the site.

b. View Corridors

This site is not within a Protected View Corridor as per the "View Corridor Protection Plan" approved by the Portland City Council in 2001.

c. Historic Resources

The site is within the 100-foot setback of the historic landmark, the Portland Water District Pumping Station. The project does have to be reviewed by Historic Preservation staff and as part of the design review of the project, Deb Andrews, Historic Preservation Program Manager, was among one the reviewers.

d. Exterior Lighting

A lighting and photometric plan has been submitted for review. The applicant is proposing wall mounted lighting at the front entrance as well as a lamp post at entrance of the driveway. All exterior site lighting including lamp post will be cutoff with no light emitted above the horizontal plane or spilled onto adjacent properties or streets.

e. Noise and Vibration

All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment will have to be shown on the plans and meet state and federal emissions requirements. This mechanical equipment should be located to the interior of the site, away from abutting residential properties, and be screened from view from any public street and from adjacent sites by structure walls, evergreen landscaping, fencing, masonry wall or a combination thereof.

f. Signage and Wayfinding

This standard does not apply to the proposal.

g. Zoning Related Design Standards

The project at 88 Walnut Street was reviewed according to the *City of Portland Design Manual* standards by Caitlin Cameron, Urban Designer, Shukria Wiar, Planner, and Deb Andrews, Historic Preservation Program Manager against *the B2 Commercial Business Zones Standards* (Section (d) of the Design Manual) and *Multiple-Family Standards.* The site is within 100' of a historic landmark.

At the workshop, the Board recommended the main entrance be more prominent and the building façade on Sheridan Street does not read as back of the house. The applicant has modified the design to address these comments. For the main entrance, the applicant now includes features like building address, lamp post, sidewalk connection with steps, and increased overhang extending from sidewalk to entrance. To address the latter comment, the windows on Sheridan Street side are now double hung. Ms. Cameron has found the proposal to be in general compliance. However, there is one standard have not been met, which that there is still no entrance off on Walnut or Sheridan Streets (Attachment 3). Excerpts from Ms. Cameron memo are below:

Design Review Comments*:*
(d) B-2b Commercial Business Zones
Standard (1) c. Building Entrances – Typically, entrance would be provided at front porch or side porch that extends to the street, however with this project the primary building entrance is mid-block due to site challenges and building configuration. The steep topography of the site does create some challenges here – steps are provided from sidewalk to the entrance. Design revisions that bring more emphasis to the entry include building address, lamp post, sidewalk connection with steps, increased overhang extending from sidewalk to entrance, and revised details on the entrance cover to appear more porch-like. Staff concludes these elements do bring more emphasis and legibility to the building entrance if site constraints do not allow the entrance to move closer to the street.

Standard (1) e. Façade Character – No active or public portions of this building – porch provided as an architectural feature facing Walnut Street.

(i) Two-Family, . . . Multiple-Family . . .:
Standard (2). Relationship to Street – Building placement is typical of the residential properties in the context – slightly setback to allow for stoops, porches, landscaping and privacy. The building sits on a corner with the principal orientation to Walnut Street with Sheridan as the side elevation – the façade designs appropriately indicate this hierarchy of orientation. In this case, the building provides a multi-story porch and landscaping at the street. However, entrance is a side-entry and mid-block which is atypical. The side elevation design is consistent with other corner lot side elevation treatment in terms of size and placement of fenestration (see for example Walnut and North street corner).

IX. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed three-unit development at 88 Walnut Street.

X. PROPOSED MOTIONS

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on July 25, 2017 for application 2017-099 relevant to Portland's technical and design standards and other regulations; and the testimony presented at the Planning Board hearing:

1. The Planning Board [**finds/does not find]**, based upon the consulting transportation engineer's review, that extraordinary conditions exist or undue hardship may result from strict compliance with Section14-498 8(a) Sidewalks and curbs*: Sidewalks shall be constructed on each side of each street in accordance with article III of chapter 25. Sidewalks to be used by pedestrians are to be so located as to minimize contacts with normal automotive traffic, with preference given to interior walks away from streets in common open space in block interiors.* The Planning Board [**waives/does not waive]**

the Section14-498 8(a) Sidewalks and curbs to allow no sidewalk along the parcel on Sheridan Street.

2. The Planning Board [**finds/does not find]**, based upon the consulting transportation engineer's review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual Section 1.7.1 Residential Development with Nine Parking Spaces or Less, Location of a Driveway states that *[a] driveway shall be located on the lot in a manner to provide a minimum distance of twenty (20) ft spacing between it and adjacent driveways.* The Planning Board **[waives/does not waive]** the *Technical Manual* standard (Technical Manual Section 1.7.1) to allow a separation of 2 feet between the existing driveways.

B. SUBDIVSION

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on July 25, 2017 for application 2017-099 relevant to the subdivision regulations; and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan [**is/is not]** in conformance with the subdivision standards of the land use code, subject to the following conditions of approval, which must be met prior to the signing of the plat:

1. The applicant shall finalize the subdivision plat for review and approval by Corporation Counsel, the Department of Public Services, and the Planning Authority.

C. DEVELOPMENT REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on July 25, 2017 for application 2017-099 relevant to the site plan regulations; and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan **[is/is not]** in conformance with the site plan standards of the land use code, subject to the following conditions of approval that must be met prior to the issuance of a building permit, unless otherwise stated:

1. The applicant shall submit a construction management plan for review and approval by the Department of Public Works and the Planning Authority, and
2. The applicant shall address Lauren Swett's memorandum dated 07.20.2017 comments.
3. Confirmation of ability to serve sewer from DPS should be forwarded to the Planning Authority.
4. That the developer/contractor/subcontractor must comply with conditions of the construction stormwater management plan and sediment and erosion control plan based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. A maintenance agreement for the stormwater drainage system, as attached, or in substantially the same form with any changes to be approved by Corporation Counsel, shall be submitted, signed, and recorded prior to the issuance of a building permit with a copy to the Department of Public Works.
5. The applicant shall provide additional documentation on the extent of utility work and disturbance of the sidewalk along Walnut Street. Final plans meeting the sidewalk materials policy will be submitted for review and approval by the Department of Public Works.

ATTACHMENTS:

Staff Review Comments and Background Information

1. Department of Public Services Review, Keith Gray, dated 07.21.2017
2. Civic Engineer Review, Lauren Swett, dated 07.20.2017
3. Urban Designer Review, Caitlin Cameron, dated 07.20.2017
4. Fire Department Review, Keith Gautreau, 07.17.2017
5. Public Comment
   PC – Christian MilNeil 06.23.2017
   PC – Bobbi Keppel 06.28.2017

Applicant's Submittal

A. Section 1 - Narrative (update) Application
B. Section 2 - Level III Site Plan App
C. Section 3 - Site Plan and Code Review Summary
D. Section 4 - Property Deed
E. Section 5 - Stamped Survey
F. Section 7 - Stormwater Report (update)
G. JP Sheridan proof of funds
H. City Comments w answers
I. Design Standards
J. Request for Sidewalk Waiver revised
K. Request for Driveway Waiver
L. Construction-Management
M. Snow Removal Les Wilson
N. Ability to Serve Letter

Plans

Plan 1 Cover Sheet C0
Plan 2 Site Utilities and Drainage Plan C100
Plan 3 Pre and Post Watershed Plan C101
Plan 4 Site Details C200
Plan 5 Site Details C201
Plan 6 Erosion Control Details C0-C300
Plan 7 RECORDING PLAT
Plan 8 Survey stamped
Plan 9 Walnut planting sketch
Plan 10 A1 MODEL VIEWS & PHOTOS
Plan 11 Model Views
Plan 12 Photos
Plan 13 Exterior Lighting Plan
Plan 14 A2 PLANS & ELEVATIONS
Plan 15 A ELEVATION CHANGES
Plan 16 B ELEVATION CHANGES_WALK FROM WALNUT
Plan 17 C ELEVATION CHANGES_WALNUT & SHERIDAN
Plan 18 D ELEVATION CHANGES
Plan 19 E ELEVATION CHANGES

CASCO BAY ENGINEERING
CIVIL & STRUCTURAL ENGINEERING
www.cascobayengineering.com
424 Fore St., Portland, ME 04101 Phone 207.842.2800 Fax 207.842.2828

SECTION 1:

June 20, 2017

City of Portland
Planning Department
389 Congress Street
Portland, ME 04101

RE: 88 Walnut Street – Proposed Building
Project Narrative

Dear Planning:

We are providing this project narrative for our Level III and site plan submission. This project proposes the creation of a 1,950 square foot building along with the removal of an existing garage. The building will be a two-story structure, with a three car garage on the ground floor and three (3) single family apartments above.

The existing building was originally developed in 1927 for residential living with parking in the adjacent one-story garage.

Parking

In lieu of the demolished garage, a new driveway will be built north of the existing retaining wall leading directly to the new building. The new building will include a three-car garage, which is to be used for parking. The existing driveway south of the retaining wall will remain in place.

Drainage

The existing lot is predominantly vegetated on a significant slope and does not employ any drainage systems to handle the pre-developed stormwater runoff. Included in the site plan is a design for a rain garden that will be used to retain and treat a portion of the proposed stormwater. Stormwater runoff from the north side of the roof and the entirety of the new parking lot will drain towards the rain garden, treating a total of 2,720 square feet of impervious cover. Additionally, the rain gardens drainage area will also treat 964 square feet of runoff from landscaped terrain.

Due to the steep slope on the southeast side of the property, the rain garden will not treat the runoff produced from the southeast side of the new building's roof. Additionally, the impervious area to the west of the retaining wall will remain untreated, leaving approximately 691 square feet of untreated impervious area.

When factoring in the demolition of the existing garage, this project reduces the amount of untreated impervious runoff coming from the property. In its existing state, the area of interest contains 1,931 square feet of impervious cover, all of which leads to untreated runoff. In the proposed plan, the overall impervious area would increase to 3,411 square feet, but only 691 square feet of impervious area would not fall into the rain gardens drainage area. This net decrease in untreated impervious area, combined with the additional 964 square feet of landscaped area being treated by the rain garden will ultimately improve and increase the quality of stormwater leaving the site. Please refer to the watershed plans and the stormwater analysis attached to this submittal for additional information.

Utilities

We are proposing a new 4 inch sewer service from the new building to the proposed sewer line located in Walnut Street. We are also proposing two new water lines from the proposed building to the existing water line in Walnut Street. Both lines will connect through the southwest side of the house, passing under the proposed driveway. Electrical service will be provided by attaching an overhead electric line to an electric meter on the north side of the proposed building. This service will be tied in to Utility Pole 23 on Sheridan Street.

The rain garden will discharge stormwater runoff via infiltration and an emergency 6" PVC pipe overflow and grate system into the existing street storm drain system in Walnut Street. There will be no utility changes to the existing two-story structure located south of the retaining wall.

Lighting

The proposed building will feature two building mounted esterior lights, one each on the south and west faces. On the south side, the wall light will be placed adjacent to the front door. The light on the west side will serve a similar function.

Landscaping

Existing landscaping begins with a steep slope going east to west, featuring a mostly landscaped terrain that becomes more vegetated near the southern property line. The slope levels out at the existing driveway and garage before reaching an approximate three-foot drop at the retaining wall. Everything past the retaining wall will not be disturbed, and the landscaping will remain unchaged.

New landscaping will be created in all disturbed areas. Trees and bushes shall be planted alongside the north property line, and a riprap slope shall be installed on the southwest corner of the disturbed area. See the attached landscaping plan for further details.

Waivers

We are requesting two separate waivers for the proposed project as follows:

1. The first is for the driveway distance requirements. We have an existing curb cut opening that is shared with the existing building on Walnut street. Due to the steep grading and proximity to Sheridan street, it would be nearly impossible for us to provide a curb cut between the existing curb cut and Sheridan street. We are requesting permission to utilize the existing curb cut that accesses the existing garage that is scheduled to be removed as part of this project.
2. The second is for the sidewalk requirement on Sheridan street. There is an existing sidewalk on the northeast side of Sheridan street for pedestrian access. We are proposing to have the new building directly adjacent to the existing street and guardrail. With this proposed design we will not be able to construct a sidewalk with an esplanade. A proposed sidewalk would also be constructed to the limits of the new building foundation. Walking south on Sheridan street past the proposed building is a very steep slope for approximately 200 feet that would be nearly impossible to extend a proposed sidewalk from the front of the proposed building. For these reasons we are requesting a waiver.

Planning Board Approval

Please see the attached site plan application which includes the following:

- Mail notification of site plan application to all abutters.
- Soil erosion and sedimentation plan
- Stormwater Management Plan
- Existing and Proposed site plans showing property line, setbacks, building additions, parking, grading, utilities, drainage, wetlands, lighting, landscaping and any other exterior features.
- Parking space allocation based on City requirements.

We look forward to working with you through the planning board approval phase. Please contact me if you have any questions or need additional information.

Sincerely,

Eric Dube, P.E.
Casco Bay Engineering

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14) which is available on our website:

Land Use Code: http://me-portland.civicplus.com/DocumentCenter/Home/View/1080
Design Manual: http://me-portland.civicplus.com/DocumentCenter/View/2355
Technical Manual: http://me-portland.civicplus.com/DocumentCenter/View/2356

Planning Division
Fourth Floor, City Hall
389 Congress Street
p.m. (207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30

PROJECT NAME:
J.P. Sheridan LLC Apartment

PROPOSED DEVELOPMENT ADDRESS:
88 Walnut St

PROJECT DESCRIPTION:
New three family apartment building with attached three car garage

CHART/BLOCK/LOT: 12, P. 3

PRELIMINARY PLAN _____(date)
FINAL PLAN _____(date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer	**Applicant Contact Information**
Name: Jake Edwards	Work #:
Business Name, if applicable: JP Sheridan, LLC	Home #:
Address: PO Box 715	Cell #: 207.415.3037 Fax#:
City/State: So. Freeport, ME Zip Code: 04078	e-mail: jedward3@gmail.com
Owner – (if different from Applicant)	**Owner Contact Information**
Name:	Work #:
Address:	Home #:
City/State: Zip Code:	Cell #: Fax#:
	e-mail:
Agent/ Representative	**Agent/Representative Contact information**
Name: Eric Dube Casco Bay Engineering	Work #: 207-842-2800
Address: 424 Fore St	Home #:
City/State: Portland, ME Zip Code: 04101	Cell #: 207-712-7022 Fax#: 842-2828
	e-mail: ericd@cascobayengineering.com
Billing Information	**Billing Information**
Name: Jake Edwards	Work #:
Address: JP Sheridan, LLC PO Box 715	Home #:
City/State: So. Freeport, ME Zip Code: 04078	Cell #: 207.415.3037 Fax#:
	e-mail: jedward3@gmail.com

Engineer ERIC DUBE Name: CASCO BAY ENGINEERING Address: 424 FORE ST City/State: PORTLAND ME Zip Code: 04101	**Engineer Contact Information** Work #: 842.2800 Home #: ——— Cell #: 712.7022 Fax#: 842.2828 e-mail: ericd@cascobayengineering.com
Surveyor JOHN SCHWANDA Name: OWEN HASKELL INC. Address: 390 US ROUTE ONE City/State: FALMOUTH ME Zip Code: 04105	**Surveyor Contact Information** Home #: ——— Work #: 774.0424 X30 Cell #: Fax#: 774.0511 e-mail: jschwanda@owenhaskell.com
Architect ANNE CALLENDER Name: WHIPPLE · CALLENDER ARCHITECTS Address: PO BOX 1276 City/State: PORTLAND ME Zip Code: 04104	**Architect Contact Information** Work #: 207.775.2696 X105 Home #: ——— Cell #: Fax#: 775.3631 e-mail: anne@whipplecallender.com
Attorney Name: Address: City/State: Zip Code:	**Attorney Contact Information** Work #: Home #: Cell #: Fax#: e-mail:

Designated person/person(s) for uploading to e-Plan:

Name: ANNE CALLENDER
e-mail: anne@whipplecallender.com

Name: ERIC DUBE
e-mail: ericd@cascobayengineering.com

Name: JAKE EDWARDS
e-mail: jedward3@gmail.com

APPLICATION FEES:

Level III Development (check applicable reviews)	**Other Reviews (check applicable reviews)**
✓Less than 50,000 sq. ft. ($750.00) ___50,000 - 100,000 sq. ft. ($1,000) ___100,000 – 200,000 sq. ft. ($2,000) ___200,000 – 300,000 sq. ft. ($3,000) ___over 300,00 sq. ft. ($5,000) ___Parking lots over 11 spaces ($1,000) ___After-the-fact Review ($1,000.00 plus applicable application fee) **Plan Amendments (check applicable reviews)** ___Planning Staff Review ($250) ___Planning Board Review ($500) _____ The City invoices separately for the following: • Notices ($.75 each) • Legal Ad (% of total Ad) • Planning Review ($50.00 hour) • Legal Review ($75.00 hour) Third party review fees are assessed separately. Any outside reviews or analysis requested from the Applicant as part of the development review, are the responsibility of the Applicant and are separate from any application or invoice fees.	___Traffic Movement ($1,500) ___Stormwater Quality ($250) ___Subdivisions ($500 + $25/lot) # of Lots___x $25/lot = _____ ___Site Location ($3,500, except for residential projects which shall be $200/lot) # of Lots___x $200/lot = _____ ___Other _____ ___Change of Use ___Flood Plain ___Shoreland ___Design Review ___Housing Replacement ___Historic Preservation

INSTRUCTIONS FOR ELECTRONIC SUBMISSION:

Please refer to the application checklist (attached) for a detailed list of submission requirements.

1. Fill out the application completely and e-mail the **application only** to planning@portlandmaine.gov (Please be sure to designate a person who will be responsible for uploading documents and drawings.) This step will generate the project ID number for your project.

2. An invoice for the application fee will be e-mail to you. **Payments can be made on-line at Pay Your Invoice , by mail or in person at City Hall, 4th Floor. Please reference the Application Number when submitting your payment which is located in the upper left hand corner of the invoice.**

3. The designated person responsible for uploading documents and drawings will receive an email from eplan@portlandmaine.gov with an invitation into the project. At this time, you will upload all corresponding documents and plans into the project. For first time users you will receive a temporary password which you must change on entry. Make note of your username and password for any future projects.

Reminder: Before the project can move forward, the application fee shall be paid in full and all required documents and drawings shall be uploaded into e-plan correctly.

4. Follow the link below (Applying Online Instructions) for step by step instructions on how to do the following:
   Tab 1 - Setting up the appropriate compatibility settings for your PC and getting started in e-plan.
   Tab 2 - Preparing your drawings, documents and photos for uploading using the correct naming conventions
   Tab 3 - Preparing and uploading revised drawings and documents

   Applying Online Instructions

5. When ready, upload your files and documents into the following folders:
   "Application Submittal – Drawings"
   "Application Submittal – Documents"

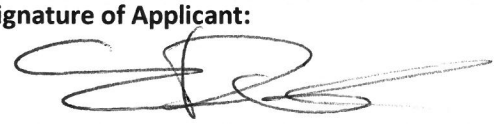
6. Once a preliminary check has been made of the submittal documents and drawings, staff will move them to permanent folders labeled Drawings and Documents. As the process evolves you will be able to log in and see markups, comments and upload revisions as requested into these folders.

APPLICANT SIGNATURE:

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	**Date:**
	4/26/17

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site	5759 sq. ft.
Proposed Total Disturbed Area of the Site	4594 sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland	
Impervious Surface Area	
Impervious Area (Total Existing)	1886 sq. ft.
Impervious Area (Total Proposed)	3182 sq. ft.
Building Ground Floor Area and Total Floor Area	
Building Footprint (Total Existing)	621 sq. ft.
Building Footprint (Total Proposed)	1932 sq. ft.
Building Floor Area (Total Existing)	621 sq. ft.
Building Floor Area (Total Proposed)	5506 sq. ft.
Zoning	
Existing	B2b
Proposed, if applicable	NO CHANGE
Land Use	
Existing	RESIDENTIAL
Proposed	RESIDENTIAL
Residential, If applicable	
# of Residential Units (Total Existing)	0
# of Residential Units (Total Proposed)	3
# of Lots (Total Proposed)	1
# of Affordable Housing Units (Total Proposed)	0
Proposed Bedroom Mix	
# of Efficiency Units (Total Proposed)	0
# of One-Bedroom Units (Total Proposed)	0
# of Two-Bedroom Units (Total Proposed)	2
# of Three-Bedroom Units (Total Proposed)	1
Parking Spaces	
# of Parking Spaces (Total Existing)	3
# of Parking Spaces (Total Proposed)	3
# of Handicapped Spaces (Total Proposed)	0
Bicycle Parking Spaces	
# of Bicycle Spaces (Total Existing)	N/A
# of Bicycle Spaces (Total Proposed)	N/A GARAGE
Estimated Cost of Project	$1,000,000

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
✓		1	Completed Application form
		1	Application fees
✓		1	Written description of project
✓		1	Evidence of right, title and interest
N/A		1	Evidence of state and/or federal approvals, if applicable
✓		1	Written assessment of proposed project's compliance with applicable zoning requirements
✓		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
✓		1	Written requests for waivers from site plan or technical standards, if applicable.
		1	Evidence of financial and technical capacity
N/A		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
✓		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
✓		Proposed grading and contours;	
✓		Existing structures with distances from property line;	
✓		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
✓		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
✓		Preliminary infrastructure improvements;	
✓		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
N/A		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b)(1);	
N/A		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
N/A		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
✓		Exterior building elevations.	

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Completed Application form
		1	* Application fees
✓		1	* Written description of project
✓		1	* Evidence of right, title and interest
N/A		1	* Evidence of state and/or federal permits
✓		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
✓		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
		1	* Evidence of financial and technical capacity
✓		1	Construction Management Plan
N/A		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
✓		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
✓		1	Stormwater management plan and stormwater calculations
✓		1	Written summary of project's consistency with related city master plans
		1	Evidence of utility capacity to serve
✓		1	Written summary of solid waste generation and proposed management of solid waste
✓		1	A code summary referencing NFPA 1 and all Fire Department technical standards
N/A		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Final Site Plans including the following:**
✓			Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);
✓			Existing and proposed structures on parcels abutting site;
✓			All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;
✓			Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;
✓			Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;
N/A			Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;
N/A			Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;
✓			Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;
✓			Location of all snow storage areas and/or a snow removal plan;
N/A			A traffic control plan as detailed in Section 1 of the Technical Manual;
N/A			Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);
N/A			Location and proposed alteration to any watercourse;
N/A			A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
N/A			Proposed buffers and preservation measures for wetlands;
✓			Existing soil conditions and location of test pits and test borings;
✓			Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;
✓			A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;
✓			Grading plan;
			Ground water protection measures;
✓			Existing and proposed sewer mains and connections;

- Continued on next page -

N/A		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
✓		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
[illegible]		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
N/A		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
✓		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
N/A		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
N/A		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
N/A		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
✓		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
N/A		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
N/A ✓		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST

A separate drawing[s] shall be provided as part of the site plan application for the Portland Fire Department's review.

1. Name, address, telephone number of applicant
2.
3. Name address, telephone number of architect

4. Proposed uses of any structures [NFPA and IBC classification]
5.
6. Square footage of all structures [total and per story]

7. Elevation of all structures

8. Proposed fire protection of all structures
   - ***As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)***

9. Hydrant locations

10. Water main[s] size and location

11. Access to all structures [min. 2 sides]

12. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.

Some structures may require Fire flows using annex H of NFPA 1

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Date: 5/2/17

Bradley Roland, P.E.
Water Resources Division

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 88 Walnut St

Chart Block Lot Number: 12, P, 3

Proposed Use: Multi Family Residential
Previous Use:
Existing Sanitary Flows: _____ GPD
Existing Process Flows: _____ GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.
Sewage lateral to discharge to 12" Sewer line located on Walnut St

Site Category:
- Commercial *(see part 4 below)* ☐
- Industrial *(complete part 5 below)* ☐
- Governmental ☐
- Residential ☑
- Other *(specify)* ☐

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: Helen Donaldson Phone: 207-874-8723
Owner/Developer Name: Jake Edwards, JP Sheridan, LLC
Owner/Developer Address: PO Box 715, South Freeport, ME 04078
Phone: 207-415-3037 Fax: E-mail: jedward3@gmail.com
Engineering Consultant Name: Eric Dube, Casco Bay Engineering
Engineering Consultant Address: 424 Fore St, Portland ME 04101
Phone: 207-712-7022 Fax: 842-2828 E-mail: ericd@cascobayengineering.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 630 GPD
Peaking Factor/ Peak Times: 6:00 – 8:00 AM
Specify the source of design guidelines: *(i.e.__"Handbook of Subsurface Wastewater Disposal in Maine," __"Plumbers and Pipe Fitters Calculation Manual," __Portland Water District Records, Other (specify)* Ch. 241 State of Maine Subsurface Wastewater Disposal Rules

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: _____

Size of External Grease Interceptor: _____

Retention Time: _____

Peaking Factor/ Peak Times: _____

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: _____ GPD

Do you currently hold Federal or State discharge permits? Yes ___ No ___

Is the process wastewater termed categorical under CFR 40? Yes ___ No ___

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

CALCULATION FOR (3)

Per Section 4(E)(2) - design flow = 90 gal/bedroom for multiple bedroom units.

- Each unit has multiple bedrooms; grand total of 7

$$7 \text{ bedrooms} \cdot \frac{90 \text{ gal}}{\text{bedroom}} = 630 \text{ GPD}$$

WHIPPLE-CALLENDER ARCHITECTS

SECTION 3:

88 WALNUT STREET LEVEL III SITE PLAN AND CODE REVIEW SUMMARY:
Includes reference to IBC 2015, NFPA 2015 & Portland zoning regulations.

OWNER: Jake Edwards
J.P. Sheridan LLC
PO Box 715
South Freeport, ME 04078
207-415-3037

ARCHITECT: Anne Callender
Whipple | Callender Architects
PO Box 1276
Portland, ME 04104
207-775-2696 x 105

BUILDING USE: NFPA - New Apartment Building
IBC - R-2
Three story building
Three apartment units

SQUARE FOOTAGE: TOTAL BUILDING: 5,506 SF + 380 SF PORCHES
1ST FLOOR: 1932 SF
2ND FLOOR: 1932 SF + 274 SF PORCHES
3RD FLOOR: 1642 SF + 106 SF PORCH

CONSTRUCTION TYPES: NFPA type V 000
IBC V B

PROJECT DESCRIPTION:
The project is a new three-story building with ground level parking garages for three cars. One housing unit is a townhouse with an entrance adjacent to the garage bays. The other two units are flats above the garage spaces.

Site is located on the corner of Walnut Street and Sheridan Street. Site is 5,949 square feet in a B2b [Community Business] zone.

The main building façade faces Walnut Street as it is the primary residential street for this lot in the neighborhood. The site is a steep slope from Sheridan Street continuing down to Washington Ave. There is an existing three-car garage on the site that will be removed and the new building will be situated so that the garage bays are built into the hill and will be below the Sheridan Street grade. This allows the greatest distance between the new three family home and an existing single family home at 94 Walnut Street as well as use of the existing driveway and curb cut. The building orientation makes the most of the city views and daylight orientation. It also creates a street presence along Sheridan Street

The building is designed to be in scale with the existing neighborhood single-family homes and uses traditional Portland home detailing. There are 4 single-family homes directly across the street, a single family home to the west on Walnut Street and a historic water district pump house to the east across Sheridan Street. The building is designed to be a story and a half structure if viewed from Sheridan Street. It will have a double decker front porch facing Walnut Street and gable roofs with gabled dormers along Sheridan Street and the driveway side of the building. Siding will be clapboards with traditional trim details and soffited roof overhangs which is consistent with the neighborhood.

RIGHT, TITLE AND INTEREST:

The lot of 88 - 96 Walnut Street was purchased by J.P. Sheridan LLC in the summer of 2016. They have full title and interest in the property.

STATE OR FEDERAL PERMITS:

No State or Federal permits are required for this project.

PORTLAND ZONING – 2009 –Zone B2b:

Sec. 14-182. Permitted uses.

(a) Residential:
1. Attached single-family and two-family dwelling;
2. **Multi-family dwellings;**
3. Handicapped family units;
4. Combined living/working spaces including, but not limited to, artist residences with studio space

Sec. 14-185. Dimensional requirements.

No minimum lot size

Setback requirements

Street frontage - 20' min. **Proposed Building Property has 57' on Walnut**

Front setback - none, **The front porch is setback 2' at one corner**.

Side setback - none for main, 5' for accessory. **Side setback is 23'-9" from property line of the abutter at 94 Walnut.**

Side yard on side street - none. **The building is set back 3' on the Sheridan Street side.**

Rear yard - 10', 5' for accessory, **We are in excess of 10'. Proposed building is placed @16' to 20' from angled rear yard/side yard property line.**

Front yard – 10' max. **We are less than 10'. The front porch is setback 2' at one corner**.

Structure stepbacks

Portions of a structure above 35 feet shall be no closer than 5 feet from the side property line and no closer than 15 feet from the rear property line when such property line abuts a residential zone. **N/A**

Height maximum - 45'. **We do not exceed 45'. The proposed building is 38' to the ridge from the driveway level.**

Maximum impervious surface ratio - for residential uses: none. **Proposed building impervious surface ratio is 55%**

Minimum lot area per dwelling unit – On-peninsula locations: 435 sq ft. **We exceed 435 sq. ft. of lot area per dwelling unit. Proposed building of 3 units requires 1215 sq. ft. lot. Actual lot is 5,949 sq. ft.**

Sec. 14-332. Uses requiring off-street parking.

3. For residential development in the B-2, B-2b, B-2c zones:
   a. One (1) parking space per dwelling unit. **We have one garage for each unit.**

SITE BURDENS:
There are no easements, covenants, right-of-ways, or any other burdens or restrictions to this site.

CONSTRUCTION MANAGEMENT PLAN:
Owner to hire Papi and Romano Builders to construct the project.

TRAFFIC STUDY:
N/A.

SIGNIFICANT NATURAL FEATURES:
There are not significant natural features or habitats located on this site.

SOLID WASTE:
Solid was will consist of 3 - 15 gallon bags per week for residential trash pick-up.

FIRE PROTECTION FEATURES:
Sprinkler System installed to NFPA 13R standards
5/8" Type X ceiling/floor separation between garage and habitable spaces (**IBC 460**)
1 hour wall separation between garage and main stair to apartments (**IBC 713.4**)
1 hour wall separation between apartments and stair (**IBC 713.4**)
60 minute doors on automatic door closer from apartments to stair hall (**NFPA 101 30.2.4.6**)
20 minute door between garage and Apt 1 mudroom (**IBC 460**)

HYDRANT LOC: Walnut Street uphill side, opposite side of Sheridan Street intersection

WATER MAINS: Walnut Street has 16" and 20" lines

SITE ACCESS: Access to site, Walnut Street, Sheridan Street and driveway

CODE SUMMARY: NFPA 101 - 2015 - Chapter 30 New Apartment Buildings

- **30.1 General Requirements**
- 30.1.1.1 - The requirements of this chapter shall apply to new buildings or portions thereof used as apartment occupancies.
- 30.1.5 - Classification of Hazard of Contents. The contents of residential occupancies shall be classified as ordinary hazard in accordance with 6.2.2.
- 30.1.7 - Occupant Load. The occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined on the basis of the occupant factors of Table 7.3.1.2 that are characteristics of the use of the space or shall be determined as the maximum probable population of the space under consideration, whichever is greater.
    - Apartment buildings 200 sq.ft. per person (habitable space load 16)

- **30.2 Means of Egress Requirements and Components**

- **30.2.1.2** Means of escape within a dwelling unit shall comply with the provisions of Section 24.2 for one and two family dwellings.
    - **24.2.2 Number and Types of Means of Escape.**
        - In dwellings or dwelling units of two rooms or more, every sleeping room and every living area shall have not less than one primary means of escape and one secondary means of escape.
        - A secondary means of escape shall not be required where one of the following conditions is met:
            1. The bedroom or living area has a door leading directly to the outside of the building at or to the finished ground level.
            2. The dwelling unit is protected throughout by an approved automatic sprinkler system in accordance with 24.3.5

- **30.2.2.1.2** - In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with 30.3.5, exit enclosures shall have a minimum 1-hour fire resistance rating, and doors shall have a minimum 1-hour fire protection rating. **OK. See fire protection features listed above.**

- **30.2.2.3.1** Stairs complying with 7.2.2 shall be permitted.
    - **7.2.2.2.2.1.2 Minimum New Stair Width**.
        A. Where the total occupant load of all stories served by the stair is fewer than 50, the minimum width clear of all obstructions, except projections not more than 4-1/2" at or below the handrail height on each side, shall be 36".
            a. max. ht. of risers 7 in.; min. ht. of riser 4 in.
            b. min. tread depth 11 in.
            c. min. headroom 6'-8"
            d. max. ht. between landings 12 ft.

- **<u>31.2.4 Number of Exits</u>**
- **30.2.4.6** - A single exit shall be permitted in buildings where the total number of stories does not exceed four, provided that all of the following conditions are met:
    1. There are four or fewer dwelling units per story. **We only have 3 stories.**
    2. The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with 30.3.5. **Yes, sprinkler system installed to NFPA 13R standards.**
    3. The exit stairway does not serve more than one-half story below the level of exit discharge. **Exit stairways do not serve below level of exit discharge.**
    4. The travel distance from the entrance door of any dwelling unit to an exit does not exceed 35 ft. **Entrance door of dwelling units open directly into protected exit stair or exterior.**
    5. The exit stairway is completely enclosed or separated from the rest of the building by barriers having a minimum 1-hour fire protection rating. **Exit stairway is protected by 1-hour rated walls, ceilings, and doors.**
    6. All openings between the exit stairway enclosure and the building are protected with self-closing door assemblies having a minimum 1-hour fire protection rating. **Exit stairway doors are self-closing and 1-hour rated.**
    7. All corridors serving as access to exits have a minimum 1-hour fire resistance rating. **Not applicable, as entrance door of dwelling units open directly into protected exit stair or exterior.**

8. Horizontal and vertical separation having a minimum ½-hour fire resistance rating is provided between dwelling units. **Dwelling units are separated by a minimum ½ hour fire resistance rating.**

- 30.2.6.2 - Travel distance within a dwelling unit (apartment) to a corridor door shall not exceed 125 ft in buildings protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 30.3.5. **We do not exceed 125 ft travel distance and are fully sprinkled.**

- 30.2.9 - Emergency lighting. Emergency lighting in accordance with Section 7.9 shall be provided in all buildings four or more stories in height or with more than 12 dwelling units, unless every dwelling unit has a direct exit to the outside of the building at the finished ground level. **Emergency lighting not required because we are less than 4 stories and less than 12 units.**

- 30.2.10 - Marking of Means of Egress. Means of egress shall have signs in accordance with Section 7.1 in all buildings requiring more than one exit. **Not applicable; only one exit for each dwelling unit.**

- 30.3.2.1 - Hazardous Areas. Any hazardous area shall be protected in accordance with Section 8.7. **According to the hazardous areas listed in Table 30.3.2.1.1, we do not have to protect heater rooms, as the fuel-fired heaters are in dwelling units and each only serve one dwelling unit. Garages will be one hour protected and sprinkled.**

- 30.3.4.1 – Apartment buildings four or more stories in height or with more than 11 dwelling units, other than those meeting the requirements of 30.3.4.1.2, shall be provided with a fire alarm system in accordance with Section 9.6, except as modified by 30.3.4.2 through 30.3.4.5. **We do not have four or more stories and do not exceed 11 dwelling units, so a fire alarm system is not required.**

- 30.3.4.5 - Smoke Alarms. Smoke alarms shall be installed in accordance with 9.6.2.10 in every sleeping area, outside every sleeping area, in the immediate vicinity of the bedrooms, and on all levels of the dwelling unit, including basements. **Smoke Detectors in every sleeping room, outside every sleeping room, and on all levels.**

- 30.3.4.6 – Carbon Monoxide Alarms and Caron Monoxide Detection Systems.

  30.3.4.6.1 - Carbon monoxide alarms or carbon monoxide detectors in accordance with Section 9.12 and 30.3.4.6 shall be provided in new apartment buildings where either of the following conditions exists:
  1. Dwelling units with communicating attached garages, unless otherwise exempted by 30.3.4.6.3
  2. Dwelling units containing a permanently installed fuel-burning appliance or fuel-burning fireplace.

  30.3.4.6.2 - Where required by 30.3.4.6.1, carbon monoxide alarms or carbon monoxide detectors shall be installed in the following locations:
  1. Outside of each separate dwelling unit sleeping area in the immediate vicinity of the sleeping rooms.

2. On every occupiable level of a dwelling unit.

30.3.4.6.3 - Carbon monoxide alarms and carbon monoxide detectors as specified in 30.3.4.6.1 shall not be required in the following locations:

1. In garages

Carbon Monoxide Detectors in every sleeping room, outside every sleeping room, and on all levels, excluding garages.

- 30.3.5.13 - Portable Fire extinguishers in accordance with Section 9.9 shall be provided in hazardous areas addressed by 30.3.2.1, unless the building is protected throughout with an approved, supervised automatic sprinkler system in accordance with 30.3.5.2. **Portable fire extinguishers are not required due to sprinkler system.**

IBC- 2015

- **Section 310 Residential Group R**
  - 310.4 Residential Group R-2 occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including: apartment houses
- **Section 312 Utility and Misc. Group U**
  - Private Garages
- **Section 406 Motor-Vehicle-Related Occupancies**
  - 406.3.1 Each Private garage shall not be greater than 1,000 sq.f.t in area. Multiple private garages are permitted in a building where each private garage is separated from the other private garages by 1-hour fire barriers in accordance with Section 707 or horizontal assemblies in accordance with section 711, or both.
  - 406.3.4 Separation of private garages from dwelling units shall comply with 406.3.4.1 - 406.3.4.3
    - Garages shall be separated from all habitable rooms by not less than a 5/8" Type X gypsum board.
    - Door openings between a private garage and the dwelling unit shall have a fire protection rating of not less than 20 minutes. Doors shall be self-closing and self-latching.
  - 406.3.6 Automatic garage door openers shall be listed in accordance with UL325.
- **Section 420 Groups I-1, R-1, R-2, R-3 and R-4**
  - 420.1 General - comply to this section
  - 420.2 Separation walls. Walls separating dwelling units in the same building… shall be constructed as fire partitions in accordance with Section 708.
  - 420.3 Horizontal Separation. Floor assemblies separating dwelling units in the same building…. shall be constructed as horizontal assemblies in accordance with Section 711.
  - 420.5 Automatic sprinkler systems. Group R occupancies shall be equipped throughout with an automatic sprinkler system in accordance with section 903.2.8
  - 420.6 Fire alarm systems and smoke alarms. Fire alarm systems and smoke alarm systems shall be provided in Group R-2 occupancies in accordance with Sections 907.2.9 respectively. Single or multiple-station smoke alarms shall be provided in Groups R-2 in accordance with Section 907.2.11
    - 907.2.9 R-2 ***building is not required to have a manual fire alarm system per criteria listed***
    - 907.2.11.2 single or multiple station smoke alarms shall be installed and maintained at all the following locations:
      - On the ceiling or wall outside of each sleeping area

- In each bedroom
- In each story within a dwelling unit

- **Section 501 General Building Heights and Areas**
  - Table 504.3 Allowable Height in feet above grade: Type VB/S13R - 60 feet
  - Table 504.4 Allowable number of stories above grade plane: Type VB/S13R - 3
  - Table 506.2 Allowable area factor in square feet. Type VB/S13R 7,000 s.f.
  - 509.4.2 Protection incidental uses not required to have fire barrier with automatic sprinkler system.

- **Section 601 Types of Construction**
  - Table 601 Fire Resistance Rating Type VB, no fire-resistance rating required for building elements

PO BOX 1276 PORTLAND, MAINE 04104 PH: 207-775-2696 FAX: 207-775-3631 anne@whipplecallender.com

Att. D

Section 4:

MAINE REAL ESTATE TAX PAID

SHORT FORM QUITCLAIM DEED

NICHOLAS A. MANCINI, JR., of North Conway, New Hampshire and **ANTHONY C. MANCINI**, of Falmouth, Maine (the "Grantors"), FOR CONSIDERATION PAID, grant to **JP SHERIDAN, LLC**, a Maine limited liability company, with a mailing address of PO Box 715, South Freeport, Maine 04078 ("Grantee"), certain real property, together with any improvements thereon, located in the City of Portland, Cumberland County, Maine and more particularly described on Exhibit A attached hereto and made a part hereof.

Meaning and intending to describe the same property conveyed to the Grantors by virtue of a Trustee's Deed of Distribution dated February 26, 2015 granted by Anthony C. Mancini and Steven D. Scott, Co-Trustees of the Mary A. Mancini Marital Trust u/a dated October 4, 1979, and recorded in the Cumberland County Registry of Deeds in Book 32237, Page 156.

WITNESS our hands and seals, as of this 14th day of September, 2016.

WITNESSETH:

Print Name: Kimberly Gilpatrick

Nicholas A. Mancini, Jr.

State of Maine
County of Cumberland ss. September 14, 2016

PERSONALLY APPEARED the above-named Nicholas A. Mancini, Jr., and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Print Name: Kimberly Gilpatrick
Notary Public
Notary Commission Expires:

SEAL

KIMBERLY A. GILPATRICK
Notary Public-Maine
My Commission Expires
September 18, 2020

WITNESSETH:

Kimberly A. Gilpatrick
Print Name:

Anthony C. Mancini

State of Maine
County of Cumberland ss.

September 13, 2016

PERSONALLY APPEARED the above-named Anthony C. Mancini, and acknowledged the foregoing instrument to be his free act and deed.

Before me,

SEAL

Print Name:
Notary Public/Attorney at Law
Notary Commission Expires:

KIMBERLY A. GILPATRICK
Notary Public-Maine
My Commission Expires
September 18, 2020

EXHIBIT A

A certain lot or parcel of land with the buildings thereon situated in the City of Portland, County of Cumberland, State of Maine, and bounded and described as follows:

Beginning at a point made by the intersection of the southwesterly sideline of Sheridan Street with the southeasterly sideline of Walnut Street, thence southeasterly along the southwesterly sideline of Sheridan Street one hundred three and ninety-four hundredths (103.94) feet, more or less, to land now or formerly of T. Shanahan; thence southwesterly by the northwesterly sideline of the said Shanahan land one hundred twenty-four and twenty-five hundredths (124.25) feet to a point; thence northerly by a line seventy-one and seventy-two hundredths (71.72) feet more or less to a point in the southeasterly sideline of Walnut Street; thence by said Walnut Street northeasterly one hundred fifteen (115) feet to the point of beginning and containing about ten thousand four hundred four (10,404) square feet, more or less.

