

CITY OF PORTLAND, MAINE

PLANNING BOARD



Maggie Stanley, Chair
Brandon Mazer, Vice Chair
Justin Barker
Marpheen Chann
Sean Murphy
David Silk
Austin Smith

AGENDA PORTLAND PLANNING BOARD MEETING

The Planning Board will hold a remote meeting on **Tuesday, November 22, 2022, 4:30 pm**. This meeting will take place remotely using Zoom pursuant to the Remote Meeting Policy adopted by the Planning Board and as authorized under 1 M.R.S. 403-B because of the existence of an emergency or urgent issue that requires the committee to meet by remote methods. Allow your computer to install the free Zoom app to get the best meeting experience.

If you are not able to attend live, a recording will be available following the meeting. For public comment, you will need to use the "raise your hand" feature. To raise your hand via the telephone, please hit *9. You will be unmuted by the host when it is time for public comment.

For more information on submitting written public comments and participating in the remote meeting, please refer to the document, A Guide to Public Comment, Remote Mtg. and Public Participation, which can be found at <https://www.portlandmaine.gov/485/Development-Review>. Public comments will be taken for each item on the agenda during the estimated allotted time.

Written Public Comment

Written comments received by email by 12:00 p.m. **the day before** the scheduled meeting date will be included in the agenda backup materials ("agenda packet").

Written comments received **by the aforementioned deadline** will be published in the agenda packet no later than 12:00 p.m. the day of the meeting. Written comments must be submitted to planningboard@portlandmaine.gov. If you have any questions or feedback regarding this process, please email citymanager@portlandmaine.gov

Please note that the placement of each item on the agenda is subject to change. Please check the Agenda & Minutes Center prior to the meeting for the item start time here: <https://www.portlandmaine.gov/602/Agendas-Mintues>.

ZOOM MEETING INSTRUCTIONS

You are invited to a Zoom webinar.

When: Nov 22, 2022 04:30 PM Eastern Time (US and Canada)

Topic: Planning Board Workshop and Public Hearing 11-22-2022

Please click the link below to join the webinar:

<https://portlandmaine-gov.zoom.us/j/89142988957>

Or One tap mobile :

US: +16469313860,,89142988957# or +19292056099,,89142988957#

Or Telephone:

Dial(for higher quality, dial a number based on your current location):

US: +1 646 931 3860 or +1 929 205 6099 or +1 301 715 8592 or +1 309 205 3325 or +1 312 626 6799 or +1 386 347 5053 or +1 507 473 4847 or +1 564 217 2000 or +1 669 444 9171 or +1 669 900 6833 or +1 689 278 1000 or +1 719 359 4580 or +1 253 215 8782 or +1 346 248 7799 or +1 360 209 5623

Webinar ID: 891 4298 8957

International numbers available: <https://portlandmaine-gov.zoom.us/j/89142988957>

WORKSHOP - 4:30 PM

i. Conditional Use; Recovery Housing; Soul Sanctuary, Applicant. **THIS ITEM IS BEING POSTPONED.**

The Planning Board will hold a remote workshop to consider a change in use classification from Sheltered Care Group Homes to Intermediate Care Facilities for State-licensed Recovery Housing facilities located at the following addresses: 1519 and 1582 Forest Avenue, 19, 85, and 251 Pleasant Avenue, and 99 Concord Street. No development is proposed in connection with these applications. The subject properties are zoned R-3 and R-5 Residential. A project and plan summary are available for viewing on the city's CSS Portal (<https://css.portlandmaine.gov/>) by referencing Plan Numbers CU-002217-2022, CU-2218-2022 and CU-002219-2022.

PUBLIC HEARING - 5:30 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON NOVEMBER 8, 2022

Evening Hearing

170 Anderson Street: Barker, Chann, Murphy, Silk, Smith present; Stanley absent.

134 Park Street: Barker, Chann, Murphy, Silk, Smith present; Stanley absent.

4. REPORTS OF DECISIONS AT THE MEETING HELD ON NOVEMBER 8, 2022

- i. Traffic Movement Permit; 170 Anderson Street; Castine 170 LLC, Applicant. Silk moved and Smith seconded a motion to find the plan in conformance with 23 M.R.S. §704-A and Chapter 305 Rules and Regulations pertaining to Traffic Movement Permits. Vote 6-0, Stanley absent.
- ii. Conditional Use; 134 Park Street; Cathedral Church of St. Luke, Applicant. Silk moved and Smith seconded a motion to find the Conditional Use consistent with the standards of Land Use Code Sections 6.5.2 and 6.5.6. Vote 6-0, Stanley absent.

5. NEW BUSINESS

- i. Technical Manual Updates (estimated time 5:30 – 6:30 pm) The Planning Board will hold a remote public hearing to consider amendments to Sections 1, 2, 4 and 10 of the City of Portland Technical Manual, focusing on technical standards related to transportation systems and street design, sewer and storm drain design, site landscaping, and street lighting.
- ii. Zoning Map and Text Amendment; 1 Bean Pot Circle; IDEALS (The Initiative for Digital Engineering and Life Sciences), Applicant. (estimated time 6:30 pm) The Planning Board will hold a remote public hearing to consider a zoning map and text amendment application to facilitate the creation of an Institutional Development Plan (IDP) and Institutional Overlay Zone (IOZ) for their Portland campus, to be located at 1 Bean Pot Circle. The IOZ, if approved, will include the 13-acre property located at 1 Bean Pot Circle (parcels 447-A-001 and A-002), currently zoned I-M Moderate Impact Industrial. A related text amendment to modify Land Use Code Section 8.5.2 to add the applicant's parcels to the list of eligible IOZ areas has been provided. A project and plan summary are available for viewing on the city's CSS Portal (<https://css.portlandmaine.gov/>) by referencing Plan Number ZN-001934-2022.

Technical Manual Updates
Sections 1, 2, 4, 10, 16, & 17

Submitted to:	Chair Stanley & Portland Planning Board	Prepared By:	Nell Donaldson, Director of Special Projects
Public Hearing Date:	November 22, 2022	Date:	November 18, 2022

I. INTRODUCTION

In two previous workshops, one on May 6 and one on September 13, the Department of Planning & Urban Development, with assistance from the Departments of Public Works and Parks & Recreation, appeared before the Planning Board to review a slate of draft amendments to the *City of Portland Technical Manual*. These amendments affect Section 1 (Transportation Systems and Street Design Standards), Section 2 (Sanitary Sewer and Storm Drain Design Standards), Section 4 (Landscaping and Landscape Preservation Standards), and Section 10 (Municipal Street Lighting Standards), and include the reorganization of material into a new Section 17 (Transportation Plans and Studies). The proposed edits represent an effort to bring the city's technical standards into alignment with current and best practice, and to reorganize material for legibility.

The *Technical Manual* edits to Sections 1, 2, 4, 10, and 17 were developed by staff across Planning, DPW, and Parks, and have been revised several times over the course of this review in response to Board feedback, public feedback, and internal staff dialogue. At the request of the Board, edits to Sections 1, 2, and 17 were also reviewed by third parties who regularly engage with the *Technical Manual*; comments from third party reviewers have been integrated into the final draft materials before the Board.

This report provides a final summary of proposed changes to the *Technical Manual*, with a focus on edits made in the time since the September 13 workshop based on Board and public feedback and subsequent internal review across departments. Redlines of each affected section have been attached for reference, as have all proposed revised details (*Attachments 1-6*). For ease of reference, first draft (May 6) edits to *Technical Manual* sections appear in red in the attached redlines, second draft (September 13) edits appear in purple, and final draft (November 22) edits appear in blue. For a complete summary of the first and second draft edits, see the May 6 and September 13 staff memos (*Attachments 7 and 8*) as well as change logs prepared by the Department of Public Works (*Attachment 9 and 10*).

II. OVERVIEW OF PROPOSED EDITS

- A. Section 1: Transportation Systems and Street Design Standards** (*Attachment 1*). The most significant structural change to Section 1 is that standards for required plans and studies have been relocated to a new section, Section 17, leaving Section 1 to focus squarely on transportation engineering standards and the right-of-way. In addition, many of the standards within Section 1 have been updated to reflect current and best practice. Changes include updates to standards for the design and construction of driveways, sidewalks and ramps, curb extensions, vehicular parking (including EV parking), bicycle parking, bicycle facilities, traffic control devices, crosswalks, and public transit facilities.

In the time since the September 13 workshop:

- *Section 1.6.5 and Figure I-CE:* DPW staff has added a curb extension detail providing general guidance for the design and construction of these street elements.
- *Section 1.13:* In response to public comment, staff has added a reference to the MassDOT's *Separated Bike Lane Planning & Design Guide* as a guide for the design of bicycle facilities.

It should be noted that staff in the Department of Public Works and Planning considered modifying the drive aisle width standard to address concerns raised by the Planning Board regarding the prevalence of waivers. After consulting with Tom Errico of TY Lin International, who participates in waiver review as a third party engineer for the city, DPW has advised that the existing 24' drive aisle width standard for right-angle parking be maintained and that waiver requests to reduce the drive aisle width continue to be considered on a site by site basis (*Attachment 9*). No changes are proposed in the final draft.