Received
Recorded Register of Deeds
Sep 15,2016 01:34:18P
Cumberland County
Nancy A. Lane

THIS IS NOT A BOUNDARY SURVEY

This copyrighted document expires 12-13-16. Reproduction and/or dissemination after this date is unauthorized.

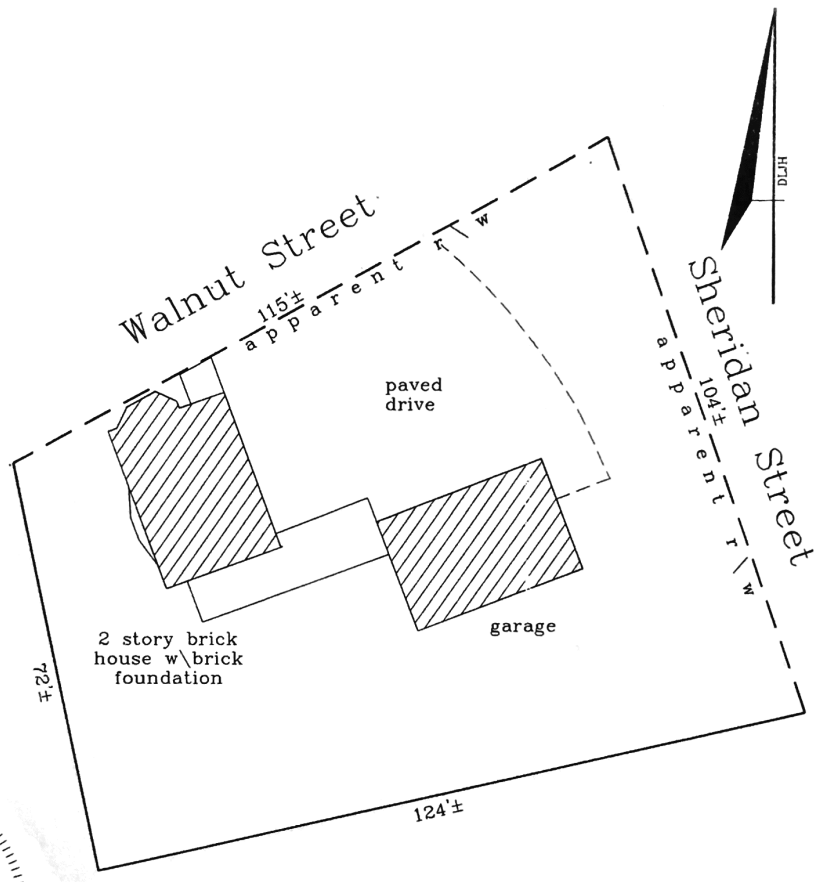
MORTGAGE INSPECTION OF: DEED BOOK 32237 PAGE 156 COUNTY Cumberland
PLAN BOOK ---- PAGE ---- LOT ----

ADDRESS: 94 Walnut Street, Portland, Maine

Job Number: 911-64
Inspection Date: 09-12-16
Scale: 1" = 30'
Client File #: 22183.7

Buyers: JP Sheridan, LLC

Sellers: Anthony C. and Nicholas A. Mancini, Jr.



STATE OF MAINE
DAVID L. J. HUGHES #2234
PROFESSIONAL LAND SURVEYOR

NOTE: Lines of occupation are shown. A boundary survey may yield different results.

I HEREBY CERTIFY TO: Jensen, Baird, Gardner, & Henry, JP Sheridan LLC, and Chicago Title Insurance Company.

Monuments found did not conflict with the deed description.
The dwelling setbacks do not violate town zoning requirements.
As delineated on the Federal Emergency Management Agency Community Panel 230051-0014B:
The structure does not fall within the special flood hazard zone.
The land does not fall within the special flood hazard zone.
A wetlands study has not been performed.

APPARENT EASEMENTS AND RIGHTS OF WAY ARE SHOWN. OTHER ENCUMBRANCES, RECORDED OR NOT, MAY EXIST. THIS SKETCH WILL NOT REVEAL ABUTTING DEED CONFLICTS, IF ANY.

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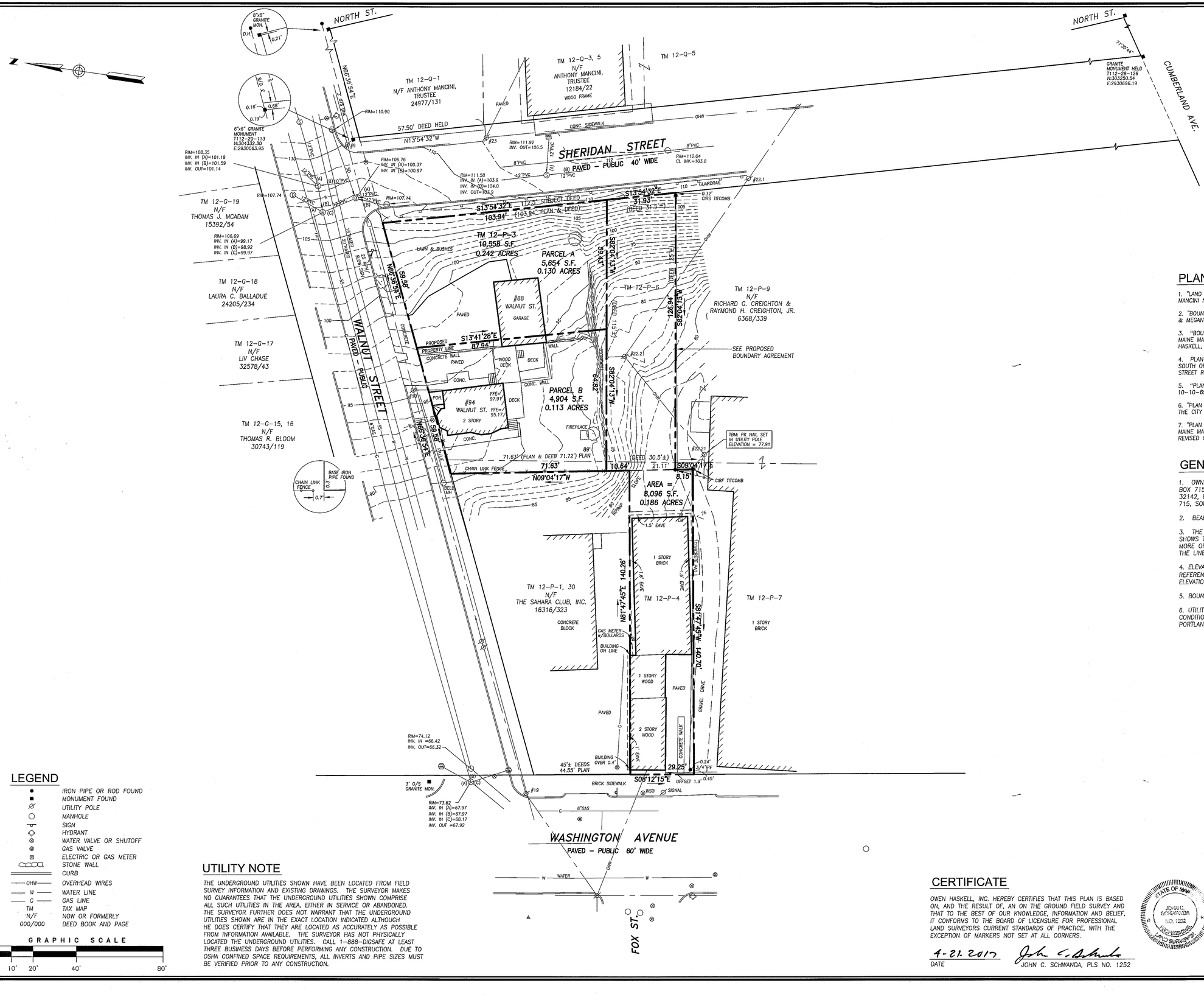
Livingston-Hughes
Professional Land Surveyors
88 Guinea Road
Kennebunkport, Maine 04046
207-967-9761 phone 207-967-4831 fax
www.livingstonhughes.com

THIS SKETCH IS FOR MORTGAGE PURPOSES ONLY



Att. E

PLAN REFERENCES

1. "LAND TITLE SURVEY ON SHERIDAN STREET, PORTLAND, MAINE MADE FOR ANTHONY MANCINI NOV. 2, 1995 OWEN HASKELL, INC."

2. "BOUNDARY SURVEY AT 110 SHERIDAN STREET, PORTLAND, MAINE MADE FOR THOMAS & MEGAN HAMBRICK" FEBRUARY 10, 2015 REV. 1 07/01/15 BY OWEN HASKELL, INC.

3. "BOUNDARY & TOPOGRAPHIC SURVEY AT 134 WASHINGTON AVENUE, PORTLAND, MAINE MADE FOR AVESTA HOUSING DEVELOPMENT CORP. FEB. 13, 2014 OWEN HASKELL, INC. JOB NO. 2014-008P" REVISED 05-12-14

4. PLAN OF LOTS BETWEEN WASHINGTON STREET (AVENUEO AND NORTH STREET, SOUTH OF MECHANIC (NOW WALNUT) STREET AND INCLUDING POPLAR (NOW SHERIDAN) STREET RECORDED JULY 18, 1809 IN DEED BOOK 51, PAGE 297.

5. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR UNIVERSAL WATKINS 10-10-69 H.I. & E.C. JORDAN – SURVEYORS"

6. "PLAN AND PROFILE OF WASHINTON AVE. AND FOX ST. PORTLAND, MAINE MADE FOR THE CITY OF PORTLAND" BY OWEN HASKELL, INC. DATED JULY 2000.

7. "PLAN OF ALTA/NSPS LAND TITLE SURVEY, 1211 WASHINGTON AVENUE, PORTLAND, MAINE MADE FOR COTTON STREET HOLDINGS, LLC 08/08/2016 TITCOMB ASSOCIATES" REVISED 09/14/16.

GENERAL NOTES

1. OWNER OF RECORD: TAX MAP 12 BLOCK P LOT 4 – FOX STREET, LLC, P.O. BOX 715, SOUTH FREEPORT, ME, CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 32142, PAGE 229; TAX MAP 12 BLOCK P LOT 6 – JP SHERIDAN, LLC, P.O. BOX 715, SOUTH FREEPORT, ME, BOOK 32142, PAGE 232

2. BEARINGS ARE MAGNETIC 1954 PER PLAN REFERENCE 1.

3. THE LINES OF LOT 4 ARE TAKEN FROM PLAN REFERENCE 5. THAT PLAN SHOWS THE LOT WIDTH AS 29.25 FEET WHILE THE OLD DEEDS CALL FOR 26 FEET, MORE OR LESS. A BOUNDARY AGREEMENT IS RECOMMENDED WITH CREIGHTON FOR THE LINE FROM WASHINGTON AVENUE TO SHERIDAN STREET.

4. ELEVATIONS ARE BASED ON NGVD 1929 PER BENCHMARK SHOWN ON PLAN REFERENCE 6, PK IN POLE #11 CORNER OF ANDERSON AND EVERETT STREET ELEVATION 12.42 CITY LEVEL BOOK 737 PAGE 77.

5. BOUNDARY AGREEMENT RECOMMENDED WITH THE SAHARA CLUB, INC.

6. UTILITY INFORMATION SHOWN IN WALNUT STREET TAKEN FROM EXISTING CONDITIONS SURVEY PREPARED BY TITCOMB ASSOCIATES FOR THE CITY OF PORTLAND, PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPARTMENT.

LEGEND

- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- SIGN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
- ELECTRIC OR GAS METER
- STONE WALL
- CURB
- OHW — OVERHEAD WIRES
- W — WATER LINE
- G — GAS LINE
- TM — TAX MAP
- N/F — NOW OR FORMERLY
- 000/000 — DEED BOOK AND PAGE

GRAPHIC SCALE

0 10' 20' 40' 80'

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE, WITH THE EXCEPTION OF MARKERS NOT SET AT ALL CORNERS.

4-21-2017
DATE

JOHN C. SCHWANDA, PLS NO. 1252

STATE OF MAINE · JOHN C. SCHWANDA · NO. 1252 · REGISTERED PROFESSIONAL LAND SURVEYOR

REV. 4	04/21/17	DIVIDE LOT 12-P-3
REV. 3	11/14/16	ADD IRONS ALONG CREIGHTON, PLAN REF. 7
REV. 2	10/14/16	ADD LOT TM 12-P-3
REV. 1	07/25/16	ADDED TOPOGRAPHY

BOUNDARY SURVEY

ON

WASHINGTON AVENUE & SHERIDAN STREET

PORTLAND, MAINE

MADE FOR

JON EDWARDS

131 WASHINGTON AVENUE, PORTLAND, MAINE

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	NOV. 12, 2015	2015-155P
Check By	JCS	Scale	Drwg. No.
Book No.	FILE	1" = 20'	1

Att. F

SECTION 7

STORMWATER MANAGEMENT REPORT

J.P. SHERIDAN, LLC APARTMENTS

PROPOSED MULTI-FAMILY BUILDING
PORTLAND, MAINE

June 20, 2017

PREPARED BY:

CASCO BAY ENGINEERING
424 FORE STREET
PORTLAND, ME 04101
(207) 842-2800

CASCO BAY ENGINEERING
CIVIL & STRUCTURAL ENGINEERING
www.cascobayengineering.com
424 Fore St., Portland, ME 04101 Phone 207.842.2800 Fax 207.842.2828

A. Project Background:

The applicant proposes to erect a new building on a portion of a 0.137+/- acre parcel (Chart/Block/Lot 12.P.3). No state or federal permits are required to complete this project. The project involves tearing down an existing garage and driveway and replacing it with a three-family apartment building with a built-in garage.

Access to the site is via Walnut St that connects to Sheridan St and Washington Avenue. The new building is to be served by public water, public sewer, public gas and aboveground electricity/telephone/cable as may be applicable. The majority of the site drainage is to be by sheet/concentrated flow from northernmost face of the property into a proposed rain garden, where the runoff will be discharged into the public storm drain system. A slight remainder of the stormwater shall runoff onto the abutting property towards Washington Avenue (see C101, Pre- and Post-Watershed Plan). It is anticipated that this projects' site infrastructure will be constructed in one construction season.

B. Existing Site Conditions

The existing site is currently developed with an existing garage and driveway. However, even though the site is developed, there is still heavy brush along the south property line. The topography of the site is shown at a one-foot contour interval. The slope of the property is steep, especially along the eastern property line facing Sheridan St, with some slopes as steep as 1.5:1. Drainage from the site flows southwest along the property before running off into abutters territory towards Washington Avenue.

C. Wetlands and Streams

There are no wetlands and streams that will be affected by the proposed use.

D. Soils

All soils on site are rated Hydrologic Group "A", via the USGS Web Soil Survey.

E. Proposed Use

The proposed development will include a 1,950 square foot multi-family building along with a driveway and deck comprising of 1,461 additional square feet. This will be built on a combination of existing lawn area and over existing impervious area to be removed. Just west of the driveway, a rain garden will be constructed to catch the additional runoff caused by the proposed building and driveway. This pond is designed to be able to hold runoff from the 2-,10- and 25- year storm. A copy of the HydroCAD stormwater report has been included. The rain garden has been designed in accordance with the latest version of the Maine DEP BMP's for Stormwater.

F. Stormwater

We have been authorized to perform a drainage analysis on the site that would meet the standards of the City of Portland, Maine and the Maine Department of Environmental Protection. I have reviewed the drainage characteristics of the site, which includes proposed driveways and buildings. The analysis required post construction stormwater flows to be substantially equal to or less than the existing stormwater flow rates.

We have used the SCS TR-20 (HydroCAD 10.00 stormwater model) method of computing stormwater runoff peak flow rates. This method accounts for soil types, existing land uses, topography, vegetative cover, and proposed land use for the parcel to be developed. The future conditions were analyzed using data for a design frequency of occurrence of 2/10/25 years. The Type III, 24 hour storm distribution rainfall has a 3.1, 4.6 and 5.8 inches/day respectively has been analyzed. All supporting calculations and data are submitted with this report.

The existing and proposed site conditions were evaluated using information taken from the existing condition and proposed design plan of the area. Impervious, lawns/fields, and woods areas for each hydrologic soil condition were measured by HydroCAD in order to calculate a weighted curve number that typifies the drainage condition of the site.

Pre-Condition Modeling

The pre-condition is modeled as it is currently found today. Note that only the area east of the existing retaining wall was taken into account for this calculation. Any non-impervious area was assumed to be considered good quality grass and was assigned the accompanying curve number.

Post-Condition Modeling

The stormwater management system (rain garden) is intended to capture runoff from 3,684 square feet of the proposed site, 2,720 square feet of which will be new impervious area from either the building or the driveway. This system will transport the runoff to the public storm drain system on Walnut St. The rain garden will detain and discharge the inflow without overflowing in the case of the 2-,10-, and 25-year storms. The rain garden will usually revert to dry bottom condition in between rain events.

Impervious area to rain garden: 2,720 SF
Impervious area not treated: 691 SF
Percent Impervious area treated: 79.8%

Stormwater Model Summary
CFS (Cubic Feet per Second = Rate)
Value based on flow leaving site to Analysis Point #1

YEAR	PRE	POST
2	.02	.01
10	.13	.05
25	.24	.09

Calculations for the 2,10 and 25 year Pre- and Post-Drainage are included in the attached stormwater reports.

Evaluation of Results

The runoff peak flow rate of the stormwater leaving the site has been drastically reduced from 0.24 cfs to 0.09 cfs in the 25-year event.

G. Water Quantity and Quality

Quantity: Any increases in runoff from undetained areas are minimized by the proposed system. Any increases due to the development are contained in the rain garden and discharged to the public system.

Quality: Water quality is addressed by directing roof and driveway runoff towards the rain garden, where it will undergo treatment before discharging and leaving the site.

H. Maintenance Plan for Rain Gardens & Best Management Practices

Site Inspection & Maintenance During Construction: Weekly inspections, as well as routine inspections following rainfalls, shall be conducted by the General Contractor of all temporary and permanent erosion control devices until final acceptance of the project (85% grass catch). Necessary repairs shall be made to correct undermining or deterioration.

Final acceptance shall include a site inspection to verify the stability of all disturbed areas and slopes. Until final inspection, all erosion and sedimentation control measures shall immediately be cleaned, and repaired by the General Contractor as required. Disposal of all temporary erosion control devices shall be the responsibility of the General Contractor.

We recommend that the Owner hire a design engineer, or other qualified individual, to provide compliance inspections (during active construction) relative to the Stormwater and Erosion Control Plans. Such inspections should be at least weekly during construction.

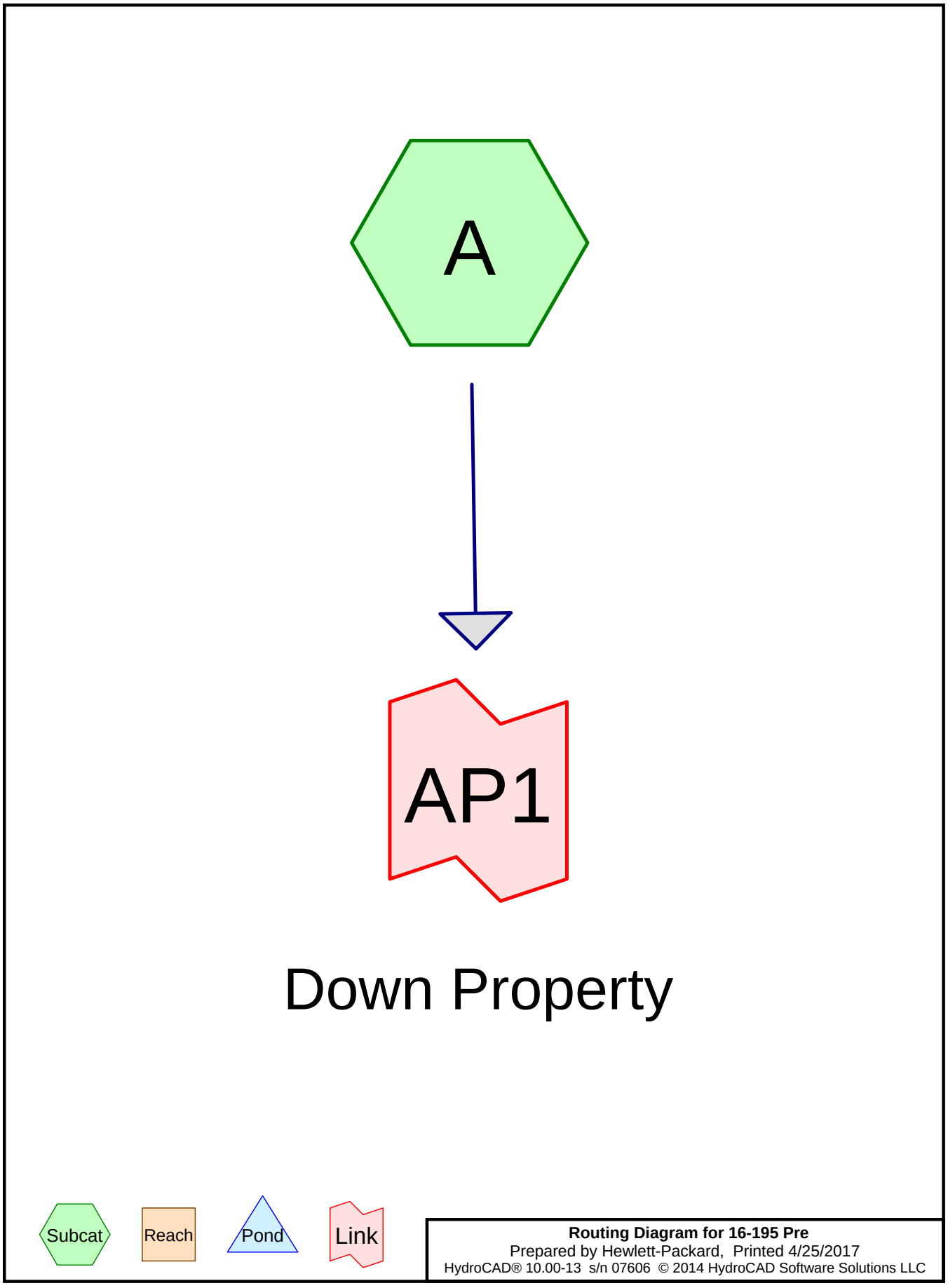
Maintenance Agreement: The Contractor shall be responsible for short-term sedimentation maintenance and shall clean out all swales, structures and grass basins prior to turning project over to Owner. After project turnover, the Owner will be responsible for inspecting and maintaining all stormwater conveyances.

Conclusion

We believe that this project will not have any adverse impacts on abutters, down gradient systems or adjacent resources. Moreover, this plan includes all appropriate measures to prevent negative impacts and to keep post development flows and impacts to the resources at a minimum through the use of land grading, reductions in allowable disturbed area, erosion control practices and land use. It is important to note that proper erosion control and re-vegetation of disturbed areas is essential for the proper operation of the stormwater facilities. Maintenance of the yard areas, driveway, and careful attention to the cleanliness of the rain garden must be a top priority in order for the system to function properly. Please feel free to contact me if you have any questions concerning the calculations of stormwater from this project. Thank you for involving us on your project.

Sincerely yours,

Eric Dube
Casco Bay Engineering, Inc.



Routing Diagram for 16-195 Pre
Prepared by Hewlett-Packard, Printed 4/25/2017
HydroCAD® 10.00-13 s/n 07606 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.093	39	>75% Grass cover, Good, HSG A (A)
0.044	98	Impervious (A)
0.137	**58**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.093	HSG A	A
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.044	Other	A
0.137		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.093	0.000	0.000	0.000	0.000	0.093	>75% Grass cover, Good	A
0.000	0.000	0.000	0.000	0.044	0.044	Impervious	A
0.093	**0.000**	**0.000**	**0.000**	**0.044**	**0.137**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Runoff Area=5,962 sf 32.39% Impervious Runoff Depth>0.26"
Tc=5.0 min CN=58 Runoff=0.02 cfs 0.003 af

Link AP1: Down Property Inflow=0.02 cfs 0.003 af
Primary=0.02 cfs 0.003 af

Total Runoff Area = 0.137 ac Runoff Volume = 0.003 af Average Runoff Depth = 0.26"
67.61% Pervious = 0.093 ac 32.39% Impervious = 0.044 ac

Summary for Subcatchment A:

[49] Hint: Tc<2dt may require smaller dt

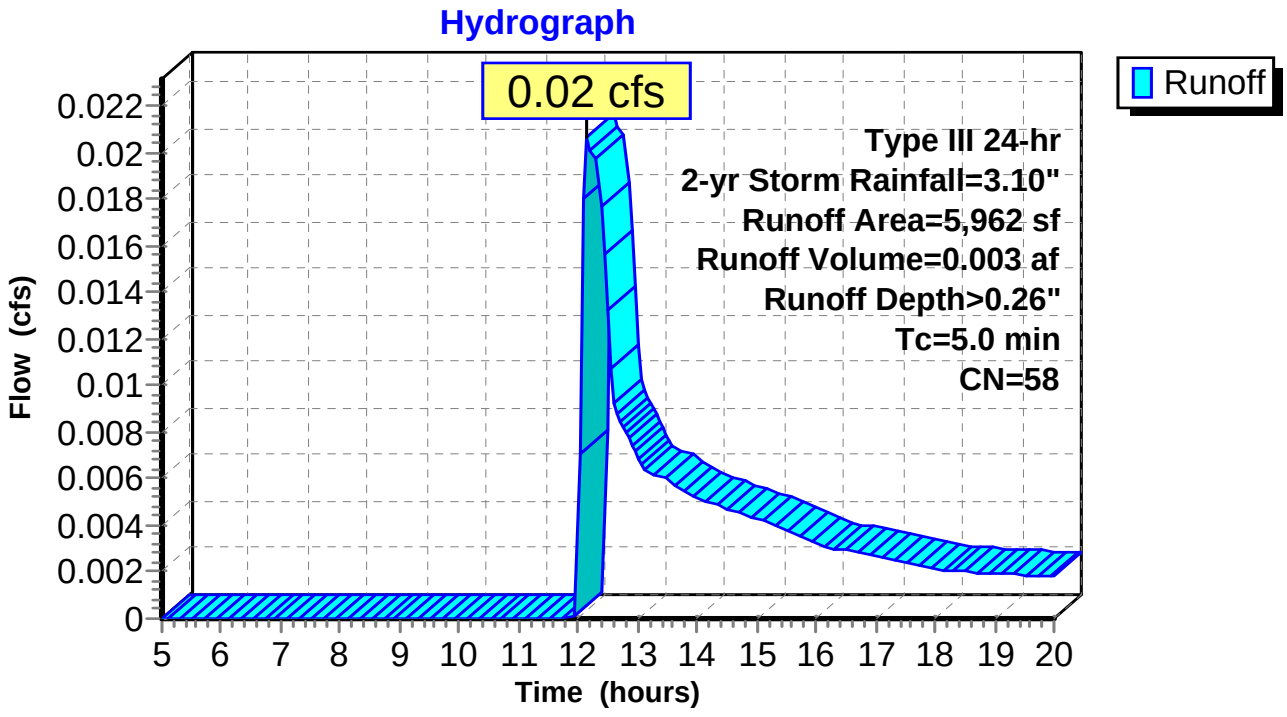
Runoff = 0.02 cfs @ 12.15 hrs, Volume= 0.003 af, Depth> 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	1,931	98	Impervious
	4,031	39	>75% Grass cover, Good, HSG A
	5,962	58	Weighted Average
	4,031		67.61% Pervious Area
	1,931		32.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A:

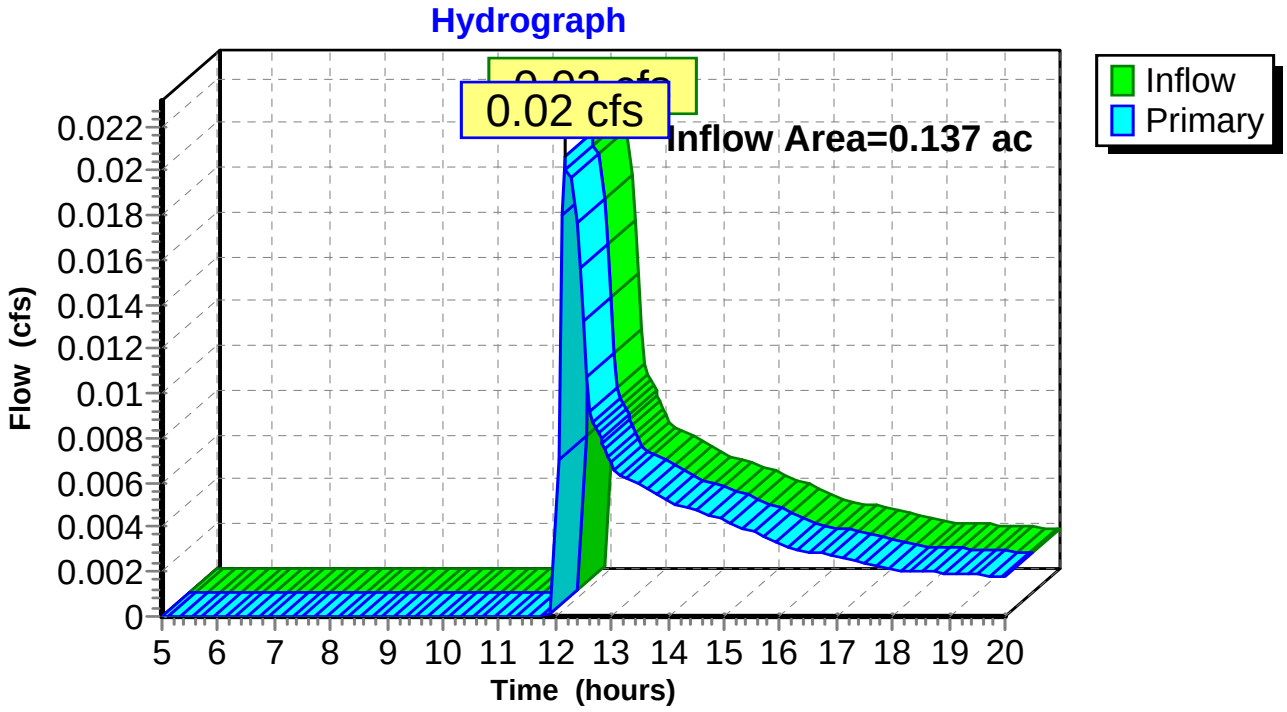


Summary for Link AP1: Down Property

Inflow Area = 0.137 ac, 32.39% Impervious, Inflow Depth > 0.26" for 2-yr Storm event
Inflow = 0.02 cfs @ 12.15 hrs, Volume= 0.003 af
Primary = 0.02 cfs @ 12.15 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1: Down Property



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Runoff Area=5,962 sf 32.39% Impervious Runoff Depth>0.85"
Tc=5.0 min CN=58 Runoff=0.13 cfs 0.010 af

Link AP1: Down Property Inflow=0.13 cfs 0.010 af
Primary=0.13 cfs 0.010 af

Total Runoff Area = 0.137 ac Runoff Volume = 0.010 af Average Runoff Depth = 0.85"
67.61% Pervious = 0.093 ac 32.39% Impervious = 0.044 ac

Summary for Subcatchment A:

[49] Hint: Tc<2dt may require smaller dt

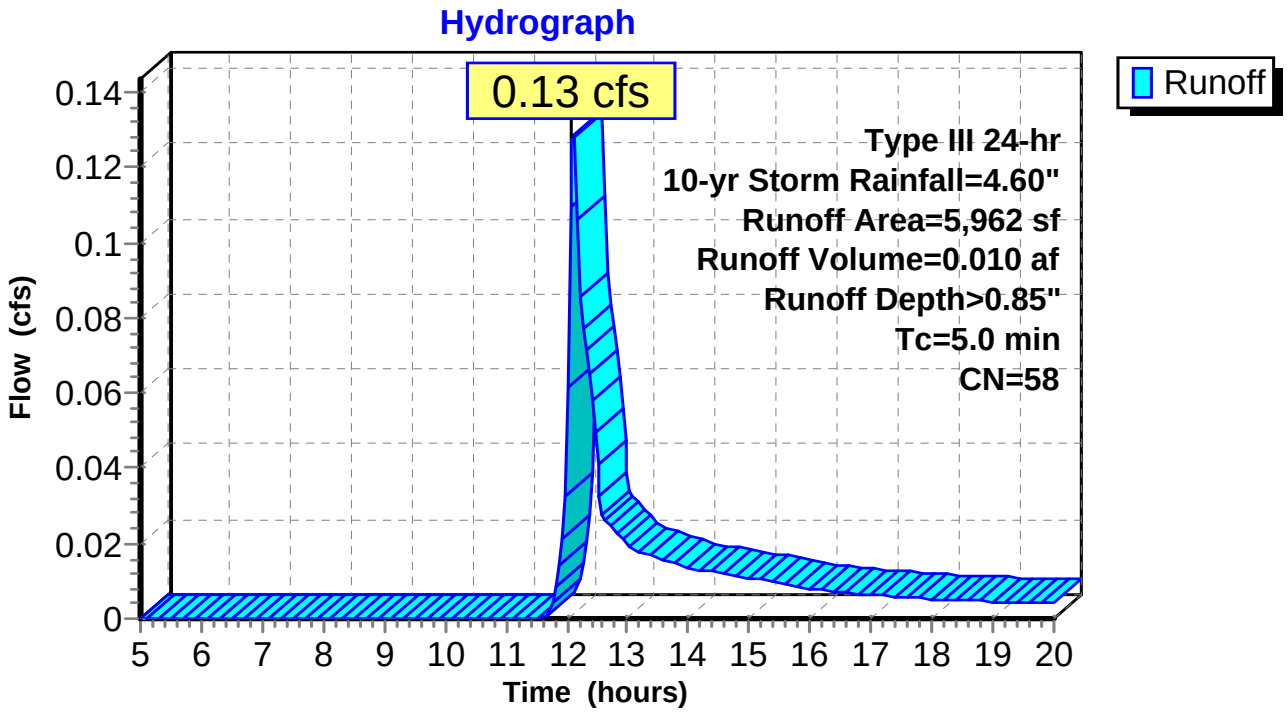
Runoff = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	1,931	98	Impervious
	4,031	39	>75% Grass cover, Good, HSG A
	5,962	58	Weighted Average
	4,031		67.61% Pervious Area
	1,931		32.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

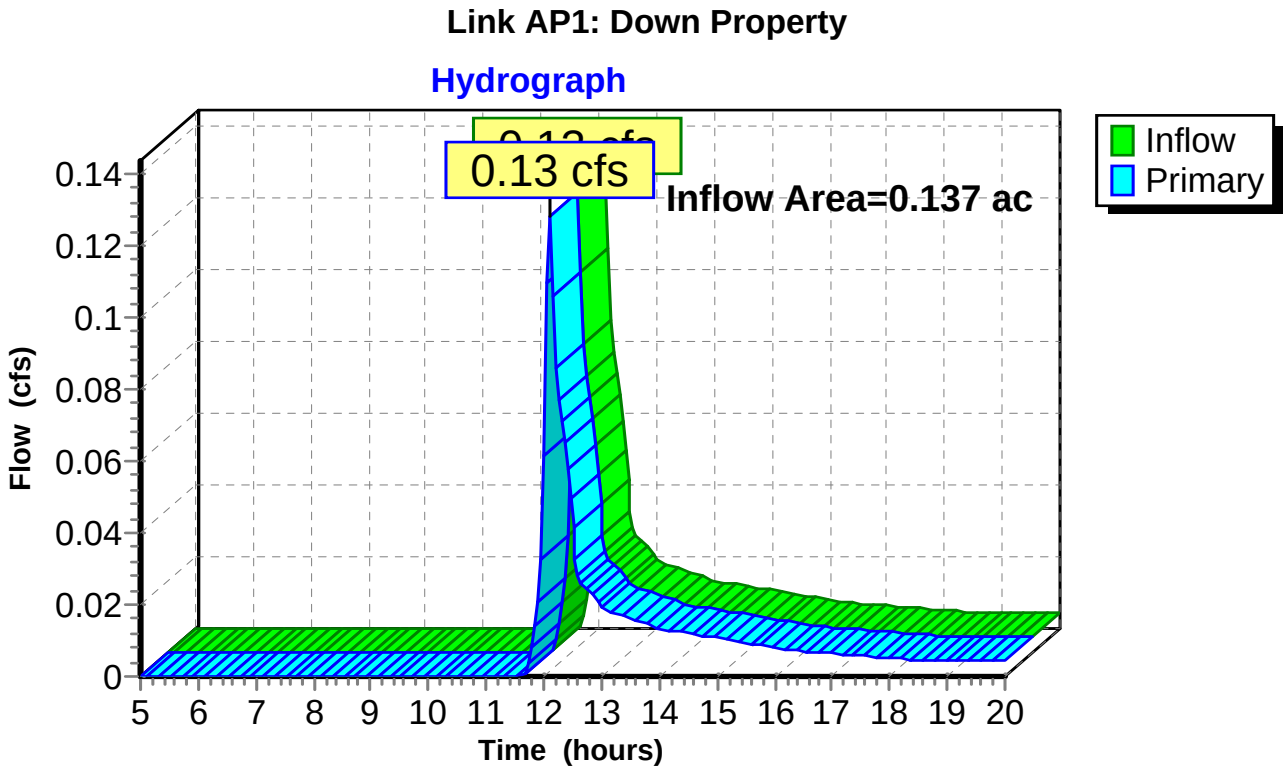
Subcatchment A:



Summary for Link AP1: Down Property

Inflow Area = 0.137 ac, 32.39% Impervious, Inflow Depth > 0.85" for 10-yr Storm event
Inflow = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af
Primary = 0.13 cfs @ 12.10 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A: Runoff Area=5,962 sf 32.39% Impervious Runoff Depth>1.48"
Tc=5.0 min CN=58 Runoff=0.24 cfs 0.017 af

Link AP1: Down Property Inflow=0.24 cfs 0.017 af
Primary=0.24 cfs 0.017 af

Total Runoff Area = 0.137 ac Runoff Volume = 0.017 af Average Runoff Depth = 1.48"
67.61% Pervious = 0.093 ac 32.39% Impervious = 0.044 ac

Summary for Subcatchment A:

[49] Hint: Tc<2dt may require smaller dt

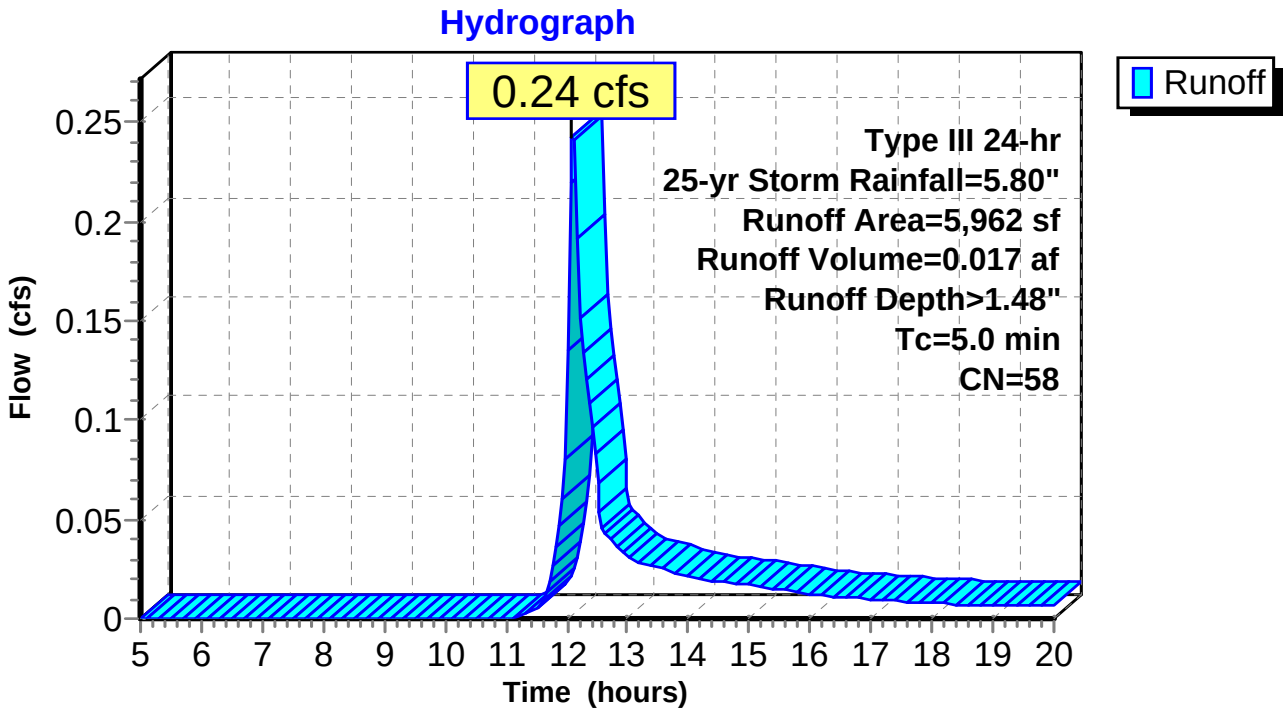
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	1,931	98	Impervious
	4,031	39	>75% Grass cover, Good, HSG A
	5,962	58	Weighted Average
	4,031		67.61% Pervious Area
	1,931		32.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A:

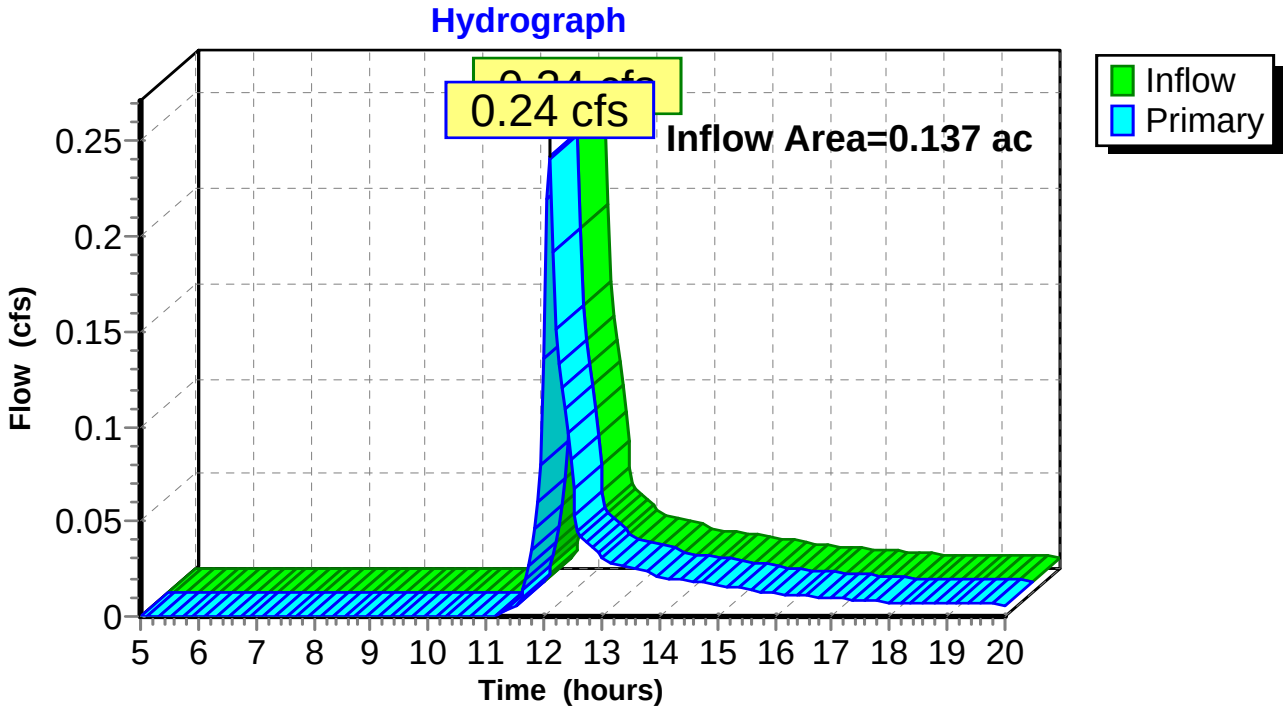


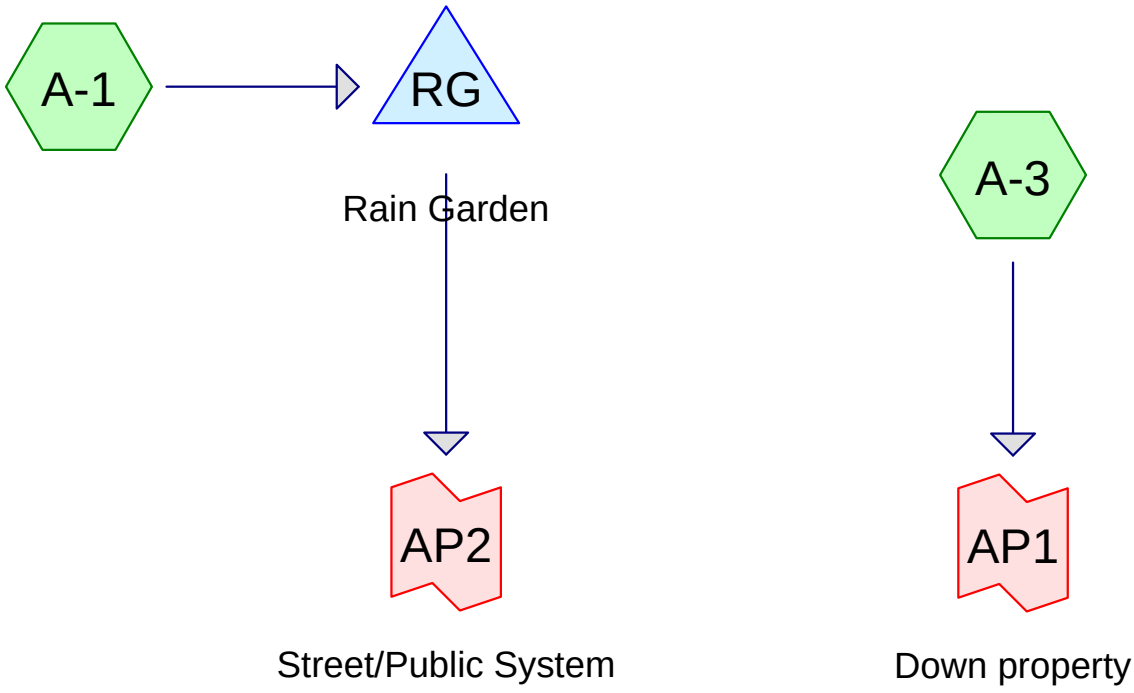
Summary for Link AP1: Down Property

Inflow Area = 0.137 ac, 32.39% Impervious, Inflow Depth > 1.48" for 25-yr Storm event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 0.24 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1: Down Property





Subcat Reach Pond Link

Routing Diagram for 16-195 Post
Prepared by Hewlett-Packard, Printed 6/19/2017
HydroCAD® 10.00-13 s/n 07606 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.059	39	>75% Grass cover, Good, HSG A (A-1, A-3)
0.078	98	Impervious (A-1, A-3)
0.137	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.059	HSG A	A-1, A-3
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.078	Other	A-1, A-3
0.137		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.059	0.000	0.000	0.000	0.000	0.059	>75% Grass cover, Good	A-1, A-3
0.000	0.000	0.000	0.000	0.078	0.078	Impervious	A-1, A-3
0.059	**0.000**	**0.000**	**0.000**	**0.078**	**0.137**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A-1: Runoff Area=3,684 sf 73.83% Impervious Runoff Depth>1.47"
Tc=5.0 min CN=83 Runoff=0.16 cfs 0.010 af

Subcatchment A-3: Runoff Area=2,278 sf 30.33% Impervious Runoff Depth>0.26"
Tc=5.0 min CN=57 Runoff=0.01 cfs 0.001 af

Pond RG: Rain Garden Peak Elev=97.47' Storage=63 cf Inflow=0.16 cfs 0.010 af
Discarded=0.01 cfs 0.005 af Primary=0.13 cfs 0.005 af Outflow=0.14 cfs 0.010 af

Link AP1: Down property Inflow=0.01 cfs 0.001 af
Primary=0.01 cfs 0.001 af

Link AP2: Street/Public System Inflow=0.13 cfs 0.005 af
Primary=0.13 cfs 0.005 af

Total Runoff Area = 0.137 ac Runoff Volume = 0.011 af Average Runoff Depth = 1.01"
42.79% Pervious = 0.059 ac 57.21% Impervious = 0.078 ac

Summary for Subcatchment A-1:

[49] Hint: Tc<2dt may require smaller dt

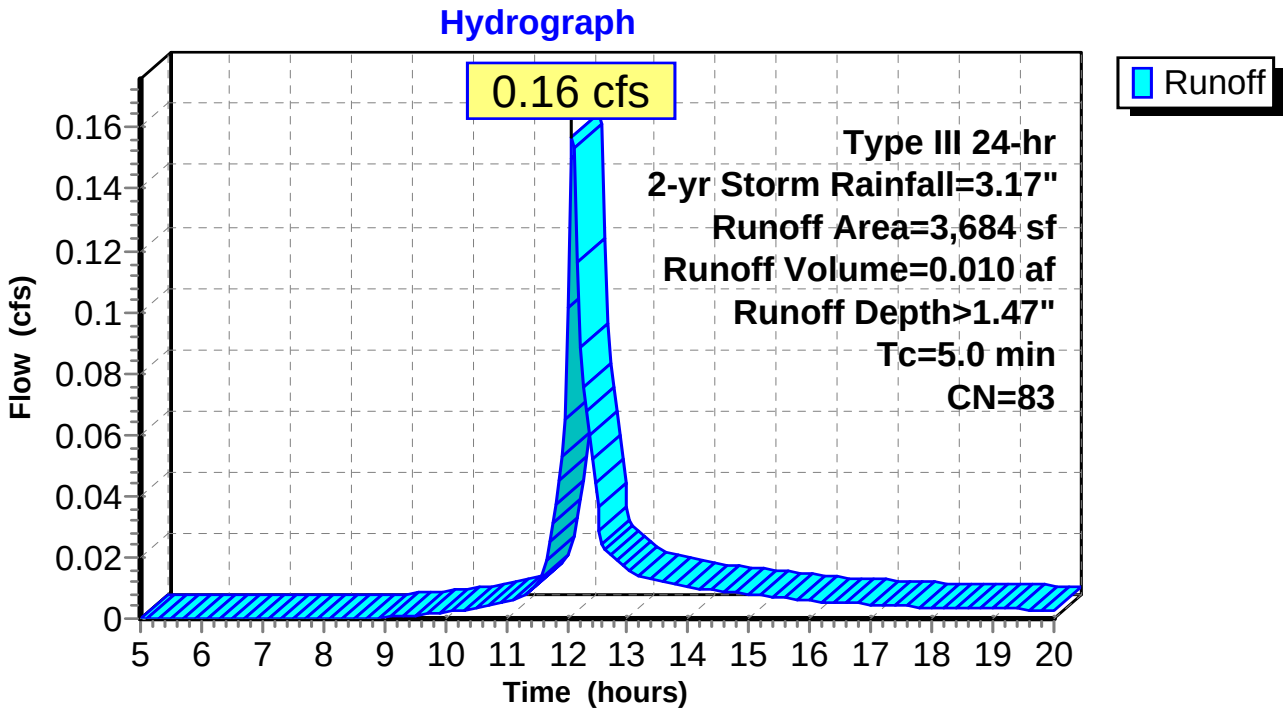
Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.010 af, Depth> 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Storm Rainfall=3.17"

	Area (sf)	CN	Description
*	2,720	98	Impervious
	964	39	>75% Grass cover, Good, HSG A
	3,684	83	Weighted Average
	964		26.17% Pervious Area
	2,720		73.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A-1:



Hydrograph for Subcatchment A-1:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.00	0.00
5.25	0.19	0.00	0.00
5.50	0.20	0.00	0.00
5.75	0.22	0.00	0.00
6.00	0.23	0.00	0.00
6.25	0.24	0.00	0.00
6.50	0.26	0.00	0.00
6.75	0.27	0.00	0.00
7.00	0.29	0.00	0.00
7.25	0.30	0.00	0.00
7.50	0.32	0.00	0.00
7.75	0.34	0.00	0.00
8.00	0.36	0.00	0.00
8.25	0.38	0.00	0.00
8.50	0.41	0.00	0.00
8.75	0.43	0.00	0.00
9.00	0.46	0.00	0.00
9.25	0.49	0.00	0.00
9.50	0.53	0.01	0.00
9.75	0.56	0.01	0.00
10.00	0.60	0.02	0.00
10.25	0.64	0.02	0.00
10.50	0.69	0.03	0.00
10.75	0.74	0.05	0.00
11.00	0.79	0.06	0.01
11.25	0.86	0.08	0.01
11.50	0.94	0.11	0.01
11.75	1.13	0.19	0.03
12.00	1.58	0.43	**0.10**
12.25	2.04	0.73	**0.08**
12.50	2.23	0.85	0.04
12.75	2.31	0.91	0.02
13.00	2.38	0.96	0.02
13.25	2.43	1.01	0.01
13.50	2.48	1.04	0.01
13.75	2.53	1.08	0.01
14.00	2.57	1.11	0.01
14.25	2.61	1.14	0.01
14.50	2.64	1.17	0.01
14.75	2.68	1.19	0.01
15.00	2.71	1.22	0.01
15.25	2.74	1.24	0.01
15.50	2.76	1.26	0.01
15.75	2.79	1.28	0.01
16.00	2.81	1.29	0.01
16.25	2.83	1.31	0.01
16.50	2.85	1.33	0.01
16.75	2.87	1.34	0.00
17.00	2.88	1.35	0.00
17.25	2.90	1.37	0.00
17.50	2.91	1.38	0.00
17.75	2.93	1.39	0.00
18.00	2.94	1.40	0.00
18.25	2.95	1.41	0.00
18.50	2.97	1.42	0.00
18.75	2.98	1.43	0.00
19.00	2.99	1.44	0.00
19.25	3.00	1.45	0.00
19.50	3.01	1.46	0.00
19.75	3.02	1.47	0.00
20.00	**3.03**	**1.47**	0.00

Summary for Subcatchment A-3:

[49] Hint: Tc<2dt may require smaller dt

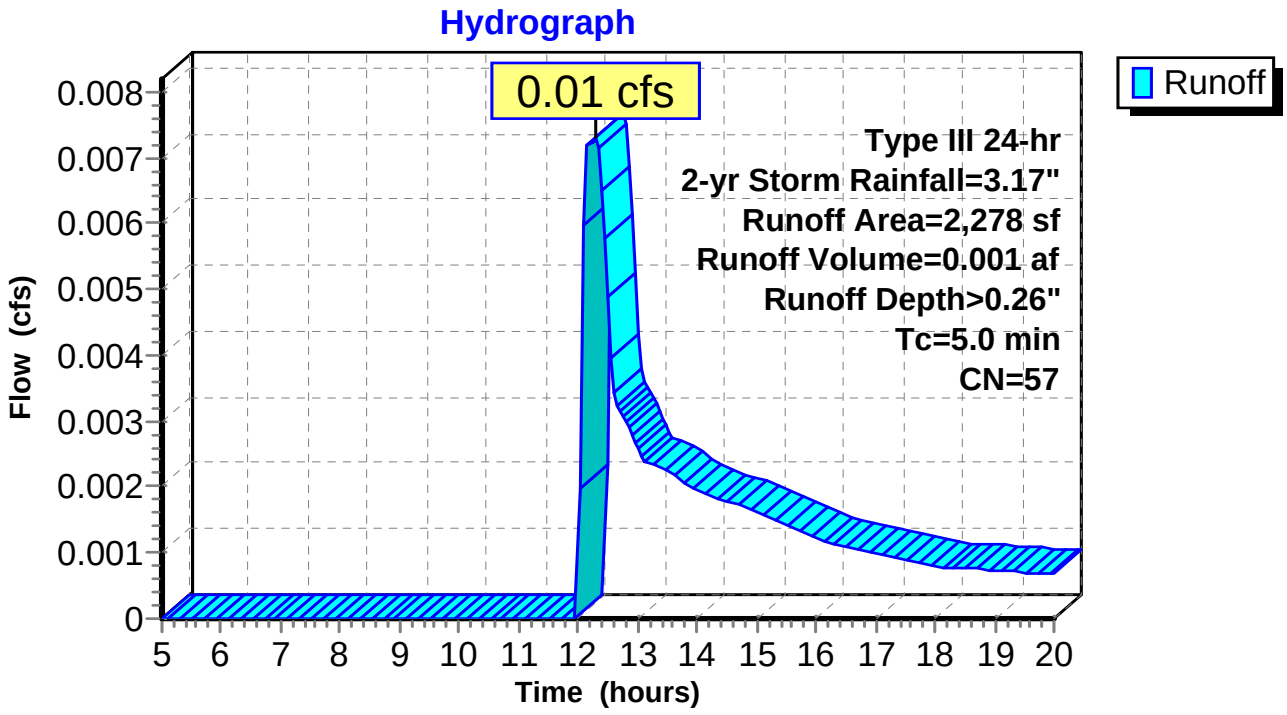
Runoff = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af, Depth> 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Storm Rainfall=3.17"

	Area (sf)	CN	Description
*	691	98	Impervious
	1,587	39	>75% Grass cover, Good, HSG A
	2,278	57	Weighted Average
	1,587		69.67% Pervious Area
	691		30.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A-3:



Hydrograph for Subcatchment A-3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.18	0.00	0.00
5.25	0.19	0.00	0.00
5.50	0.20	0.00	0.00
5.75	0.22	0.00	0.00
6.00	0.23	0.00	0.00
6.25	0.24	0.00	0.00
6.50	0.26	0.00	0.00
6.75	0.27	0.00	0.00
7.00	0.29	0.00	0.00
7.25	0.30	0.00	0.00
7.50	0.32	0.00	0.00
7.75	0.34	0.00	0.00
8.00	0.36	0.00	0.00
8.25	0.38	0.00	0.00
8.50	0.41	0.00	0.00
8.75	0.43	0.00	0.00
9.00	0.46	0.00	0.00
9.25	0.49	0.00	0.00
9.50	0.53	0.00	0.00
9.75	0.56	0.00	0.00
10.00	0.60	0.00	0.00
10.25	0.64	0.00	0.00
10.50	0.69	0.00	0.00
10.75	0.74	0.00	0.00
11.00	0.79	0.00	0.00
11.25	0.86	0.00	0.00
11.50	0.94	0.00	0.00
11.75	1.13	0.00	0.00
12.00	1.58	0.00	0.00
12.25	2.04	0.04	**0.01**
12.50	2.23	0.06	0.00
12.75	2.31	0.08	0.00
13.00	2.38	0.09	0.00
13.25	2.43	0.10	0.00
13.50	2.48	0.11	0.00
13.75	2.53	0.12	0.00
14.00	2.57	0.13	0.00
14.25	2.61	0.14	0.00
14.50	2.64	0.15	0.00
14.75	2.68	0.16	0.00
15.00	2.71	0.16	0.00
15.25	2.74	0.17	0.00
15.50	2.76	0.18	0.00
15.75	2.79	0.19	0.00
16.00	2.81	0.19	0.00
16.25	2.83	0.20	0.00
16.50	2.85	0.20	0.00
16.75	2.87	0.21	0.00
17.00	2.88	0.21	0.00
17.25	2.90	0.22	0.00
17.50	2.91	0.22	0.00
17.75	2.93	0.22	0.00
18.00	2.94	0.23	0.00
18.25	2.95	0.23	0.00
18.50	2.97	0.24	0.00
18.75	2.98	0.24	0.00
19.00	2.99	0.24	0.00
19.25	3.00	0.25	0.00
19.50	3.01	0.25	0.00
19.75	3.02	0.25	0.00
20.00	**3.03**	**0.26**	0.00

Summary for Pond RG: Rain Garden

Inflow Area = 0.085 ac, 73.83% Impervious, Inflow Depth > 1.47" for 2-yr Storm event
Inflow = 0.16 cfs @ 12.08 hrs, Volume= 0.010 af
Outflow = 0.14 cfs @ 12.13 hrs, Volume= 0.010 af, Atten= 13%, Lag= 2.8 min
Discarded = 0.01 cfs @ 12.13 hrs, Volume= 0.005 af
Primary = 0.13 cfs @ 12.13 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 97.47' @ 12.13 hrs Surf.Area= 197 sf Storage= 63 cf

Plug-Flow detention time= 31.0 min calculated for 0.010 af (98% of inflow)
Center-of-Mass det. time= 23.9 min (819.5 - 795.6)

Volume	Invert	Avail.Storage	Storage Description
#1	96.76'	211 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.76	0	0	0
97.00	47	6	6
98.00	363	205	211

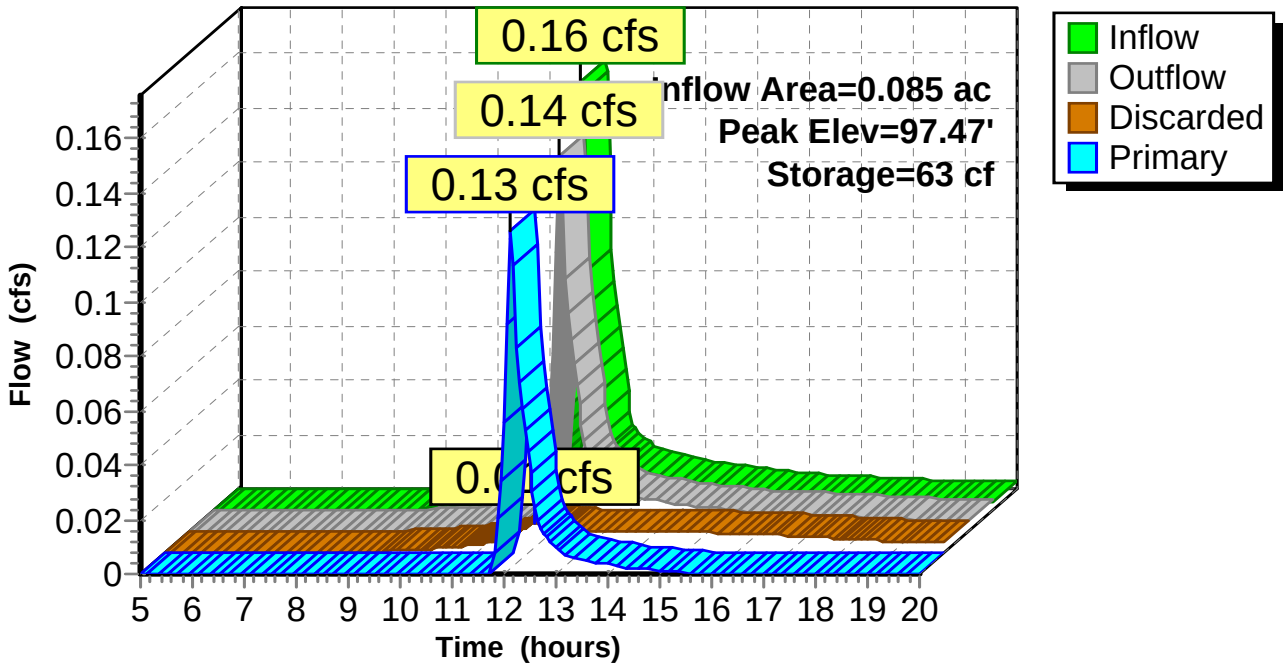
Device	Routing	Invert	Outlet Devices
#1	Discarded	96.76'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	97.26'	**6.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.01 cfs @ 12.13 hrs HW=97.47' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.12 cfs @ 12.13 hrs HW=97.47' (Free Discharge)
↑└**2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 1.57 fps)

Pond RG: Rain Garden

Hydrograph



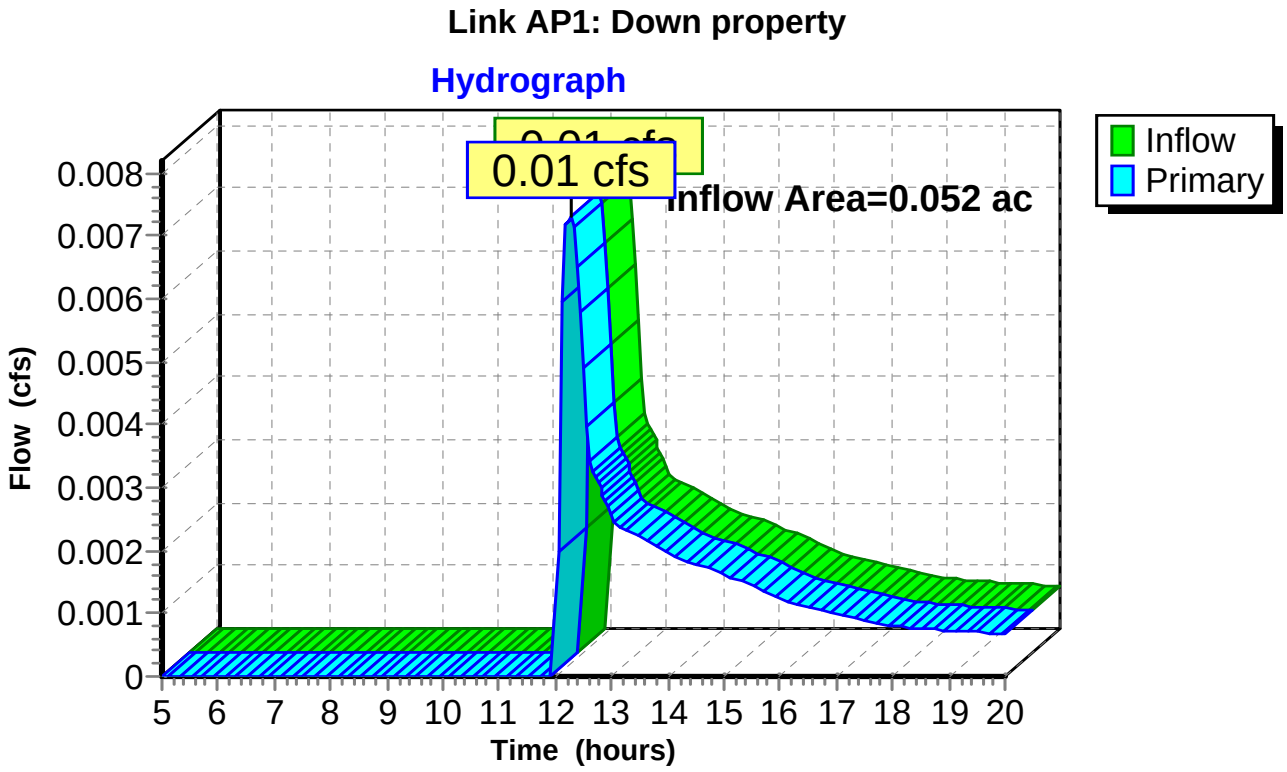
Hydrograph for Pond RG: Rain Garden

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0	96.76	0.00	0.00	0.00
5.50	0.00	0	96.76	0.00	0.00	0.00
6.00	0.00	0	96.76	0.00	0.00	0.00
6.50	0.00	0	96.76	0.00	0.00	0.00
7.00	0.00	0	96.76	0.00	0.00	0.00
7.50	0.00	0	96.76	0.00	0.00	0.00
8.00	0.00	0	96.76	0.00	0.00	0.00
8.50	0.00	0	96.76	0.00	0.00	0.00
9.00	0.00	0	96.79	0.00	0.00	0.00
9.50	0.00	0	96.83	0.00	0.00	0.00
10.00	0.00	1	96.88	0.00	0.00	0.00
10.50	0.00	3	96.94	0.00	0.00	0.00
11.00	0.01	7	97.02	0.00	0.00	0.00
11.50	0.01	14	97.12	0.00	0.00	0.00
12.00	**0.10**	**49**	**97.40**	**0.07**	**0.01**	**0.06**
12.50	**0.04**	**45**	**97.37**	**0.05**	**0.01**	**0.04**
13.00	0.02	36	97.32	0.02	0.01	0.01
13.50	0.01	34	97.30	0.01	0.01	0.01
14.00	0.01	33	97.29	0.01	0.01	0.00
14.50	0.01	32	97.28	0.01	0.01	0.00
15.00	0.01	31	97.28	0.01	0.01	0.00
15.50	0.01	30	97.27	0.01	0.01	0.00
16.00	0.01	28	97.25	0.01	0.01	0.00
16.50	0.01	25	97.23	0.01	0.01	0.00
17.00	0.00	22	97.21	0.01	0.01	0.00
17.50	0.00	19	97.18	0.01	0.01	0.00
18.00	0.00	16	97.15	0.01	0.01	0.00
18.50	0.00	13	97.12	0.00	0.00	0.00
19.00	0.00	11	97.09	0.00	0.00	0.00
19.50	0.00	10	97.07	0.00	0.00	0.00
20.00	0.00	8	97.05	0.00	0.00	0.00

Summary for Link AP1: Down property

Inflow Area = 0.052 ac, 30.33% Impervious, Inflow Depth > 0.26" for 2-yr Storm event
Inflow = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af
Primary = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Hydrograph for Link AP1: Down property

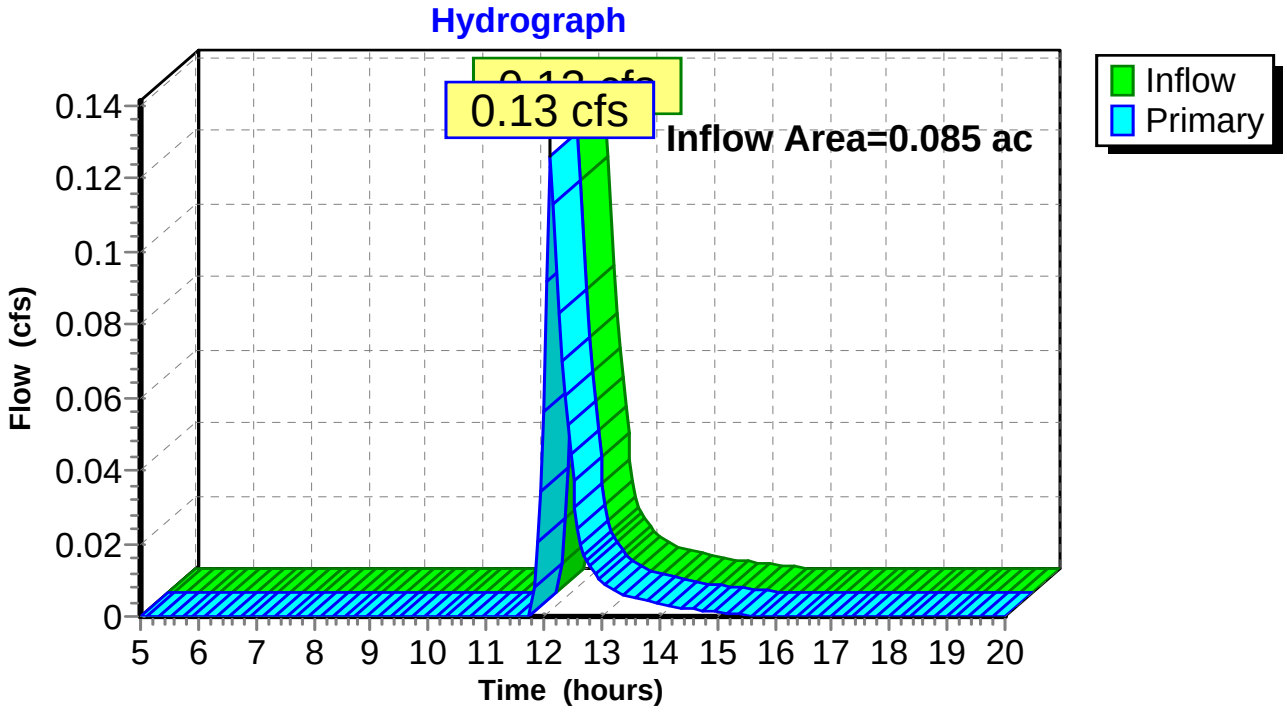
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	0.00	0.00	0.00
12.00	0.00	0.00	0.00
12.25	**0.01**	0.00	**0.01**
12.50	0.00	0.00	0.00
12.75	0.00	0.00	0.00
13.00	0.00	0.00	0.00
13.25	0.00	0.00	0.00
13.50	0.00	0.00	0.00
13.75	0.00	0.00	0.00
14.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00
14.50	0.00	0.00	0.00
14.75	0.00	0.00	0.00
15.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00
15.50	0.00	0.00	0.00
15.75	0.00	0.00	0.00
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Link AP2: Street/Public System

Inflow Area = 0.085 ac, 73.83% Impervious, Inflow Depth = 0.72" for 2-yr Storm event
Inflow = 0.13 cfs @ 12.13 hrs, Volume= 0.005 af
Primary = 0.13 cfs @ 12.13 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP2: Street/Public System



Hydrograph for Link AP2: Street/Public System

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	0.00	0.00	0.00
12.00	**0.06**	0.00	**0.06**
12.25	**0.08**	0.00	**0.08**
12.50	0.04	0.00	0.04
12.75	0.01	0.00	0.01
13.00	0.01	0.00	0.01
13.25	0.01	0.00	0.01
13.50	0.01	0.00	0.01
13.75	0.00	0.00	0.00
14.00	0.00	0.00	0.00
14.25	0.00	0.00	0.00
14.50	0.00	0.00	0.00
14.75	0.00	0.00	0.00
15.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00
15.50	0.00	0.00	0.00
15.75	0.00	0.00	0.00
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A-1: Runoff Area=3,684 sf 73.83% Impervious Runoff Depth>2.74"
Tc=5.0 min CN=83 Runoff=0.29 cfs 0.019 af

Subcatchment A-3: Runoff Area=2,278 sf 30.33% Impervious Runoff Depth>0.86"
Tc=5.0 min CN=57 Runoff=0.05 cfs 0.004 af

Pond RG: Rain Garden Peak Elev=97.57' Storage=85 cf Inflow=0.29 cfs 0.019 af
Discarded=0.01 cfs 0.007 af Primary=0.25 cfs 0.012 af Outflow=0.26 cfs 0.019 af

Link AP1: Down property Inflow=0.05 cfs 0.004 af
Primary=0.05 cfs 0.004 af

Link AP2: Street/Public System Inflow=0.25 cfs 0.012 af
Primary=0.25 cfs 0.012 af

Total Runoff Area = 0.137 ac Runoff Volume = 0.023 af Average Runoff Depth = 2.02"
42.79% Pervious = 0.059 ac 57.21% Impervious = 0.078 ac

Summary for Subcatchment A-1:

[49] Hint: Tc<2dt may require smaller dt

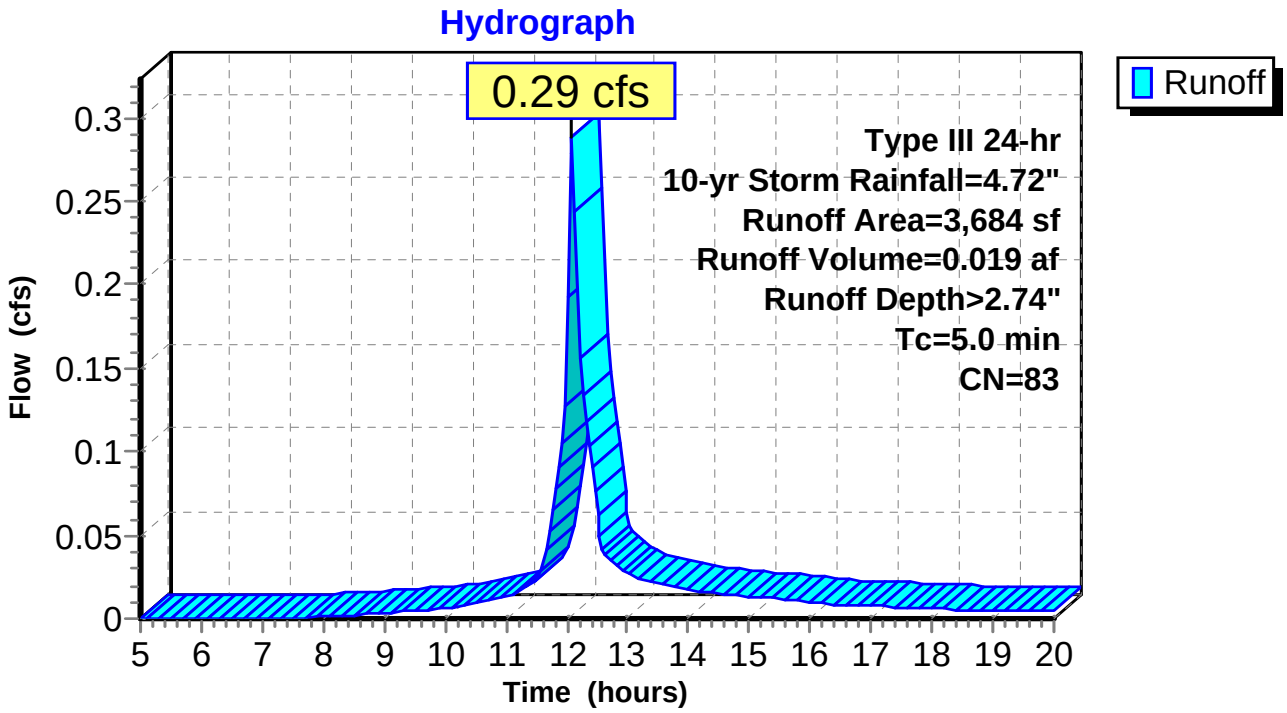
Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.019 af, Depth> 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Storm Rainfall=4.72"

	Area (sf)	CN	Description
*	2,720	98	Impervious
	964	39	>75% Grass cover, Good, HSG A
	3,684	83	Weighted Average
	964		26.17% Pervious Area
	2,720		73.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A-1:



Hydrograph for Subcatchment A-1:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.00	0.00
5.25	0.29	0.00	0.00
5.50	0.30	0.00	0.00
5.75	0.32	0.00	0.00
6.00	0.34	0.00	0.00
6.25	0.36	0.00	0.00
6.50	0.38	0.00	0.00
6.75	0.40	0.00	0.00
7.00	0.43	0.00	0.00
7.25	0.45	0.00	0.00
7.50	0.48	0.00	0.00
7.75	0.51	0.00	0.00
8.00	0.54	0.01	0.00
8.25	0.57	0.01	0.00
8.50	0.61	0.02	0.00
8.75	0.65	0.02	0.00
9.00	0.69	0.03	0.00
9.25	0.73	0.04	0.00
9.50	0.78	0.06	0.00
9.75	0.84	0.07	0.01
10.00	0.89	0.09	0.01
10.25	0.95	0.11	0.01
10.50	1.02	0.14	0.01
10.75	1.10	0.17	0.01
11.00	1.18	0.21	0.01
11.25	1.28	0.26	0.02
11.50	1.41	0.33	0.02
11.75	1.68	0.48	0.06
12.00	2.36	0.95	**0.19**
12.25	3.04	1.48	**0.13**
12.50	3.31	1.70	0.06
12.75	3.44	1.81	0.03
13.00	3.54	1.89	0.03
13.25	3.62	1.96	0.02
13.50	3.70	2.03	0.02
13.75	3.77	2.08	0.02
14.00	3.83	2.14	0.02
14.25	3.88	2.19	0.02
14.50	3.94	2.23	0.02
14.75	3.99	2.27	0.01
15.00	4.03	2.31	0.01
15.25	4.07	2.35	0.01
15.50	4.11	2.39	0.01
15.75	4.15	2.42	0.01
16.00	4.18	2.44	0.01
16.25	4.21	2.47	0.01
16.50	4.24	2.50	0.01
16.75	4.27	2.52	0.01
17.00	4.29	2.54	0.01
17.25	4.32	2.56	0.01
17.50	4.34	2.58	0.01
17.75	4.36	2.60	0.01
18.00	4.38	2.62	0.01
18.25	4.40	2.64	0.01
18.50	4.42	2.65	0.01
18.75	4.43	2.67	0.01
19.00	4.45	2.68	0.01
19.25	4.47	2.70	0.01
19.50	4.49	2.71	0.00
19.75	4.50	2.73	0.00
20.00	**4.52**	**2.74**	0.00

Summary for Subcatchment A-3:

[49] Hint: Tc<2dt may require smaller dt

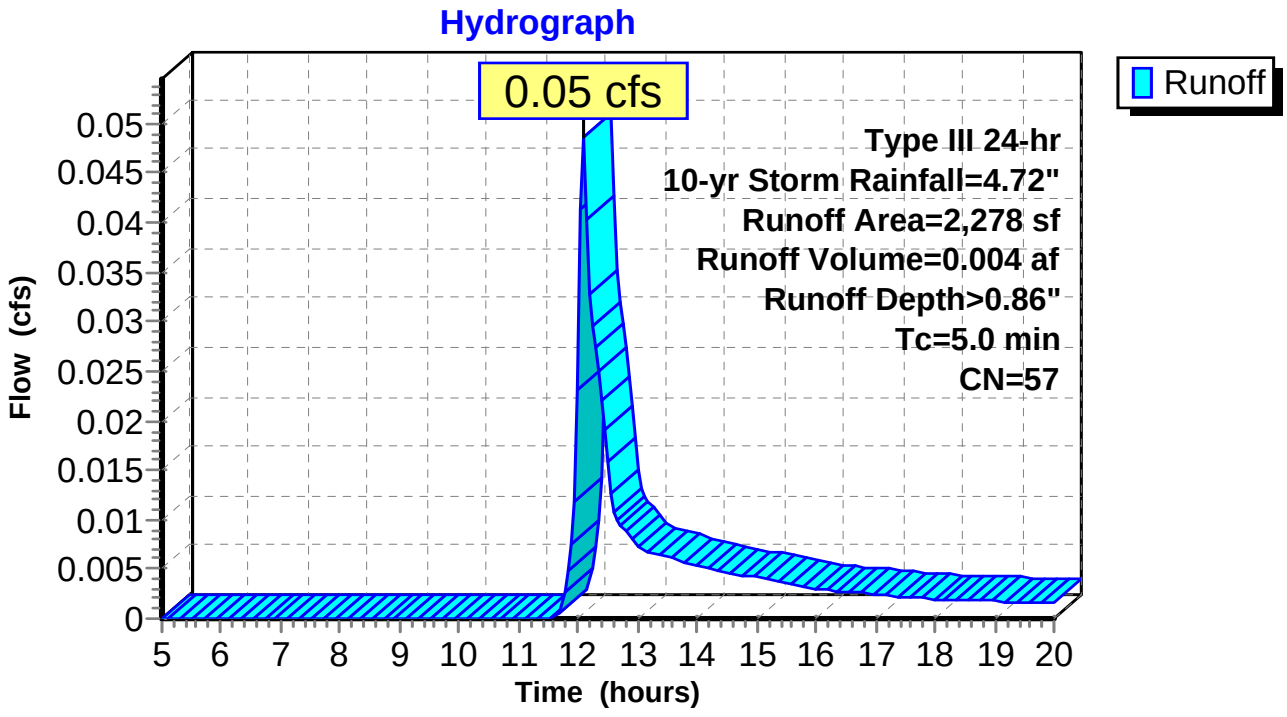
Runoff = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af, Depth> 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Storm Rainfall=4.72"

	Area (sf)	CN	Description
*	691	98	Impervious
	1,587	39	>75% Grass cover, Good, HSG A
	2,278	57	Weighted Average
	1,587		69.67% Pervious Area
	691		30.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A-3:



Hydrograph for Subcatchment A-3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.27	0.00	0.00
5.25	0.29	0.00	0.00
5.50	0.30	0.00	0.00
5.75	0.32	0.00	0.00
6.00	0.34	0.00	0.00
6.25	0.36	0.00	0.00
6.50	0.38	0.00	0.00
6.75	0.40	0.00	0.00
7.00	0.43	0.00	0.00
7.25	0.45	0.00	0.00
7.50	0.48	0.00	0.00
7.75	0.51	0.00	0.00
8.00	0.54	0.00	0.00
8.25	0.57	0.00	0.00
8.50	0.61	0.00	0.00
8.75	0.65	0.00	0.00
9.00	0.69	0.00	0.00
9.25	0.73	0.00	0.00
9.50	0.78	0.00	0.00
9.75	0.84	0.00	0.00
10.00	0.89	0.00	0.00
10.25	0.95	0.00	0.00
10.50	1.02	0.00	0.00
10.75	1.10	0.00	0.00
11.00	1.18	0.00	0.00
11.25	1.28	0.00	0.00
11.50	1.41	0.00	0.00
11.75	1.68	0.00	0.00
12.00	2.36	0.09	**0.02**
12.25	3.04	0.26	**0.03**
12.50	3.31	0.35	0.02
12.75	3.44	0.39	0.01
13.00	3.54	0.43	0.01
13.25	3.62	0.46	0.01
13.50	3.70	0.49	0.01
13.75	3.77	0.52	0.01
14.00	3.83	0.55	0.01
14.25	3.88	0.57	0.00
14.50	3.94	0.59	0.00
14.75	3.99	0.61	0.00
15.00	4.03	0.63	0.00
15.25	4.07	0.65	0.00
15.50	4.11	0.67	0.00
15.75	4.15	0.68	0.00
16.00	4.18	0.70	0.00
16.25	4.21	0.71	0.00
16.50	4.24	0.73	0.00
16.75	4.27	0.74	0.00
17.00	4.29	0.75	0.00
17.25	4.32	0.76	0.00
17.50	4.34	0.77	0.00
17.75	4.36	0.78	0.00
18.00	4.38	0.79	0.00
18.25	4.40	0.80	0.00
18.50	4.42	0.81	0.00
18.75	4.43	0.82	0.00
19.00	4.45	0.83	0.00
19.25	4.47	0.83	0.00
19.50	4.49	0.84	0.00
19.75	4.50	0.85	0.00
20.00	**4.52**	**0.86**	0.00

Summary for Pond RG: Rain Garden

Inflow Area = 0.085 ac, 73.83% Impervious, Inflow Depth > 2.74" for 10-yr Storm event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.26 cfs @ 12.12 hrs, Volume= 0.019 af, Atten= 10%, Lag= 2.5 min
Discarded = 0.01 cfs @ 12.12 hrs, Volume= 0.007 af
Primary = 0.25 cfs @ 12.12 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 97.57' @ 12.12 hrs Surf.Area= 228 sf Storage= 85 cf

Plug-Flow detention time= 23.6 min calculated for 0.019 af (98% of inflow)
Center-of-Mass det. time= 14.7 min (796.0 - 781.3)

Volume	Invert	Avail.Storage	Storage Description
#1	96.76'	211 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.76	0	0	0
97.00	47	6	6
98.00	363	205	211

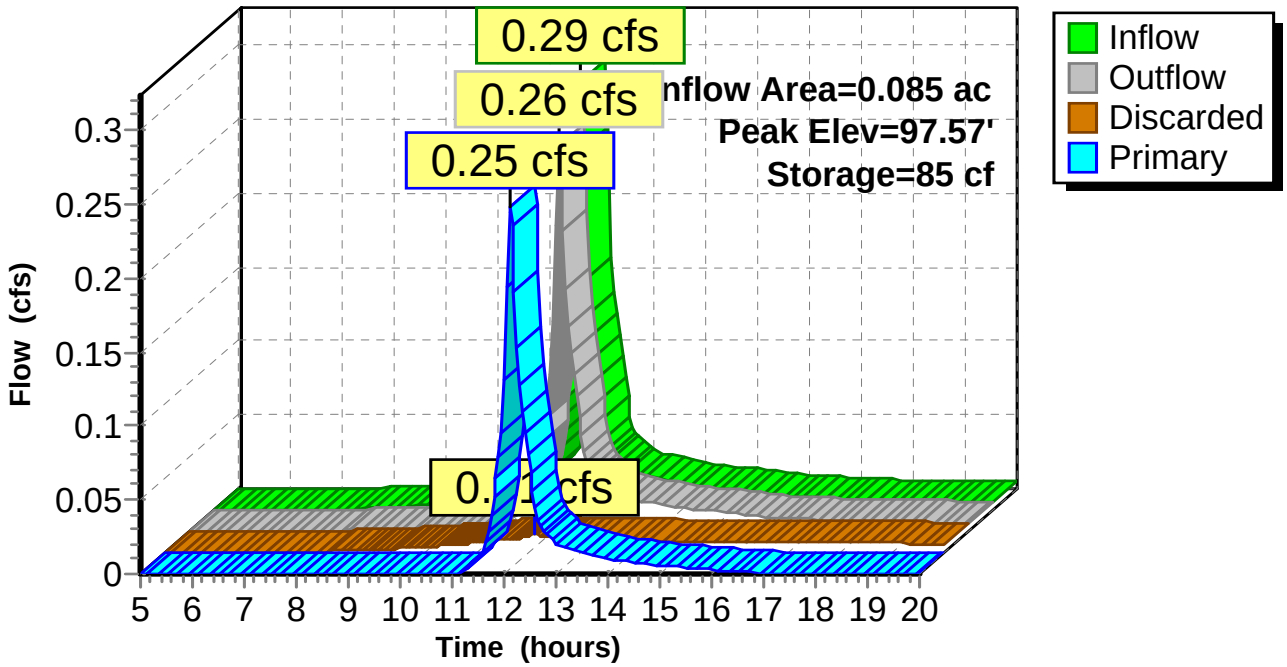
Device	Routing	Invert	Outlet Devices
#1	Discarded	96.76'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	97.26'	**6.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.01 cfs @ 12.12 hrs HW=97.57' (Free Discharge)
↑└**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.24 cfs @ 12.12 hrs HW=97.57' (Free Discharge)
↑└**2=Orifice/Grate** (Orifice Controls 0.24 cfs @ 1.89 fps)

Pond RG: Rain Garden

Hydrograph



Hydrograph for Pond RG: Rain Garden

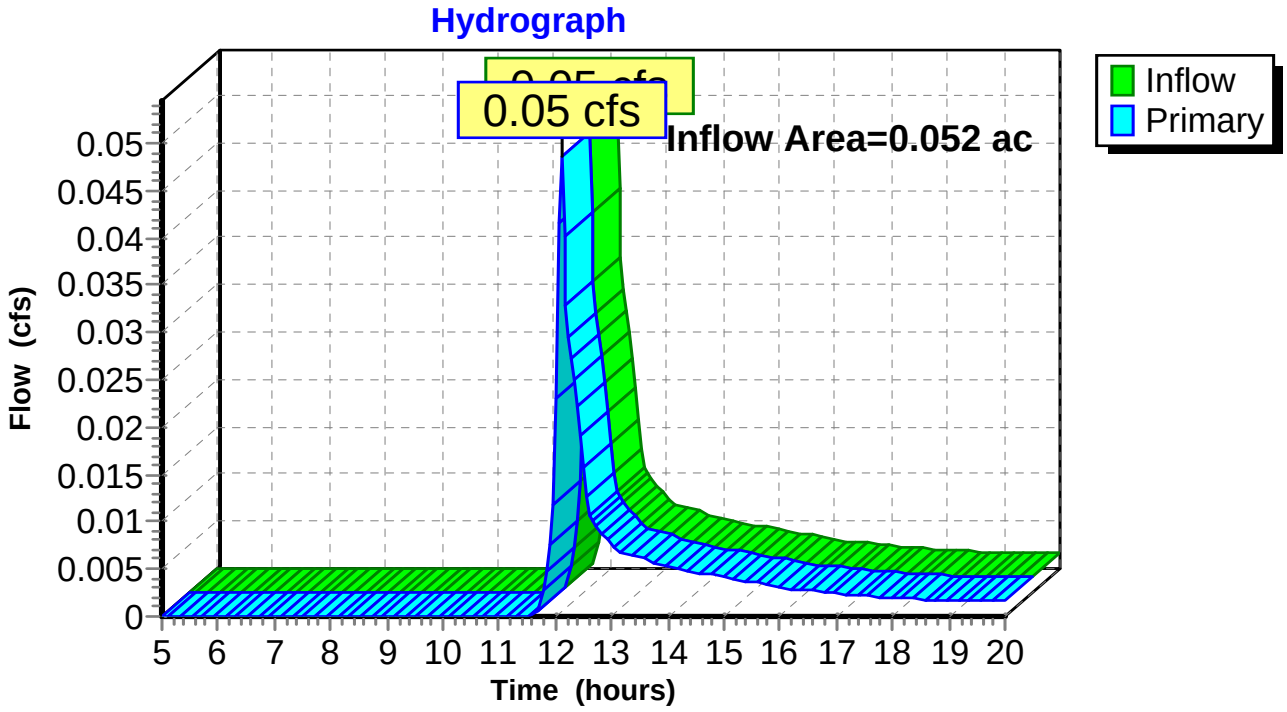
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0	96.76	0.00	0.00	0.00
5.50	0.00	0	96.76	0.00	0.00	0.00
6.00	0.00	0	96.76	0.00	0.00	0.00
6.50	0.00	0	96.76	0.00	0.00	0.00
7.00	0.00	0	96.77	0.00	0.00	0.00
7.50	0.00	0	96.80	0.00	0.00	0.00
8.00	0.00	1	96.83	0.00	0.00	0.00
8.50	0.00	1	96.88	0.00	0.00	0.00
9.00	0.00	3	96.94	0.00	0.00	0.00
9.50	0.00	6	97.01	0.00	0.00	0.00
10.00	0.01	10	97.07	0.00	0.00	0.00
10.50	0.01	16	97.15	0.01	0.01	0.00
11.00	0.01	26	97.24	0.01	0.01	0.00
11.50	0.02	37	97.32	0.02	0.01	0.01
12.00	**0.19**	**64**	**97.48**	**0.14**	**0.01**	**0.13**
12.50	**0.06**	**52**	**97.41**	**0.08**	**0.01**	**0.07**
13.00	0.03	40	97.34	0.03	0.01	0.02
13.50	0.02	38	97.33	0.02	0.01	0.01
14.00	0.02	36	97.32	0.02	0.01	0.01
14.50	0.02	35	97.31	0.02	0.01	0.01
15.00	0.01	34	97.30	0.01	0.01	0.01
15.50	0.01	33	97.30	0.01	0.01	0.00
16.00	0.01	32	97.29	0.01	0.01	0.00
16.50	0.01	31	97.28	0.01	0.01	0.00
17.00	0.01	30	97.27	0.01	0.01	0.00
17.50	0.01	29	97.27	0.01	0.01	0.00
18.00	0.01	28	97.25	0.01	0.01	0.00
18.50	0.01	25	97.23	0.01	0.01	0.00
19.00	0.01	23	97.21	0.01	0.01	0.00
19.50	0.00	21	97.20	0.01	0.01	0.00
20.00	0.00	19	97.18	0.01	0.01	0.00

Summary for Link AP1: Down property

Inflow Area = 0.052 ac, 30.33% Impervious, Inflow Depth > 0.86" for 10-yr Storm event
Inflow = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af
Primary = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1: Down property



Hydrograph for Link AP1: Down property

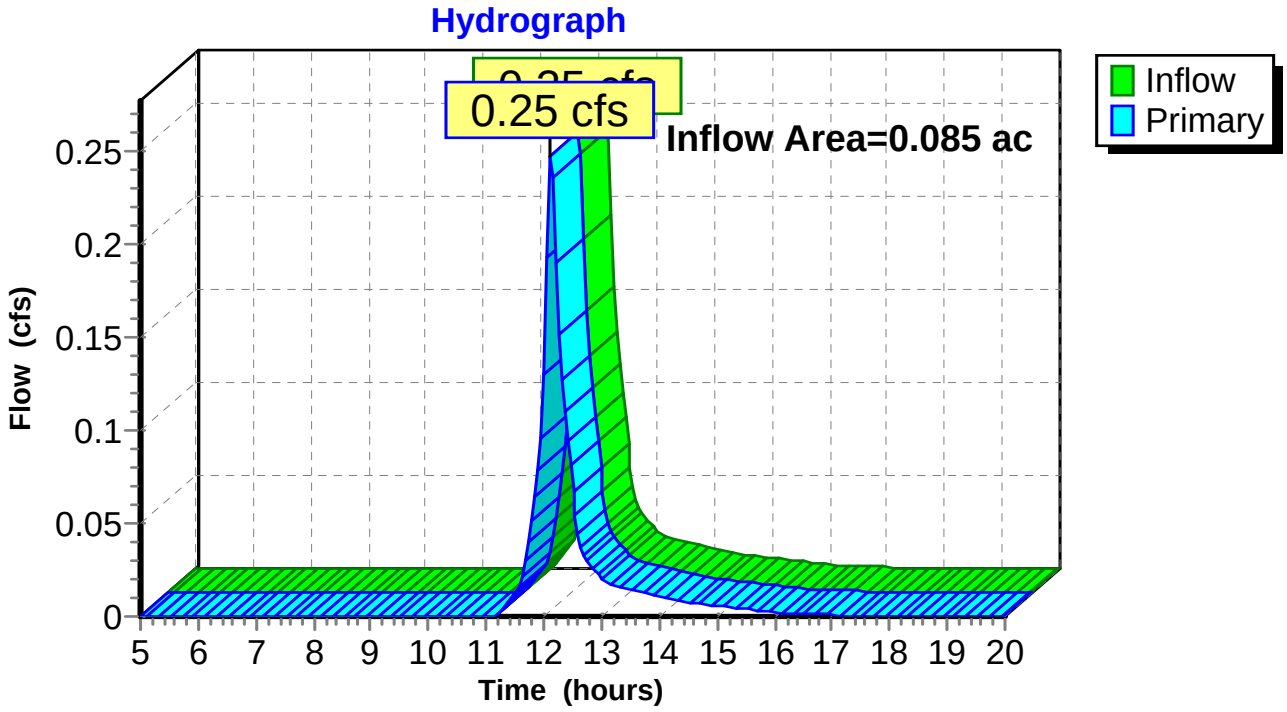
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	0.00	0.00	0.00
12.00	**0.02**	0.00	**0.02**
12.25	**0.03**	0.00	**0.03**
12.50	0.02	0.00	0.02
12.75	0.01	0.00	0.01
13.00	0.01	0.00	0.01
13.25	0.01	0.00	0.01
13.50	0.01	0.00	0.01
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.00	0.00	0.00
14.50	0.00	0.00	0.00
14.75	0.00	0.00	0.00
15.00	0.00	0.00	0.00
15.25	0.00	0.00	0.00
15.50	0.00	0.00	0.00
15.75	0.00	0.00	0.00
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Link AP2: Street/Public System

Inflow Area = 0.085 ac, 73.83% Impervious, Inflow Depth = 1.73" for 10-yr Storm event
Inflow = 0.25 cfs @ 12.12 hrs, Volume= 0.012 af
Primary = 0.25 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP2: Street/Public System



Hydrograph for Link AP2: Street/Public System

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.01	0.00	0.01
11.75	0.04	0.00	0.04
12.00	**0.13**	0.00	**0.13**
12.25	**0.15**	0.00	**0.15**
12.50	0.07	0.00	0.07
12.75	0.03	0.00	0.03
13.00	0.02	0.00	0.02
13.25	0.02	0.00	0.02
13.50	0.01	0.00	0.01
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.00	0.00	0.00
15.75	0.00	0.00	0.00
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment A-1: Runoff Area=3,684 sf 73.83% Impervious Runoff Depth>3.80"
Tc=5.0 min CN=83 Runoff=0.40 cfs 0.027 af

Subcatchment A-3: Runoff Area=2,278 sf 30.33% Impervious Runoff Depth>1.49"
Tc=5.0 min CN=57 Runoff=0.09 cfs 0.006 af

Pond RG: Rain Garden Peak Elev=97.64' Storage=102 cf Inflow=0.40 cfs 0.027 af
Discarded=0.01 cfs 0.008 af Primary=0.34 cfs 0.019 af Outflow=0.36 cfs 0.026 af

Link AP1: Down property Inflow=0.09 cfs 0.006 af
Primary=0.09 cfs 0.006 af

Link AP2: Street/Public System Inflow=0.34 cfs 0.019 af
Primary=0.34 cfs 0.019 af

Total Runoff Area = 0.137 ac Runoff Volume = 0.033 af Average Runoff Depth = 2.91"
42.79% Pervious = 0.059 ac 57.21% Impervious = 0.078 ac

Summary for Subcatchment A-1:

[49] Hint: Tc<2dt may require smaller dt

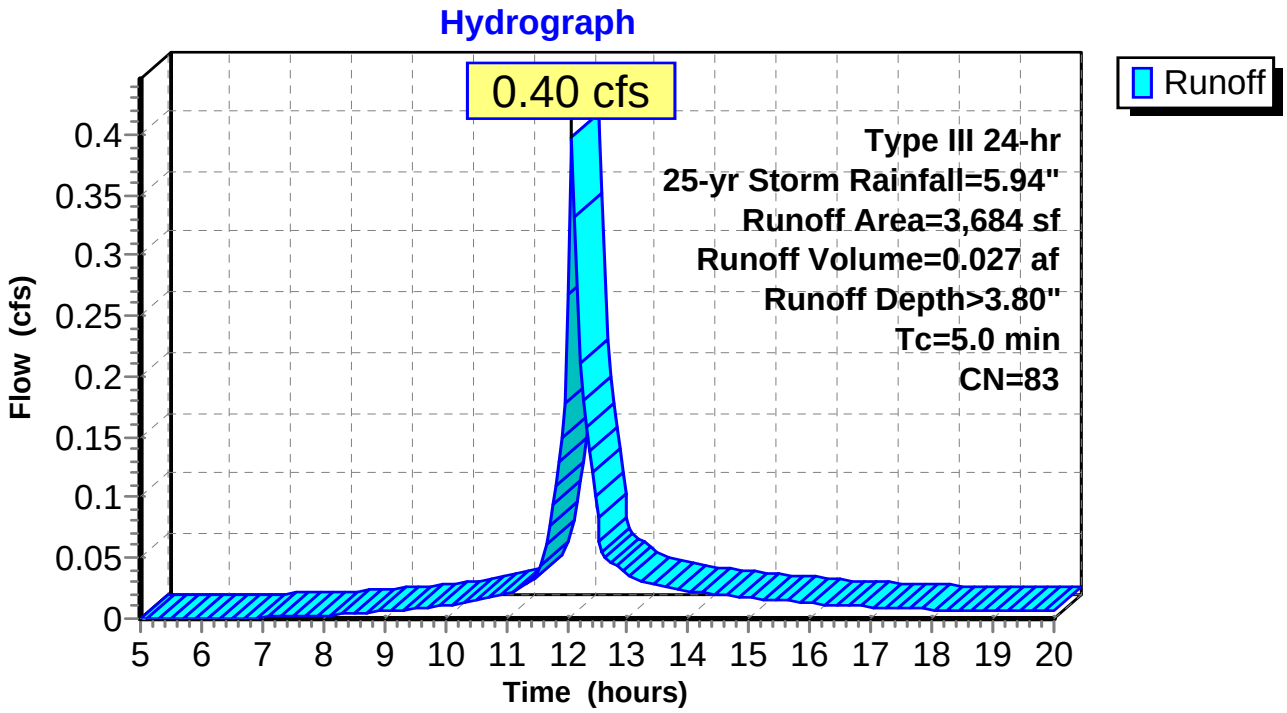
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Storm Rainfall=5.94"

	Area (sf)	CN	Description
*	2,720	98	Impervious
	964	39	>75% Grass cover, Good, HSG A
	3,684	83	Weighted Average
	964		26.17% Pervious Area
	2,720		73.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A-1:



Hydrograph for Subcatchment A-1:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.00
5.25	0.36	0.00	0.00
5.50	0.38	0.00	0.00
5.75	0.40	0.00	0.00
6.00	0.43	0.00	0.00
6.25	0.45	0.00	0.00
6.50	0.48	0.00	0.00
6.75	0.51	0.00	0.00
7.00	0.54	0.01	0.00
7.25	0.57	0.01	0.00
7.50	0.60	0.02	0.00
7.75	0.64	0.02	0.00
8.00	0.68	0.03	0.00
8.25	0.72	0.04	0.00
8.50	0.76	0.05	0.00
8.75	0.81	0.07	0.01
9.00	0.87	0.08	0.01
9.25	0.92	0.10	0.01
9.50	0.99	0.13	0.01
9.75	1.05	0.15	0.01
10.00	1.12	0.18	0.01
10.25	1.20	0.22	0.01
10.50	1.29	0.26	0.01
10.75	1.38	0.31	0.02
11.00	1.48	0.37	0.02
11.25	1.61	0.44	0.03
11.50	1.77	0.54	0.04
11.75	2.11	0.77	0.09
12.00	2.97	1.42	**0.27**
12.25	3.83	2.14	**0.18**
12.50	4.17	2.43	0.08
12.75	4.33	2.57	0.05
13.00	4.45	2.69	0.04
13.25	4.56	2.78	0.03
13.50	4.65	2.86	0.03
13.75	4.74	2.94	0.03
14.00	4.82	3.01	0.02
14.25	4.89	3.07	0.02
14.50	4.95	3.13	0.02
14.75	5.02	3.19	0.02
15.00	5.07	3.24	0.02
15.25	5.13	3.29	0.02
15.50	5.18	3.33	0.02
15.75	5.22	3.38	0.01
16.00	5.26	3.41	0.01
16.25	5.30	3.45	0.01
16.50	5.34	3.48	0.01
16.75	5.37	3.51	0.01
17.00	5.40	3.54	0.01
17.25	5.43	3.57	0.01
17.50	5.46	3.59	0.01
17.75	5.49	3.62	0.01
18.00	5.51	3.64	0.01
18.25	5.54	3.66	0.01
18.50	5.56	3.68	0.01
18.75	5.58	3.70	0.01
19.00	5.60	3.72	0.01
19.25	5.62	3.74	0.01
19.50	5.64	3.76	0.01
19.75	5.66	3.78	0.01
20.00	**5.68**	**3.80**	0.01

Summary for Subcatchment A-3:

[49] Hint: Tc<2dt may require smaller dt

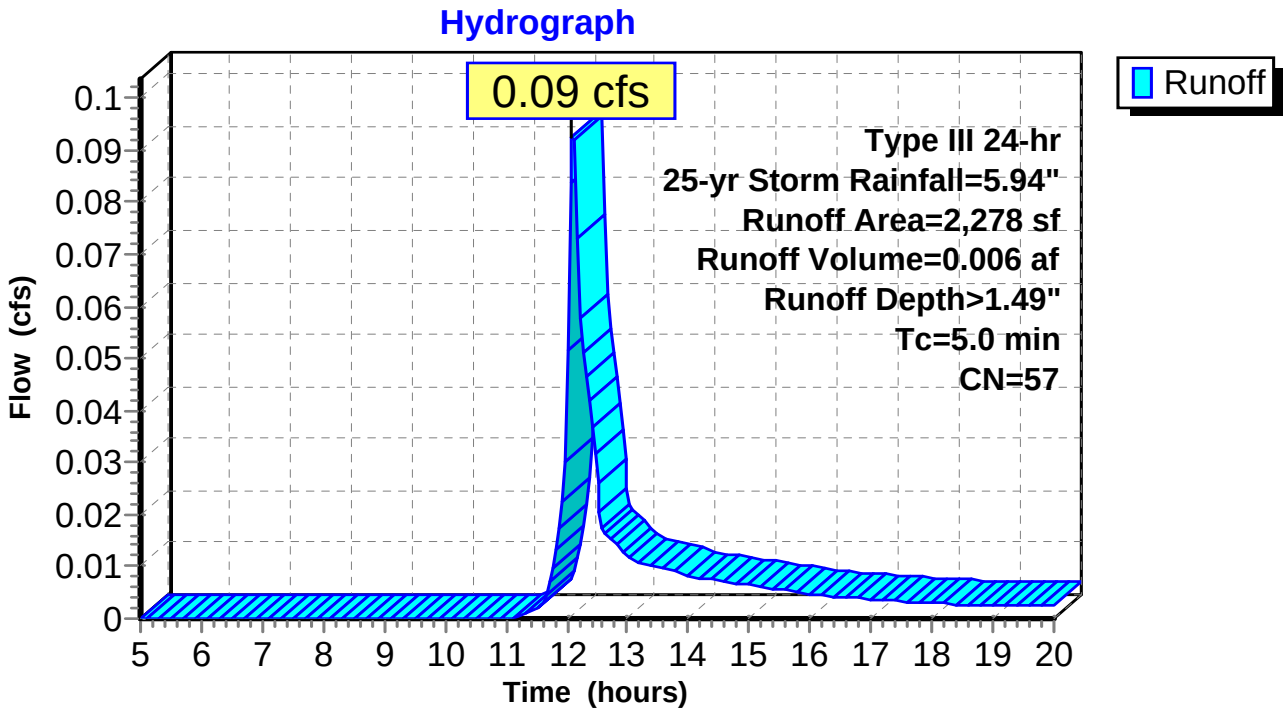
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Storm Rainfall=5.94"

	Area (sf)	CN	Description
*	691	98	Impervious
	1,587	39	>75% Grass cover, Good, HSG A
	2,278	57	Weighted Average
	1,587		69.67% Pervious Area
	691		30.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment A-3:



Hydrograph for Subcatchment A-3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.00
5.25	0.36	0.00	0.00
5.50	0.38	0.00	0.00
5.75	0.40	0.00	0.00
6.00	0.43	0.00	0.00
6.25	0.45	0.00	0.00
6.50	0.48	0.00	0.00
6.75	0.51	0.00	0.00
7.00	0.54	0.00	0.00
7.25	0.57	0.00	0.00
7.50	0.60	0.00	0.00
7.75	0.64	0.00	0.00
8.00	0.68	0.00	0.00
8.25	0.72	0.00	0.00
8.50	0.76	0.00	0.00
8.75	0.81	0.00	0.00
9.00	0.87	0.00	0.00
9.25	0.92	0.00	0.00
9.50	0.99	0.00	0.00
9.75	1.05	0.00	0.00
10.00	1.12	0.00	0.00
10.25	1.20	0.00	0.00
10.50	1.29	0.00	0.00
10.75	1.38	0.00	0.00
11.00	1.48	0.00	0.00
11.25	1.61	0.00	0.00
11.50	1.77	0.01	0.00
11.75	2.11	0.04	0.01
12.00	2.97	0.24	**0.05**
12.25	3.83	0.55	**0.05**
12.50	4.17	0.69	0.03
12.75	4.33	0.77	0.02
13.00	4.45	0.83	0.01
13.25	4.56	0.88	0.01
13.50	4.65	0.93	0.01
13.75	4.74	0.97	0.01
14.00	4.82	1.01	0.01
14.25	4.89	1.05	0.01
14.50	4.95	1.08	0.01
14.75	5.02	1.11	0.01
15.00	5.07	1.14	0.01
15.25	5.13	1.17	0.01
15.50	5.18	1.20	0.01
15.75	5.22	1.22	0.01
16.00	5.26	1.25	0.00
16.25	5.30	1.27	0.00
16.50	5.34	1.29	0.00
16.75	5.37	1.31	0.00
17.00	5.40	1.33	0.00
17.25	5.43	1.34	0.00
17.50	5.46	1.36	0.00
17.75	5.49	1.37	0.00
18.00	5.51	1.39	0.00
18.25	5.54	1.40	0.00
18.50	5.56	1.41	0.00
18.75	5.58	1.43	0.00
19.00	5.60	1.44	0.00
19.25	5.62	1.45	0.00
19.50	5.64	1.46	0.00
19.75	5.66	1.48	0.00
20.00	**5.68**	**1.49**	0.00

Summary for Pond RG: Rain Garden

Inflow Area = 0.085 ac, 73.83% Impervious, Inflow Depth > 3.80" for 25-yr Storm event
Inflow = 0.40 cfs @ 12.07 hrs, Volume= 0.027 af
Outflow = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af, Atten= 11%, Lag= 2.6 min
Discarded = 0.01 cfs @ 12.12 hrs, Volume= 0.008 af
Primary = 0.34 cfs @ 12.12 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 97.64' @ 12.12 hrs Surf.Area= 251 sf Storage= 102 cf

Plug-Flow detention time= 20.0 min calculated for 0.026 af (98% of inflow)
Center-of-Mass det. time= 10.9 min (784.4 - 773.5)

Volume	Invert	Avail.Storage	Storage Description
#1	96.76'	211 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
96.76	0	0	0
97.00	47	6	6
98.00	363	205	211

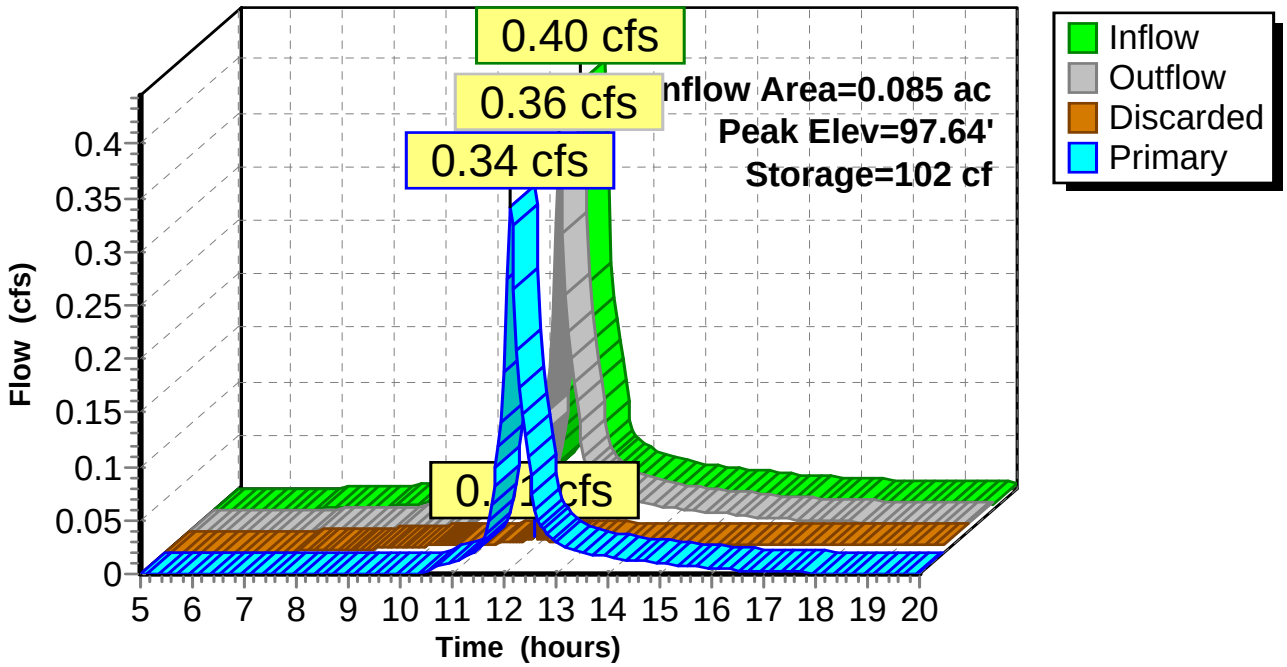
Device	Routing	Invert	Outlet Devices
#1	Discarded	96.76'	**2.410 in/hr Exfiltration over Surface area**
#2	Primary	97.26'	**6.0" Vert. Orifice/Grate** C= 0.600

Discarded OutFlow Max=0.01 cfs @ 12.12 hrs HW=97.64' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.33 cfs @ 12.12 hrs HW=97.64' (Free Discharge)
↑**2=Orifice/Grate** (Orifice Controls 0.33 cfs @ 2.09 fps)

Pond RG: Rain Garden

Hydrograph



Hydrograph for Pond RG: Rain Garden

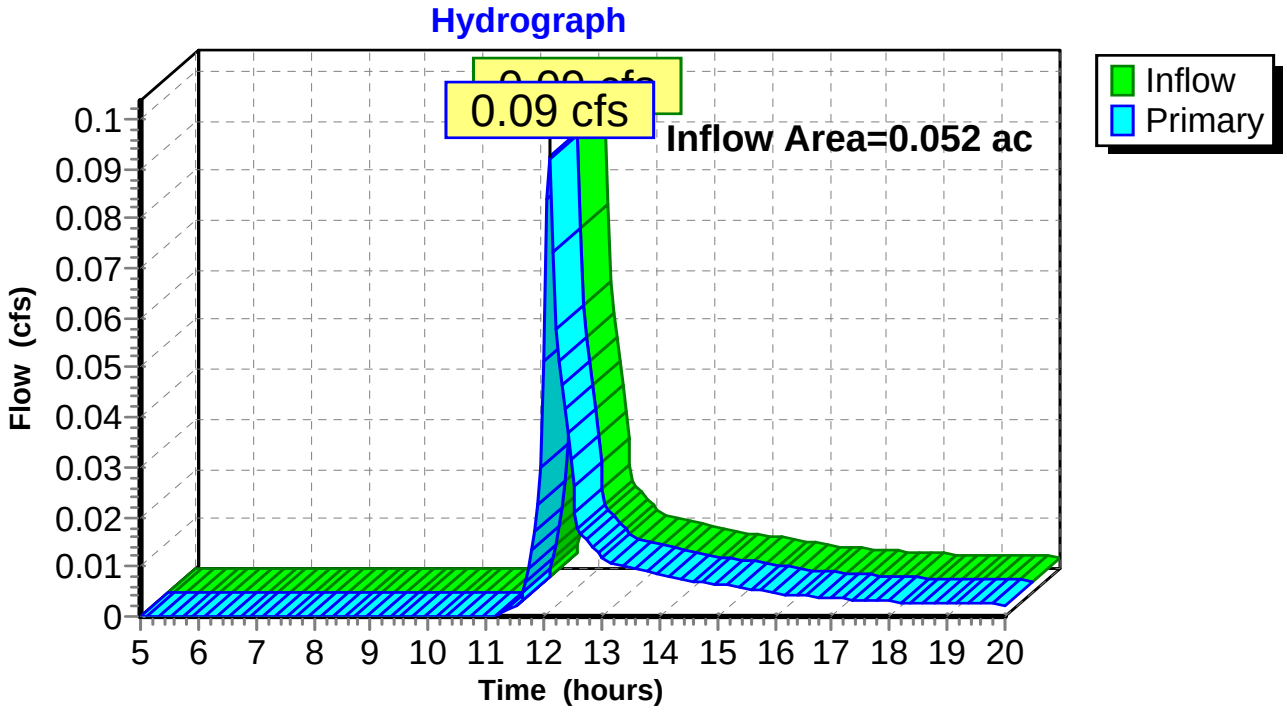
Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.00	0	96.76	0.00	0.00	0.00
5.50	0.00	0	96.76	0.00	0.00	0.00
6.00	0.00	0	96.77	0.00	0.00	0.00
6.50	0.00	0	96.80	0.00	0.00	0.00
7.00	0.00	1	96.83	0.00	0.00	0.00
7.50	0.00	1	96.88	0.00	0.00	0.00
8.00	0.00	3	96.92	0.00	0.00	0.00
8.50	0.00	5	96.98	0.00	0.00	0.00
9.00	0.01	9	97.05	0.00	0.00	0.00
9.50	0.01	14	97.12	0.00	0.00	0.00
10.00	0.01	21	97.20	0.01	0.01	0.00
10.50	0.01	31	97.28	0.01	0.01	0.00
11.00	0.02	37	97.32	0.02	0.01	0.01
11.50	0.04	41	97.35	0.03	0.01	0.02
12.00	**0.27**	**74**	**97.53**	**0.20**	**0.01**	**0.19**
12.50	**0.08**	**57**	**97.44**	**0.10**	**0.01**	**0.09**
13.00	0.04	43	97.36	0.04	0.01	0.03
13.50	0.03	40	97.34	0.03	0.01	0.02
14.00	0.02	39	97.33	0.02	0.01	0.02
14.50	0.02	37	97.32	0.02	0.01	0.01
15.00	0.02	36	97.32	0.02	0.01	0.01
15.50	0.02	35	97.31	0.02	0.01	0.01
16.00	0.01	34	97.30	0.01	0.01	0.01
16.50	0.01	33	97.29	0.01	0.01	0.00
17.00	0.01	32	97.29	0.01	0.01	0.00
17.50	0.01	32	97.28	0.01	0.01	0.00
18.00	0.01	31	97.27	0.01	0.01	0.00
18.50	0.01	30	97.27	0.01	0.01	0.00
19.00	0.01	29	97.26	0.01	0.01	0.00
19.50	0.01	28	97.25	0.01	0.01	0.00
20.00	0.01	26	97.24	0.01	0.01	0.00

Summary for Link AP1: Down property

Inflow Area = 0.052 ac, 30.33% Impervious, Inflow Depth > 1.49" for 25-yr Storm event
Inflow = 0.09 cfs @ 12.09 hrs, Volume= 0.006 af
Primary = 0.09 cfs @ 12.09 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1: Down property



Hydrograph for Link AP1: Down property

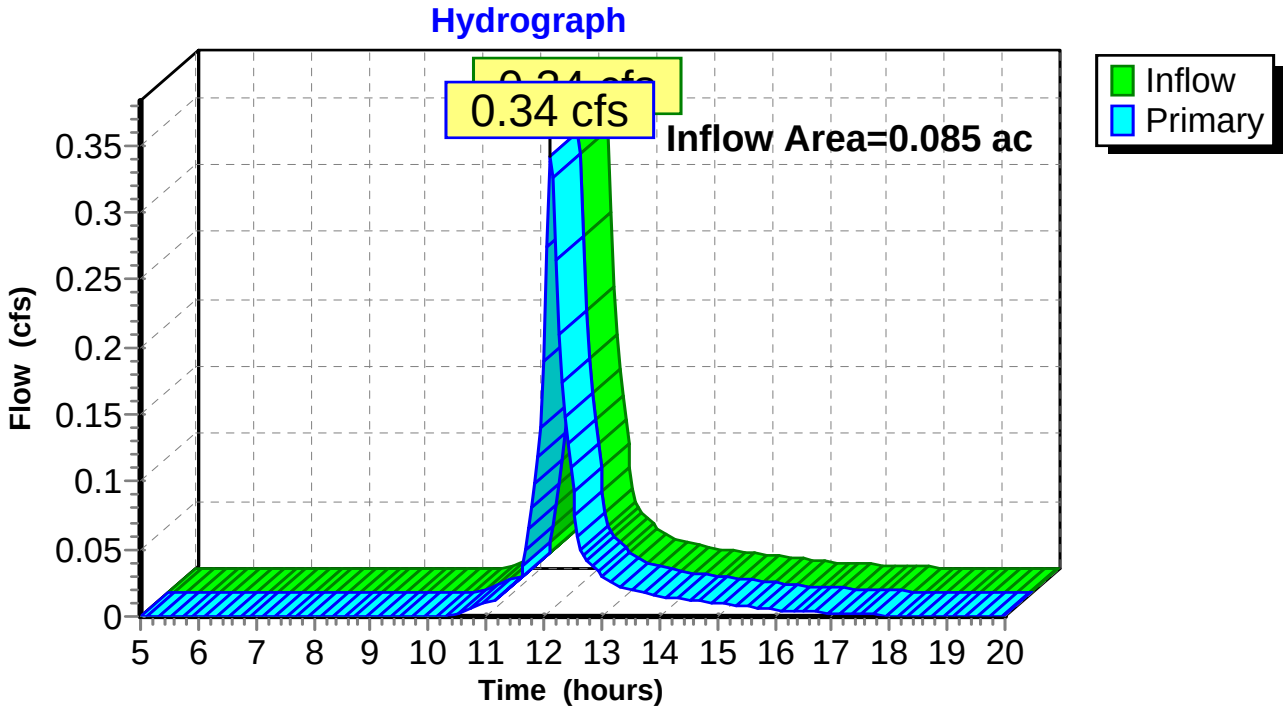
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.25	0.00	0.00	0.00
11.50	0.00	0.00	0.00
11.75	0.01	0.00	0.01
12.00	**0.05**	0.00	**0.05**
12.25	**0.05**	0.00	**0.05**
12.50	0.03	0.00	0.03
12.75	0.02	0.00	0.02
13.00	0.01	0.00	0.01
13.25	0.01	0.00	0.01
13.50	0.01	0.00	0.01
13.75	0.01	0.00	0.01
14.00	0.01	0.00	0.01
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.00	0.00	0.00
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Summary for Link AP2: Street/Public System

Inflow Area = 0.085 ac, 73.83% Impervious, Inflow Depth = 2.64" for 25-yr Storm event
Inflow = 0.34 cfs @ 12.12 hrs, Volume= 0.019 af
Primary = 0.34 cfs @ 12.12 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP2: Street/Public System



Hydrograph for Link AP2: Street/Public System

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00
5.25	0.00	0.00	0.00
5.50	0.00	0.00	0.00
5.75	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.25	0.00	0.00	0.00
6.50	0.00	0.00	0.00
6.75	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.25	0.00	0.00	0.00
7.50	0.00	0.00	0.00
7.75	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.25	0.00	0.00	0.00
8.50	0.00	0.00	0.00
8.75	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.25	0.00	0.00	0.00
9.50	0.00	0.00	0.00
9.75	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.25	0.00	0.00	0.00
10.50	0.00	0.00	0.00
10.75	0.01	0.00	0.01
11.00	0.01	0.00	0.01
11.25	0.02	0.00	0.02
11.50	0.02	0.00	0.02
11.75	0.06	0.00	0.06
12.00	**0.19**	0.00	**0.19**
12.25	**0.21**	0.00	**0.21**
12.50	0.09	0.00	0.09
12.75	0.04	0.00	0.04
13.00	0.03	0.00	0.03
13.25	0.02	0.00	0.02
13.50	0.02	0.00	0.02
13.75	0.02	0.00	0.02
14.00	0.02	0.00	0.02
14.25	0.01	0.00	0.01
14.50	0.01	0.00	0.01
14.75	0.01	0.00	0.01
15.00	0.01	0.00	0.01
15.25	0.01	0.00	0.01
15.50	0.01	0.00	0.01
15.75	0.01	0.00	0.01
16.00	0.01	0.00	0.01
16.25	0.00	0.00	0.00
16.50	0.00	0.00	0.00
16.75	0.00	0.00	0.00
17.00	0.00	0.00	0.00
17.25	0.00	0.00	0.00
17.50	0.00	0.00	0.00
17.75	0.00	0.00	0.00
18.00	0.00	0.00	0.00
18.25	0.00	0.00	0.00
18.50	0.00	0.00	0.00
18.75	0.00	0.00	0.00
19.00	0.00	0.00	0.00
19.25	0.00	0.00	0.00
19.50	0.00	0.00	0.00
19.75	0.00	0.00	0.00
20.00	0.00	0.00	0.00

Att. G

Camden NATIONAL BANK

5/12/2017

To Whom It May Concern,

This letter is to confirm that as of 5/12/2017, JP Sheridan LLC has at Camden National Bank the funds to cover the estimated project cost listed in the site plan for 88 Walnut St.