- B. Section 2: Sanitary Sewer and Storm Drain Design Standards (*Attachment 2*).** Section 2 of the *Technical Manual* has been restructured to differentiate between standards intended for sewer and standards intended for storm drain systems. In addition, updates are proposed to sewer standards for ADUs, manholes, gravity pipes, force mains, and backflow prevention, and treatment of abandoned sewer laterals. With respect to stormwater, updated standards for manholes, drainpipes, catch basins, and grease interceptors are proposed. There are no additional edits based on feedback from the September 13 workshop.
- C. Section 4: Landscaping and Landscape Preservation Standards (*Attachment 3*).** Revisions to Section 4 of the *Technical Manual* include changes to a number of landscaping standards. The landscape preservation standards have been updated, adding clarification on the applicability of provisions surrounding 'feature mature trees.' Several changes are proposed to street tree standards, including the standardization of tree spacing requirements, the introduction of language around required soil volumes, and updates to the provisions around street tree alternatives. Provisions around maintenance of required plantings have been clarified. Edits also include updated tree well details and an updated recommended tree list.

Following the September 13 workshop, staff made the following new edits:

- *Sections 4.1 & 4.3:* The proposed definition of 'feature mature tree,' which is currently undefined but used in the *Technical Manual*, was refined to match the definition of 'heritage tree' as used in the City's code of ordinances. This will provide consistency for staff and applicants in the application of tree preservation standards moving forward. In association with this change, Section 4.3 has been modified to address the preservation of feature mature trees within setbacks in a manner consistent with site plan standards and current practice.
- *Section 4.6:* Street tree standards have been revised to remove redundant language and modify language for consistency with the land use code. In addition, standards have been revised to require adequate soil volumes for street trees and standardize street tree spacing for all land uses. On the advice of Parks and Recreation staff and the City Arborist, tree contributions have not been modified at this time, nor have street tree ratios. Parks has provided a memo speaking to current costs (*Attachment 11*). Moving forward, staff will

continue to evaluate these policies to ensure they are in alignment with latest regulations and best practices.

- *Figure 4-1:* Lastly, the tree list has been modified to add a missing Latin name and include notes regarding the use of small trees and non-fruiting varieties in certain street tree contexts.

D. Section 10: Municipal Street Lighting Standards (*Attachment 4*). In Section 10, a replacement bollard detail is proposed, since the existing model is no longer being manufactured.

E. Section 17: Transportation Studies and Plans (*Attachment 5*). As noted above, Section 17 represents a new proposed section of the *Technical Manual*, comprised of elements relocated from the existing Section 1. All of these elements relate to transportation plans and studies. Standards have been updated to reflect current and best practice and lessons learned through the review of these documents. Standards for transportation studies have been updated to reflect a more multi-modal approach; parking studies have been updated to encourage shared parking in mixed-use sites; TDM plans have been updated to simplify data collection, monitoring, and reporting requirements and move reference material outside of the *Technical Manual*; and construction management plans have been modified to strengthen requirements around the continuation of ADA-compliant access across all modes during construction.

There are minimal changes to this section in the time since the September 13 workshop, one to correct a title, and the second to clarify language around transportation studies and the mitigation of project impacts.

It should be noted that a clerical edit to Section 16 (Application Submission Requirements) of the *Technical Manual* has also been included here, to ensure a correct reference to the new Section 17 (*Attachment 6*).

III. PUBLIC COMMENT

Over the course of this review, staff and the Board have received eight written comments from four different members of the public (*Attachment 12*). Several of these comments focus on the transportation standards of the *Technical Manual*, including standards for bike infrastructure, sidewalks, and curb extensions and raised crosswalks. One comment also raised questions about submission requirements, and three raised concerns about standards for landscape preservation, street trees, and ensuring longevity in required plantings.

IV. STAFF ANALYSIS

Section 2.1.10 of the City's land use code grants the Planning Board the authority to review and approve technical standards through the *Technical Manual*. In order to do so, the Planning Board must find that such standards are additional to and consistent with the provisions of the land use code, necessary and reasonable, and "in accordance with sound engineering...practice." As discussed previously, in addition to edits for the sake of clarity or consistency and reorganization to assist with document legibility and administration, the proposed edits to the *Technical Manual* also include substantive edits designed to reflect lessons learned through practice, and to bring standards into alignment with state and national guidance in engineering and other relevant fields.

V. MOTION FOR THE BOARD TO CONSIDER

On the basis of material provided in this report, public testimony, and other information provided during the Planning Board's review at the November 22, 2022 public hearing, the Planning Board finds that the proposed revisions to Sections 1, 2, 4, 10, 16, & 17, of the *City of Portland Technical Manual* **[are / are not]** consistent with the requirements of Section 2.1.10(P) of the land use code and **[approves, approves with conditions, or does not approve]** such revisions.

VI. ATTACHMENTS

1. Final Draft Revisions to Section 1 – Transportation Systems and Street Design Standards
2. Final Draft Revisions to Section 2 – Sewer and Storm Drain Design Standards
3. Final Draft Revisions to Section 4 – Landscaping and Landscape Standards
4. Final Draft Revisions to Section 10 – Municipal Street Lighting Standards
5. Final Draft Revisions to Section 17 – Transportation Studies and Plans
6. Final Draft Revisions to Section 16 – Application Submission Requirements
7. May 6 Memo to the Planning Board
8. September 13 Memo to the Planning Board
9. Summary of Updates to Section 1 & 17 of the *Technical Manual*, DPW
10. Summary of Updates to Section 2 of the *Technical Manual*, DPW
11. Street Tree Memo, Parks, Recreation, & Facilities
12. Public comment

1. TRANSPORTATION SYSTEMS AND STREET DESIGN STANDARDS

1.1. TRAFFIC STUDIES

For the purposes of this section, **passenger car equivalents (PCE)** shall be defined as the number of passenger cars or, in the case of non-passenger vehicles, the number of passenger cars that would be displaced by non-passenger vehicles. One tractor trailer combination is the equivalent of two passenger cars.

Developments that generate 100 PCE or more, thus requiring a Traffic Movement Permit (TMP), shall meet the requirements of TMP regulations of State Law, in addition to all applicable transportation site plan standards of the City Code. For more information concerning state TMP requirements, please refer to <http://www.maine.gov/mdot/traffic-counts/traffic-mvmnt-app.php> or contact the Maine Department of Transportation (MDOT). The City of Portland is the delegated reviewing authority for TMP applications.

Developments that generate less than 100 passenger car equivalents (PCE) but require a scoping meeting because they generate 25 PCE or more and are located

(1) on an arterial; and/or

(2) within ½ mile of a high crash location; and/or

(3) within ¼ mile of an intersection that has been identified in a previous traffic study as a failing intersection, with an overall level of service below level of service D,

shall meet the following standards, if a traffic study is required:

- 1.1.1. Traffic studies shall be prepared, stamped and signed by a Professional Engineer licensed in the State of Maine.
- 1.1.2. Scope of Study: The City Transportation Engineer, in consultation with the applicant's engineer, shall determine the need for and scope of the traffic study. The requirements for the study shall be based on standard transportation engineering practice

A typical traffic study includes the following major sections:

- A description of the development proposal
- A description of existing conditions.
- Estimated trip generation by the development and design hour volume for affected driveway(s) and study intersections.
- Trip generation will be based upon the latest edition of the ITE *Trip Generation* publication unless suitable documented local data that meets ITE methodology is available.
- Trip distribution
- Capacity analysis for adjacent roadways and for any existing or proposed driveways.
- Traffic crash analysis for adjacent roadways.
- Key findings concerning traffic impacts, problems, and deficiencies.
- Proposed traffic improvements.
- Summary of findings and recommendations for transportation improvements and other impact mitigation measures.

Commented [ND1]: Move to Section 17.

~~1.2. Reserved~~**1.31. HORIZONTAL ALIGNMENT OF STREETS**

The horizontal alignment of all proposed streets shall conform to the following standards:

- Horizontal curves shall have centerline radii of not less than 110 feet.
- The alignment centerline shall be straight for at least 100 feet between reverse curves whenever either curve has a centerline radius of less than 200 feet.
- When two streets intersect and one street is an arterial or collector street, or both streets are arterial or collector streets, the angle of intersection shall be 90 degrees. When two streets intersect and neither street is an arterial or collector street, the angle of intersection shall be at least 75 degrees and no greater than 105 degrees.
- When two streets intersect, adjoining right-of-way lines shall be connected by a circular arc with radius of at least ten (10) feet. The connecting arc shall be tangent to the right-of-way lines on both streets. When the angle of intersection is other than 90 degrees, a radius greater than ten (10) feet may be required.
- All dead-end streets shall provide for a turnaround at the end of the street, subject to approval by the reviewing authority. Turnarounds shall be designed to facilitate future street connectivity and shall always be

designed to the right (refer to Figure I-5).

- Street intersections with more than four (4) legs shall be prohibited.
- The minimum distance between intersections on any street shall be as follows unless the City EngineerDepartment of Public Works determines that unique conditions of the site necessitate a lesser length. The distance between intersections shall be measured from the intersection of street centerlines at one intersection to the intersection of street centerlines at the other intersection. Streets shall be classified in accordance with the Federal Highway Administration-Functional Classification Guidelines as set forth by MaineDOT.

Local Street and Local Street Intersection	<u>2</u> 300 feet
Local Street and Collector Street Intersection	<u>2</u> 5 <u>3</u> 00 feet
Local Street and Arterial Street Intersection	<u>3</u> 500 feet
Collector Street and Collector Street Intersection	<u>4</u> 500 feet
Collector Street and Arterial Street Intersection	500 feet
Arterial Street and Arterial Street Intersection	500 feet

1.24. STREET GRADES

1.24.1. Street grades shall conform to the following standards, as shown in Figures I-1, I-2, and I-3:

- The maximum grade for the centerline of all streets shall not exceed eight (8) percent.
- The minimum grade for the centerline of all streets shall not be less than one-half (0.5) percent.
- The cross slope for local streets shall be three (3) percent0-03. The cross slope for other street classifications shall be two (2) percent0-02.
- Cross slopes for sidewalks shall be one (1) percent minimum and two (2) percent maximum0-02, sloping down and away from the street line to

the top of the curb at the gutter line, including pedestrian access routes across driveways, as shown in Figure I-10C13.

- Street grades at intersections shall not be more than three (3) percent for a distance of one hundred (100) feet from the center of the intersection.

1.2.2 Curbless "shared streets" shall be considered on a case-by-case basis after consideration of context, design, and maintenance. Approval of any curbless "shared street" shall be subject to review by the Department of Public Works.

1.35. VERTICAL ALIGNMENT

Where two adjacent street segments are proposed to have different straight line centerline finish grades, vertical curves shall be used to connect the adjacent street segments. Vertical curves shall be parabolic and tangent to each of the adjacent grades. The minimum vertical curve length, "L", shall be calculated based on the following formula

$$L = K \times A$$

where "A" is the absolute value of the algebraic difference between the beginning grade and the ending grade of the vertical curve, with both grades expressed in percent, and "K" is a factor whose value depends on street design speed, ~~which is related to street classification. The design speeds, in miles per hour, for this section's street classifications are as follows:~~

Local Street	25 mph
Collector Street	30 mph
Arterial Street	35 mph

The K values corresponding to the minimum vertical curve lengths for the above street classifications and vertical curve types (sag curve or crest curve) are as follows:

Local Streets

Crest Vertical Curves: K = 20

Sag Vertical Curves: K = 30

Collector Streets

Crest Vertical Curves: K = 30

Sag Vertical Curves: K = 40

Arterial Streets

Crest Vertical Curves: K = 50

Sag Vertical Curves: K = 50

1.46. SIGHT DISTANCE

Where driveways or new streets enter an existing street, vehicular sight-distance shall conform to standards established by the Maine DOT as contained in their publication, Chapter 299, Highway Driveway and Entrances Rules ~~and noted below for entrances with standard vehicles~~. For driveways frequently accessed by large vehicles, greater sight distance will be required according to Maine DOT guidelines.

Speed Limit (mph)	Measured Distance (feet)
25	200
30	250
35	305
40	360
45	425
50	495
55	570
60	645

1.57. DRIVEWAY DESIGN

1.75.1. All driveways shall be designed according to the following table, unless otherwise approved by the Department of Public Works.

Requirement	<u>Minor Driveway</u> (serving < 10 residential spaces)	<u>All other driveways</u>
<u>A) Number of Driveways</u>	<u>No more than one (1) driveway shall be permitted.</u>	<u>No more than two (2) driveways shall be permitted. Adjacent sites under common ownership shall have no more than two (2) driveways combined.</u>
<u>B) Minimum/ maximum driveway width</u>	<u>10 feet minimum, 20 feet maximum, measured at the property line.</u>	<u>For two-way driveways (preferred):</u> <u>20 feet minimum, 24 feet maximum for residential/commercial uses</u> <u>30 feet maximum for industrial uses</u> <u>Larger driveway openings may be permitted by the Department of Public Works as determined on a</u>

		<u>case-by-case basis.</u>
<u>C) Driveway spacing</u>	<u>Spacing of new or reconfigured driveways shall take the existing pattern of driveways in the surrounding context into account, and shall limit the impact to on-street parking and existing street trees. Shared driveways are encouraged. Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>	• <u>50 feet along local streets;</u> • <u>100 feet along arterial and collector streets with posted speeds of 35mph or less;</u> • <u>150 feet for roadways posted at speeds greater than 35mph</u> <u>Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>
<u>D) Driveway separation from intersections</u>	• <u>At least 35 feet along local roads</u> • <u>50 feet along collectors/arterials</u> <u>Distance shall be measured from the projection of the right-of-way line at the roadway to the centerline of the driveway. Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>	• <u>At least 35 feet along local roads</u> • <u>100 feet along collectors/arterials</u> <u>Distance shall be measured from the projection of the right-of-way line at the driveway to the centerline of the driveway. Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>
<u>E) Curbing</u>	<u>2-foot granite corner radius “bugs” (also known as a “bullnose”) shall be used where possible. Tipdowns may be used if the driveway crosses a narrow sidewalk</u>	<u>Granite radii (where sufficient esplanade is available) or tipdowns shall be used. Granite radii shall not cross the pedestrian access route.</u>
<u>F) Driveway intersection angle</u>	<u>Perpendicular to the street, where possible. Where necessary, the driveway shall intersect the street between 75 and 105 degrees unless otherwise approved by the Department of Public Works.</u>	
<u>G) Design vehicle</u>	<u>Driveways shall be designed to accommodate site-specific design vehicles, and shall not be designed larger than necessary, as determined by turning movement diagrams and engineering judgment.</u>	
<u>H) Loading</u>	<u>All necessary functions for loading, circulation, and parking maneuvers shall occur within the site and outside of the right-of-way to the extent practicable, given the site context.</u>	
<u>I) Circulation</u>	<u>Vehicle circulation shall be completely contained within the site to the</u>	

	<u>extent practicable, given the site context.</u>	
<u>J) Backing maneuvers</u>	<u>Backing maneuvers may be permitted to enter the site. Backing maneuvers from a site may be permitted based on upon site context including functional class of the adjacent street, traffic volumes, and speeds.</u>	<u>Backing maneuvers into and out of the site are prohibited. All vehicles must enter and exit the site facing forward.</u>
<u>L) Parking area size</u>	<u>All driveways shall serve a parking area of at least 8'x16', clear of any encroachment, plus any setbacks required by zoning. Parking areas and parked cars shall not encroach upon the public right-of-way.</u>	

~~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 major 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.~~

~~1.7.2. Multi-Family Residential with 10 (ten) parking spaces or more, Commercial and Industrial shall meet the following standards:~~

~~1.7.2.1. All driveways shall be designed to connect perpendicular to the street, where feasible. In no case shall the angle of intersection be less than 75 degrees or greater than 105 degrees.~~

~~1.7.2.2. Minimum driveway width (one-way): Any site with driveway access to a street shall have a minimum 12 foot wide driveway (at the property line) for one-way ingress or egress. Driveways shall permit traffic to enter and leave the site simultaneously without conflict in aisles, parking or maneuvering areas. If parking is adjacent to the property line, then the appropriate aisle width shall apply. Both the entrance and exit drives shall be identified with appropriate signage.~~

~~1.7.2.3. Minimum driveway width (two-way): Any site with driveway access to a street~~

~~shall have a minimum width of 20 feet for two-way ingress and egress, with a preferred width of 24 feet.~~

- ~~1.7.2.4. Maximum driveway width (two-way): The maximum width of a driveway will be based upon site conditions or vehicle characteristics that warrant a wider access (e.g., dedicated turn lanes at exits) and will require approval of the reviewing authority. Maximum widths shall not exceed the following, although confirmation of exact capacity requirements will be necessary:~~

- ~~— Commercial—24 feet~~
- ~~— Industrial—30 feet~~

- ~~1.7.2.5. Curbing of driveways: Where driveways enter on an existing street, the full radius of the driveway shall be designed and constructed of granite curb. The radius size shall be based upon information in the following tables. The radii listed below are recommended standards. A vehicle template analysis may be submitted for review as an alternative to the use of the following table:~~

		Departure Lane			
	Passenger-Car	12 foot or less	12 to 14 foot	14 to 16 foot	16 to 18 foot
Receiving Lane	12 foot or less	15 ft.	15 ft.	15 ft.	15 ft.
	12 to 14 foot	15 ft.	15 ft.	15 ft.	15 ft.
	14 to 16 foot	15 ft.	15 ft.	15 ft.	15 ft.
	SU-30 Truck				
	12 foot or less	35 ft.	30 ft.	30 ft.	30 ft.
	12 to 14 foot	30 ft.	30 ft.	30 ft.	30 ft.
	14 to 16 foot	30 ft.	30 ft.	30 ft.	30 ft.
	WB-50 Truck				
	12 foot or less	45 ft.	45 ft.	45 ft.	45 ft.
	12 to 14 foot	35 ft.	35 ft.	35 ft.	35 ft.
	14 to 16 foot	25 ft.	25 ft.	25 ft.	25 ft.
	WB-62 Truck				
	12 foot or less	85 ft.	85 ft.	85 ft.	85 ft.
	12 to 14 foot	85 ft.	85 ft.	85 ft.	85 ft.
	14 to 16 foot	65 ft.	65 ft.	65 ft.	65 ft.