Kathleen Dodge

Kathleen Dodge

Branch Operations Supervisor II

2 Canal Plaza

Portland ME 04101

207-774-6736 ext. 1116

kdodge@camdennational.com

88 Walnut Street – City Meeting and Comments

Upload the individual site plan sheets into ePlan, rather than the whole set in one PDF.

- The sheets have been uploaded individually.

Address sidewalk waiver criteria for the sidewalk on Sheridan Street.

- The sidewalk waiver has been uploaded to the ePlan project folder entitled "EHP Request for Sidewalk Waiver"

Driveway separation is not being met, could the driveway be shared with the abutting parcel? A waiver needs to be requested. Explain the need for the waiver.

- The waiver is being required due to the following extraordinary conditions. We are currently working on formally applying for said waiver.
    - The site is located on the corner of Walnut Street and Sheridan Street. Moving the driveway any closer to the intersection could pose a potential traffic risk and could break the City code.
    - The site also features a steep grade change and an approximately 3' high retaining wall just past the proposed property line. Moving the driveway back to match the abutting driveway would cause significant grade issues. Additionally, if the driveways were to be combined, the abutting property would lose some of its parking space.

Street tress – three are required and one being proposed. Is it possible to have a couple along the Sheridan Street frontage?

- We believe the site to be too tight to add any additional trees along the frontage. Keeping with the city's 30' recommended spacing, the only place to put a tree along Walnut Street would be next to the intersection of Sheridan St. Placing a tree here poses a potential traffic hazard and would limit road visibility. Putting another tree along Sheridan St would be unwise due to the steep slope along the property as well as the narrow gap between the proposed house and the existing guardrail.

No bike racks are on the site plan, are any being proposed?

- Bike racks will not be provided. Each unit is given a garage; therefore, a bike rack would be unnecessary.

The details of the retaining wall need to be provided.

- The details of the proposed curved retaining wall have been added to the building plan.

The property is in the brick district. If there are significant impact on the existing concrete sidewalk, it will have to be replaced in brick.

- The project proposed no impact on the existing concrete sidewalk. The driveway will connect to the existing driveway apron and there will be no proposed grading taking place on the sidewalk.

Please provide the property line on the plans.

- All property lines, both existing and proposed, have been shown on the plans.

The applicant shall conduct a sidewalk waiver evaluation per City Ordinance Criteria. My initial accessment and field review of area conditions is that a sidewalk is required.

- A request for a sidewalk waiver has been written and uploaded to the ePlan portal.

The applicant shall provide documentation in support of a waiver from the City's driveway separation standard. While an existing condition, the driveway separation is significantly non-compliant

- A request for a driveway separation waiver is being filled out. We feel our project qualifies for all the reasons previously mentioned.

The design of the driveway apron shall account for a sidewalk accessibility route that shall not exceed 2 percent

- We are proposing to connect the proposed driveway to the existing driveway apron, leaving it in place and making no changes in any form to the existing sidewalk.

The existing sidewalk material policy is brick on Walnut Street and the current plan maintains the existing concrete surface. Accordingly, this may not meet City sidewalk material standards. There is a provision for use of alternative materials if the sidewalk is in good condition and the disturbed section represents less than 50% of the block. This needs to be evaluated. I would also note that the City Policy is for the driveway apron material to match the sidewalk material.

- No changes in any form are being proposed to the sidewalk or driveway apron.

Per Section 13 of the City's Technical Manual, the Applicant is required to submit a Boundary Survey that has been Stamped by a Maine Licensed Professional Surveyor. The included Boundary Survey has not been stamped or signed.

- A stamped and signed boundary survey has been uploaded to the ePlan portal.

Final plans must be stamped by a professional engineer (Section 14-527, sub-section (e) of the City of Portland Land Use Ordinance).

- Updated stamped plans have been uploaded to the ePlan portal.

Per Section 12 of the City's Technical Manual, a Level III development project is required to submit a photometric plan demonstrating minimal light trespass from the site

- We are in the process of securing a photometric plan to meet the City's requirements.

In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:

Basic standards: Plans, notes and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, and C of MaineDEP Chapter 500

General Standards: The project will result in an increase in impervious surface. The area of increase is unclear as the areas vary on the application narrative and the application form. The Applicant is proposing to install a rain garden that will provide adequate treatment for the proposed project. We have the following comments:

The Applicant should provide sizing calculations showing that the rain garden has been sized per MaineDEP Stormwater Best Management Practices manual.

- Sizing calculations and tables have been included in the attached stormwater narrative and HydroCAD reports.

The Rain Garden elevations provided on drawing Sheet C200 do not match elevations provided within the post-development HydroCAD model. Please clarify.

- The issue has been resolved and updated to accurately reflect the designed system.

The proposed snow storage should not be located within the rain garden swale.

- The proposed snow storage is located just out of the swale. The idea in the design is that the snow will be stored outside of the swale, and when it melts, the runoff will be caught in the swale, treated and then discharged to the public system.

Flooding Standards: The project will result in an increase in impervious surface (area unclear as noted above). The model indicates that peak flows will be reduced in the post-development condition in accordance with the requirements of the Flooding Standard. Note that prior to this project, stormwater was not discharged directly to the City's stormwater infrastructure. The proposed flow is very small, but the City will need to verify capacity, and the Applicant will also be required to provide additional information on how the proposed stormwater connection will be made.

- We are currently coordinating with City officials to verify the system can handle the proposed flow. The drawings have been updated to show a service tie connection to the existing storm drain system.

The Stormwater Management Plan should include a stormwater inspection and maintenance plan developed in accordance with and in reference to MaineDEP Chapter 500 guidelines and Chapter 32 of the City of Portland Code of Ordinances.

- The stormwater narrative contains a section discussing the maintenance plan for the rain gardens and best management practices.

All work within the City Right-of-Way is required to comply with City of Portland Technical Standards. Applicant should provide details for the following items, and any others that may be required, in accordance with the standards: Reinforced Concrete Sidewalk, Vertical Granite Curb and Tipdowns, Typical Pipe Trench Installation, and Pavement Repair

- The specified details have been added to the plans on Sheet C201.

88 WALNUT STREET - JP SHERIDAN LLC
Zoning Related Design Standards

We looked first to the *(i) TWO-FAMILY, SPECIAL NEEDS INDEPENDENT LIVING UNITS, MULTIPLE-FAMILY, LODGING HOUSES, BED AND BREAKFASTS, AND EMERGENCY SHELTERS:* as the design guidelines to follow and we have achieved all those standards. The only standard that we found conflicted with our design needs is the primary building entry oriented to the street. We felt that providing a traditional two-story front porch would provide wonderful living spaces for the tenant and provide the street with an element where the tenants could interact with the neighborhood. Traditionally there is a front stair associated with these porches but the steepness of site presented a challenge with having enough space to physically build the exterior stairs to a porch deck, and the distance it would create for the tenant to travel from their garage to their front door. Placing the interior stair at the front of the building also changed the layout in a negative way where the access to the porch would be hindered and less private. Without a stair, there is direct flow from the living area to the outdoor space and light and views to the street visible from both the living room and a bedroom.

We feel the best location for the entry stair to the building is adjacent to the garage bays in the middle of the building. The stair also is being used as a sound barrier between the two flat style units and the larger townhouse unit. We are providing a landscaped stair with lighting post and covered area leading to the entry door. There will be house numbers attached to the house next to the landscaped walk and stairs and a decorative trim element with house number at the end of the covered area in front of the door. We have increased the depth of the roof above the garage doors to provide more shelter to pedestrians. We feel that these elements will alert all the visitors to this entry, and being only a three family dwelling, it will not present itself as a disadvantage for the limited number of visitors. In turn, having the entry off the driveway provides easy access for the tenants to their garage for their car or bike.

88 WALNUT STREET - JP SHERIDAN LLC
Request for Waiver for a sidewalk on the Sheridan Street side of the property.

Existing conditions: The 88 Walnut Street property is a corner lot at Walnut and Sheridan. The primary building façade will be facing Walnut Street and the drive access to the site is on Walnut Street. Walnut Street has an existing concrete sidewalk that runs from Washington Ave to North Street. There is no existing sidewalk on the Sheridan Street side of the property but it has granite curbing in place with a guardrail approximately 2' off of the curb. The guardrail protects cars and pedestrians from a very steep slope. It is a 40 to 60% grade change along this edge. There is an existing concrete sidewalk on the east side of Sheridan Street that ends in a crosswalk across Walnut Street.

Under Sec. 14-506 Modifications (b)
Paragraphs 1 and 3 under Sidewalks are true for the property.

1. **No. 1. There is no reasonable expectation for pedestrian usage coming from or going to our site along this street.** Our building does not have any doors on the Sheridan Street side to warrant a sidewalk. The site is a steep slope so that we are building the lower level into the hill. The lower level is where all the entry and garage doors are located. Access will be from Walnut only.
   The next building on our side of Sheridan is 240' away and the topography transitions from a steep slope to a 26-foot drop-off.
2. **No. 3. A safe alternate-walking route is reasonably and safely available on the other side of the street.** There is a sidewalk on the opposite side of the street available for pedestrians which ties into the crosswalk at Walnut.

We are requesting a variance to the sidewalk due to the following extraordinary conditions: Sec. 14-506 Modifications (a)

1. Steep grade change on the edge of Sheridan Street. There is a 12'-0" grade change from Sheridan to our driveway elevation. We would need to increase the height of our building foundation and floor-to-floor height to retain the additional fill needed to create a level grade for a sidewalk. Increasing the floor-to-floor height would require more internal stairs that would require we increase the building footprint to accommodate the stairs. All these factors would increase the cost of construction by tens of thousands of dollars.
2. Sheridan Street is only a 40' right-of-way, not the 50' City standard. There is only 6' available between property line and existing granite curb for sidewalk and esplanade. This does not meet minimum city standard for the two, so only a sidewalk could be built.
3. There is a sidewalk on the opposite side of the street available for pedestrians that runs the length of Sheridan Street from Cumberland to Walnut with the exception of a gap at Fort Sumner park. It intersects Walnut Street "level" so that it provides a safe landing and turning point for handicapped individuals. There is also a crosswalk for Walnut on that side of the road. This would be difficult to achieve on our corner due to the slope intersections of Walnut Street, Sheridan Street and our property. There is a 1'-0" foot drop in an 8'-0" area at the corner. **Please note:** We are happy to contribute to the construction required to bridge the sidewalk gap at Fort Sumner when the City installs that sidewalk or contribute to the addition of a rubber tactile pad on the corner of Walnut and Sheridan, where there is currently none.
4. The next building on Sheridan Street on the west side of the road is 240' away from the end of our property and 344' from the intersection of Walnut. There is no sidewalk existing along this stretch. All of it is protected with a guardrail due to a very steep slope.

(See topography map below.) The property in between is the former Creighton's property. Its only access is from Washington Ave. It is under redevelopment right now with no changes to the building, the lot is now being built out as a 160+ car parking lot, and the new tenant has a 10-year lease, so there is no expectation for a connecting sidewalk in the near future.

5. It would put an undue burden on the property owner to maintain a clear sidewalk in winter months. They would be obligated to shovel over 103' of sidewalk that would in turn place the snow plowed from the street up against our building foundation because of the lack of an esplanade.

Due to all these unique and extraordinary conditions, we request a waiver on placement of a new sidewalk on Sheridan Street and request we be allowed the continued use of the guardrail that is in place.

View of Site and abutting properties.

Topography of site and abutting properties.

Existing Driveway Views

View up Sheridan from Walnut

View of adjacent property from Sheridan St.

Sheridan Street Views

88 WALNUT STREET - JP SHERIDAN LLC
Request for Waiver for Location and Spacing of Driveways

Technical Manual Section 1.7.1
Residential development with nine (9) parking spaces or less:
Minimum/maximum driveway width: Any site shall have a minimum driveway width of ten (10) feet and a maximum width of twenty (20) feet measured at the property line.
Location of driveway: A driveway shall be located on the lot in a manner to provide a minimum distance of twenty (20) ft spacing between it and adjacent driveways. This spacing shall be measured between edge of driveways at the property line. If the development is a Level III site plan with frontage on an arterial roadway, the standards listed in the table under section 1.6.1.7 shall apply.
No more than one (1) driveway shall be permitted.

We request a waiver from this standard due to the unique characteristics of the site and the inability to achieve a 20' separation without creating other site problems.

The development is an infill project where the existing lot has a dual driveway with curb cuts. The site is unique in that it is a corner lot with a steep drop of 10' from Sheridan Street to the existing curb cut on Walnut Street. The drive is located about 48' from the intersection with Sheridan Street. Using the existing driveway curb cut was the best, if not only option for the site. It is in the desired location for a 26' garage with a 24' back-up area of the driveway with the building being sited into the hill of the property. The design standards for a B2b zone encourage the creation of an urban street wall as well so it made the most sense to bury the garage bays into the hill.

Moving the driveway closer to Sheridan Street to provide separation was not desirable or economical. We would lose the turning radius needed to drive into the garage. It would require a taller retaining wall between properties, fill to raise the driveway elevation, the removal of a street tree, and would place the drive closer to the intersection of Sheridan Street.

The existing driveways currently abut at the property line with about 3' separation at the street. We will be removing a portion of the existing asphalt to provide for drainage and planting, and a privacy screen, between the existing house and new apartment building. This will create about 9' of separation between the driveways at the property line and 12' of separation at the street.

Combining driveways is not an option as there is a 2' grade change between the two, with an existing retaining wall separating them, and the lower drive will lose its parking area.

Construction Management - 88 Walnut

Summary

We are hoping to begin site work for the project in the Fall of 2017. Site work and construction will be performed continuously through the fall (pending permit approval) and into the winter, in two phases. Phase one includes the required site work, pilings, cofferdam, retaining wall and foundation/slab pour, to begin in October. Phase 2 will begin immediately following, in November/December 2017, and continue through March 2018. Construction will be performed by Papi and Romano builders. Site work will be performed by Les Wilson & Sons. Cofferdam and pilings will be done by HB Fleming. Concrete work will be done by Tristone Industries. Work will be performed Monday-Friday, excluding holidays, beginning after 7am and ending at 6pm daily. The work site will be closed off to pedestrian access throughout construction with temporary fencing along the Walnut St entrance point.

Throughout both phases of construction, site work and parking will be contained to the 88 Walnut St property, and the abutting property at 176 Sheridan St. During Phase 2, there may be a need to access the building from Sheridan street via a parked boom, at which point we will file the necessary paperwork to get parking permits to reserve 2 parking spots on Sheridan St above the site. As is, there is parking on the side of the street, and the parked boom will not interrupt traffic or pedestrian flow.

Construction Administration and Communication

Point of contact for Papi and Romano Builders, who will be managing the site throughout all site work and construction: Rick Romano (207)-650-3670 , and Ken Booth (207)-650-3579. The 24hr contact is Jake Edwards (207)-415-3037.

Construction Schedule

Phase I - October-November 2017

- Demo existing 3 car garage. Dig safe has been notified of the demolition, and the required demo permits will be filed upon Planning Board approval of the project.
- Site work
    - Excavating, pilings & cofferdam, build retaining wall into the back of Sheridan Street
    - Foundation and slab pour - access site from below, on 88 Walnut property
- Street opening - we have been in touch with Nathaniel Smith at the City to coordinate with the contractor that will be performing the Walnut Street opening for sewer work, so that if timing allows we can pull the sewer/water/gas connections from Walnut Street when it is open. Last we were aware, the project had not yet gone out to bid. If we cannot

coordinate the timing, we hope to perform the street opening during Phase 1 of construction, during the site work, and will file for the necessary street opening permits. Work will be done by Les Wilson & Sons.

Phase II - December 2017-April 2018

- Papi and Romano builders, and all subcontractors, will be accessing the building site off of Walnut St from the bottom of the building. Off-street parking for work vehicles will be provided at the base of the work site, in what is shown as the new driveway on the site plan. Should we need to access the site from Sheridan St, the proper Parking Ban permitting will be acquired through the City's Public Works department with no parking signs posted at least 24 hours in advance.
- We will landscape the site as soon as the weather allows in the Spring of 2018, per the submitted landscape plan.

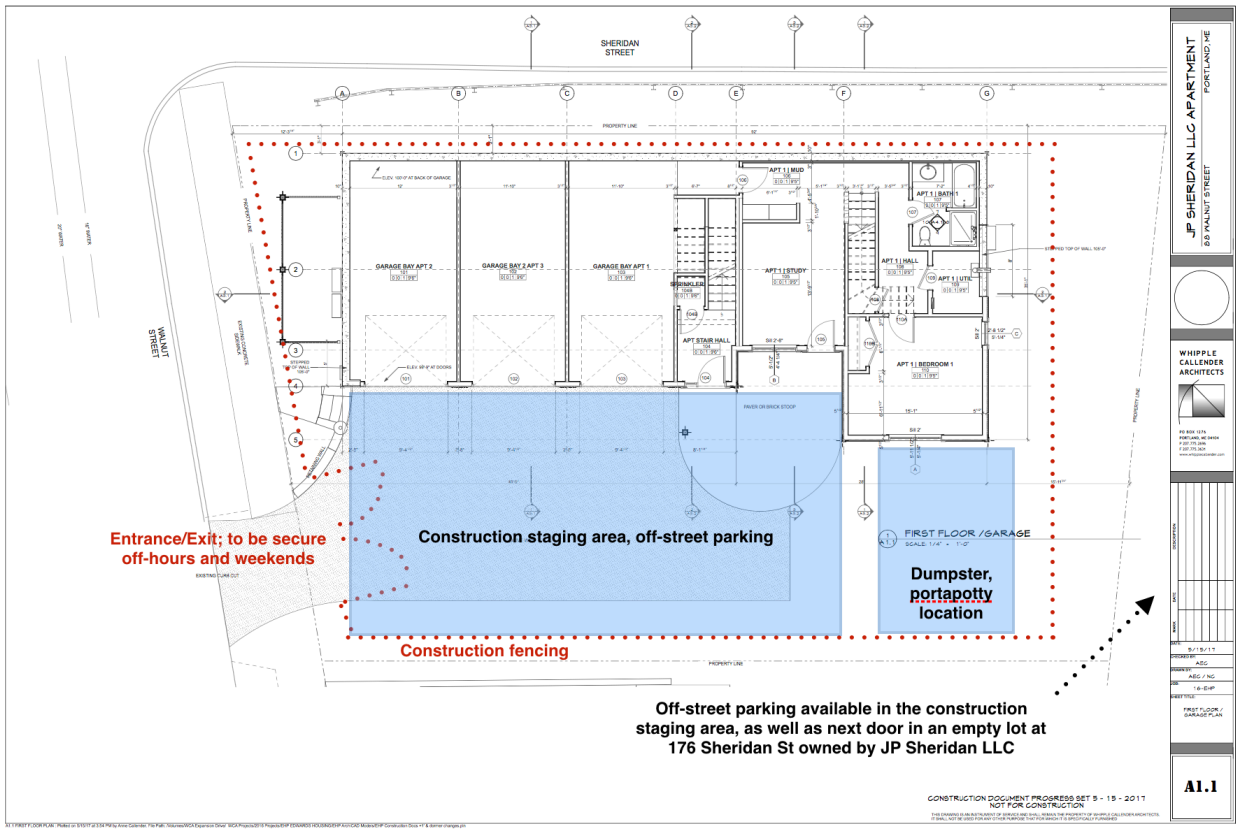
Security & Public Safety

- A temporary perimeter fence will enclose the work site, running on the property from the intersection of Walnut St and Sheridan down to the northeast point of the property, and then perpendicular to Walnut St, along the existing retaining wall that separate 88 Walnut from 94 Walnut.

Site Management

- Papi and Romano will be responsible for removing all trash and debris weekly, at a minimum. Les Wilson & Sons will do any necessary snow removal from the work site as well as snow removal, sanding and salting of the work site and Walnut St sidewalk during construction.

Site Overview, Plan



Les Wilson and Sons Excavating Contractors
P.O. Box 1028, Westbrook, ME 04098

Att. M

JP Sheridan LLC
C/O Jake Edwards

July 14, 2017

Les Wilson and Sons is pleased to submit the following proposal for snow plowing, sanding and removal services for the coming 2017 – 2018 winter season.

Contract price: $3,600.00

***Our contract price Includes unlimited plowing of all storms with 2" or more of accumulation and 14 applications of salted sand. Any work other than stated (snow removal, push back or hand shoveling) will only be performed at your request and will be considered an extra and billed at the below referenced rates. There is a one-hour minimum charge on all equipment. Storms with more than 16" of accumulation will be charged out at $20.00 per additional inch.*

Invoicing will be as follows: $1,200.00 on December 1, 2017, January 1, 2018 and February 1, 2018. The invoice terms are "due upon receipt."

EXTRA SERVICE RATES:

Salted sand (after 14 applications)	$125.00 per application
Loader	$150.00 per hour
14 yard dump truck	$70.00 per hour
18 yard dump truck	$80 per hour
Dump fees	$30.00 per load

Les Wilson & Sons will stake out the property prior to the plow season, but will not be responsible for repairs or replacement of lawn areas, shrubs, trees, fencing or curbing that may be damaged during the winter season.

Les Wilson and Sons Excavating Contractors
P.O. Box 1028, Westbrook, ME 04098

All material is guaranteed to be as specified. All work is to be completed in a workmanlike manner according to standard practices. Any alteration or deviation from specifications above involving extra costs will become an extra charge over and above the estimate. All agreements contingent upon strikes, accidents or delays beyond our control. Owner to carry fire, tornado and other necessary insurance. Our workers are fully covered by Workman's Compensation Insurance. Customer is responsible for any and all collection fees including, but not limited to, attorney fees and court costs.

Please note, this proposal may be withdrawn by us if not accepted within 30 days.

If this is acceptable to you, please sign and return one copy to us. Thank you.

Les Wilson & Sons

Chris Wilson

Chris Wilson
President

ACCEPTANCE OF PROPOSAL: The above prices, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Payment will be made as outlined above.

Date of Acceptance: _____

Signature: _____

Att. N

Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

May 12, 2017

David Latham
424 Fore Street
Portland, ME 04101

Re: 389936-94 Walnut Street, Portland
Ability to Serve with PWD Water

Dear Applicant:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on April 20, 2017. Based on the information provided per the Site Utility and Drainage Plan (C100), approved on 4/25/17, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 2-inch domestic water service and 4-inch fire sprinkler service may be installed from the new water main in Walnut Street. The service(s) should enter through the properties frontage at least 10-feet from any side property lines.
- The services will be installed as part of the water main renewal project. The PWD contractor awarded the renewal project work will install the services from the main to the property line, including the tees and valves. Prices for the work to be determined at a later date and fees collected during the service application.
- Service installation will need to be coordinated with the schedule of the water main renewal project.

Prior to construction, the owner or contractor will need to make an appointment to complete a service application form and pay all necessary fees. The appointment shall be requested through MEANS@pwd.org or by calling 207-774-5961 ext. 3199. Please allow (3) business days to process the service application paperwork. PWD will guide the applicant through the new development process during the appointment.

Existing Site Service

According to District records, the project site does not currently have existing water service.

225 DOUGLASS STREET P.O. BOX 3553 PORTLAND, MAINE 04104-3553
PHONE: 207.774.5961 FAX: 207.761.8307 WEB: WWW.PWD.ORG

Water System Characteristics

According to District records, there is an 16-inch diameter cast iron water main within Walnut Street that is planned for renewal with a 12-inch ductile iron main in the summer of 2017, and a public fire hydrant located 100 feet from the site. Recent flow data is not available in this area. The most recent static pressure reading of the hydrant was 61 psi.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the City of Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact MEANS to request a hydrant flow test and we will work with you to get more complete data.

Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Robert A. Bartels, P.E.
Senior Project Engineer

J.P. SHERIDAN LLC APARTMENTS

88 WALNUT STREET

JUNE 20, 2017

GENERAL NOTES

1) BOUNDARY AND TOPOGRAPHY INFO. TAKEN FROM OWEN HASKELL, INC DATED 11–12–15.

2) THE CONTRACT WORK TO BE PERFORMED ON THIS PROJECT CONSISTS OF FURNISHING ALL REQUIRED LABOR, MATERIALS, EQUIPMENT, IMPLEMENTS, PARTS AND SUPPLIES NECESSARY FOR OR APPURTENANT TO, THE INSTALLATION OF CONSTRUCTION IMPROVEMENTS IN ACCORDANCE WITH THESE DRAWINGS AND AS FURTHER ELABORATED IN ANY ACCOMPANYING SPECIFICATIONS.

3) THE WORK SHALL BE PERFORMED IN A THOROUGH WORKMANLIKE MANNER. ALL CONTRACTORS TO CONFORM TO ALL APPLICABLE OSHA STANDARDS. ANY REFERENCE TO A SPECIFICATION OR DESIGNATION OF THE AMERICAN SOCIETY FOR TESTING MATERIALS, FEDERAL SPECIFICATIONS, OR OTHER STANDARDS, CODES OR ORDERS, REFERS TO THE MOST RECENT OR LATEST SPECIFICATION OR DESIGNATION.

4) ALL CONSTRUCTION WITHIN THE TOWN RIGHT OF WAY SHALL COMPLY WITH TOWN PUBLIC WORKS STANDARDS. ALL CONSTRUCTION WITHIN A STATE RIGHT OF WAY SHALL COMPLY WITH MAINE D.O.T. STANDARDS. ALL UTILITY CONSTRUCTION SHALL CONFORM TO RESPECTIVE UTILITY STANDARDS.

5) THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS REQUIRED BY THE TOWN PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM THE TOWN REQUIRED TO PERFORM ALL THE WORK (STREET OPENINGS, BUILDING PERMIT, ETC.). THE CONTRACTOR SHALL POST ALL BONDS AS REQUIRED, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.

6) PRIOR TO CONSTRUCTION, THE SITE CONTRACTOR IS TO INFORM ALL AREA UTILITY COMPANIES AND GOVERNMENTAL AGENCIES OF PLANNED CONSTRUCTION. THE SITE CONTRACTOR IS REQUIRED TO CONTACT DIG–SAFE (1–800–225–4977) AT LEAST 3 BUSINESS DAYS PRIOR TO ANY EXCAVATION TO VERIFY ALL UNDERGROUND AND OVERHEAD UTILITY LOCATIONS.

7) THE PROJECT DRAWINGS ARE GENERALLY SCHEMATIC AND INDICATE THE POSSIBLE LOCATION OF EXISTING UNDERGROUND UTILITIES. INFORMATION ON EXISTING UTILITIES HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY COMPANY MAPS, MUNICIPAL RECORD MAPS, AND FIELD SURVEY. IT IS NOT GUARANTEED TO BE CORRECT OR COMPLETE. UTILITIES ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES, INCLUDING SERVICES, WHEN THOSE SERVICES ARE TO BE LEFT IN PLACE. THE CONTRACTOR IS TO PROVIDE ADEQUATE MEANS OF SUPPORT AND PROTECTION DURING THE EXCAVATING AND BACKFILLING OPERATIONS. SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED UTILITIES BE FOUND, THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH THE WORK IN THIS AREA.

8) OSHA REGULATIONS MAKE IT UNLAWFUL TO OPERATE CRANES, BOOMS, HOISTS, ETC. WITHIN TEN FEET (10') OF ANY ELECTRIC LINE . IF THE CONTRACTOR MUST OPERATE CLOSER THAN 10', THE CONTRACTOR MUST CONTACT THE POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS BEFORE ENCROACHING ON THIS REQUIREMENT.

9) IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE ALL PLANS, APPROVALS, AND DETAILS FOR ADDITIONAL INFORMATION. THE CONTRACTOR SHALL VERIFY ALL THE SITE CONDITIONS IN THE FIELD AND CONTACT THE DESIGN ENGINEER IF THERE ARE ANY DISCREPANCIES REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT AN APPROPRIATE REVISION CAN BE MADE PRIOR TO BIDDING.

10) THE CONTRACTOR SHALL REFERENCE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND CONSTRUCTION DETAILS OF THE BUILDING AREA. BUILDING AND DRIVEWAYS SHOWN ARE CONCEPTUAL. ALL SITE DIMENSIONS ARE REFERENCED TO PROPERTY LINES, THE FACE OF CURBS, OUTSIDE FACE OF WALLS, OR EDGE OF PAVING UNLESS OTHERWISE NOTED.

11) ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED IN WRITING BY THE OWNER, DESIGN ENGINEER, AND APPROPRIATE GOVERNMENTAL AGENCY PRIOR TO INSTALLATION.

12) THE CONTRACTOR SHALL RESTORE ALL UTILITY STRUCTURES, PIPE, UTILITIES, PAVEMENT, CURBS, SIDEWALKS, AND LANDSCAPED AREAS DISTURBED BY CONSTRUCTION TO AS GOOD AS BEFORE BEING DISTURBED AS DETERMINED BY CITY CODE ENFORCEMENT OFFICIALS. ANY DAMAGES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

13) ALL EXCAVATION SHALL BE BACKFILLED TO EXISTING GRADE BEFORE THE END OF THE DAY OR ADEQUATELY PROTECTED FROM DANGER TO HUMANS AND ANIMALS.

14) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL FIELD LAYOUT. THE OWNER WILL PROVIDE A BENCH MARK AT THE CONSTRUCTION SITE FROM WHICH TO BEGIN LAYOUT.

15) THE CONTRACTOR SHALL GUARANTEE THE FAITHFUL REMEDY OF ANY DEFECTS DUE TO FAULTY MATERIALS OR WORKMANSHIP AND GUARANTEES PAYMENT FOR ANY RESULTING DAMAGE WHICH SHALL APPEAR WITHIN A PERIOD OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE PROJECT.

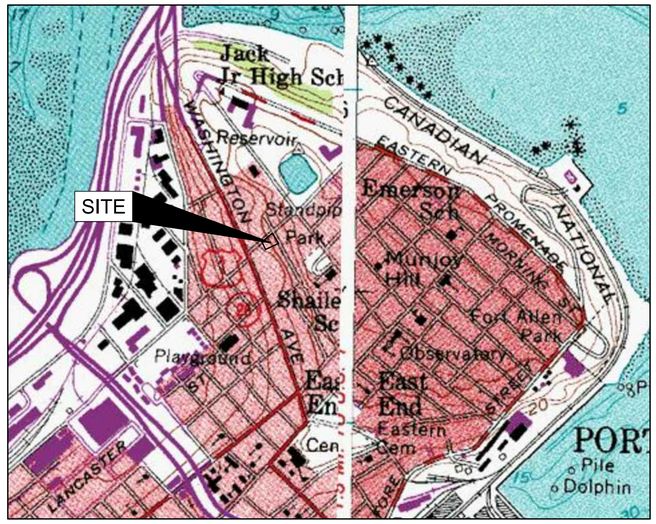
16) THE CONTRACTOR SHALL PROVIDE AS–BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE OWNER AT THE END OF CONSTRUCTION.

17) A PRE–CONSTRUCTION CONFERENCE WITH THE OWNER, DESIGNERS, TOWN OFFICIALS AND CONTRACTOR SHALL BE REQUIRED BEFORE ANY CONSTRUCTION OCCURS ON THE PROJECT. DURING CONSTRUCTION THERE SHALL BE WEEKLY PROGRESS MEETINGS WITH THE OWNER (ON SITE OR TELECONFERENCE) UNTIL PROJECT COMPLETION.

18) PROPER IMPLEMENTATION AND MAINTENANCE OF EROSION CONTROL MEASURES ARE OF PARAMOUNT IMPORTANCE FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR STATE/LOCAL/ FEDERAL INSPECTORS AT NO ADDITIONAL COST TO THE OWNER.

DRAWING LIST

C100	SITE UTILITY AND DRAINAGE PLAN
C101	PRE AND POST WATERSHED PLAN
C200	SITE DETAILS
C201	SITE DETAILS
C300	EROSION CONTROL DETAILS



LOCUS MAP

NOT TO SCALE

SIGNATURE BLOCK

LEGEND

EXISTING		PROPOSED
■	MONUMENT FOUND	
	UTILITY POLE	
	MANHOLE	
	SIGN	
	HYDRANT	
	WATER VALVE OR SHUTOFF	
	GAS VALVE	
	ELECTRIC OR GAS METER	⊠
	STONE WALL	
	CURB	
OE	OVERHEAD ELECTRIC	OE
D	STORM DRAIN LINE	D
G	GAS LINE	
TM	TAX MAP	
N/F	NOW OR FORMERLY	
000/000	DEED BOOK AND PAGE	
	PAVEMENT	
	CONTOUR LINES	
	BUILDING	
	SUBCATCHMENT LINE	
	TIME OF CONCENTRATION	

OWNER:

JP SHERIDAN LLC
88 WALNUT STREET
PORTLAND, ME 04101

ARCHITECT:

WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE
PORTLAND, ME 04103

CONSULTANTS:

CASCO BAY ENGINEERING
424 FORE STREET
PORTLAND, ME 04101

CASCO BAY ENGINEERING
424 Fore Street
Portland, ME 04101
Phone 207.842.2800
Fax 207.842.2828
www.cascobayengineering.com

CLIENT:

WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE.
PORTLAND, MAINE 04103

STATE OF MAINE
ERIC DUBE
No. 12630
LICENSED PROFESSIONAL ENGINEER
6/20/17

JP SHERIDAN LLC APARTMENT
88 WALNUT STREET
PORTLAND, ME
PROPOSED BUILDING

REVISIONS

No.	DATE	ISSUE
X	X	ISSUE X
X	X	

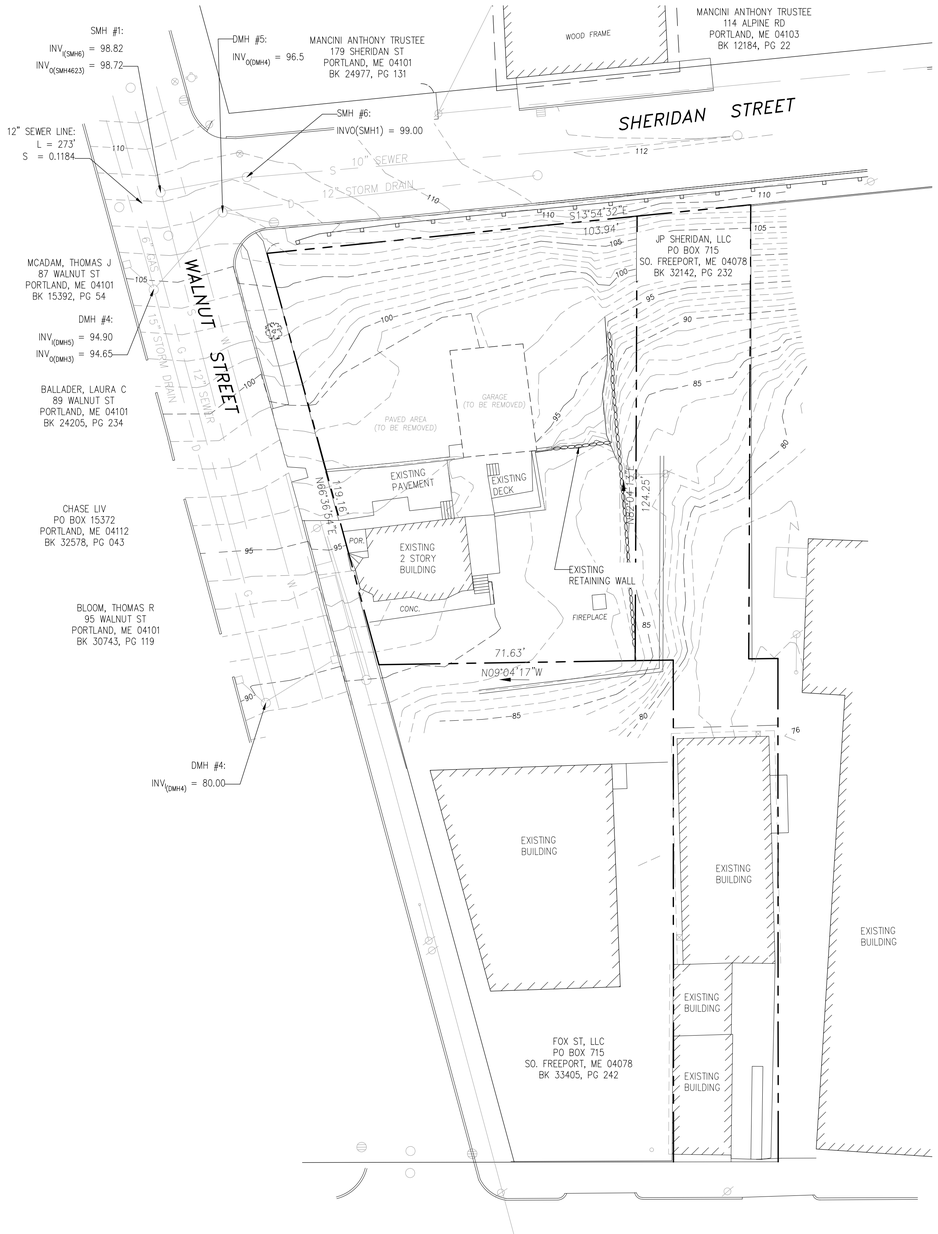
SHEET TITLE:

COVER SHEET

DESIGNED:	ED
DRAWN:	DL
DATE:	6–20–17
CADD FILE:	16–195–C100.DWG
PROJECT NUMBER:	16–195

C0

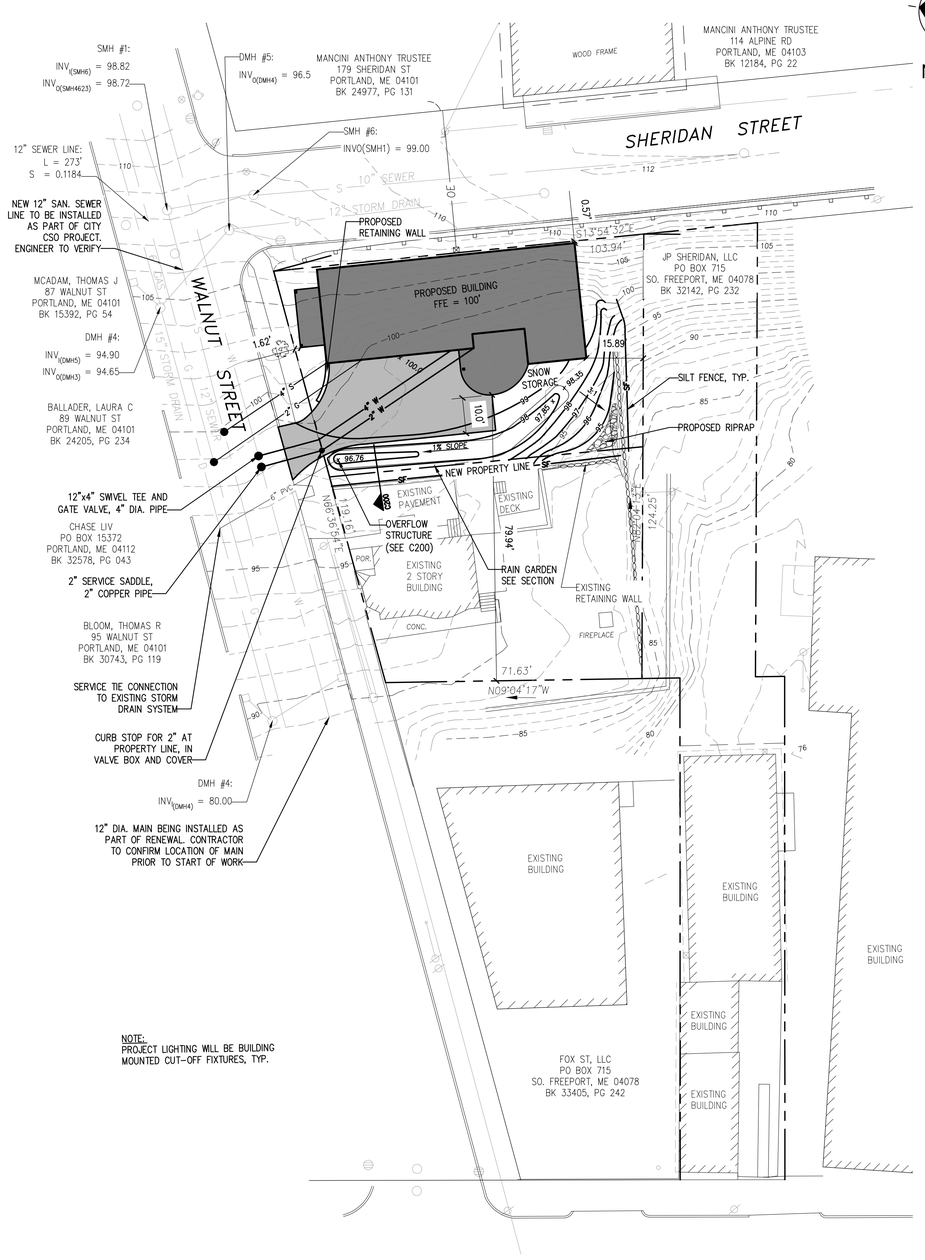
PRINTED: Jun 20, 2017



GRAPHIC SCALE

0 10' 20' 40' 80'

EXISTING SITE PLAN



NOTE:
PROJECT LIGHTING WILL BE BUILDING MOUNTED CUT-OFF FIXTURES, TYP.