- ~~1.7.2.6. Maneuvering: The area within the site to which a driveway provides access shall be of sufficient size to allow all necessary functions for loading, unloading and parking maneuvers to be carried out on the site and completely~~

~~off the street right-of-way. Backing out of vehicles from the driveway is prohibited. The design vehicle used in the analysis shall be the predominant vehicle type and shall be approved by the reviewing authority.~~

~~1.7.2.7. Location and spacing of driveways: The location and spacing of driveways shall be determined as follows:~~

- ~~• The angle of intersection between an access driveway and the right of way shall be 90 degrees where feasible and shall in no case be less than 75 degrees or greater than 105 degrees.~~
- ~~• Along local streets, access driveways to corner lots shall be located a minimum of thirty five (35) feet from the intersection of the projection of right-of-way lines to the center line of the driveway, except as provided hereinafter.~~
- ~~• Along arterial and collector streets, access driveways to corner lots shall be located a minimum of one hundred fifty (150) feet from the intersection of the projection of right-of-way lines to the center line of the driveway except as provided for hereinafter.~~
- ~~• Along arterial, collector and local streets, minimum acceptable spacing between double or multiple driveways for driveways on adjacent lots or on the same parcel shall meet the criteria below:~~

Speed Limit (mph)	Minimum Separation* (feet)
25 or less	100
30	125
35	150
40	185
45	230

~~*Spacing of driveways shall be measured from center of driveway to center of driveway and shall include driveways on both sides of the street.~~

~~1.7.2.8. Number of driveways: No more than two (2) driveways shall be permitted for ingress and egress purposes to any commercial, industrial or residential (with 10 or more parking spaces) site. A joint access driveway shall be considered as adequate access for any adjacent sites and shall be encouraged. An easement for joint access shall be required.~~

~~1.7.2.9. Off street vehicular circulation: An off street facility shall have full internal vehicular circulation and storage. Vehicle circulation shall be completely contained within the facility, and vehicles located within one portion of the facility shall have access to all other portions without using the adjacent street system.~~

1. ~~5.27.3.~~ Auxiliary Lanes Serving Driveways: A left-turn lane and/or right-turn lane with appropriate storage and transition may be considered where engineering analysis indicates a need. The need for auxiliary lanes shall be considered within the context of the impacts to sidewalks, bikeways, transit stops, on-street parking, and traffic safety. All new auxiliary lanes are subject to the approval of the Department of Public Works.

~~Ingress left turn lanes requirements: A left turn lane with appropriate storage and transition shall be provided where a submitted engineering analysis indicates a need.~~

~~Ingress right turn lanes: For any site, a right turn lane with appropriate storage and transition shall be provided where a submitted engineering analysis indicates a need.~~

1.68. SIDEWALKS AND ~~DRIVEWAY APRONS~~ CURB RAMPS

- 1.8.1. Driveway Aprons: Any driveway, or section thereof, located within any public street right-of-way shall be designed and built with a permanent, erosion resistant, surface, such as hot mix asphalt pavement, concrete, or brick, as illustrated in Figures I-10 through I-12. At a minimum, all driveway aprons shall be constructed of the designated sidewalk material within the pedestrian access route.

Commented [ND2]: MOVED TO 1.7

1. ~~6.18.2.~~ Sidewalk Construction and Materials: Sidewalks shall be brick, concrete or hot mix asphalt. The City Sidewalk Materials Policy (Appendix ~~-1 of this manual~~) shall be consulted to determine the appropriate type of sidewalk and driveway construction to use on various streets and in different areas of the City. Within the city's historic districts, only brick shall be used. Sidewalk and driveway construction details are illustrated in Figures I-10 and I-11 through I-15. All new concrete sidewalks ~~and driveway aprons~~ which abut existing concrete sidewalks must be doweled in prior to pouring. All new brick sidewalks shall be constructed with bricks running perpendicular to the path of pedestrian travel, including through driveway crossings.
1. ~~68.32.~~ Sidewalk ~~Design for~~ Accessibility: All sidewalks shall meet any minimum standards set forth by current Americans with ~~for~~ Disabilities Act (ADA) and Public Right-of-Way Accessibility Guidelines (PROWAG) guidance. There are no exceptions unless technical infeasibilities are identified, documented, and approved by the Department of Public Works. In case of conflict, these standards shall supersede this manual.

1.6.2.1 Sidewalk width: The minimum sidewalk clear width shall be five (5) feet, ~~including the pedestrian access route through driveway aprons.~~ Where obstructions, such as utility poles, are located in sidewalks, a minimum clear and direct pedestrian access route path width of five (5) feet shall be provided between the obstruction and one edge of the sidewalk. ~~Wider sidewalks may be required in locations where heavy pedestrian traffic is expected, based on the site context. New sidewalks shall be at least as wide within the right-of-way as the sidewalk(s) along the adjacent properties, required between the obstruction and one edge of the sidewalk.~~

1.6.2.2 Level changes: The maximum allowable vertical level change at any point is ¼-inch. A level change of ¼-inch to ½-inch shall be formed with a beveled slope no steeper than 26.6 degrees (2:1). Level changes greater than ½-inch shall be designed as ramps.

1.6.2.3 Running slope: Sidewalks shall be designed with a running slope no greater than the adjacent street slope.

1.6.2.4 Cross-slope: ~~Sidewalks, including pedestrian access routes across driveways, shall be constructed designed with a minimum cross slope of 1% and a maximum cross-slope of 2% post-construction, including the pedestrian access route through driveway aprons.~~ Finished cross-slopes of greater than 2% shall not be acceptable. Designed cross-slopes of 1.5% are encouraged. Cross-slopes shall be consistent across the width of the sidewalk.

~~Accessible sidewalk ramps shall be required on all projects involving construction of new streets or new sidewalks and all projects involving major alteration, including repaving, of existing streets and sidewalks.~~

- 1.6.38-4. Sidewalk Ramp Design Curb ramps: ADA-compliant curb ramps are required on all projects involving construction of new streets or new sidewalks, and on all projects involving alterations to the abutting street, including repaving of existing streets and sidewalks.

Curb ramps shall be designed to prevent ponding of water at the base of the ramp. Ramp designs and details will indicate how positive drainage away from the landing in the vicinity of curb ramps will be achieved.

1.6.3.1. Applicability: ADA-compliant curb ramps are required at all marked and unmarked crossing locations. -Ramps shall not be provided only where there is no crossing present due to safety concerns or a lack of pedestrian facilities on the opposite corner.

1.6.3.2 Orientation: Curb ramps shall be designed with the direction of travel on the ramp perpendicular to the curb line and parallel to the crosswalk, where feasible. Where existing conditions, such as narrow right-of-way width or utility constraints, preclude such layouts, parallel ramps, where the entire sidewalk ramps down, are acceptable. Diagonal ramps are not desirable, but may be approved by DPW on a case-by-case basis. Ramp design standards are provided in Figure I-6.

1.6.3.3. ~~Detectable~~ Detectable warning panels: All pedestrian curb ramp/crosswalks shall include truncated dome warning panels as shown in Figure I-7. Any curb ramp that is not intended to be used by pedestrians (e.g., ramps serving bikeways) shall not include warning panels. Warning panels shall also be provided where a crossing is present without a curb ramp (for example, where pedestrian facilities are at the same grade as the street, within a median refuge, etc.). All warning panels shall be uncoated cast iron, as detailed in Figure I-7. DPW reserves the right to require the installation of warning panels at driveway locations in such situations where volume or configuration of traffic may necessitate their placement.

1.6.4 Shared use paths: Shared use paths and other pedestrian access routes in the right-of-way shall conform to the same ADA requirements as sidewalks discussed herein. The appropriate material for shared use paths may differ from the material prescribed in the Sidewalk Material Policy. The appropriate material shall be determined by the ~~review authority~~ Department of Public Works if not already documented in a transportation plan or master plan. Shared use paths shall be 10 feet in width or greater to allow for two-way traffic and passing.

1.6.5 Curb extensions: Curb extensions (also known as bump-outs, bulb-outs, or neckdowns) describe any localized narrowing of the roadway, typically at pedestrian crosswalk locations. The installation of any curb extension is subject to the approval of the Department of Public Works.

1.6.5.1. Applicability: Curb extensions may be considered where one or more of the following conditions are met:

- There is a documented speeding issue confirmed by a speed study;
- Curb extensions are necessary to construct one or more ADA-compliant curb ramps at an existing or proposed crosswalk;
- As determined necessary at uncontrolled midblock crossings;
- At signalized intersections, where reducing the pedestrian crossing time

improves signal timing;

- At High-Crash Locations, At particularly where locations where there is a history of crashes involving pedestrians and/or crashes involving right-turning vehicles; or
- Where they are prescribed in a master plan or transportation plan.

1.6.5.2. Curb extension design: Curb extensions, where permitted, shall be constructed to achieve the applicable goal(s) without disrupting the functionality of the roadway or intersection. Curb extensions:

- Shall not impede necessary turning movements for trucks or emergency vehicles or winter operations;
- Shall not negatively impact drainage without adequate mitigation;
- Shall not impede upon, or narrow to an unacceptable degree, the adjacent travel or bicycle lanes; and
- Shall be constructed with radial curb (typically 10-foot radius or greater) at transition points to assist with drainage and maintenance, as shown in Figure I-CE.
- Curb extensions that encompass on-street parallel parking lanes should generally not exceed six (6) feet in width, as shown in Figure I-CE.

1.6.6. Non-compliance: ADA-compliance is required both within and outside of the public right-of-way. Any construction within the public right-of-way that is not built to ADA-compliance shall be reconstructed at the Applicant's expense.

Where strict compliance with ADA is technically infeasible in an alteration of an existing condition, the alteration must be made to the maximum extent technically feasible. The extent to which compliance is technically infeasible shall be documented, and an acceptable design shall be approved by the Department of Public Works. This process should occur during the design phase.
Ramps, flares, landings and approaches shall be designed as follows:

1. Maximum ramp running slope shall be 8.33% for new construction. In retrofit situations, ramp slope may be between 8.33% to 10% for a rise of up to six (6) inches and 10% to 12.5% for a rise of up to three (3) inches. Ramp cross slope shall be 2% or less.
2. Minimum ramp width shall be four (4) feet in new construction and three (3)

~~feet for retrofits.~~

- ~~3. Sidewalk ramps adjacent to all public streets shall be constructed with truncated dome detectable warning surface panels. The detectable warning panel shall be located so that the edge nearest the curb line is 6 inches minimum or 8 inches maximum from the curb line. The panel shall be oriented to the direction of travel as identified by the point of egress. The panel shall extend 24 inches minimum up the ramp in the direction of travel. The panel shall extend the full width of the ramp.~~
- ~~4. Detectible warning panels shall be uncoated cast iron, following manufacturer's instruction for installation and meeting Portland's specifications for Sidewalk Ramp Detectable Warning Panel, Figure 1-7.~~
- ~~5. Reserved~~
- ~~6. Flares shall be designed with a maximum slope of 10% provided that a landing area at least 48 inches x 48 inches is provided at the top of the ramp. If the landing area is less than 48 inches x 48 inches, the maximum slope of the flares shall be 8.33%.~~
- ~~7. Landings shall be at least 48 inches by 48 inches for new construction and at least 36 inches x 36 inches for retrofits. Landings shall be designed with slopes in both directions that are no greater than 2%.~~
- ~~8. Approaches shall be designed with a cross slope no greater than 2% and a running slope that does not exceed the slope requirements for sidewalk ramps.~~

~~1.8.5. Sidewalk Ramp Location and Orientation:~~

~~Sidewalk ramps shall be designed as perpendicular ramps with the direction of travel on the ramp perpendicular to the curb line and parallel to the crosswalk. Where existing conditions (such as narrow right of way width) preclude such layouts, parallel ramps or diagonal ramps may be approved.~~

~~Diagonal ramps are located in the middle of a section of circular curb at a corner, where the ramp is at an angle of about 45 degrees to one or two marked crosswalks. In such cases, the crosswalks shall be laid out to encompass a 48 inch by 48 inch landing and wheelchair maneuvering area at the base of the ramp in the street.~~

1.7 DRIVEWAY APRONS

Any driveway, or section thereof, located within any public street right-of-way shall be designed and built according to the following specifications. ~~with a permanent, erosion-resistant surface, such as hot mix asphalt pavement, concrete, or brick, as illustrated in Figures I-10 through I-12. At a minimum, all driveway aprons shall be constructed of the designated sidewalk material within the pedestrian access route.~~

1.7.1. Construction and materials: The portion of the driveway within the public right-of-way within the pedestrian access route shall be comprised of the same material as the abutting sidewalk as identified in the Sidewalk Material Policy (Appendix 1) and constructed according to Figures I-10 through I-12.

1.7.2. Pedestrian access route: Where a driveway crosses a sidewalk, shared use path, or other pedestrian access route, a pedestrian access route shall be constructed across the driveway apron with a maximum cross-slope of 2% (1.5% preferred). The pedestrian access route shall be designed and constructed to meet the elevation of the adjacent sidewalk or shared use pathway to the extent feasible.

The pedestrian access route shall be constructed at the same width as the adjacent sidewalk or shared use path to the extent feasible. For pedestrian access routes connecting to adjacent sidewalks, the minimum width is four (4) feet, with five (5) feet preferred.

1.7.3. Driveway apron slope: The driveway apron shall ramp up to the grade of the sidewalk, where feasible. The portion of the driveway between the roadway and the pedestrian access route shall be designed to a maximum slope of 15%, unless otherwise approved by the Department of Public Works. This slope should be minimized to the extent possible while maintaining ADA-compliance and continuity of travel along the pedestrian access route.

1.7.4 Driveway design: Where feasible, driveways shall be designed to keep the pedestrian access route at a consistent elevation for continuity of travel. The portion of the driveway between the roadway and pedestrian access route shall be sloped to provide the full transition between the roadway and sidewalk elevations where feasible. Along roadways where the sidewalk width plus esplanade width is less than seven (7) feet, the sidewalk may be transitioned using ADA-compliant ramps in order to create a suitable driveway crossing.

~~1.9. Reserved~~

~~1.8~~ 1.0. ROADWAY CONSTRUCTION, SURFACE, AND AGGREGATES

1.810.1. All roadways shall be constructed in accordance with Chapter 25 of the City of

Portland Code of Ordinances and the most current edition of the MaineDOT Standard Specifications unless otherwise indicated herein or otherwise directed in writing by the Department of Public Works.

- 1.8.2 Aggregates used in concrete mixes and in the construction of streets, sidewalks and aprons shall meet the requirements in SECTION 703 - AGGREGATES of the most current edition of the State of Maine Department of Transportation Standard Specifications with the following clarifications, additions and modifications: Revision of December 2002 with the following additions and modifications:

703.02 Coarse Aggregate for Concrete: Designated Aggregate Size

Sieve Size	Percent Passing Sieve				
	2 in.	1½ in.	1 in.	¾ in.	½ in.
2 in.	95-100	100	-	-	-
1 1/2 in.	-	95-100	100	-	-
1 in.	50-70	-	90-100	100	-
¾ in.	-	50-70	-	90-100	100
1/2 in.	15-30	-	25-60	-	90-100
3/8 in.	-	10-30	-	20-55	-
No. 4	0-5	0-5	0-10	0-10	0-15
F.M. (+0.20)	7-45	7-20	6-95	6-70	6-10

1.8.310.2. Aggregate used in concrete shall not exceed the following maximum designated sizes:

- 2 inches for mass concrete
- 1 1/2 inch for piles, pile caps, footings, foundation mats, and walls 8 inches or more thick
- 3/4 inch for slabs, beams, and girders.
- 1/2 inch for fireproofing on steel columns and beams
- 1 inch for all other concrete

- 1.8.3410.3. ~~703.06 (a)~~ 703.06 (a) Aggregate Base Gravels: shall adhere to Maine DOT standard specifications listed in sections 304 and 703 for type "A" material.

~~Aggregate base – crushed, type "B" shall not contain particles of rock which will not pass a two inch (2") square mesh sieve, and shall conform to the type "B" aggregate, as listed in the subsection of the Standard Specifications.~~

~~"Crushed" shall be defined as consisting of rock particles with at least 50 percent of the portion retained on a 1/4 inch square mesh sieve, having a minimum of 2 fracture faces.~~

1. ~~8.45~~10.4. 703.06 (b) 703.06 (c) Aggregate Subbase Gravels: shall adhere to Maine DOT standard specifications listed in sections 304 and 703 for type "D" material.

~~Sand subbase shall not contain particles of rock which will not pass a one inch (1") square mesh sieve, and shall conform to the type "F" Aggregate, as listed in this subsection of the Standard Specifications.~~

~~Gravel subbase shall not contain particles of rock which will not pass a three inch (3") square mesh sieve, and shall conform to type "D" Aggregate, as listed in this subsection of the Standard Specifications.~~

1. ~~8.56~~10.5. 703.18 Common Borrow:

Common borrow shall not contain any particle of bituminous material.

1. ~~8.67~~10.6. 703.19 Granular Borrow: shall adhere to Maine DOT standard specification 703.19 for Granular Borrow material.

~~Granular borrow shall contain no particles which will not pass a three inch (3") square mesh sieve.~~

1. ~~8.79~~10.7. 703.20 Gravel Borrow: shall adhere to Maine DOT standard specification 703.20 for Gravel Borrow material.