PROPOSED SITE PLAN

SITE PLAN

SCALE: 1:20

-

CASCO BAY ENGINEERING
424 Fore Street
Portland, ME 04101
Phone 207.842.2800
Fax 207.842.2828
www.cascobayengineering.com

CLIENT:
WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE.
PORTLAND, MAINE 04103

STATE OF MAINE
ERIC DUBE
No. 12630
LICENSED
PROFESSIONAL ENGINEER
6/20/17

JP SHERIDAN LLC APARTMENT
88 WALNUT STREET
PORTLAND, MAINE

PROPOSED BUILDING

ISSUED

No.	DESCRIPTION	DR. BY	CKD. BY	DATE

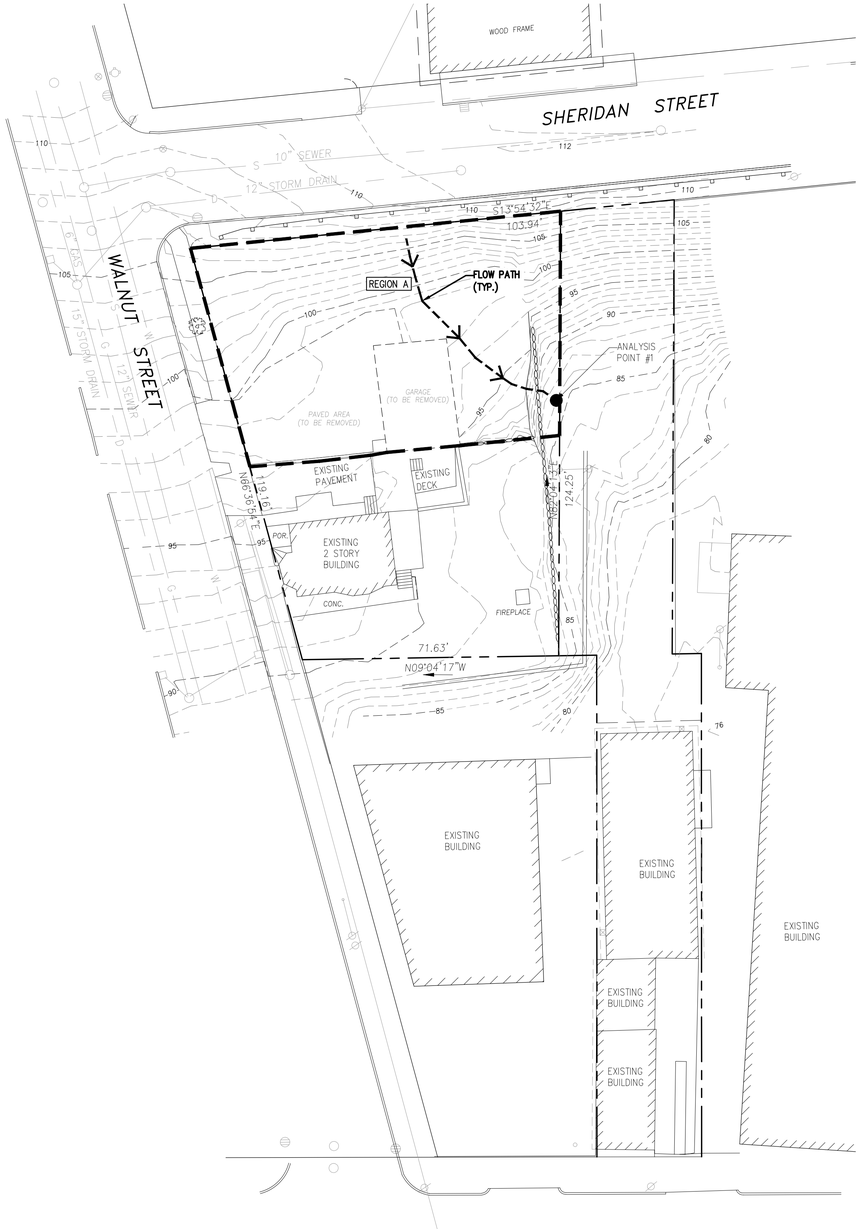
SHEET TITLE:

SITE UTILITY AND DRAINAGE PLAN

DESIGNED:	ED
DRAWN:	DL
DATE:	6-20-17
PROJECT NUMBER:	16-195

C100

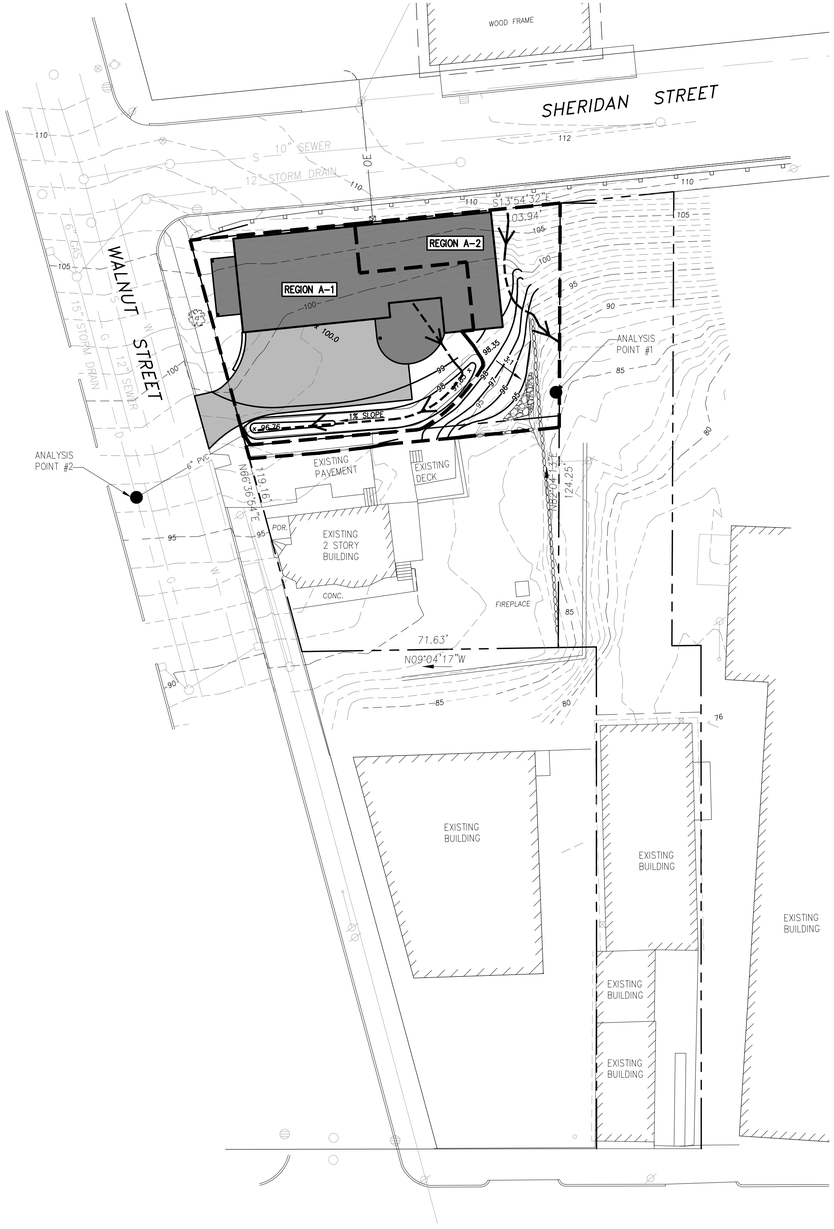
PRINTED: Jun 20, 2017



GRAPHIC SCALE

0 10' 20' 40' 80'

PRE DEVELOPMENT WATERSHED PLAN SCALE: 1:20 -



NOTE: ALL SOILS ON SITE ARE HYDROLOGIC SOIL GROUP "A"

POST DEVELOPMENT WATERSHED PLAN SCALE: 1:20 -

CASCO BAY ENGINEERING
424 Fore Street
Portland, ME 04101
Phone 207.842.2800
Fax 207.842.2828
www.cascobayengineering.com

CLIENT:
WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE.
PORTLAND, MAINE 04103

STATE OF MAINE · ERIC DUBE No. 12630 · LICENSED PROFESSIONAL ENGINEER · Dube, P.E. 6/20/17

JP SHERIDAN LLC APARTMENT
88 WALNUT STREET PORTLAND, MAINE
PROPOSED BUILDING

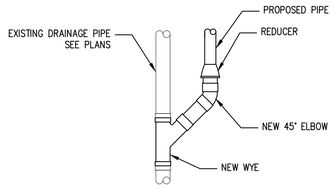
ISSUED

No.	DESCRIPTION	DR. BY	CKD. BY	DATE

SHEET TITLE:
PRE AND POST WATERSHED PLAN

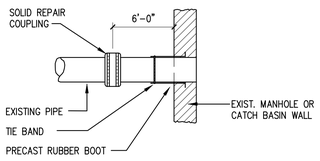
DESIGNED:	ED
DRAWN:	DL
DATE:	6-20-17
PROJECT NUMBER:	16-195

C101



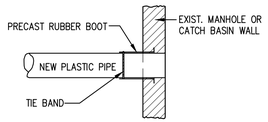
NEW PIPE INTO EXISTING PIPE

NOTE:
REMOVE WATERPROOFING FROM STRUCTURE BEFORE APPLYING MORTAR. WATERPROOF AGAIN AFTER MORTAR HAS SET.



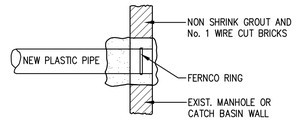
METHOD 1 – EXISTING OR NEW PIPE INTO NEW STRUCTURE

NOTE:
REMOVE WATERPROOFING FROM STRUCTURE BEFORE APPLYING MORTAR. WATERPROOF AGAIN AFTER MORTAR HAS SET. NEW HOLES MUST BE CORE DRILLED INTO MANHOLE. NO JACK HAMMERING OR SAW CUTTING IS ALLOWED TO CONNECT THE PIPE.



METHOD 2 – NEW CONSTRUCTION

NOTE:
EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION. IF PIPE DIAMETER IS SO LARGE THAT CORE DRILLING IS PROHIBITED, THE CONTRACTOR MAY USE ANY COMBINATION OF JACK HAMMERING AND SAW CUTTING THE STRUCTURE TO CREATE PIPE OPENING. THE NEW OPENING MUST THEN BE SEALED AND WATERTIGHT BOTH INSIDE AND OUTSIDE THE STRUCTURE.

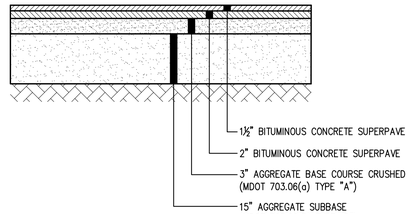


METHOD 3 – NEW PIPE INTO EXISTING STRUCTURE

NOTE:
NEW SEWER PIPE MUST BE PRESSURE TESTED AFTER INSTALLATION IS COMPLETE. SEWER DISTRICT STAFF MUST BE PRESENT DURING TESTING AND MUST INSPECT ALL STRUCTURES AND PIPING BEFORE THEY ARE BACK FILLED.

SEWER CONNECTION DETAIL

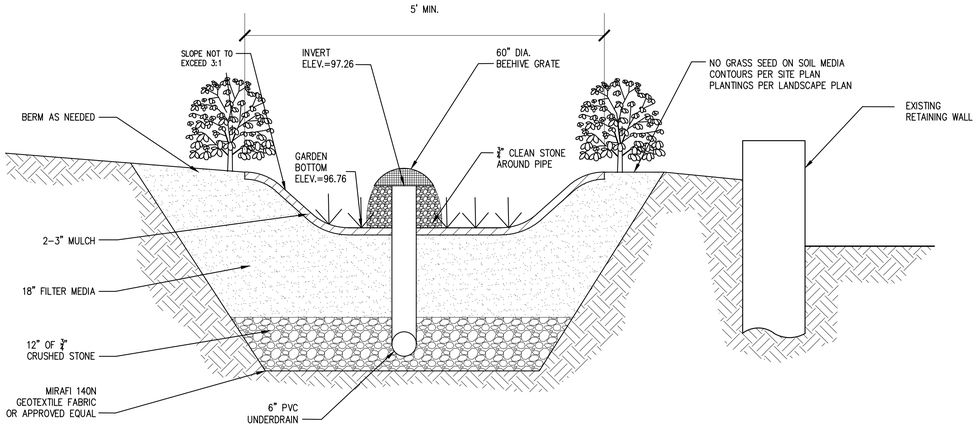
NTS



NOTE:
1. COMPACT GRAVEL SUBBASE, BASE COURSE TO 95% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

PARKING LOT SECTION

NTS



RETAINING WALL AND RAIN GARDEN SECTION

NTS

*NOTES:

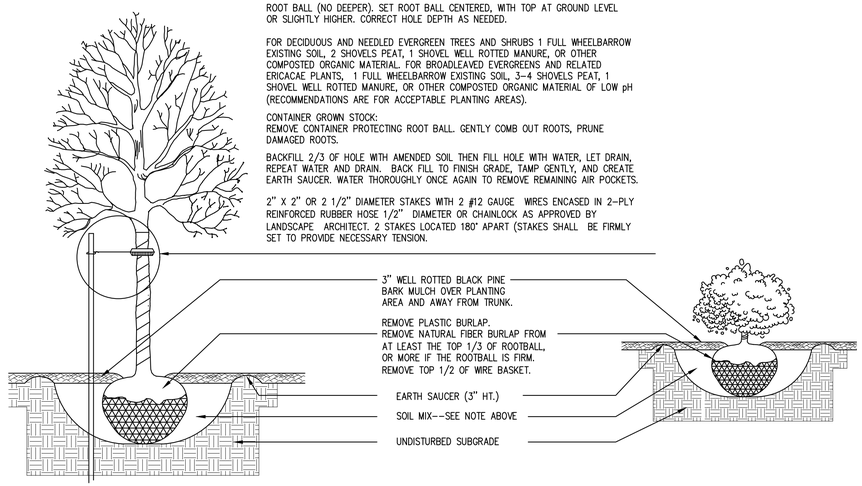
DIG HOLE AT LEAST 2 TIMES THE WIDTH OF ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH TOP AT GROUND LEVEL OR SLIGHTLY HIGHER. CORRECT HOLE DEPTH AS NEEDED.

FOR DECIDUOUS AND NEEDLED EVERGREEN TREES AND SHRUBS 1 FULL WHEELBARROW EXISTING SOIL, 2 SHOVELS PEAT, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL. FOR BROADLEAVED EVERGREENS AND RELATED ERICACAE PLANTS, 1 FULL WHEELBARROW EXISTING SOIL, 3–4 SHOVELS PEAT, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL OF LOW pH (RECOMMENDATIONS ARE FOR ACCEPTABLE PLANTING AREAS).

CONTAINER GROWN STOCK:
REMOVE CONTAINER PROTECTING ROOT BALL. GENTLY COMB OUT ROOTS, PRUNE DAMAGED ROOTS.

BACKFILL 2/3 OF HOLE WITH AMENDED SOIL THEN FILL HOLE WITH WATER, LET DRAIN, REPEAT WATER AND DRAIN. BACK FILL TO FINISH GRADE, TAMP GENTLY, AND CREATE EARTH SAUCER. WATER THOROUGHLY ONCE AGAIN TO REMOVE REMAINING AIR POCKETS.

2" X 2" OR 2 1/2" DIAMETER STAKES WITH 2 #12 GAUGE WIRES ENCASED IN 2–PLY REINFORCED RUBBER HOSE 1/2" DIAMETER OR CHAINLOCK AS APPROVED BY LANDSCAPE ARCHITECT. 2 STAKES LOCATED 180° APART (STAKES SHALL BE FIRMLY SET TO PROVIDE NECESSARY TENSION.



TREE AND SHRUB INSTALLATION DETAIL

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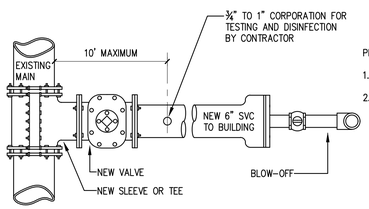
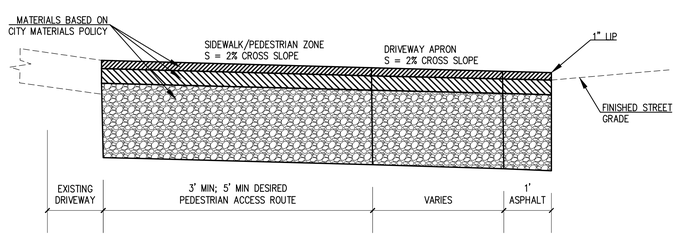


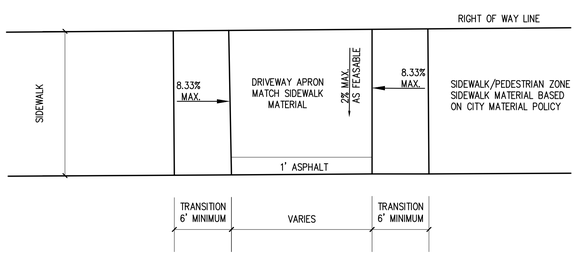
PROCEDURES:

1. NEW VALVE TO REMAIN SHUT AND ONLY OPERATED BY DISTRICT FOR FLUSHING, TESTING, DISINFECTING, ETC.
2. THE TESTING CORPORATION LOCATION MUST BE ACCESSIBLE BY:
   A. LEAVING THE EXCAVATION OPEN DURING TESTING -- DISINFECTION PERIOD, OR BY:
   B. INSTALLING A "JUMPER LINE" TO THE GROUND SURFACE WITH THE CORPORATION BEING AN ANGLE VALVE IN A VALVE BOX, OR BY USING A SERVICE BOX AND ROD. AFTER COMPLETION OF THE HYDROSTATIC TEST AND THE DISINFECTION PROCEDURE:
      (1) THE ANGLE VALVE IS SHUT,
      (2) THE "JUMPER LINE" IS CUT OFF BELOW THE GROUND, AND
      (3) THE BOX IS PULLED.

NEW WATER SERVICE CONNECTION DETAIL

NTS





DRIVEWAY APRON WITH PEDESTRIAN ACCESS DETAIL

NTS

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424 Fore Street
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Fax 207.842.2828
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WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE
PORTLAND, ME 04103

STATE OF MAINE · ERIC DUBE No. 12630 · LICENSED PROFESSIONAL ENGINEER · 6/20/17

JP SHERIDAN LLC APARTMENTS
88 WALNUT ST
PORTLAND, ME
PROPOSED BUILDING

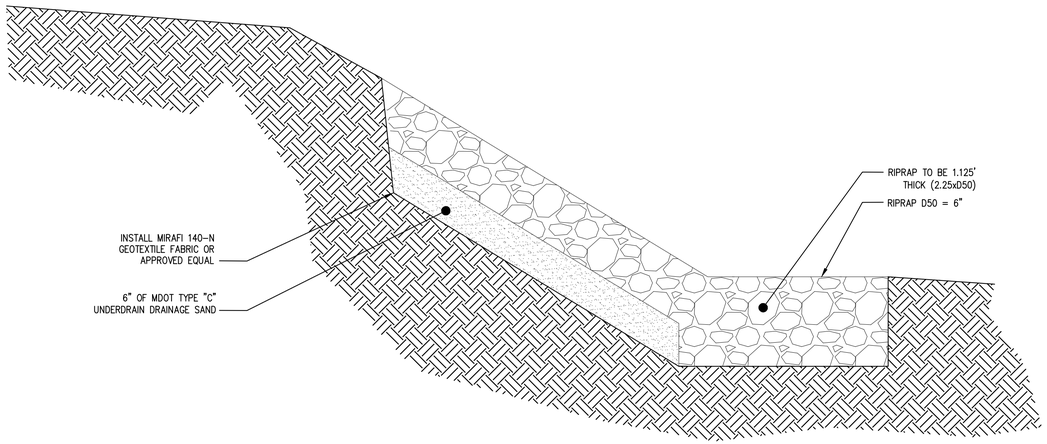
ISSUED

No.	DESCRIPTION	DR. BY	CKD. BY	DATE
A	FOR REVIEW	AM	ED	8-25-16

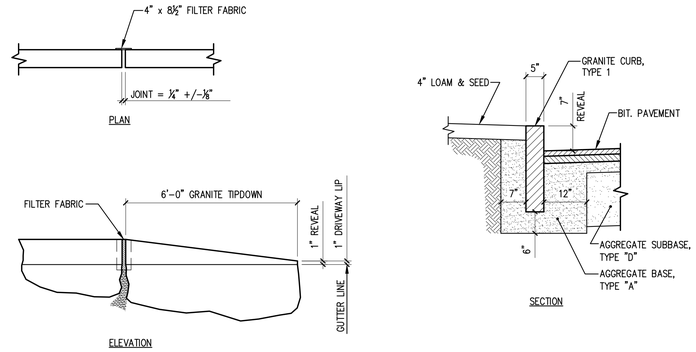
SHEET TITLE:
SITE DETAILS

DESIGNED:	ED
DRAWN:	DL
DATE:	6–20–17
PROJECT NUMBER:	16–195

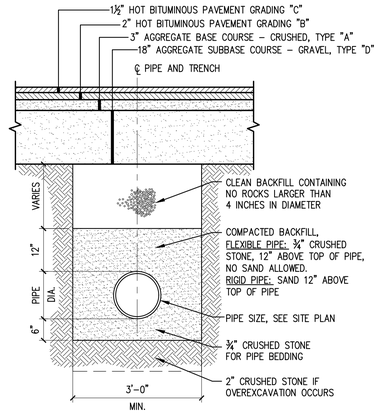
C200



SLOPE STABILIZATION WITH RIPRAP DETAIL NTS

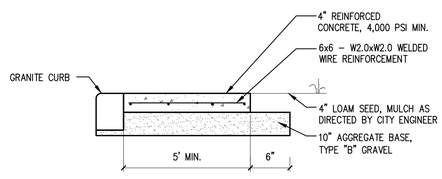


VERTICAL GRANITE CURB INSTALLATION AND TIPDOWN DETAIL NTS

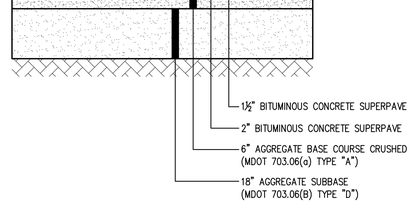


NOTE:
ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED BY THE CITY.

TYPICAL PIPE TRENCH INSTALLATION DETAIL NTS



TYPICAL REINFORCED CONCRETE SIDEWALK DETAIL NTS



NOTE:
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TYPICAL PAVEMENT REPAIR DETAIL NTS

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NTS

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NTS

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C201

EROSION AND SEDIMENTATION NOTES

1. THIS PLAN HAS BEEN DEVELOPED TO PROVIDE A STRATEGY FOR DEALING WITH SOIL EROSION AND SEDIMENTATION DURING AND AFTER PROJECT CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARD AND SPECIFICATIONS FOR EROSION PREVENTION AS CONTAINED IN THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: "MAINE EROSION AND SEDIMENT CONTROL BMPs" PUBLISHED BY THE MAINE DEP, LATEST EDITION.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

1. EROSION/SEDIMENT CONTROL DEVICES
   THE FOLLOWING EROSION SEDIMENTATION CONTROL DEVICES ARE PROPOSED FOR CONSTRUCTION ON THIS PROJECT. INSTALL THESE DEVICES AS INDICATED ON THE PLANS.

1.1 SILT FENCE: SILT FENCE WILL BE INSTALLED ALONG THE DOWN GRADING EDGES OF DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE SITE IS STABILIZED. IN AREAS WHERE STORMWATER DISCHARGES THE SILT FENCE WILL BE REINFORCED WITH HAY BALES TO HELP MAINTAIN THE INTEGRITY OF THE SILT FENCE AND TO PROVIDE ADDITIONAL TREATMENT.

1.2 HAY BALES TO BE PLACED IN LOW FLOW DRAINAGE SWALES AND PATHS TO TRAP SEDIMENTS AND REDUCE RUNOFF VELOCITIES. DO NOT PLACE HAY BALES IN FLOWING WATER OR STREAMS.

1.3 RIPRAP: PROVIDE RIPRAP IN AREAS WHERE CULVERTS DISCHARGE OR AS SHOWN ON THE PLANS.

1.4 LOAM, SEED, & MULCH: ALL DISTURBED AREAS, WHICH ARE NOT OTHERWISE TREATED, SHALL RECEIVE PERMANENT SEEDING AND MULCH TO STABILIZE THE DISTURBED AREAS. THE DISTURBED AREAS WILL BE REVEGETATED WITHIN 5 DAYS OF FINAL GRADING. SEEDING REQUIREMENTS ARE PROVIDED AT THE END OF THIS SPECIFICATION.

1.5 STRAW AND HAY MULCH; USED TO COVER DENUDED AREAS UNTIL PERMANENT SEED OR EROSION CONTROL MEASURES ARE IN PLACE. MULCH BY ITSELF CAN BE USED ON SLOPES LESS THAN 15% IN SUMMER AND 8% IN WINTER. ALL OTHER SLOPES MUST BE COVERED WITH JUTE MESH OVER MULCH, OR CURLEX II OR EXCELSIOR MAY BE USED IN PLACE OF JUTE MESH AND MULCH OVER LOAM AND SEED.

1.6 MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8% VEGETATED DRAINAGE SWALES SHALL BE LINED WITH EXCELSIOR OR CURLEX.

2. TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES
   PROVIDE THE FOLLOWING TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION OF THE DEVELOPMENT:

2.1 SILTATION FENCE ALONG THE DOWNGRADIENT SIDE OF THE PARKING AREAS AND OF ALL FILL SECTIONS. THE SILTATION FENCE WILL REMAIN IN PLACE UNTIL THE SITE IS 85% REVEGETATED.

2.2 HAY BALES PLACED AT KEY LOCATIONS TO SUPPLEMENT THE SILT FENCE.

2.3 PROTECT TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION AS FOLLOWS:

   A. SOIL STOCKPILE SIDE SLOPES SHALL NOT EXCEED 2:1.
   B. AVOID PLACING TEMPORARY STOCKPILES IN AREAS WITH SLOPES OVER 10 PERCENT, OR NEAR DRAINAGE SWALES. SEE ITEM 3 IN CONSTRUCTION PHASE NOTES BELOW.
   C. STABILIZE STOCKPILES WITHIN 15 DAYS BY TEMPORARILY SEEDING WITH A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH.
   D. SURROUND STOCKPILE SOIL WITH SILTATION FENCE AT BASE OF PILE.

2.4 ALL DENUDED AREAS WHICH HAVE BEEN ROUGH GRADED AND ARE NOT LOCATED WITHIN THE BUILDING PAD, OR PARKING AND DRIVEWAY SUBBASE AREA SHALL RECEIVE MULCH WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL OR WITHIN 15 DAYS AFTER COMPLETING THE ROUGH GRADING OPERATIONS. IN THE EVENT THE CONTRACTOR COMPLETES FINAL GRADING AND INSTALLATION OF LOAM AND SOD WITHIN THE TIME PERIODS PRESENTED ABOVE, INSTALLATION OF MULCH AND NETTING, WHERE APPLICABLE, IS NOT REQUIRED.

2.5 IF WORK IS CONDUCTED BETWEEN OCTOBER 15 AND APRIL 15, ALL DENUDED AREAS ARE TO BE COVERED WITH HAY MULCH, APPLIED AT TWICE THE NORMAL APPLICATION RATE, AND ANCHORED WITH FABRIC NETTING. THE PERIOD BETWEEN FINAL GRADING AND MULCHING SHALL BE REDUCED TO A 15 DAY MAXIMUM.

2.6 TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE HAS BEEN STABILIZED OR IN AREAS WHERE PERMANENT EROSION CONTROL MEASURES HAVE BEEN INSTALLED.

3. PERMANENT EROSION CONTROL MEASURES
   THE FOLLOWING PERMANENT CONTROL MEASURES ARE REQUIRED BY THIS EROSION/SEDIMENTATION CONTROL PLAN:

3.1 ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.), WILL BE LOAMED, LIMED, FERTILIZED AND SEEDED. NATIVE TOPSOIL SHALL BE STOCKPILED AND REUSED FOR FINAL RESTORATION WHEN IT IS OF SUFFICIENT QUALITY.

3.2 SLOPES GREATER THAN 2:1 WILL RECEIVE RIPRAP.

CONSTRUCTION PHASE

THE FOLLOWING GENERAL PRACTICES WILL BE USED TO PREVENT EROSION DURING CONSTRUCTION OF THIS PROJECT.

1. ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION WILL BE CLEARED AND LEFT IN AN UNTREATED OR UNVEGETATED CONDITION. IF FINAL GRADING, LOAMING AND SEEDING WILL NOT OCCUR WITHIN 15 DAYS, SEE ITEM NO. 4.
2. PRIOR TO THE START OF CONSTRUCTION IN A SPECIFIC AREA, SILT FENCING AND/OR HAY BALES WILL BE INSTALLED AT THE TOE OF SLOPE AND IN AREAS AS LOCATED ON THE PLANS TO PROTECT AGAINST ANY CONSTRUCTION RELATED EROSION. IMMEDIATELY FOLLOWING CONSTRUCTION OF CULVERTS AND SWALES, RIP RAP APRONS SHALL BE INSTALLED, AS SHOWN ON THE PLANS.
3. TOPSOIL WILL BE STOCKPILED WHEN NECESSARY IN AREAS WHICH HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM THE EXISTING DRAINAGE COURSE. NO STOCKPILE SHALL BE CLOSER THEN 100' OF A RESOURCE INCLUDING, BUT NOT LIMITED TO, WETLANDS, STREAMS, AND OPEN WATER BODIES. ALL STOCKPILES SHALL HAVE A SILTATION FENCE BELOW THEM REGARDLESS OF TIME OF PRESENCE. ALL STOCKPILES EXPECTED TO REMAIN LONGER THAN 15 DAYS SHALL BE:
   A. TREATED WITH ANCHORED MULCH (WITHIN 5 DAYS OF THE LAST DEPOSIT OF STOCKPILED SOIL).
   B. SEEDED WITH CONSERVATION MIX AND MULCHED IMMEDIATELY.
   C. INSTALL SILT FENCE AROUND STOCKPILE AT BASE OF PILE.
   STOCKPILES TO HAVE SILT FENCE INSTALLED AT TIME OF ESTABLISHMENT AT BASE OF PILE.
4. ALL DISTURBED AREAS EXPECTED TO REMAIN LONGER THAN 30 DAYS SHALL BE EITHER:
   A. TREATED WITH ANCHORED MULCH IMMEDIATELY, OR
   B. SEEDED WITH CONSERVATION MIX OF ANNUAL RYE GRASS (0.9 LBS/1000 SQ. FT) AND MULCHED IMMEDIATELY.
5. ALL GRADING WILL BE HELD TO A MAXIMUM 2:1 SLOPE WHERE PRACTICAL. ALL SLOPES WILL BE STABILIZED WITH PERMANENT SEEDING, OR WITH STONE, WITHIN 5 DAYS AFTER FINAL GRADING IS COMPLETE. (SEE POST-CONSTRUCTION REVEGETATION FOR SEEDING SPECIFICATION.)
6. ALL CULVERTS WILL BE PROTECTED WITH STONE RIPRAP (D50 = 6" UNLESS OTHERWISE SPECIFIED) AT INLETS AND OUTLETS.

POST-CONSTRUCTION REVEGETATION

THE FOLLOWING GENERAL PRACTICES WILL BE USED TO PREVENT EROSION AS SOON AS AN AREA IS READY TO UNDERGO FINAL GRADING.

1. A MINIMUM OF 4" OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND GRADED TO A UNIFORM DEPTH AND NATURAL APPEARANCE, OR STONE WILL BE PLACED ON SLOPES TO STABILIZE SURFACES.
2. IF FINAL GRADING IS REACHED DURING THE NORMAL GROWING SEASON (4/15 TO 9/15), PERMANENT SEEDING WILL BE DONE AS SPECIFIED BELOW. PRIOR TO SEEDING, LIMESTONE SHALL BE APPLIED AT A RATE OF 138 LBS/1000 SQ. FT. AND 10:20:20 FERTILIZER AT A RATE OF 18.4 LBS/1000 SQ.FT WILL BE APPLIED. BROADCAST SEEDING AT THE FOLLOWING RATES:

LAWNS	SWALES
KENTUCKY BLUEGRASS 0.46 LBS/1000 SF.	RED TOP 0.05 LBS/1000 SF.
CREEPING RED FESCUE 0.46 LBS/1000 SF.	TALL FESCUE 0.46 LBS/1000 SF.
PERENNIAL RYE GRASS 0.11 LB/1000 SF.	

3. AN AREA SHALL BE MULCHED IMMEDIATELY AFTER IS HAS BEEN SEEDED. MULCHING SHALL CONSIST OF HAY MULCH, HYDRO-MULCH, JUTE NET OVER MULCH, PRE-MANUFACTURED EROSION MATS OR ANY SUITABLE SUBSTITUTE DEEMED ACCEPTABLE BY THE DESIGNER.
   A. HAY MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE. HAY MULCH SHALL BE SECURED BY EITHER: (NOTE: SOIL SHALL NOT BE VISIBLE)
      I. BEING DRIVEN OVER BY TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
      II. BLANKETED BY TACKED PHOTODEGRADABLE/BIODEGRADABLE NETTING, OR WITH SPRAY, ON GRADES GREATER THAN 5%.
      III. SEE NOTE 6, GENERAL NOTES, AND NOTE 8, WINTER CONSTRUCTION.
   B. HYDRO-MULCH SHALL CONSIST OF A MIXTURE OF EITHER ASPHALT, WOOD FIBER OR PAPER FIBER AND WATER SPRAYED OVER A SEEDED AREA. HYDRO-MULCH SHALL NOT BE USED BETWEEN 9/15 AND 4/15.
4. CONSTRUCTION SHALL BE PLANNED TO ELIMINATE THE NEED FOR SEEDING BETWEEN SEPTEMBER 15 AND APRIL 15. SHOULD SEEDING BE NECESSARY BETWEEN SEPTEMBER 15 AND APRIL 15 THE FOLLOWING PROCEDURE SHALL BE FOLLOWED. ALSO REFER TO NOTE 9 OF WINTER CONSTRUCTION.
   A. ONLY UNFROZEN LOAM SHALL BE USED.
   B. LOAMING, SEEDING AND MULCHING WILL NOT BE DONE OVER SNOW OR ICE COVER. IF SNOW EXISTS, IT MUST BE REMOVED PRIOR TO PLACEMENT OF SEED.
   C. WHERE PERMANENT SEEDING IS NECESSARY, ANNUAL WINTER RYE (1.2 LBS/1000 SQ.FT) SHALL BE ADDED TO THE PREVIOUSLY NOTED AREAS.
   D. WHERE TEMPORARY SEEDING IS REQUIRED, ANNUAL WINTER RYE (2.6 LBS/1000 SQ. FT.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
   E. FERTILIZING, SEEDING AND MULCHING SHALL BE APPLIED TO LOAM THE DAY THE LOAM IS SPREAD BY MACHINERY.
   F. ALTERNATIVE HAY MULCH SHALL BE SECURED WITH PHOTODEGRADABLE/BIODEGRADABLE NETTING. TRACKING BY MACHINERY ALONE WILL NOT SUFFICE.
5. FOLLOWING FINAL SEEDING, THE SITE WILL BE INSPECTED EVERY 30 DAYS UNTIL 85% COVER HAS BEEN ESTABLISHED. RESEEDING WILL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF NOTIFICATION BY THE ENGINEER THAT THE EXISTING CATCH IS INADEQUATE.

MONITORING SCHEDULE

THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING, MONITORING, MAINTAINING, REPAIRING, REPLACING AND REMOVING ALL OF THE EROSION AND SEDIMENTATION CONTROLS OR APPOINTING A QUALIFIED SUBCONTRACTOR TO DO SO.

MAINTENANCE MEASURES WILL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AFTER EACH RAINFALL, A VISUAL INSPECTION WILL BE MADE OF ALL EROSION AND SEDIMENTATION CONTROLS AS FOLLOWS:

1. HAY BALE BARRIERS, SILT FENCE, AND STONE CHECK DAMS SHALL BE INSPECTED AND REPAIRED ONCE A WEEK OR IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL. SEDIMENT TRAPPED BEHIND THESE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6" AND REDISTRIBUTED TO AREAS UNDERGOING FINAL GRADING. SHOULD THE HAY BALE BARRIERS PROVE TO BE INEFFECTIVE, THE CONTRACTOR SHALL INSTALL SILT FENCE BEHIND THE HAY BALES.
2. VISUALLY INSPECT RIPRAP ONCE A WEEK OR AFTER EACH SIGNIFICANT RAINFALL AND REPAIR AS NEEDED. REMOVE SEDIMENT TRAPPED BEHIND THESE DEVICES ONCE IT ATTAINS A DEPTH EQUAL TO 1/2 THE HEIGHT OF THE DAM OR RISER. DISTRIBUTE REMOVED SEDIMENT OFF-SITE OR TO AN AREA UNDERGOING FINAL GRADING.
3. REVEGETATION OF DISTURBED AREAS WITHIN 25' OF DRAINAGE-COURSE/STREAM WILL BE SEEDED WITH THE "WET SWALE AREA MIX" AND INSPECTED ON A WEEKLY BASIS OR AFTER EACH SIGNIFICANT RAINFALL AND RESEEDED AS NEEDED. EXPOSED AREAS WILL BE RESEEDED AS NEEDED UNTIL THE AREA HAS OBTAINED 100% GROWTH RATE. PROVIDE PERMANENT RIPRAP FOR SLOPES IN EXCESS OF 3:1 AND WITHIN 25' OF DRAINAGE COURSE.

EROSION CONTROL DURING WINTER CONSTRUCTION

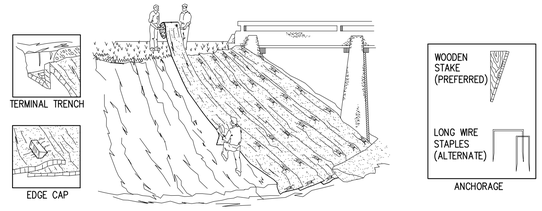
1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15.
2. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
3. EXPOSED AREA SHALL BE LIMITED TO THOSE AREAS TO BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. AT THE END OF EACH WORK WEEK NO AREAS MAY BE LEFT UNSTABILIZED OVER THE WEEKEND.
4. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
5. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1000 S.F. (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ANCHORED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH. NOTE: AN AREA IS ALSO CONSIDERED STABLE IF SODDED, COVERED WITH GRAVEL (PARKING LOTS) OR STRUCTURAL SAND.
6. BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE CONTINUOUSLY GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT UNEXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW, DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY, SILT FENCE OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS SHOWN ON THE DESIGN DRAWINGS. NOTE: DORMANT SEEDING SHOULD NOT BE ATTEMPTED UNLESS SOIL TEMPERATURE REMAINS BELOW 50 DEGREES AND DAY TIME TEMPERATURES REMAIN IN THE 30'S.
7. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8% VEGETATED DRAINAGE SWALES SHALL BE LINED WITH EXCELSIOR OR CURLEX.
8. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 15% AFTER OCTOBER 1 THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%
9. BETWEEN THE DATES OF OCTOBER 15 TO NOVEMBER 1, WINTER RYE IS RECOMMENDED FOR STABILIZATION. AFTER NOVEMBER 1, WINTER RYE IS NOT EFFECTIVE. AROUND NOVEMBER 15 OR LATER, ONCE TEMPERATURES OF THE AIR AND SOIL PERMIT, DORMANT SEEDING IS EFFECTIVE.
10. IN THE EVENT OF SNOWFALL (FRESH OR CUMULATIVE) GREATER THAN 1 INCH DURING WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM THE AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

SITE INSPECTION AND MAINTENANCE

1. WEEKLY INSPECTIONS, AS WELL AS ROUTINE INSPECTIONS FOLLOWING RAIN FALLS, SHALL BE CONDUCTED BY THE GENERAL CONTRACTOR OF ALL TEMPORARY AND PERMANENT EROSION CONTROL DEVICES UNTIL FINAL ACCEPTANCE OF THE PROJECT (85% GRASS CATCH). NECESSARY REPAIRS SHALL BE MADE TO CORRECT UNDERMINING OR DETERIORATION. FINAL ACCEPTANCE SHALL INCLUDE A SITE INSPECTION TO VERIFY THE STABILITY OF ALL DISTURBED AREAS AND SLOPES. UNTIL FINAL INSPECTION, ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL IMMEDIATELY BE CLEANED, AND REPAIRED BY THE GENERAL CONTRACTOR AS REQUIRED. DISPOSAL OF ALL TEMPORARY EROSION AND CONTROL DEVICES SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
   IT IS RECOMMENDED THAT THE OWNER HIRE THE SERVICES OF THE DESIGN ENGINEER TO PROVIDE COMPLIANCE INSPECTIONS (DURING ACTIVE CONSTRUCTION) RELATIVE TO IMPLEMENTATION OF THE STORMWATER AND EROSION CONTROL PLANS. SUCH INSPECTIONS SHOULD BE LIMITED TO ONCE A WEEK OR AS NECESSARY AND BE REPORTABLE TO THE OWNER, TOWN AND DEP.
2. SHORT-TERM SEDIMENTATION MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CLEAN OUT ALL SWALES AND STRUCTURES PRIOR TO TURNING PROJECT OVER TO THE CITY.

MAINTENANCE AFTER CONSTRUCTION

1. LONG-TERM PROVISIONS FOR PERMANENT MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROL FACILITIES AFTER ACCEPTANCE OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE OWNER OR THEIR DESIGNEE. SUCH RESPONSIBILITIES INCLUDE BUT ARE NOT LIMITED TO THOSE DETAILED AS FOLLOWS:
   A. PARKING LOT SHALL BE MECHANICALLY SWEPT TWICE PER YEAR. THE FIRST SHALL TAKE PLACE IN THE MID WINTER (JANUARY THAW) TO REMOVE ACCUMULATED SANDS FROM WINTER SANDING TO THIS POINT. THE SECOND SWEEPING SHALL TAKE PLACE AFTER WINTER SANDING OPERATIONS TERMINATE BUT PRIOR TO MAY 1.
   B. INSPECTION OF STORMWATER OUTLET STRUCTURE SHOULD BE CONDUCTED TWICE PER YEAR. ACCESS TO THE STRUCTURE IS THROUGH THE TOP. THE OIL/WATER SEPARATOR UNIT SHALL BE PUMPED DOWN AND THE SEDIMENT AND TRASH SHALL BE REMOVED AT THE TIME OF THE INSPECTION. THE REMOVAL OF ALL SEDIMENT AND TRASH WILL HELP MINIMIZE VOLUME LOSS.
2. THE OWNER SHALL FILE A YEARLY MAINTENANCE REPORT TO THE CITY DOCUMENTING THE REQUIRED MAINTENANCE FOR THE STORMWATER SYSTEM.