~~Gravel borrow shall not contain particles of rock which will not pass a three inch (3") square mesh sieve.~~

- ~~1.10.8. 703.31 Crushed Stone for Pipe Bedding and Underdrain:~~

~~"Crushed Stone" shall be defined as rock of uniform quality and shall consist of clean, angular fragments of quarried rock, free from soft disintegrated pieces, vegetable matter, lumps or balls of clay, and other unsuitable substances.~~

~~Crushed stone used as a bedding material for pipe and underdrain shall be uniformly graded and shall meet the gradations listed in the tables below. The stone shall be free from vegetable matter, lumps or balls of clay, and other unsuitable substances.~~

Sieve Designation	Percentage by Weight Passing
3/4 — inch	100

3/8-inch	20-55
No. 4	0-10

For pipe sizes 42 inches and larger

Sieve Designation (square mesh sieve)	Percentage by Weight Passing
1 1/4-inch	100
3/8-inch	20-55
No. 4	0-10

Minimum thicknesses for pavement structure materials

Street Classification	Minimum Materials Thicknesses (Inches)			
	Wearing Course Pavement	Base Course Pavement	Agg. Base Course	Agg. Subbase Course
Minor Residential	1 ½	2	3	15
Residential	1 ½	2	3	15
Collector	1 ½	2 ½	3	18
Commercial/Industrial	2	3	3	18

Minimum placement temperatures for hot mix asphalt pavement

Base Temp. °f	Mat Thickness, Inches					
	½	¾	1	1 ½	2	3+
40 - 50*	--	--	--	--	285	275
50 - 60	--	310	300	295	280	270
60 - 70	310	300	290	285	275	265
70 - 80	300	290	285	280	270	265
80 - 90	290	280	275	270	265	260
90+	280	275	270	265	260	255

* Surface course pavement shall not be placed when the air or road base temperature is less than 50 degrees F.

1.911. STREETS ON ISLANDS IN CASCO BAY

Reserved.

1.12. PARKING STUDY

Parking studies shall be produced by a licensed transportation professional engineer.

Where a parking study is required, data shall be determined by values contained in the most up to date version of the Institute of Transportation Engineers (ITE) publication titled Parking Generation, or through local, regional or other pertinent national data. If local or regional data is to be used, the scope and methodology of the parking study shall be coordinated with the City Transportation Engineer.

Where a parking study is required, the applicant's engineer shall have a scoping meeting with the City Transportation Engineer or their designee to determine the need for and required scope of the study. The requirements for the study shall be based on standard transportation engineering practices.

Commented [ND3]: Moved to Section 17.

1.13. TRANSPORTATION DEMAND MANAGEMENT (TDM)

All TDM Plans shall include specific provisions for the following:

1.13.1. Transportation Narrative:

Every TDM plan shall describe how the project fits within the multimodal transportation system serving the district in which the development is located. The narrative should address the specifics of the use, occupants, visitors, and location of the development and how it is anticipated to relate to its transportation context.

1.13.2. Identify a TDM Coordinator to administer the TDM plan:

Every TDM Plan needs to identify the plan administrator and establish the roles and responsibilities of the administrator.

1.13.3. Employee and Customer Survey:

The TDM plan shall develop and use an employee and/or customer survey format that:

- Is specifically designed to reflect the use mix within the development.
- Is electronically tabulated.

- Produces comparable data from year to year
- Allows for compilation of data from multiple employers by third party.
- Allows for data use by employees to foster car pooling and ride sharing.
- Identifies barriers to or best practices in public transit, bicycle, and pedestrian transportation.
- Can be conducted periodically (typically annually) and can be used to monitor program effectiveness and provide the basis for periodic plan adjustment (see monitoring section below).

1.13.4. Set Parking and Trip Reduction Target:

The TDM plan shall use ITE trip generation and parking demand projections as the basis to establish a projected transportation demand and/or impact of the development. Alternatively, project-specific parking and trip generation projections may be used in place of ITE standards, if estimated by a licensed professional engineer and approved by the City. A project specific demand analysis may be advantageous to projects that can demonstrate reduced parking demand and trip generation based on approved assumptions in their TDM and Site Plan.

The TDM plan must use the specific use, location, local alternative transportation opportunities, and initial survey results to establish an achievable percentage reduction in transportation demand for the project. The TDM plan will utilize the stated parking and trip reduction targets as the basis for reduced infrastructure and contribution requirements for the Planning Board's evaluation.

1.13.5. Customize Parking and Trip Reduction Strategies:

Every TDM plan must be customized to reflect the specific mix of use proposed for the development. For example, A residential development will utilize a very different approach to reducing project generated parking and trips than an office building. Likewise, the administration of the TDM plan and the role of the TDM Coordinator must adequately respond to the scale of the development, the uses in the development, as well as the ownership framework and management of the facility.

1.13.6. Education:

The TDM plan shall, at a minimum include provisions for the following. All

educational information and programs shall be readily accessible to all project occupants.

- Transit maps and schedules. These shall be posted and updated by the TDM Coordinator, as necessary.
- Access to Information concerning transportation providers and guaranteed ride home services such as: carpooling list serves and/or van pool providers.
- Internal information sharing such as posting a "Ride Board" or employee email list-serve to facilitate carpooling and to share the results of employee and customer surveys.
- Educational and promotional materials that describe and identify the advantages and cost saving opportunities of using alternative transportation, including specific incentives offered by the employer.
- Recognition of employees who reduce the traffic impact of the development through newsletter, email, bulletin board, or other announcements.
- Information on bicycling routes, parking infrastructure and locations and other amenities or incentives that may be available.

1.13.7. Monitoring:

All TDM plans must include provisions for monitoring program effectiveness over time to establish whether trip reduction targets are being met.

Responsibility: TDM Coordinators and/or plan administrators are responsible for monitoring the efficacy of the TDM plan periodically over time and making adjustments to the plan needed to achieve trip reduction targets.

Methods: The methods and scheduling of monitoring shall be outlined in the TDM plan and shall follow accepted transportation engineering. Monitoring methods will typically involve use of the periodic survey combined with direct observation.

Reporting: TDM plan monitoring shall be compiled into a report that compares the results to trip reduction targets and parking demand projections. The monitoring results shall be provided to the Reviewing Authority according to the monitoring schedule established in the TDM plan.

1.13.8. Project Specific Standards:

Individual TDM Plans shall assess the following topics on a site- specific basis

tailored to the transportation needs of the development.

1. **Infrastructure:**

On-site and off-site infrastructure improvements may be incorporated to achieve trip reduction targets and may include the following:

- **Public Transit Access:** The TDM plan shall identify how occupants and/or visitors will access public transit. Pedestrian links to bus routes and other transit links shall be identified and their usability assessed for sidewalk condition, ADA accessibility, street lighting, cross walk facilities, wayfinding, and general safety and attractiveness. The nearest sheltered public transit facility shall be identified. Deficiencies in the links to public transit that constitute barriers to its use shall be addressed in the TDM plan and in the site plan.
 - **Bicycle Parking:** Minimum bicycle parking is a site plan requirement according to Article 14 of the Land Use Code. The TDM plan may incorporate additional bicycle parking, bicycle wayfinding, and/or covered parking to further encourage bicycle use.
 - **On-site Shower and Locker Facilities:** Access to showers and locker facilities may be incorporated into the TDM Plan in order to encourage human powered transportation alternatives.
 - **TDM Bulletin Board or Kiosk:** TDM plans shall identify to occupants where information and educational material will be provided within the development a visible and convenient facility such as a transportation bulletin board and/or kiosk. In multi-tenanted facilities, transportation information shall be provided in the lobby of the structure or other such location that is accessible and frequented by a significant majority of occupants and visitors to the facility. The TDM coordinator shall be responsible for keeping all material current and available, as needed.
2. **Incentives:** Incentives available to users and/or occupants of the development may be incorporated to achieve trip reduction targets and may include the following:
- **Parking “Cash Out”:** TDM plans may include “parking cash out” incentives where employees have the choice of receiving monetary payments in lieu of provided parking. The efficacy of these programs will need to be carefully assessed and the method of monitoring must be described in the TDM plan.
 - **Public Transit Passes/Van Pool vouchers:** Free or reduced price bus passes or van pool vouchers may be used as an incentive in the TDM plan. The use of

transit options should be incorporated into the employee/customer survey and incorporated into the plan monitoring program. Transit payment options may be combined with parking cash out incentives, where appropriate.

- Preferred parking for car pool: Car pooling employees may be provided with more convenient and attractive parking, if available. If this option is incorporated into the TDM plan, the location of preferred parking shall be identified on the site plan and signed accordingly.
- Car sharing: Residential developments may incorporate shared car services or jointly owned vehicles into the TDM plan. Commercial development TDM plans may identify use of a shared vehicle for use by employees for either commercial or personal trips through the work day as a means to encourage alternative commuting to work.
- Telecommuting, flex time, and other flexible work scheduling mechanisms that promote fewer employee trips to work or promote alternative transportation travel.

*Other incentives infrastructure improvements and/or methods ~~as~~ may also be appropriate to the development.

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1.1014. PARKING LOT AND PARKING SPACE DESIGN

~~Refer to Article 19 of the City Land Use Code for zoning ordinance requirements concerning the number of parking spaces required for off-street parking.~~

1.104.1. Parking lots, except for temporary lots to be used for less than one year, shall be constructed of a permanent and durable hard surface that is not subject to ponding or erosion, both onsite and within the right-of-way, and shall meet accessibility standards. Any proposed permanent parking lot surface must allow for delineation of parking spaces and circulation aisles.