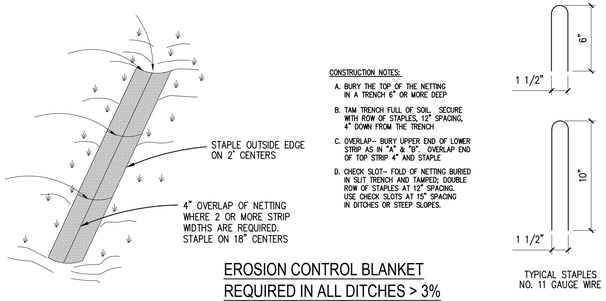


- UNROLL MAT ONTO GROUND IN DIRECTION OF WATER FLOW.
- MAT SHOULD LIE FLAT. DO NOT STRETCH MAT OVER GROUND, STRETCHING MAY CAUSE MAT TO BRIDGE DEPRESSIONS IN THE SURFACE AND ALLOW EROSION UNDERNEATH.
- BURY TRANSVERSE TERMINAL ENDS OF MAT TO SECURE AND PREVENT EROSIVE FLOW UNDERNEATH.
- SECURE MAT SNUGLY INTO ALL TRANSVERSE CHECK SLOTS.
- BACKFILL AND COMPACT TRENCHES AND CHECK SLOTS AFTER STAKING THE MAT IN BOTTOM OF TRENCH.
- OVERLAP ROLL ENDS BY THREE (3) FEET (MIN.) WITH UPSLOPE MAT ON TOP TO PREVENT UPLIFT OF MAT END BY WATER FLOW. IF INSTALLING IN THE DIRECTION OF A CONCENTRATED WATER FLOW, START NEW ROLLS IN A TRANSVERSE DITCH.
- OVERLAP ADJACENT EDGES OF MAT BY THREE (3) INCHES (MIN.) AND STAKE.
- WOOD STAKES ARE RECOMMENDED FOR PINNING MAT TO THE GROUND SURFACE. STAKES SHOULD BE 1" X 2" NOMINAL STOCK CUT IN A TRIANGULAR SHAPE. STAKES SHOULD BE 12" TO 18" LONG, DEPENDING ON SOIL DENSITY.
- DRIVE WOODEN STAKES TO WITHIN THREE (3) INCHES OF GROUND SURFACE. DO NOT DRIVE FLUSH TO SURFACE.
- IN ALL TRANSVERSE TERMINAL TRENCHES AND CHECK SLOTS, STAKE EACH MAT AT ITS CENTER AND OVERLAP EDGES BEFORE BACKFILLING AND COMPACTING.
- STAKE OVERLAPS LONGITUDINALLY AT THREE (3) TO FIVE (5) FOOT INTERVALS.
- FOLOW COLORED DOT PATTERNS BY MANUFACTURER

REQUIRED ON ALL SLOPES > 8% (WINTER CONSTRUCTION)
REQUIRED ON ALL SLOPES > 15% (SUMMER CONSTRUCTION)

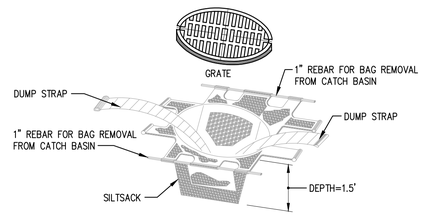
EROSION CONTROL BLANKET
GENERAL INSTALLATION GUIDELINES ON SLOPES

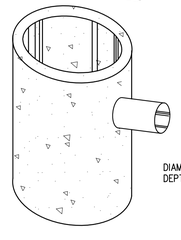
NTS

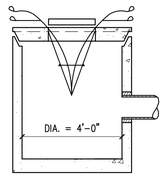


EROSION CONTROL BLANKET
REQUIRED IN ALL DITCHES > 3%

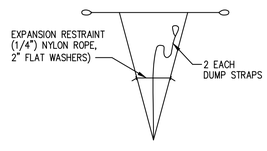
NOTE: GRADING PLAN GOVERNS IN ALL LOCATIONS







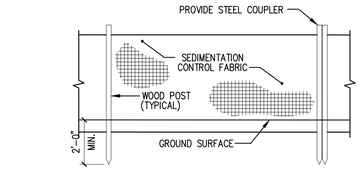
INSTALLATION DETAIL

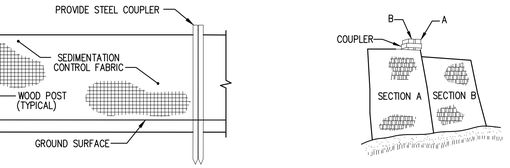


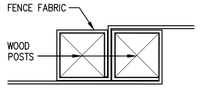
BAG DETAIL

"SILTSACK" INSTALLATION INSTRUCTION

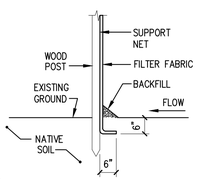
1. REMOVE THE CATCH BASIN GRATE AND PLACE THE SACK INTO THE OPENING. HOLD OUT APPROXIMATELY SIX (6) INCHES OF THE SACK BEYOND THE BASIN FRAME TO ALLOW ACCESS TO THE "SILTSACK" LIFTING STRAPS. REPLACING THE GRATE BACK INSIDE OF ITS FRAME WILL HOLD THE SACK IN PLACE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING AND MAINTAINING THIS SEDIMENT CONTROL DEVICE. THE SACK IS CONSIDERED FULL AND READY TO EMPTY WHEN THE THE "RESTRAINT CORD" IS NO LONGER VISIBLE.
3. THE "SILTSACK" IS REMOVED BY PLACING TWO (2) PIECES IF 1 INCH DIAMETER REBAR THROUGH THE LIFTING LOOPS LOCATED ON EACH SIDE OF THE SACK AND LIFTING WITH AN APPROPRIATE PIECE OF CONSTRUCTION EQUIPMENT. THE LIFTING STRAPS ARE CONNECTED TO THE BOTTOM OF THE SACK AND THE LIFTING ACTION WILL CAUSE THE SACK TO TURN INSIDE OUT, AND EMPTYING THE CONTENTS. THE SACK SHOULD THEN BE CLEANED, RINSED AND RETURNED TO ITS ORIGINAL SHAPE AND PLACED BACK IN THE BASIN.
4. THE "SILTSACK" IS REUSABLE, THEREFORE, ONCE THE CONSTRUCTION CYCLE IS COMPLETE, REMOVE THE SACK FROM THE BASIN, CLEAN AND STORE OUT OF DIRECT SUNLIGHT UNTIL ITS NEXT USE.
5. THE "SILTSACK" SEDIMENT CONTROL DEVICE IS MANUFACTURED BY: ACF ENVIRONMENTAL





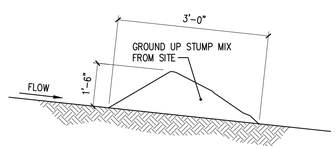


NOTE:
BOTTOM OF SILT FENCE MUST BE TOED INTO GROUND



SILTATION FENCE DETAIL

NTS



MAY BE USED IN LIEU OF SILT FENCE

EROSION CONTROL MIX DETAIL

N.T.S.

SILTATION FENCE INSTALLATION

1. EXCAVATE A 6"x6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
3. DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM. JOIN SECTION AS SHOWN ABOVE.
4. LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING THE FABRIC FLAP ON UNDISTURBED GROUND AND PILING AND TAMPING FILL AT THE BASE, BUT MUST BE ACCOMPLISHED BY AN INTERCEPTION DITCH.
5. BARRIER SHALL BE MIRAFI SILT FENCE OR APPROVED EQUAL.

CASCO BAY ENGINEERING
424 Fore Street
Portland, ME 04101
Phone 207.842.2800
Fax 207.842.2828
www.cascobayengineering.com

CLIENT:
WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE
PORTLAND, ME 04103

STATE OF MAINE — ERIC DUBE No. 12630 — LICENSED PROFESSIONAL ENGINEER
6/20/17

JP SHERIDAN LLC APARTMENT — PORTLAND, ME
68 WALNUT STREET
PROPOSED BUILDING

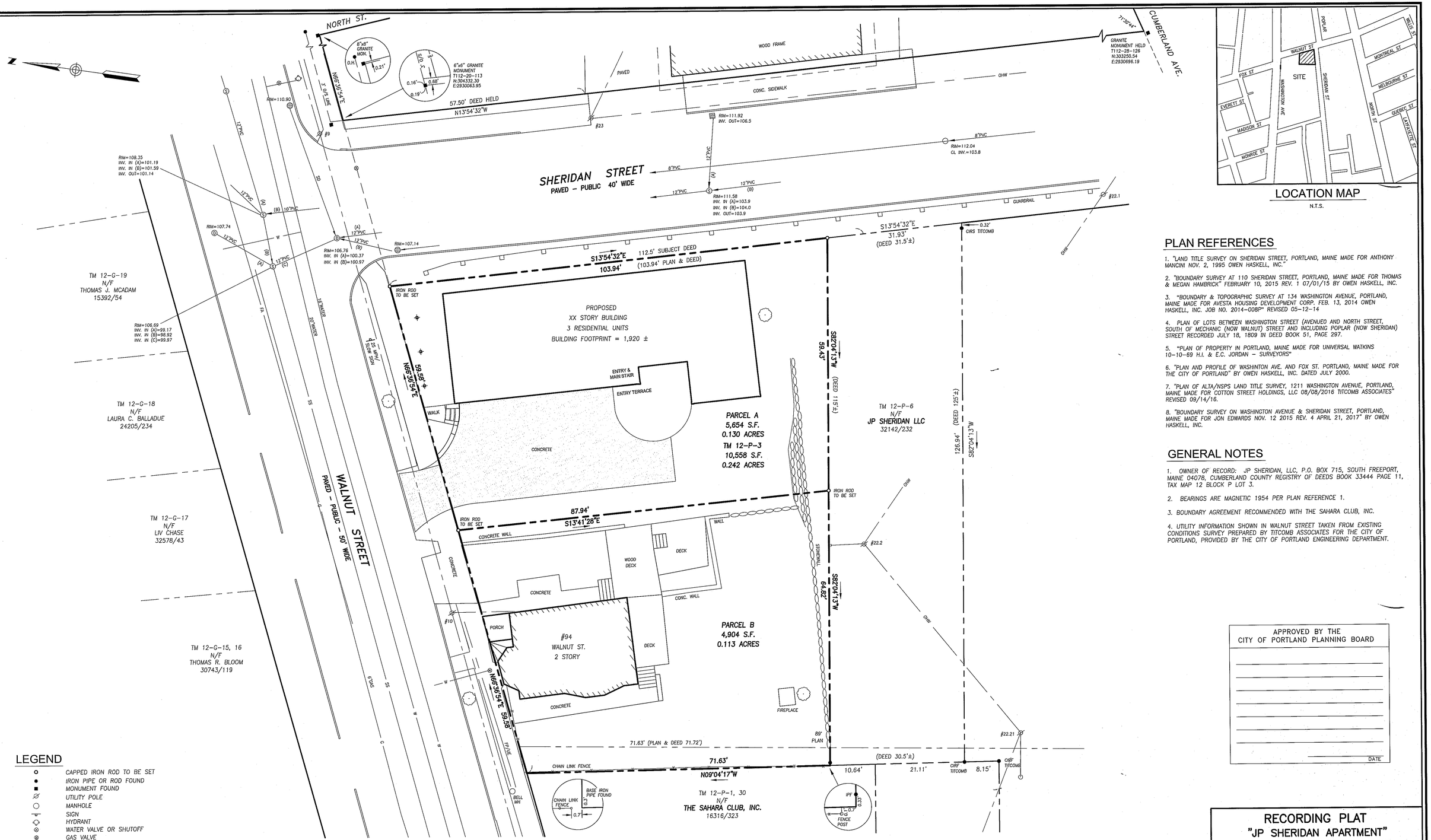
ISSUED

No.	DESCRIPTION	DR. BY	CKD BY	DATE
A	FOR REVIEW	AM	ED	8-25-16

SHEET TITLE:
EROSION CONTROL DETAILS

DESIGNED:	ED
DRAWN:	DL
DATE:	6-20-17
PROJECT NUMBER:	16-135

C300



LOCATION MAP

N.T.S.

PLAN REFERENCES

1. "LAND TITLE SURVEY ON SHERIDAN STREET, PORTLAND, MAINE MADE FOR ANTHONY MANCINI NOV. 2, 1995 OWEN HASKELL, INC."
2. "BOUNDARY SURVEY AT 110 SHERIDAN STREET, PORTLAND, MAINE MADE FOR THOMAS & MEGAN HAMBRICK" FEBRUARY 10, 2015 REV. 1 07/01/15 BY OWEN HASKELL, INC.
3. "BOUNDARY & TOPOGRAPHIC SURVEY AT 134 WASHINGTON AVENUE, PORTLAND, MAINE MADE FOR AVESTA HOUSING DEVELOPMENT CORP. FEB. 13, 2014 OWEN HASKELL, INC. JOB NO. 2014-008P" REVISED 05-12-14
4. PLAN OF LOTS BETWEEN WASHINGTON STREET (AVENUEO AND NORTH STREET, SOUTH OF MECHANIC (NOW WALNUT) STREET AND INCLUDING POPLAR (NOW SHERIDAN) STREET RECORDED JULY 18, 1809 IN DEED BOOK 51, PAGE 297.
5. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR UNIVERSAL WATKINS 10-10-69 H.I. & E.C. JORDAN – SURVEYORS"
6. "PLAN AND PROFILE OF WASHINTON AVE. AND FOX ST. PORTLAND, MAINE MADE FOR THE CITY OF PORTLAND" BY OWEN HASKELL, INC. DATED JULY 2000.
7. "PLAN OF ALTA/NSPS LAND TITLE SURVEY, 1211 WASHINGTON AVENUE, PORTLAND, MAINE MADE FOR COTTON STREET HOLDINGS, LLC 08/08/2016 TITCOMB ASSOCIATES" REVISED 09/14/16.
8. "BOUNDARY SURVEY ON WASHINGTON AVENUE & SHERIDAN STREET, PORTLAND, MAINE MADE FOR JON EDWARDS NOV. 12 2015 REV. 4 APRIL 21, 2017" BY OWEN HASKELL, INC.

GENERAL NOTES

1. OWNER OF RECORD: JP SHERIDAN, LLC, P.O. BOX 715, SOUTH FREEPORT, MAINE 04078, CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 33444 PAGE 11, TAX MAP 12 BLOCK P LOT 3.
2. BEARINGS ARE MAGNETIC 1954 PER PLAN REFERENCE 1.
3. BOUNDARY AGREEMENT RECOMMENDED WITH THE SAHARA CLUB, INC.
4. UTILITY INFORMATION SHOWN IN WALNUT STREET TAKEN FROM EXISTING CONDITIONS SURVEY PREPARED BY TITCOMB ASSOCIATES FOR THE CITY OF PORTLAND, PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPARTMENT.

APPROVED BY THE
CITY OF PORTLAND PLANNING BOARD

DATE

LEGEND

- CAPPED IRON ROD TO BE SET
- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- SIGN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
- ELECTRIC OR GAS METER
- STONE WALL
- CURB
- OHW — OVERHEAD WIRES
- W — WATER LINE
- G — GAS LINE
- TM — TAX MAP
- N/F — NOW OR FORMERLY
- 000/000 — DEED BOOK AND PAGE

GRAPHIC SCALE

0 10' 20' 40' 80'

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

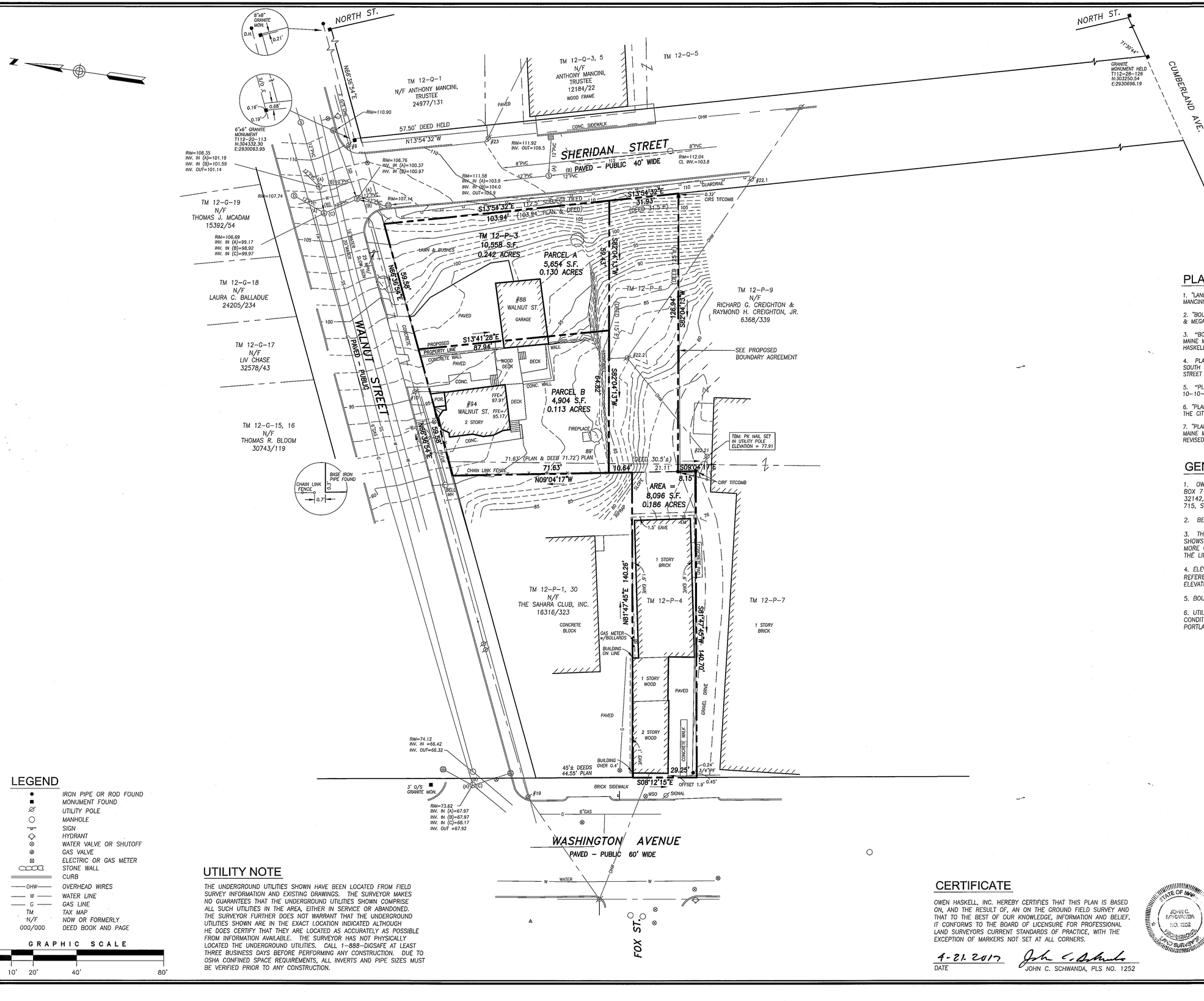
DATE

JOHN C. SCHWANDA, PLS NO. 1252

RECORDING PLAT
"JP SHERIDAN APARTMENT"
#88 WALNUT STREET, PORTLAND, MAINE
MADE FOR RECORD OWNER
JP SHERIDAN, LLC
P.O. BOX 715, SOUTH FREEPORT, MAINE

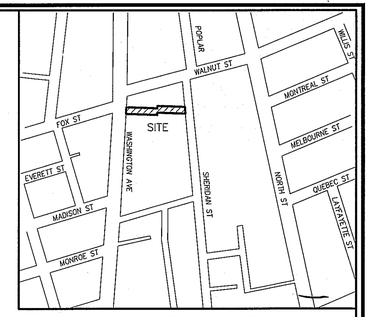
OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	JUNE 27, 2017	2015-155P
Check By	JCS	Scale	Drwg. No.
Book No.	FILE	1" = 10'	1RP



LOCATION MAP

N.T.S.



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GENERAL NOTES

1. OWNER OF RECORD: TAX MAP 12 BLOCK P LOT 4 – FOX STREET, LLC, P.O. BOX 715, SOUTH FREEPORT, ME, CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 32142, PAGE 229; TAX MAP 12 BLOCK P LOT 6 – JP SHERIDAN, LLC, P.O. BOX 715, SOUTH FREEPORT, ME, BOOK 32142, PAGE 232

2. BEARINGS ARE MAGNETIC 1954 PER PLAN REFERENCE 1.

3. THE LINES OF LOT 4 ARE TAKEN FROM PLAN REFERENCE 5. THAT PLAN SHOWS THE LOT WIDTH AS 29.25 FEET WHILE THE OLD DEEDS CALL FOR 26 FEET, MORE OR LESS. A BOUNDARY AGREEMENT IS RECOMMENDED WITH CREIGHTON FOR THE LINE FROM WASHINGTON AVENUE TO SHERIDAN STREET.

4. ELEVATIONS ARE BASED ON NGVD 1929 PER BENCHMARK SHOWN ON PLAN REFERENCE 6, PK IN POLE #11 CORNER OF ANDERSON AND EVERETT STREET ELEVATION 12.42 CITY LEVEL BOOK 737 PAGE 77.

5. BOUNDARY AGREEMENT RECOMMENDED WITH THE SAHARA CLUB, INC.

6. UTILITY INFORMATION SHOWN IN WALNUT STREET TAKEN FROM EXISTING CONDITIONS SURVEY PREPARED BY TITCOMB ASSOCIATES FOR THE CITY OF PORTLAND, PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPARTMENT.

LEGEND

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- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- SIGN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
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THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE, WITH THE EXCEPTION OF MARKERS NOT SET AT ALL CORNERS.

4-21-2017
DATE

JOHN C. SCHWANDA, PLS NO. 1252

STATE OF MAINE — JOHN C. SCHWANDA — NO. 1252 — REGISTERED PROFESSIONAL LAND SURVEYOR

REV. 4	04/21/17	DIVIDE LOT 12-P-3
REV. 3	11/14/16	ADD IRONS ALONG CREIGHTON, PLAN REF. 7
REV. 2	10/14/16	ADD LOT TM 12-P-3
REV. 1	07/25/16	ADDED TOPOGRAPHY

BOUNDARY SURVEY

ON

WASHINGTON AVENUE & SHERIDAN STREET

PORTLAND, MAINE

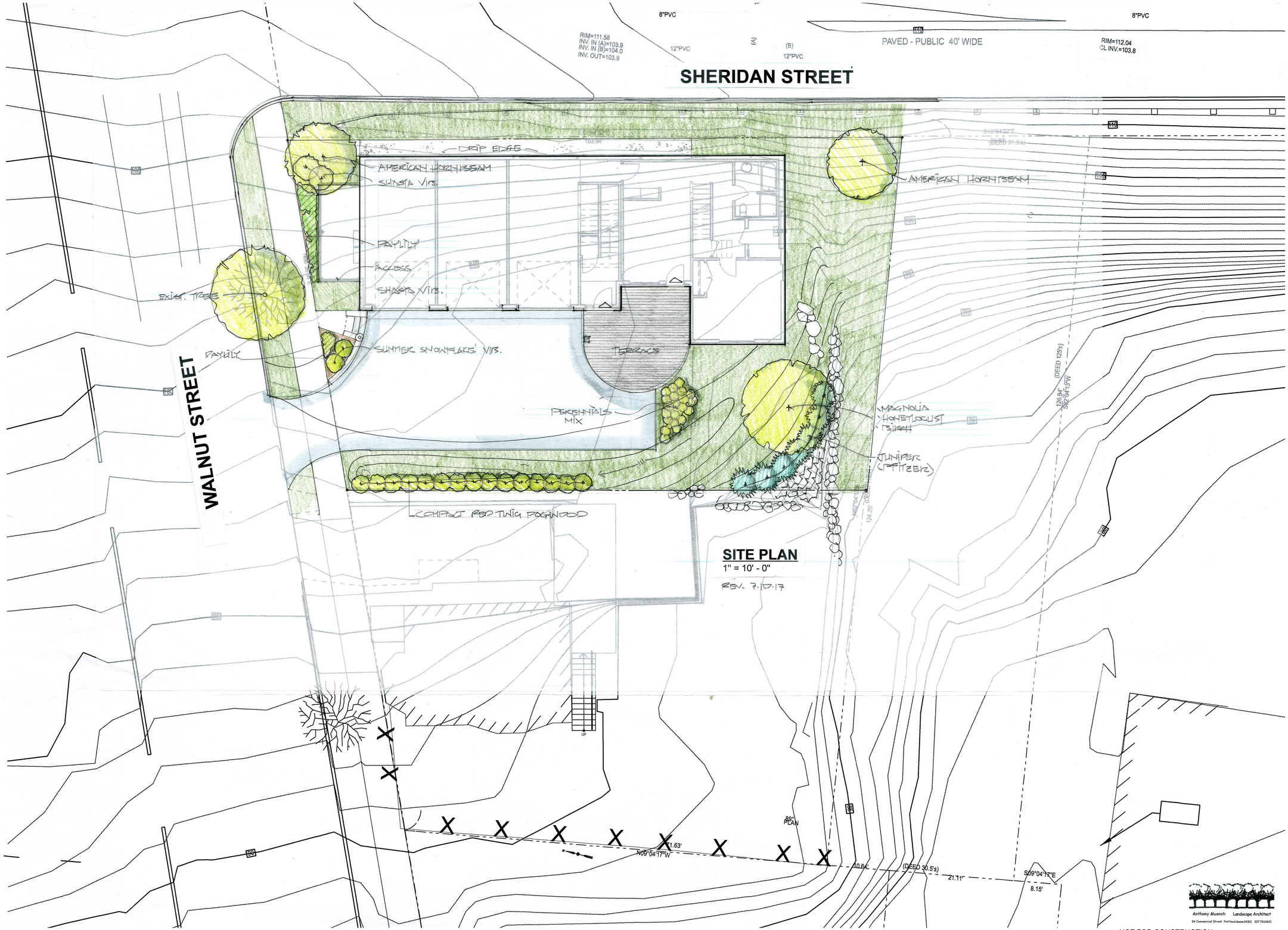
MADE FOR

JON EDWARDS

131 WASHINGTON AVENUE, PORTLAND, MAINE

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	NOV. 12, 2015	2015-155P
Check By	JCS	Scale	Drwg. No.
Book No.	FILE	1" = 20'	1



Anthony Muench Landscape Architect
94 Commercial Street Portland Maine 04101 207.761.6621

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MARK	DATE	DESCRIPTION

DATE: 7/12/17
CHECKED BY: AEC
DRAWN BY: AEC / NC
JOB: 16-EHP
SHEET TITLE:

C1

C1 Site plan : Plotted on 7/12/17 at 4:59 PM by A E Callender. File Path: /Volumes/WCA Expansion Drive/ WCA Projects/2016 Projects/EHP EDWARDS HOUSING/EHP ArchiCAD Models/EHP Front Patio Changes.pln

ENTRY VIEW FROM SHERIDAN STREET

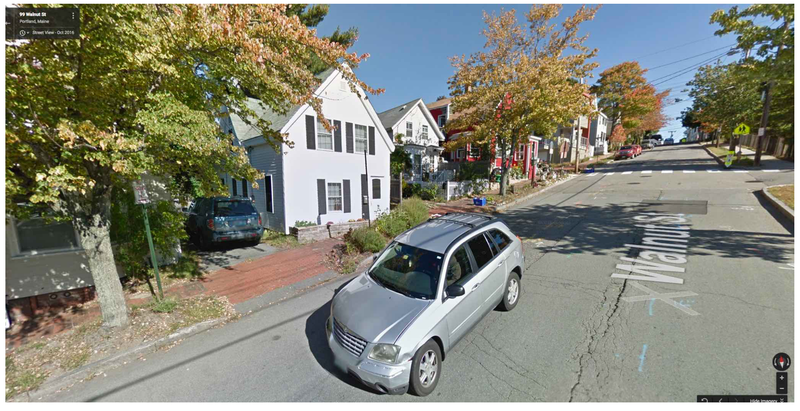
ENTRY VIEW FROM SHERIDAN STREET

VIEW FROM WALNUT OF WEST SIDE

SHERIDAN STREET ELEVATION

SOUTHSIDE FROM SHERIDAN STREET

CORNER OF SHERIDAN AND WALNUT



WALNUT STREET NEIGHBORHOOD

SINGLE FAMILY HOMES ACROSS THE STREET FROM THE PROPERTY

CORNER OF SHERIDAN & WALNUT

EXISTING CONDITIONS WALNUT STREET

EXISTING 3 CAR BRICK GARAGE TO BE REMOVED, NEW BUILDING TO BE BUILT PARALLEL TO SHERIDAN, CUT INTO HILL

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MARK	DATE	DESCRIPTION

DATE: 7/14/17

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SHEET TITLE: MODEL VIEWS OF NEW BUILDING AND EXISTING CONDITION PHOTOGRAPHS

A1

A1 ELEVATIONS FOR PLANNING BOARD : Plotted on 7/14/17 at 11:14 AM by Anne Callender. File Path: /Volumes/WCA Expansion Drive/ WCA Projects/2016 Projects/EHP EDWARDS HOUSING/EHP ArchiCAD Models/EHP Front Patio Changes.pln

ENTRY VIEW FROM SHERIDAN STREET

VIEW FROM WALNUT OF WEST SIDE

SHERIDAN STREET ELEVATION

SOUTHSIDE FROM SHERIDAN STREET

CORNER OF SHERIDAN AND WALNUT

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A1

WALNUT STREET NEIGHBORHOOD

SINGLE FAMILY HOMES ACROSS THE STREET FROM THE PROPERTY

CORNER OF SHERIDAN & WALNUT

EXISTING CONDITIONS WALNUT STREET

EXISTING 3 CAR BRICK GARAGE TO BE REMOVED, NEW BUILDING TO BE BUILT PARALLEL TO SHERIDAN, CUT INTO HILL

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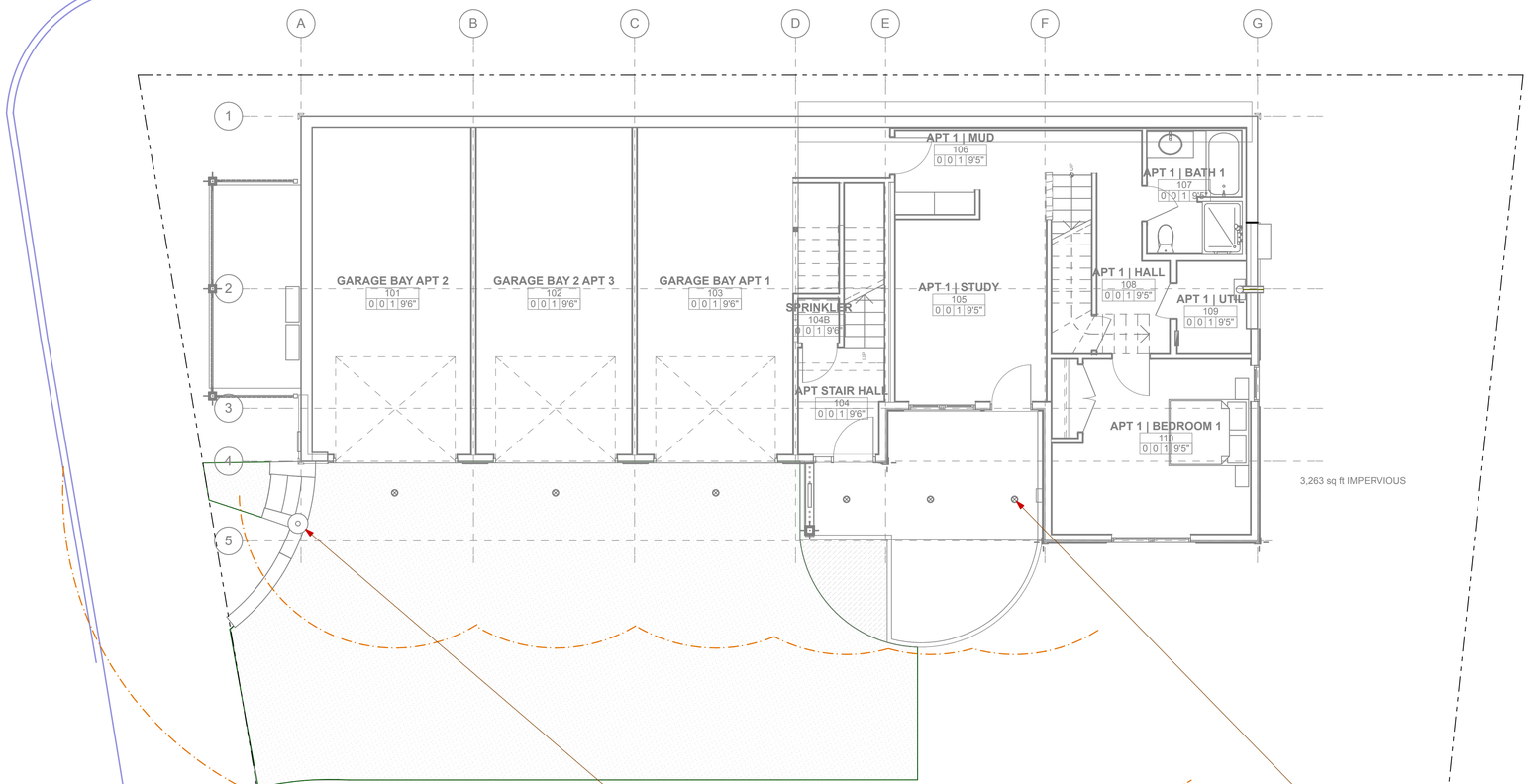
A1 ELEVATIONS FOR PLANNING BOARD : Plotted on 7/13/17 at 8:53 AM by A E Callender. File Path: /Volumes/WCA Expansion Drive/ WCA Projects/2016 Projects/EHP EDWARDS HOUSING/EHP ArchiCAD Models/EHP Front Patio Changes.pln



1 A5.2 LIGHTING PLAN
SCALE: 3/16" = 1'-0"

thegreatoutdoors by MINKA-LAVERY

Item #: 8766-166	UPC Code: 747396049281
Product Family Name: Merrimack™	Finish: Corona Bronze™
Category: Post Mount Lantern	Category Type: Post Light
Certification: E194197	
Patents:	
Notes:	

Image File Name: 8766-166--1377129660.jpg

MEASUREMENTS

Width: 8	Length:	Height: 19.75	Extension:
Height Adjustable: No	Min Overall Height: 0.00	Max Overall Height: 0.00	Slope: No
Wire Length: 7	Chain Length:	Safety Cable Included: No	Net Weight: 4.10
Canopy Width: 0.00	Canopy Height: 0.00	Canopy Length:	
Backplate Width:	Backplate Height:	Center to Top: 0.00	Center to Bottom: 0.00

LAMPING

No. of Bulbs: 1	Light Type: A19 Med				
Max Bulb Wattage: 100	Socket: E27 Med				
Dimmable: Yes	Ballast:	Rated Life Hours:	Photocell Included:	Lamps Included: No	
Lens Included: No	Color Temp.: 0	CRI:	Initial Lumens:	Delivered Lumens:	

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

FEATURES & SPECIFICATIONS

INTENDED USE — The 6" Wafer-Thin LED recessed downlight with remote driver box combines high quality light output and efficiency while eliminating the pot light housing for competitive affordability. This innovative wafer-slim Type IC design allows easy installation for new construction or remodel from below the ceiling without the requirement of a pot light housing. The LED module maintains at least 70% light output for 36,000 hours. These LED Wafer downlights are intended for closets, attics, hallways, bathrooms, kitchens, basements, soffits, entryways, porches, garages, stairwells, corridors, nursing/retirement homes, condos, elevators, apartments, and any other small areas.

CONSTRUCTION — Ideal for shallow ceiling plenum since a pot light housing is NOT required. ICrated driver and fixture - approved for direct contact with insulation. Aluminum die cast outer frame. Durable, powder coat paint to prevent rust. Round fixture with integral edge-lit LED's. Steel spring clip for easy installation. Plenum rated cable connector to connect from module to remote driver box. Isolated driver integrated inside steel remote box with four 7/8" knockouts with slots for pryout. Not suitable for pulling wires.

PATENT PENDING.

INSTALLATION — Ideal for shallow ceiling plenum; no housing required. Steel spring clip for easy installation. 6" cut out template is provided to ensure a correct sized hole is cut into ceiling for proper installation of the trim. Size of hole should not exceed 6 1/4 inches for this product. Suitable for installation in t-grid and drop ceiling applications.

OPTICS — Wafer-Thin downlight edge-lit LED technology uses light guided plate to distribute light. Polycarbonate lens provides even illumination throughout the space. Utilized 3000K and 4000K color temperature LEDs.

ELECTRICAL — Connect directly to 120V power supply via provided UL recognized driver. High efficient driver with power factor > 0.9. Ambient operating temperature: -40°F (-40°C) to +104°F (+40°C). Dimming down to 10% (See page 2 for recommended dimmers). Standard input wattage is 13W, 79 lumens per watt.

LISTINGS — CSA certified to US and Canadian safety standards. ENERGY STAR® certified product. Wet location. Air Tight certified in accordance with ASTM E283-2004.

WARRANTY — 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Wafer LED Recessed Downlight

WF6
6" LED Module

IC/Non-IC
New Construction/Remodel

WET LOCATION™ · LED · ENERGY STAR

Specifications

Aperture:	4.9 (12.4)
Ceiling opening:	6 (15.2)
Overlap trim:	6.7 (17)
Height:	1.1 (2.8)

All dimensions are inches (centimeters) unless otherwise indicated.