1.104.2. Parking spaces shall meet the following dimensional requirements:

- Standard parking space: 9 feet wide by 18 feet long, except that low turnover parking spaces, such as those used by residents or employees, may be designed with a width of 8'-6" and considered a standard parking space.
- Compact parking space: 8 feet wide by 15 feet long.
- Motorcycle/motorized scooter parking space: 4 feet wide by 8 feet long.

Obstructions within parking areas, including columns and other permanent

fixtures, shall not be located within the dimensions of a parking space. Where these obstructions are present, parking shall be striped and dimensioned to omit these obstructions. Such obstructions should not significantly impact vehicle maneuverability, visibility, ability to open doors, etc.

All spaces provided shall be safely accessible. Substandard and specialty spaces that are open to the general public shall be labeled as such using signage or pavement markings to inform users.

1.10.2.1. Compact spaces: Any parking lot with 10 or fewer spaces shall contain standard sized parking spaces five or more spaces may contain a mix of standard and compact spaces. Up to 20% of parking spaces in a parking area may be compact. Compact parking spaces should be limited in high-turnover parking areas or locations where the typical vehicle is likely to be larger than a typical passenger vehicle. Vehicle turning analysis may be required for review by the Department of Public Works to ensure that spaces function as designed.

1.10.2.2. Accessible Parking: All parking areas shall provide accessible parking per ADA and the Maine Fair Housing Act. ADA standards for number of spaces, dimensions, buffers, cross-slopes, materials, pedestrian accessibility, and other requirements shall apply with no exceptions. Accessible spaces shall be considered "standard" parking spaces for the purposes of calculating the allowable number of compact spaces.

1.14.3. Parking lot layout shall conform to Figures I-28 thru I-32.

1.14.4. Where off-street parking for more than six vehicles is required or provided, the following construction requirements shall apply:

- Appropriate driveways from streets or alleys, as well as maneuvering areas, shall be provided. Location and width of approaches over public sidewalks shall be approved by the traffic engineer.
- The surface of driveways, maneuvering areas and parking areas shall be uniformly graded with a subgrade consisting of gravel or equivalent materials at least six inches in depth, well compacted, and with a wearing surface equivalent in quantities of compaction and durability to fine gravel.
- A system of surface drainage shall be provided in such a way that the waste run-off shall not run over or across any public sidewalk or street.
- Where artificial lighting is provided, it shall be shaded or screened so that no light source shall be visible from outside the area and its access driveways.

~~1.104.35.~~ Vehicular access shall be provided by one or more aisles. The minimum two-way drive aisle width is 24 feet for standard, right-angle parking, and is otherwise dependent on parking space orientation, as illustrated in Figures I-16 A. Minimum widths of aisles are illustrated in Figures I-28 thru I-31. Accessible parking spaces shall be served by at least one aisle of standard width or greater.

1.118. MOTORCYCLE/MOTORIZED SCOOTER/-MOPED PARKING (ON-STREET):

To distinguish motorcycle/motorized scooter/moped parking spaces from standard parking spaces the spaces shall be painted and delineated with signage. These painted spaces shall be angled and shall be four (4) feet wide by eight (8) feet long. The dimensions for on-street motorcycle/motorized scooter/moped parking are outlined in Figure I-~~31~~16B. On-street motorcycle/motorized scooter/~~and~~ moped parking may also be located where standard vehicle parking would be prohibited because of sight restrictions, such as, adjacent to a crosswalk or an approach to a traffic control device. Motorcycles/motorized scooter/mopeds do not ~~have create~~ the same sight impediment as a standard vehicle.

1.152. BICYCLE PARKING

~~Refer to Article 19 of the City Land Use Code for zoning ordinance requirements concerning the number of bicycle parking spaces required.~~

1.12.1 Bicycle parking shall:

- Provide secure, durable racks that maintain bicycles in an upright position and to which bicycles can be affixed with customary lock and cable mechanisms. Fence-type ("wheel bender") racks designed to secure the front wheel only and wave racks are prohibited from counting toward bicycle parking requirements.
- Be installed on a hard surface that is suitably sized and provides sufficient clearance from obstacles.
- Be separated from car parking by a physical barrier such as curbing, wheel stops, parking bollards or similar features.
- Be adequately illuminated where nighttime use is anticipated.
- Be provided under covered areas and/or in secure storage lockers or rooms, if intended for long-term use.
- Be provided within the public right-of-way or ~~be~~ publicly accessible ~~for if~~

intended for uses that expect visitation, customers, or short-term usage.

~~1.12.5.1. Bicycle parking intended for long-term use (residential or full-time employee parking) shall be provided under covered areas and/or in secure storage lockers.~~

1.12.5.2. Placement of off-street bicycle parking racks shall conform to the bicycle parking rack placement criteria (*drawn from the Bicycle Facility Design Guide of the District Department of Transportation, 2006*) as illustrated in Figure I-33.

1.12.5.3. ~~For c~~Commercial ~~or i~~-Industrial ~~uses #~~(requiring more than ten (10) bicycle parking spaces):

- A minimum of ten percent (10%) of required bicycle parking shall be provided within fifty (50) feet of the main ~~egress-entry~~ point of the structure, or shall be no further from such entry than the nearest five (5) non-handicapped parking spaces.
- Where there is more than one structure on a site, or where a structure has more than one main entrance, the parking shall be distributed to adequately serve all structures or main entrances.

1.12.5.4. Directional Signage: If bicycle parking is not directly visible from the public right-of-way, directional signage shall be provided indicating the availability and location of bicycle parking facilities.

1.12.5.5. Approved Bicycle Racks:

1.12.5.1. Design: Bicycle racks that are required to meet site plan requirements shall:

- Provide multiple points of contact between the rack and the bicycle;
- Allow bicycles to be locked without the need to lift the bicycle into the rack; and
- Be placed in such a way as to allow the intended number of bikes to be securely locked.

1.12.5.2 Approved Racks by Location:

- Private property: A variety of commercially available racks are acceptable for installation on private property, including but not limited to those catalogue listings identified herein (Figures I-343 and I-354).
- In the Public Right-of-Way: ~~Where site conditions cannot reasonably~~

~~accommodate bicycle parking on private property, it~~ Bicycle parking may be located within a public ~~right-of-way~~ sidewalk area ~~where site conditions cannot reasonably accommodate bicycle parking on private property or in the case of sites that expect high-turnover or short-term bike parking usage.~~ Bike parking may be placed either adjacent to or within reasonable walking distance of the site, if such areas are available that meet the bicycle parking rack placement criteria ~~of this chapter~~ (drawn from the *Bicycle Facility Design Guide* of the District Department of Transportation, 2006) ~~as illustrated in—see~~ Figure I-323. Bicycle racks within the public right-of-way shall be placed to allow for the safe storage of bicycles while limiting encroachment onto adjacent sidewalks. If no ~~such~~ location ~~within the right-of-way~~ is available, a financial contribution commensurate with the cost for purchase and installation of the required number of bicycle racks shall be made to ~~the Sustainable Transportation Fund~~ a City infrastructure account.

The following approved brands, installed according to company specifications, shall be permitted in the public right-of-way. Equivalent bicycle racks by other manufacturers are acceptable upon prior approval by the reviewing authority.

- DERO 'Downtown Rack' Inverted U-Rack (Figure I-354)
- DERO 'Bike Hitch' (Figure I-343)
- Old Port District, including Commercial Street: DERO Bike Hitch only (Figure I-343)

Bicycle racks in the public right-of-way shall become the property of the City of Portland.

Bicycle racks in the public right-of-way shall match the designated street furniture color for that location as described in the Municipal Street Lighting Standards in this manual. Where there is no designated street furniture color, bicycle racks in the public right-of-way shall be black (manufacturer's specification).