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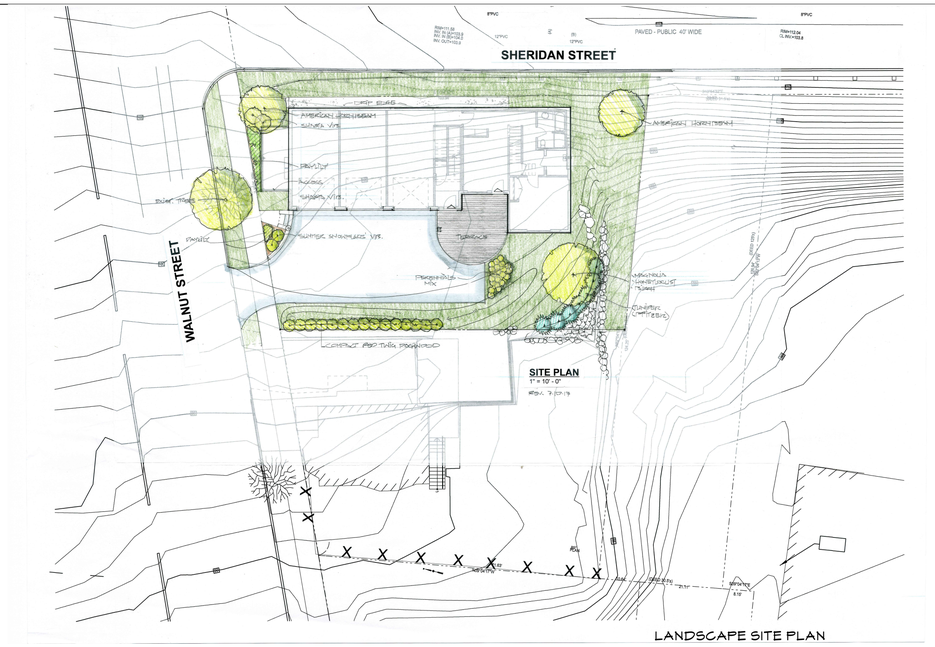
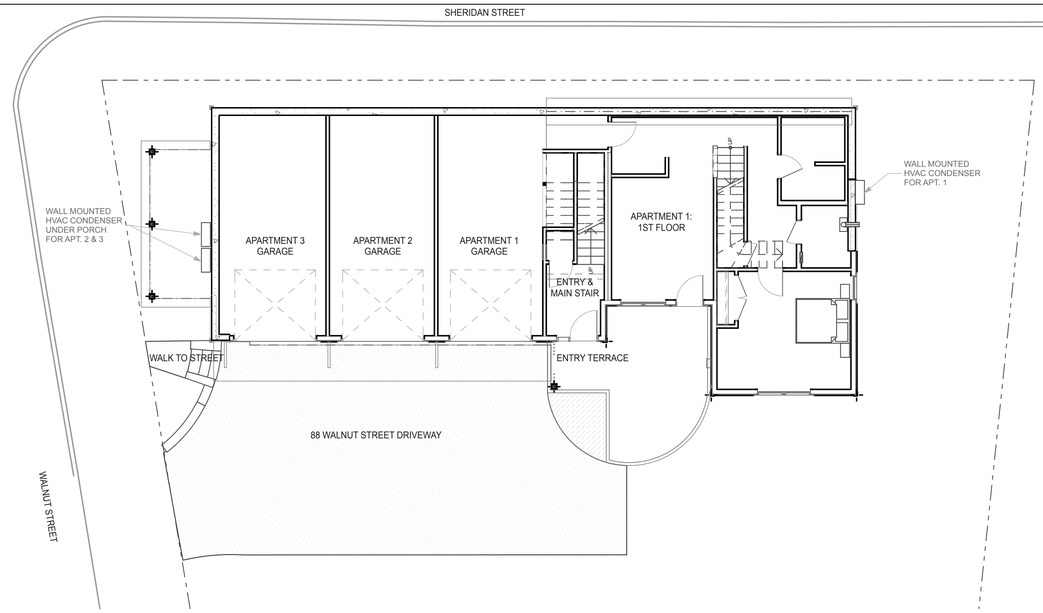
JOB: 16-EHP
SHEET TITLE:

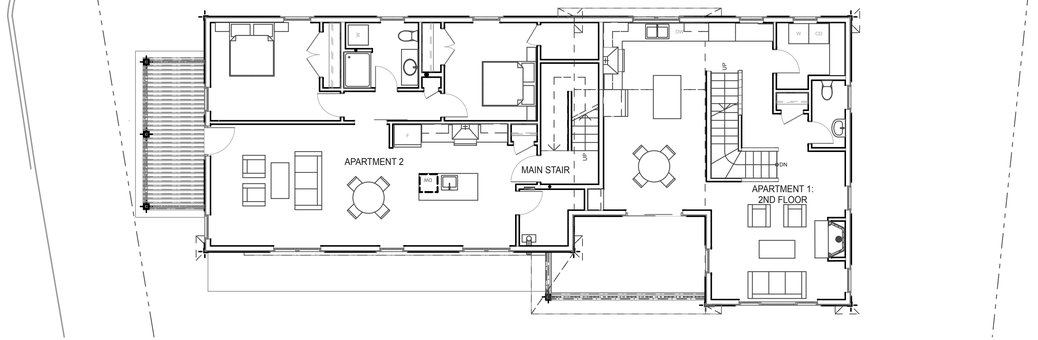
A5.2



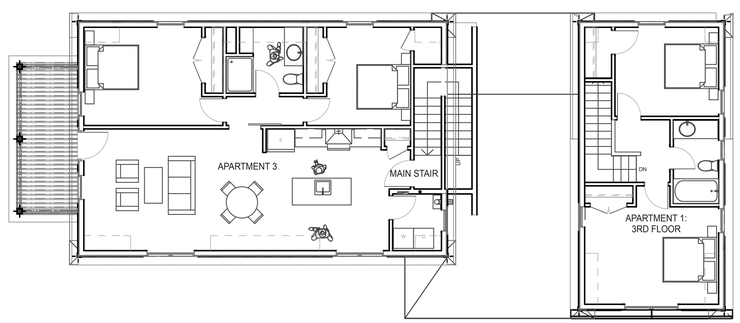
LANDSCAPE SITE PLAN
NOT TO SCALE



1 A2 FIRST FLOOR PLAN/GARAGE
SCALE: 1/8" = 1'-0"



2 A2 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"



3 A2 THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"

4 A2 PRESENTATION WEST ELEVATION
SCALE: 1/8" = 1'-0"

5 A2 PRESENTATION SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

5 A2 PRESENTATION EAST ELEVATION
SCALE: 1/8" = 1'-0"

7 A2 PRESENTATION NORTH ELEVATION
SCALE: 1/8" = 1'-0"

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MARK	DATE	DESCRIPTION

DATE: 7/12/17
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JOB: 16-EHP
SHEET TITLE: BUILDING PLANS AND ELEVATIONS

A2

A2 PLANS FOR PLANNING BOARD : Plotted on 7/12/17 at 3:27 PM by A E Callender. File Path: /Volumes/WCA Expansion Drive/ WCA Projects/2016 Projects/EHP EDWARDS HOUSING/EHP ArchiCAD Models/EHP Front Patio Changes.pln

VIEW FROM WALNUT STREET

CHANGES TO ELEVATIONS:

- INCREASED ROOF OVERHANG DEPTH OVER GARAGE DOORS TO PROVIDE SHELTER ACROSS DRIVEWAY TO ENTRY

-ADDED STOOP AT ENTRY PORCH

-CHANGED RAILING TO SOLID WALL ABOVE ENTRY

-ADDED DETAIL TO COLUMN AT ENTRY AS WELL AS TRIM DETAIL ABOVE STOOP WITH BUILDING NUMBER

-ADDED ADDITIONAL SITE PLANTINGS

VIEW FROM WALNUT STREET

A

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7/20/17

REVISED VIEW: WALKWAY FROM WALNUT STREET

CHANGES TO ENTRY SEQUENCE:

- INCREASED ROOF OVERHANG DEPTH OVER GARAGE DOORS TO PROVIDE SHELTER ACROSS DRIVEWAY TO ENTRY

-ADDED STOOP AT ENTRY PORCH

-CHANGED RAILING TO SOLID WALL ABOVE ENTRY

-ADDED DETAIL TO COLUMN AT ENTRY AS WELL AS TRIM DETAIL ABOVE STOOP WITH BUILDING NUMBER

ORIGINAL SUBMISSION: WALKWAY FROM WALNUT STREET

B

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JP SHERIDAN LLC APARTMENT
88 WALNUT STREET, PORTLAND ME
7/20/17

VIEW FROM WALNUT AND SHERIDAN

CHANGES TO ELEVATIONS:

-ADDED PORCH ROOF

-CHANGED WINDOWS ON SHERIDAN TO ALL DOUBLE HUNG

-REMOVED GUARD RAIL

VIEW FROM WALNUT AND SHERIDAN

C

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207.775.2696

JP SHERIDAN LLC APARTMENT
88 WALNUT STREET, PORTLAND ME
7/20/17

SHERIDAN STREET ELEVATION

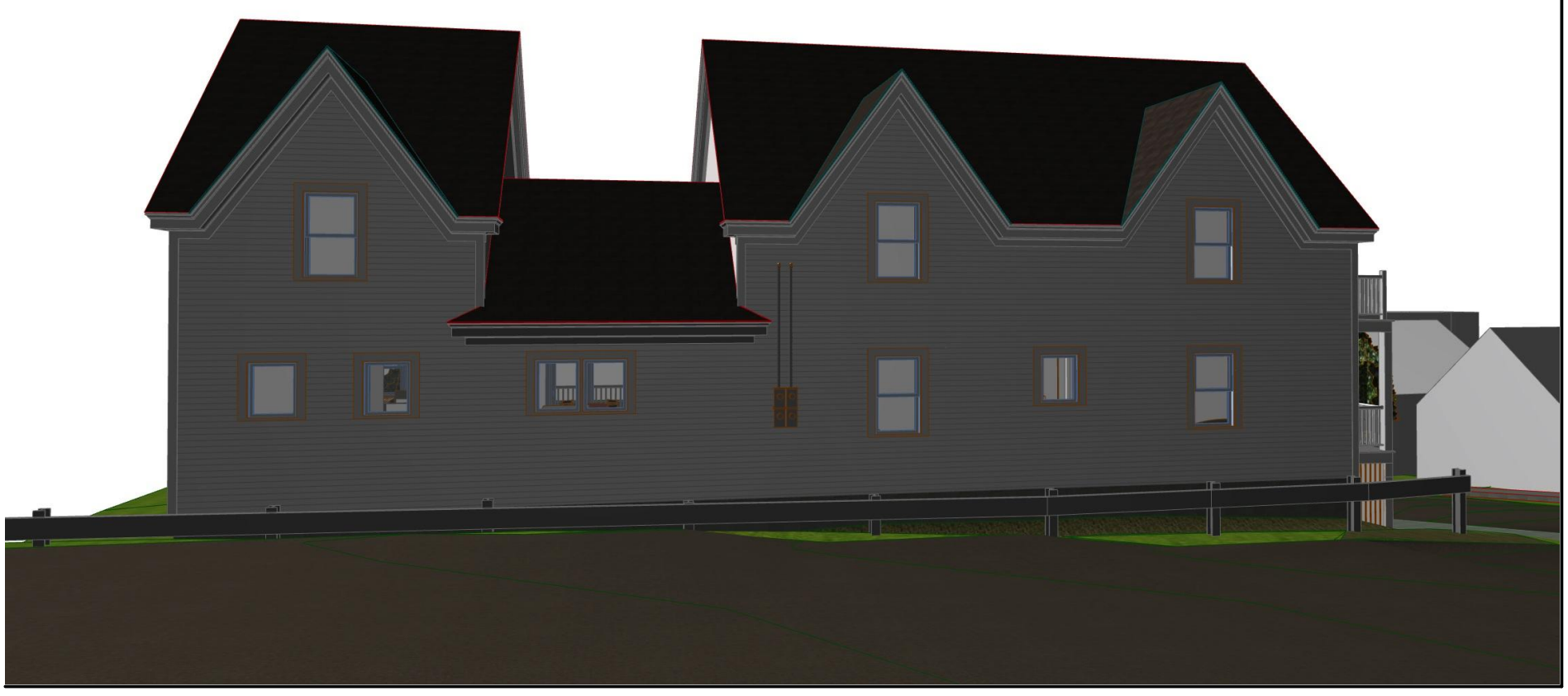
CHANGES TO ELEVATIONS:

-ADDED PORCH ROOF

-CHANGED WINDOWS ON SHERIDAN TO ALL DOUBLE-HUNG UNITS AND INCREASED SIZE

-REMOVED GUARD RAIL

-ADDED FOUNDATION PLANTINGS AND STREET TREE



SHERIDAN STREET ELEVATION

D

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88 WALNUT STREET, PORTLAND ME
7/20/17

VIEW FROM SHERIDAN STREET

CHANGES TO ELEVATIONS:

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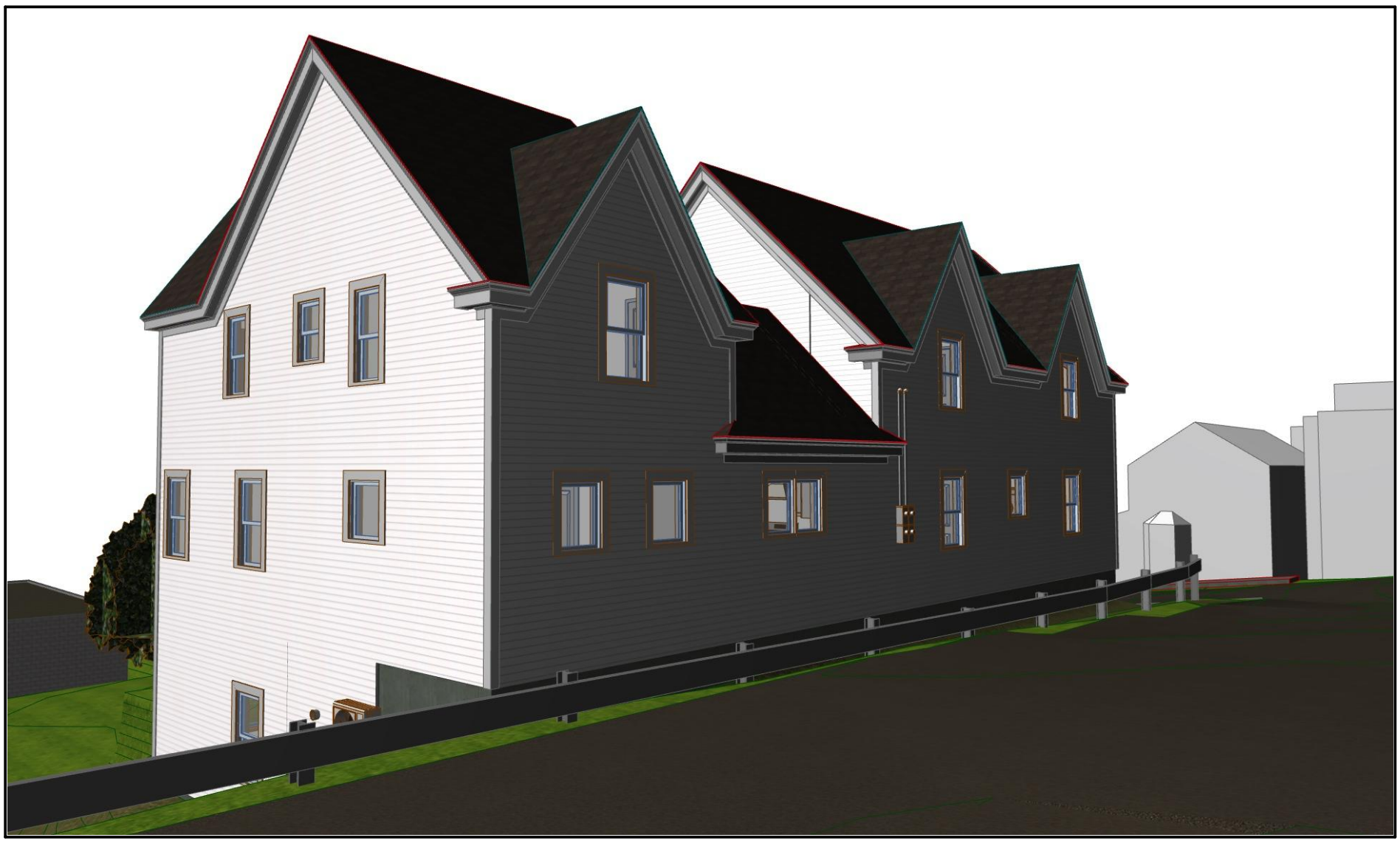
-REMOVED GUARD RAIL

-ADDED FOUNDATION PLANTINGS

-ADDED STREET TREE



VIEW FROM SHERIDAN STREET

E

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JP SHERIDAN LLC APARTMENT
88 WALNUT STREET, PORTLAND ME
7/20/17

Portland, Maine — Yes. Life's good here.

Planning & Urban Development Department

LEVEL II and LEVEL III APPLICATION SUBMISSION CHECKLIST

Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes to the left

General Application Documents

Checklist	Items to be Provided
Yes NA Plan ✔	PROJECT DESCRIPTION • Cover Letter with detailed project description
Yes NA Plan ✔	COMPLETED CHECKLIST – LEVEL III APPLICATION
Yes NA Plan ✔	RIGHT, TITLE AND INTEREST • Deeds, leases, or purchase and sales agreements
Yes NA Plan ✔	EVIDENCE OF STATE OR FEDERAL APPROVALS, if applicable • Permits or letters of non-jurisdiction, if applicable
Yes NA Plan ✔	ZONING ASSESSMENT • Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes NA Plan ✔	EXISTING &/OR PROPOSED EASEMENTS OR COVENANTS, if applicable • Evidence of existing easements and any proposed easements
Yes NA Plan ✔	WAIVER REQUESTS • Written request for waiver describing request and reason. Waiver Table
Yes NA Plan ✔	FINANCIAL CAPABILITY • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes NA Plan ✔	TECHNICAL CAPABILITY • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

LEVEL II AND LEVEL III SITE PLAN STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable.

Please submit each document as a separate PDF file.

TRANSPORTATION

Check list	Assess/Provide/Document:
Yes NA Plan ☐ ✔ ☐	**Transportation Analysis- Traffic Impact (14-526 (a) 1)** • Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts • Traffic Impact Study (Technical Manual, Section 1) if applicable
Yes NA Plan ☐ ✔ ☐	**Access and Circulation (14-526 (a) 2 a)** • Access and internal circulation, addressing ADA access • Access and egress impacts on traffic flows • Description and use of drive-up features, if applicable
Yes NA Plan ☐ ✔ ☐	**Loading and Servicing (14-526 (a) 2 b)** • Loading and servicing needs, route and travel way geometrics for deliveries • Turning templates for delivery vehicles, if applicable
Yes NA Plan ☐ ✔ ☐	**Sidewalks (14-526 (a) 2 c)** • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
Yes NA Plan ☐ ✔ ☐	**Public Transit (14-526 (a) 3), if applicable** • Existing available transit services • Proposed site plan design details, such as easement, pad base, and shelter
Yes NA Plan ☐ ✔ ☐	**Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c)** • Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements • Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
Yes NA Plan ☐ ✔ ☐	**Bicycle Parking (14-526 (a) 4 b)** • Address bicycle parking requirements and identify locations on-site • Construction details for bike racks (Technical Manual, Section 1)
Yes NA Plan ☐ ✔ ☐	**Snow Storage (14-526 (a) 4 d)** • Management plan for snow removal and locate snow storage areas on plan
Yes NA Plan ☐ ✔ ☐	**Traffic Demand Management (TDM) (14-526 (a) 5), if applicable** • Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES	
Check list	Assess/Provide/Document:
Yes NA Plan ☐ ✔ ☐	**Preservation of Significant Natural Features (14-526 (b) 1), if applicable** • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes NA Plan ☐ ✔ ☐	**Landscaping and Landscape Preservation (14-526 (b) 2 a)** • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes NA Plan ☐ ✔ ☐	**Site Landscaping (14-526 (b) 2 b)** • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes NA Plan ☐ ✔ ☐	**Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable** • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes NA Plan ☐ ✔ ☐	**Street Trees (14-526 (b) 2 b iii)** • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable

ENVIRONMENTAL AND STORMWATER	
Check list	Assess/Provide/Document:
Yes NA Plan ☐ ✔ ☐	**Water Quality, Stormwater Management and Erosion Control (14-526 (b) 3 a)** • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY	
Check list	Assess/Provide/Document:
Yes NA Plan ☐ ✔ ☐	**Consistency with City Master Plans (14-526 (c) 1)** • Identify consistency with master plans • Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes NA Plan ☐ ✔ ☐	**Public Safety and Fire Prevention (14-526 (c))** • Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) • Emergency vehicle access • Address consistency with public safety standards (Technical Manual, Section 3) • Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes NA Plan ☐ ✔ ☐	**Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)** • Electrical services, including providing underground services • Identify existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections are required, if there is a main within 200 feet • Proposed solid waste management facilities on-site and management for the site • Written evidence of the ability to serve from utility companies, as applicable

SITE DESIGN	
Check list	Assess/Provide/Document:
Yes NA Plan ☐ ✔ ☐	**Massing, Ventilations and Wind Impact (14-526 (d) 1)** • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable • Bulk, location or height impacts on adjoining structures • Identify and locate HVAC equipment and venting away from public spaces and residential properties • Identify screening and manufacturing specifications for noise, if applicable
Yes NA Plan ☐ ✔ ☐	**Shadows (14-526 (d) 2), if applicable** • Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes NA Plan ☐ ✔ ☐	**Snow and Ice Loading (14-526 (d) 3)** • Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes NA Plan ☐ ✔ ☐	**View Corridors (14-526 (d) 4), if applicable** • Protection of designated view corridors (Portland Design Manual, Appendix 1)

Yes NA Plan ☐ ✔ ☐	**Historic Resources (14-526 (d) 5), if applicable** • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes NA Plan ☐ ✔ ☐	**Exterior Lighting (14-526 (d) 6)** • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes NA Plan ☐ ✔ ☐	**Noise and Vibration (14-526 (d) 7)** • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes NA Plan ☐ ✔ ☐	**Signage and Wayfinding (14-526 (d) 8), if applicable** • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes NA Plan ☐ ✔ ☐	**Zone Related Design Standards (14-526 (d) 5)** • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Construction Management Plan	
Check list	
Yes NA Plan ☐ ✔ ☐	**Construction Management Plan** • Construction Management Document and Plan

Level II and Level III Site Plan Checklist

Please upload the following drawings with the listed details into e-Plan as separate pdfs.

☑ **RECENT BOUNDARY SURVEY** (stamped by Maine Licensed Surveyor)

Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

☑ **Existing Conditions**

- Approximate location of structures on abutting property
- Topography
- Locate water courses
- Delineate wetlands
- Zone lines

☑ **Proposed Site Plan**

- Ground floor area, and grade elevations for all buildings

☑ **Access, Circulation, and Parking**

- Streets and intersections adjacent to site , any proposed geometric modifications
- Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- Location and dimensions of proposed loading areas
- Existing and proposed transit infrastructure with dimensions/ engineering specifications
- Location of vehicle and bicycle parking with dimensions and engineering specifications

☑ **Site Considerations**

- Identify snow storage areas
- Location of fire hydrants
- Location of solid waste management facilities

☑ **UTILITY PLAN** including:

- Existing utilities on site and within public streets
- Location, sizing, and directional flows of all existing and proposed utilities
- Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- Electric utility infrastructure

☑ **GRADING and DRAINAGE PLAN** including:

- Existing grades and drainage
- Proposed grades
- Proposed stormwater management meeting Technical Manual (Section 5) standards
- Location and proposed alteration of a water course
- Preservation or alteration of wetlands

☐ **EROSION CONTROL**

- Must be in compliance with Technical Manual, Section 5

☐ **LANDSCAPE PLAN** including:

- Existing vegetation to be preserved and preservation measures
- Proposed landscaping and buffers
- Planting schedule

☑ **RECORDING PLAT**, if applicable

- IF SUBDIVISION: Must be in compliance with requirements of Section 14-496 (b)

☑ **ARCHITECTURAL PLANS & RENDERINGS** including:

- Exterior building elevations, color renderings, illustrations of all sides
- Location and dimensions of all existing & proposed HVAC & mechanical equipment, all proposed screening
- Provide context drawings, if applicable (Design Manual, page 1)
- Floor plans

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) B2b

All Projects:

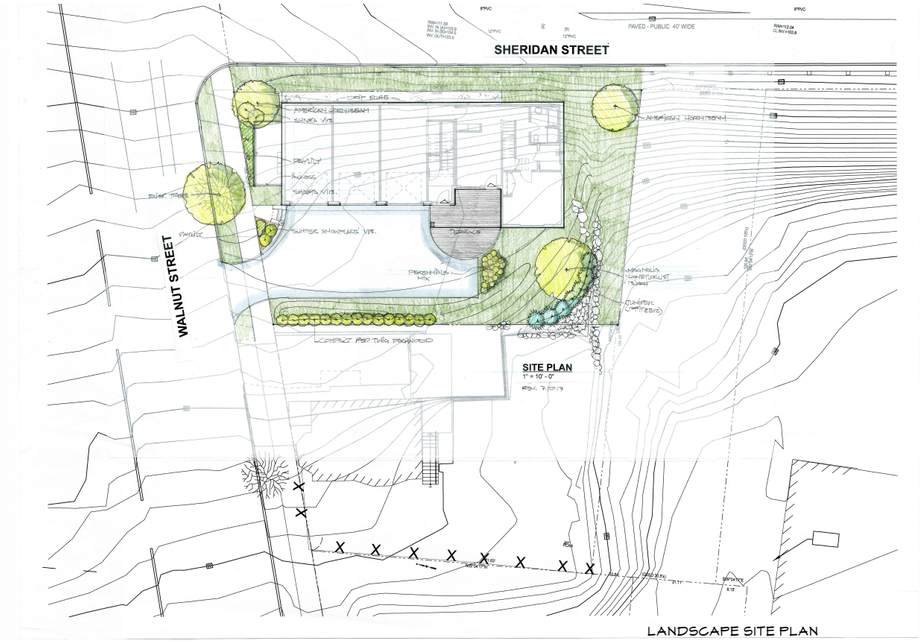
	Required	Proposed
Lot Size	none	5949sf
Area Per Dwelling Unit	435sf	1487sf
Minimum Street Frontage	20'	57'
Front Yard Minimum	none	2'
Front Yard Maximum	10'	2'
Rear Yard	10'	16'
Yard Right	none	23'9"
Yard Left	none	n/a
Side Street Setback	none	3'
Step Back	5' above 35'	n/a
Maximum Lot Coverage	none	55%
Minimum Lot Coverage	none	n/a
Maximum Height	45'	38' ridge
Open Space	n/a	
Maximum Impervious Area	none	3182 sf
Pavement Setback	n/a	
Floor Area Ratio	n/a	
Off Street Parking Spaces	1 per dwelling	1 per dwelling
Loading Bays	n/a	
Other 1	n/a	
Other 2	n/a	
Other 3	n/a	

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size	n/a	
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density	n/a		
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

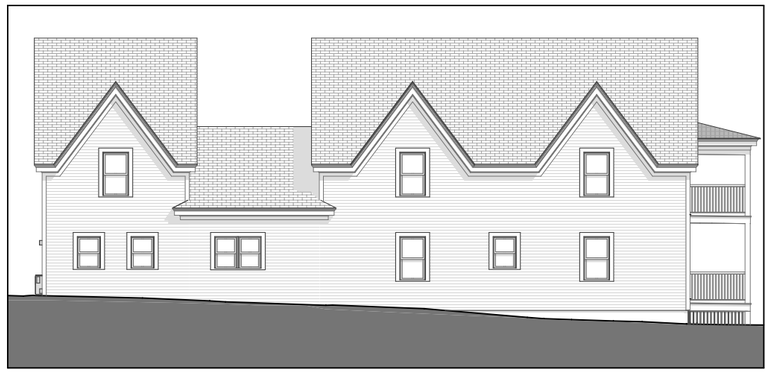


LANDSCAPE SITE PLAN
NOT TO SCALE

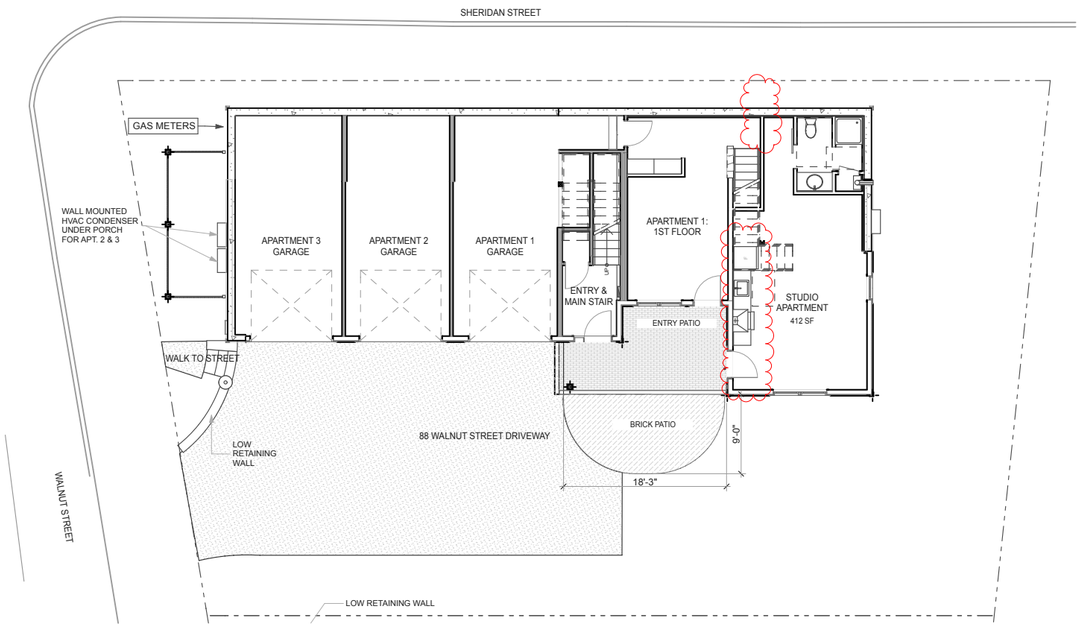
2 A2 WALNUT STREET ELEV. (NORTH)
SCALE: 1/8" = 1'-0"

3 A2 WEST ELEVATION
SCALE: 1/8" = 1'-0"

4 A2 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



5 A2 SHERIDAN STREET ELEVATION (EAST)
SCALE: 1/8" = 1'-0"



1 A2 FIRST FLOOR PLAN/GARAGE
SCALE: 1/8" = 1'-0"

VIEW FROM WALNUT STREET

AMENDMENT TO LEVEL III SITE PLAN REVIEW

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND SHALL REMAIN THE PROPERTY OF WHIPPLE CALLENDER ARCHITECTS.
IT SHALL NOT BE USED FOR ANY OTHER PURPOSE THAT FOR WHICH IT IS SPECIFICALLY FURNISHED

JP SHERIDAN LLC APARTMENT

88 WALNUT STREET
PORTLAND, ME

LICENSED ARCHITECT
ANNE E. CALLENDER
No. 1861
STATE OF MAINE

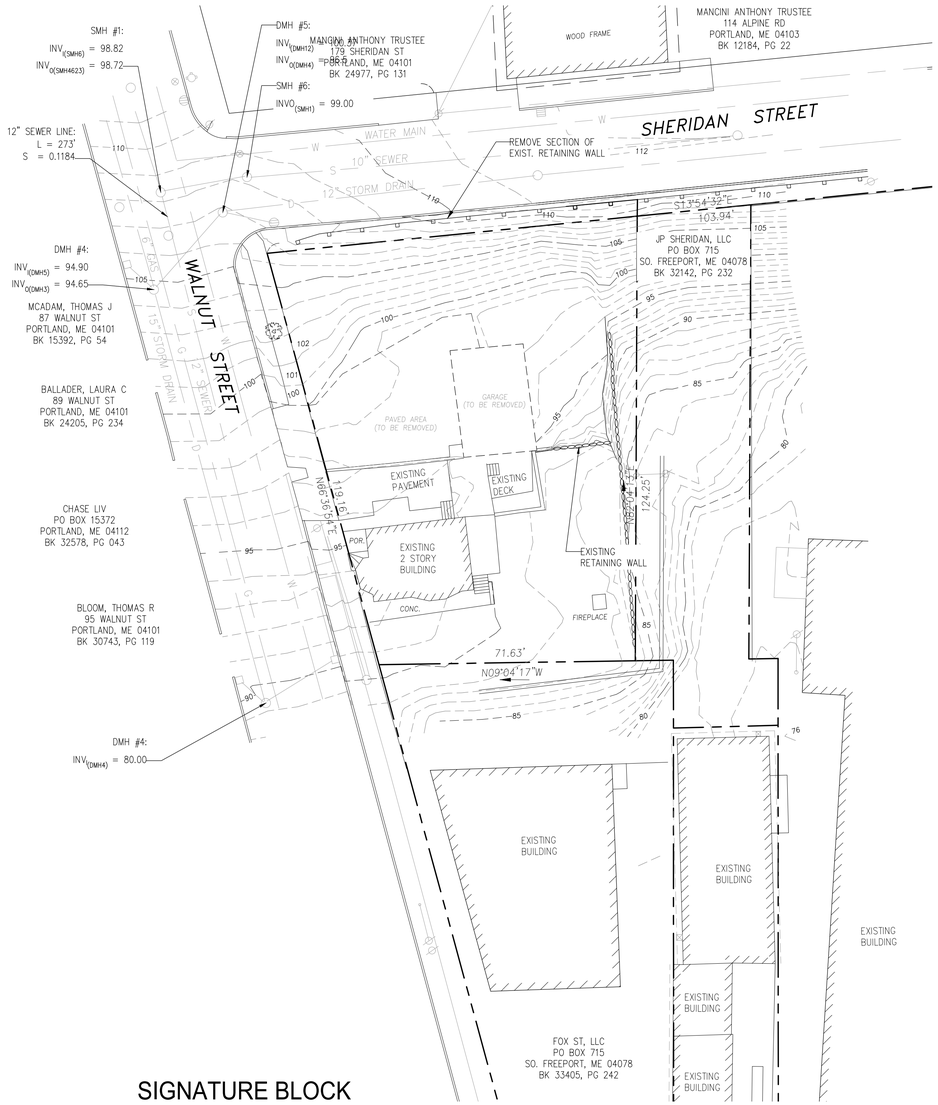
WHIPPLE CALLENDER ARCHITECTS
PO BOX 1276
PORTLAND, ME 04104
P 207.775.2696
F 207.775.3631
www.whipplecallender.com

MARK	DATE	DESCRIPTION
	8-3-17	PERMITTING SET
	9-11-17	CONSTRUCTION SET

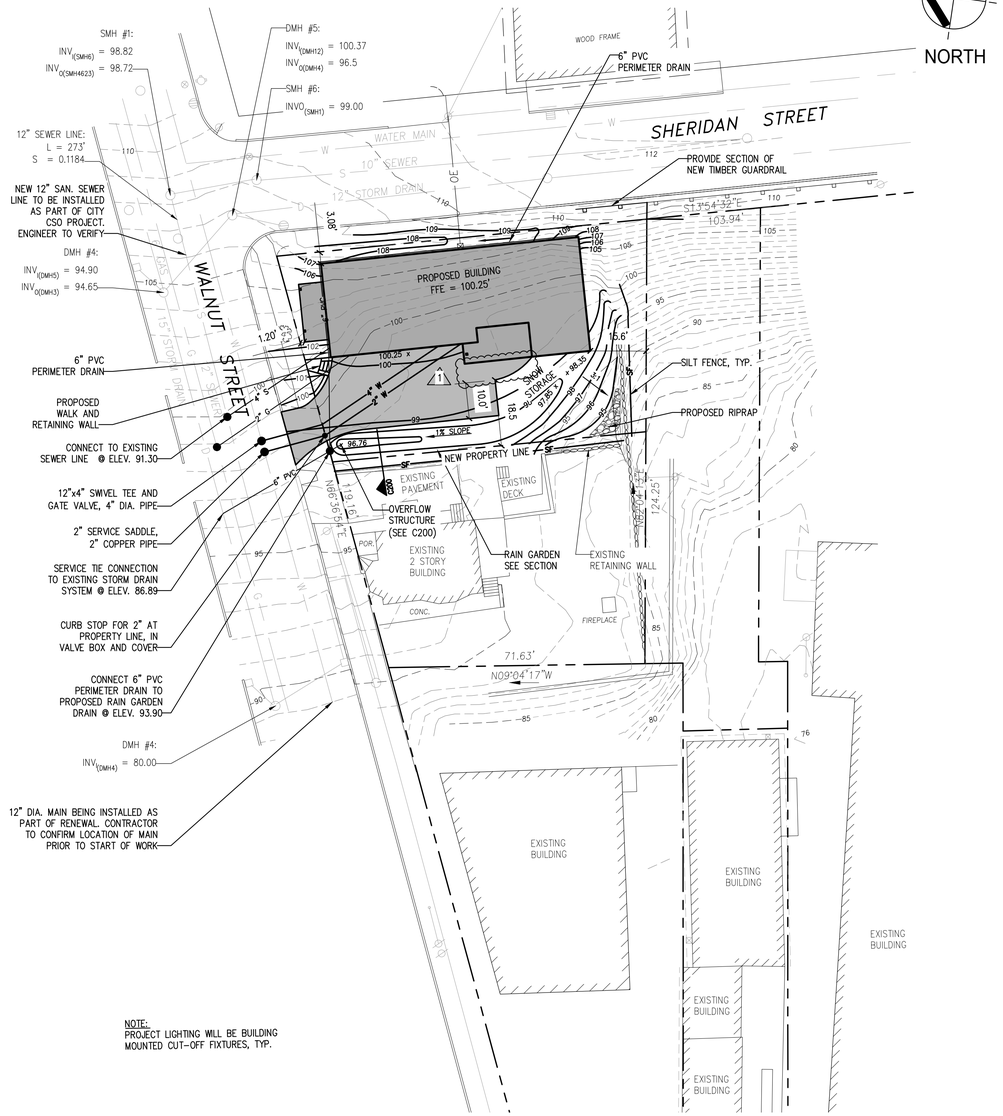
DATE: 10/11/18
CHECKED BY: AEC
DRAWN BY: AEC / NC
JOB: 16-EHP
SHEET TITLE: BUILDING PLANS AND ELEVATIONS

A2

PRINTED: Oct 02, 2018



EXISTING SITE PLAN



PROPOSED SITE PLAN

SIGNATURE BLOCK

GRAPHIC SCALE
0 10' 20' 40' 80'

SITE PLAN

SCALE: 1:20

-

CASCO BAY ENGINEERING
424 Fore Street
Portland, ME 04101
Phone 207.842.2800
Fax 207.842.2828
www.cascobayengineering.com

CLIENT:
WHIPPLE CALLENDER ARCHITECTS
136 PLEASANT AVE.
PORTLAND, MAINE 04103

STATE OF MAINE
ERIC DUBE
No. 12630
LICENSED PROFESSIONAL ENGINEER
08/01/17

JP SHERIDAN LLC APARTMENT
88 WALNUT STREET
PORTLAND, MAINE

PROPOSED BUILDING

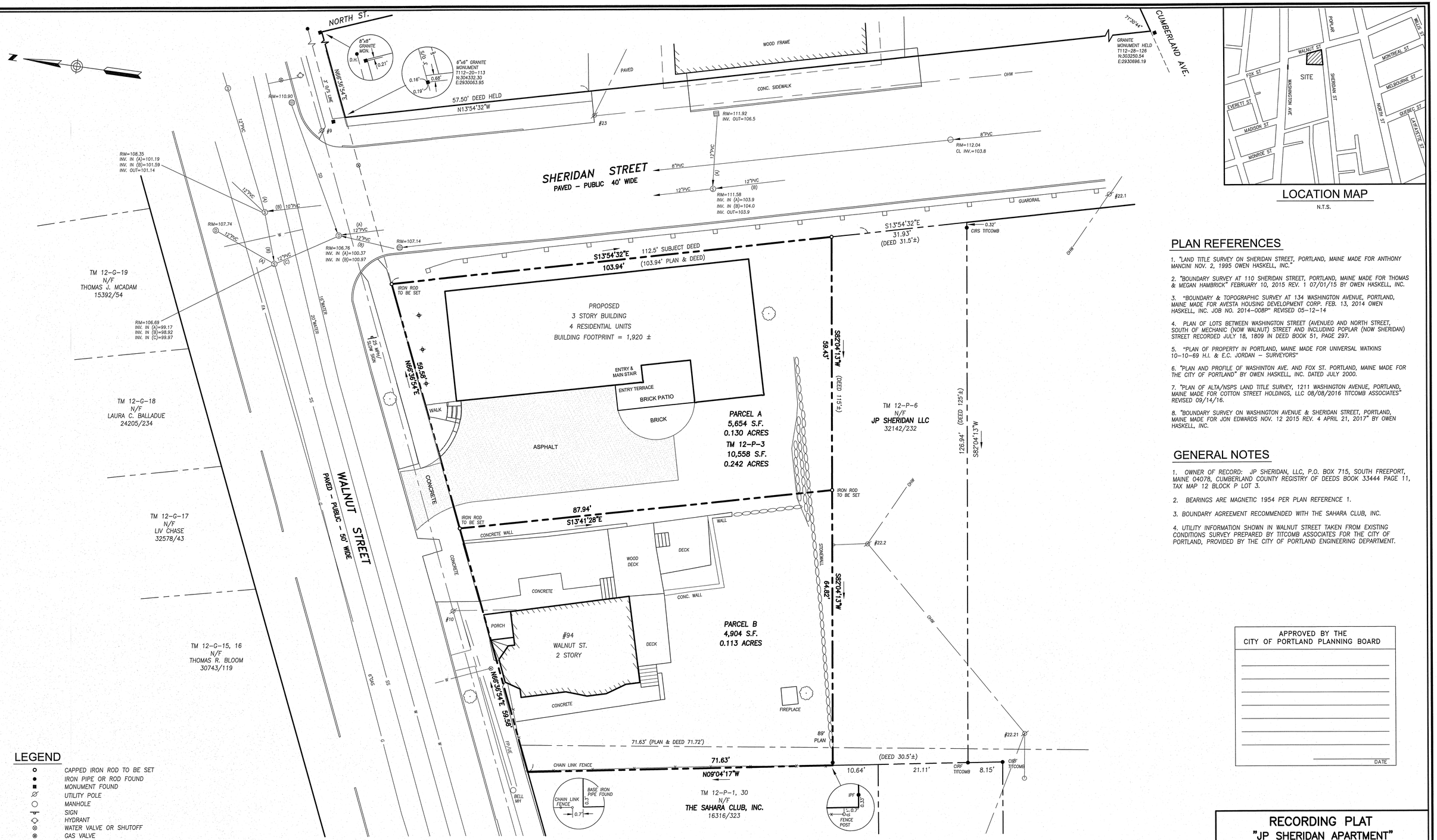
ISSUED

No.	DESCRIPTION	DR. BY	CKD. BY	DATE
0	FOR CONSTRUCTION	DL	ED	12-28-17
1	REVISION 1	DL	ED	10-01-18

SHEET TITLE:
SITE UTILITY AND DRAINAGE PLAN

DESIGNED:	ED
DRAWN:	DL
DATE:	10-01-18
PROJECT NUMBER:	16-195

C100



LOCATION MAP

N.T.S.

PLAN REFERENCES

1. "LAND TITLE SURVEY ON SHERIDAN STREET, PORTLAND, MAINE MADE FOR ANTHONY MANCINI NOV. 2, 1995 OWEN HASKELL, INC."

2. "BOUNDARY SURVEY AT 110 SHERIDAN STREET, PORTLAND, MAINE MADE FOR THOMAS & MEGAN HAMBRICK" FEBRUARY 10, 2015 REV. 1 07/01/15 BY OWEN HASKELL, INC.

3. "BOUNDARY & TOPOGRAPHIC SURVEY AT 134 WASHINGTON AVENUE, PORTLAND, MAINE MADE FOR AVESTA HOUSING DEVELOPMENT CORP. FEB. 13, 2014 OWEN HASKELL, INC. JOB NO. 2014-008P" REVISED 05-12-14

4. PLAN OF LOTS BETWEEN WASHINGTON STREET (AVENUEO AND NORTH STREET, SOUTH OF MECHANIC (NOW WALNUT) STREET AND INCLUDING POPLAR (NOW SHERIDAN) STREET RECORDED JULY 18, 1809 IN DEED BOOK 51, PAGE 297.

5. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR UNIVERSAL WATKINS 10-10-69 H.I. & E.C. JORDAN – SURVEYORS"

6. "PLAN AND PROFILE OF WASHINTON AVE. AND FOX ST. PORTLAND, MAINE MADE FOR THE CITY OF PORTLAND" BY OWEN HASKELL, INC. DATED JULY 2000.

7. "PLAN OF ALTA/NSPS LAND TITLE SURVEY, 1211 WASHINGTON AVENUE, PORTLAND, MAINE MADE FOR COTTON STREET HOLDINGS, LLC 08/08/2016 TITCOMB ASSOCIATES" REVISED 09/14/16.

8. "BOUNDARY SURVEY ON WASHINGTON AVENUE & SHERIDAN STREET, PORTLAND, MAINE MADE FOR JON EDWARDS NOV. 12 2015 REV. 4 APRIL 21, 2017" BY OWEN HASKELL, INC.

GENERAL NOTES

1. OWNER OF RECORD: JP SHERIDAN, LLC, P.O. BOX 715, SOUTH FREEPORT, MAINE 04078, CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 33444 PAGE 11, TAX MAP 12 BLOCK P LOT 3.

2. BEARINGS ARE MAGNETIC 1954 PER PLAN REFERENCE 1.

3. BOUNDARY AGREEMENT RECOMMENDED WITH THE SAHARA CLUB, INC.

4. UTILITY INFORMATION SHOWN IN WALNUT STREET TAKEN FROM EXISTING CONDITIONS SURVEY PREPARED BY TITCOMB ASSOCIATES FOR THE CITY OF PORTLAND, PROVIDED BY THE CITY OF PORTLAND ENGINEERING DEPARTMENT.

APPROVED BY THE
CITY OF PORTLAND PLANNING BOARD

DATE

LEGEND

- CAPPED IRON ROD TO BE SET
- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- SIGN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
- ELECTRIC OR GAS METER
- STONE WALL
- CURB
- OHW — OVERHEAD WIRES
- W — WATER LINE
- G — GAS LINE
- TM — TAX MAP
- N/F — NOW OR FORMERLY
- 000/000 — DEED BOOK AND PAGE

GRAPHIC SCALE

0 10' 20' 40' 80'

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

10-4-2018
DATE

JOHN C. SCHWANDA, PLS NO. 1252

STATE OF MAINE
JOHN C. SCHWANDA
1252
PROFESSIONAL LAND SURVEYOR

RECORDING PLAT

"JP SHERIDAN APARTMENT"

#88 WALNUT STREET, PORTLAND, MAINE

MADE FOR RECORD OWNER

JP SHERIDAN, LLC

P.O. BOX 715, SOUTH FREEPORT, MAINE

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207) 774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	OCT. 4, 2018	2015-155P
Check By	JCS	Scale	Drwg. No.
Book No.	FILE	1" = 10'	1RP

SHERIDAN STREET

GAS METERS

WALL MOUNTED
HVAC CONDENSER
UNDER PORCH
FOR APT. 2 & 3

APARTMENT 3
GARAGE

APARTMENT 2
GARAGE

APARTMENT 1
GARAGE

APARTMENT 1:
1ST FLOOR

UP

ENTRY &
MAIN STAIR

ENTRY PATIO

STUDIO
APARTMENT
412 SF

WALK TO STREET

LOW
RETAINING
WALL

88 WALNUT STREET DRIVEWAY

BRICK PATIO

9'-0"

18'-8"

9'-1 3/8"

WALNUT STREET

LOW RETAINING WALL