1.163. BICYCLE ROUTES AND LANES

The City has developed a ~~Bike Route Network plans Map (Figure I-35)~~ to show present and proposed bikeways, including neighborhood byways, routes on City streets. These routes are typically accomplished by providing ~~either~~ dedicated bicycle lanes, and shared use pathways "Share the Road" methodology. Positive identification of the ~~lane bikeways~~ shall be provided by pavement markings, bike lane symbols, and or signage. The following standards shall be applied to the installation of bike ~~facilities~~ lanes on City streets:

1.13.1. Design: The design of any new or modified bicycle facility shall be reviewed and approved by the Department of Public Works prior to application and shall be consistent with the following design standards:

- Vehicular travel lanes and bicycle lanes shall be separated by a minimum six (6) inch solid white painted edge line adjacent to the travel lane. At intersections the white edge line shall be a ~~dotted-dashed~~ line (two (2) foot painted length by four (4) foot opening) across the intersection and for 50 feet to 100 feet in advance of the intersection, as appropriate. Where there is the potential for right-turning vehicle conflicts with through bicycle movements at intersections, green paint within the bicycle lane is recommended and may be required.
- Bike lanes shall have a minimum width of five (5) feet. Six (6) feet is preferred for bicycle lanes adjacent to curbed street sections. Where sufficient ~~shoulder-street width is provided exists~~, a ~~second edge line shall be painted off the face of the curb at a painted buffer of one (1) foot or more may be provided between the bicycle lane and vehicle travel lanes, or two (2) feet. This edge line shall not extend across intersections.~~ Where a bicycle lane is adjacent to on-street parking with moderate to high utilization and/or turnover rates, this buffer may be should be considered to be placed between the bicycle lane and parking lane. The location of the buffer shall be determined in consultation with the Department of Public Works. Where a buffer of one foot or greater is provided, the width of the bicycle lane may be reduced to four (4) feet, if necessary, with approval from the Department of Public Works. ~~Design shall take into account the location of potential obstructions, such as catch basins. See Figure 1-36~~
- Where the minimum or recommended width for bicycle lanes is not immediately available, reallocation of general travel lane widths or the number and configuration of general travel lanes should shall be considered, as appropriate, in consultation with the Department of Public Works.
- On-street bicycle lanes and associated buffers shall not exceed eight (8) feet in total width unless vertical delineation is provided in the buffer area. Applicability and materials of vertical delineation shall be determined by the Department of Public Works.
- Shared use paths shall be designed to facilitate two-way traffic by users of multiple, nonmotorized modes. In general, shared use paths shall be ten (10) feet or greater in width, and free of any obstructions, including a 2 foot clear zone on each side of the pathway. Refer to the AASHTO Guide for the Development of Bicycle Facilities for shared use path design considerations.

- ~~When bike lanes are provided on streets with on-street parking, the bike lane shall be a minimum of six (6) feet wide delineated by edge lines on either side of the bike lane. See Figure I-37.~~
- On bicycle routes, or other roads with considerable bicycle traffic and insufficient roadway width to provide a bicycle lane, shared lane markings ("sharrows") may be used. Where used, sharrows shall be placed in the center of the travel lane(s) serving the bike route(s) or where bicyclists are expected.
- On two-way roadways with excess roadway width for one bicycle lane, but not two, installation of a single bicycle lane should be considered. The single bicycle lane should be placed in the uphill direction, if located on a hill. Otherwise, if parking is provided on only one side of the roadway, bicycle lane placement should be prioritized on the side of the street with no parking. Where possible, streets with bicycle lanes in only one direction should be paired with another lane on an adjacent parallel street to achieve bicycle mobility in both directions, if possible.
- Standard bike lanes and all other on-street bicycle facilities such as separated bike lanes shall be designed in accordance with the most recent version of nationally-recognized design guides, such as the NACTO Urban Bikeway Design Guide, the NACTO Urban Street Design Guide, the FHWA Separated Bike Lane Planning and Design Guide, [the Massachusetts DOT's Separated Bike Lane Planning & Design Guide](#), or other best practice as it becomes available.

1.13.2. Bike Network Considerations: Bicycle facilities shall be designed within the context of the city-wide bicycle network.

1.13.3. Pavement Markings and Signage:

- Bicycle lanes shall be marked with appropriate pavement markings such as longitudinal lines and stenciled symbols, ~~as illustrated in-~~ see Figure I-182138 for two examples.
- Bike routes shall be identified by appropriate signage as found in the FHWA 'Manual of Uniform Traffic Control Devices,' as illustrated in- ~~See Figure I-182138 for examples.~~

1.174. ELECTRIC VEHICLE INFRASTRUCTURE

New structured and surface parking lots of five or more spaces shall include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher

to 20% of parking spaces (rounded down to the nearest whole number). An additional 50% of Remaining spaces must be made EV-ready, meaning that they are served by sufficient conduit, wiring, and electrical service to allow for future installation of electric vehicle supply equipment at every space.

An applicant may request a reduction in the number of required EV-installed or EV-ready parking spaces if Level 3 EV charging is proposed. In this case, spaces served by Level 3 charging may be substituted for Level 2 at a ratio to be determined in consultation with the Department of Public Works.

In the case of new structured and surface parking of greater than 100 spaces, the review authority may establish the EV parking requirements on the basis of an EV parking demand study. Such study shall be prepared by a qualified professional using industry best practice, and account for future growth in EV demand.

1.18. MOTORCYCLE / MOPED PARKING (ON-STREET):

To distinguish motorcycle/moped parking spaces from standard parking spaces the spaces shall be painted and delineated with signage. These painted spaces shall be angled and shall be four (4) feet wide by eight (8) feet long. The dimensions for on-street motorcycle/moped parking are outlined in Figure I-31. On-street motorcycle and moped parking may also be located where standard vehicle parking would be prohibited because of sight restrictions, such as, adjacent to a crosswalk or an approach to a traffic control device. Motorcycles/mopeds do not have the same sight impediment as a standard vehicle.

Commented [ND5]: Moved to 1.11

1.195. TRAFFIC CONTROL DEVICES SIGNALS

All intersections of two or more roadways shall be controlled by one of the traffic control methods listed herein. All traffic control shall be selected and installed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

1.15.1. Traffic signals. All new traffic signals are subject to the approval of the Department of Public Works. Proposed traffic signals are required to meet at least one traffic signal warrant set by the MUTCD. Signals justified using Warrant 3 (Peak Hour Volume), Warrant 7 (Crash Experience), or Warrant 8 (Roadway Network) without meeting at least one other warrant may require additional study. Development projects that trigger, or further exceed, one or more signal warrants at one or more existing or proposed intersections or driveways may be required to install a traffic signal at those locations.

New or modified traffic signals also require the submission of a traffic signal plan, including locations of all equipment, underground utilities, ~~a~~ phasing and timing plans, and a specific list of all traffic signal hardware. ~~For new or~~

~~modified traffic signal installations, a new plans shall be submitted to the Department of Public Works for review and approval prior to installation. reviewing authority for review and approval before installation can proceed.~~

New traffic signal proposals are subject to review by MaineDOT, as appropriate. All city, state, and federal guidelines with regard to installation, activation, and monitoring shall apply.

Existing traffic signals that do not meet MUTCD signal warrants may be removed if they present operational or safety issues. All removals of existing traffic signals are subject to coordination with and the approval of the Department of Public Works and MaineDOT.

The City of Portland's traffic signal specifications can be found in the City of Portland Traffic Signal Policy and Guidance Manual.

1.15.2 Stop Control. Stop signs shall be installed in accordance with MUTCD. Stop signs shall be accompanied by a stop line 12" in width.

Stop control shall not be used for speed control. Stop control should generally not be used on intersection approaches with multiple travel lanes. Stop control shall not be used for intersections with five (5) or more approaches. Such intersections shall be signalized (if warranted), equipped with a roundabout, or otherwise realigned or regulated so that the number of approaches is reduced to four (4) or fewer.

1.15.3. Roundabouts: Where sufficient right-of-way is available, circular intersections (i.e. roundabouts or traffic circles) should be considered. Such intersections may provide operational and safety benefits compared to signalized or stop-controlled intersections. Where selected as the appropriate traffic control measure, roundabouts shall be designed in accordance with the MUTCD Chapter 3C, with signage according to MUTCD Section 2B.07. Neighborhood traffic circles may be considered at stop-controlled intersections as a traffic calming measure. All such treatments are subject to the approval of the Department of Public Works.

1.15.4. Yield Control: Yield control should generally only be implemented in the following scenarios:

- At certain channelized turning lanes separated from adjacent travel lanes by an island (even if the adjacent lanes are controlled by a stop sign or signal);
- At the entering roadway for a merging movement, including at a roundabout;
- or
- Where engineering judgment determines that yield control is appropriate.

subject to the approval of the Department of Public Works.

Listed below are the traffic signal items required for traffic signal installations. These items or an approved equivalent shall be provided.

1.19.1. Controller Equipment:

- ~~• Controllers shall be compatible with existing Naztec Street Wise ATMS Software~~
- ~~• Traffic control cabinets shall be Naztec Model M34 or P44 TS2 Type 1 Series only~~
- ~~• Secondary traffic controllers shall be Naztec Model 980 TS2 Type 1 Series only~~
- ~~• Master controllers shall be Naztec Model 981 Series only~~
- ~~• Malfunction management units shall be Naztec Model MMU-516E only~~

1.19.2. Video Detection Equipment:

- ~~• Video detection units shall be Traficon Model VIP3.1 & VIP3.2 Series only~~
- ~~• Video detection cameras shall be Traficon approved models only~~

1.19.3. Signal Equipment:

- ~~• Signal housings shall be McCain Model MTSTA or MTSTP Series only~~
- ~~• LED modules for vehicle indications shall be GELcore Model DR6 Series only~~
- ~~• LED modules for pedestrian indications shall be GELcore Model PS7 Series only~~
- ~~• Accessible Pedestrian Signals shall be Campbell Advisor Series only~~

1.19.4. Traffic Structures:

- ~~• Mast arms shall be Valmont SM16 or CB16 Series only~~
- ~~• Strain poles shall be Valmont SW56 Series only.~~

1.1620. PUBLIC CROSSWALKS

1.16.1. Public crosswalks shall meet the requirements of The Manual on Uniform Traffic Control Devices (MUTCD), unless City standards specify a stricter measure. Public improvements may include but shall not be limited to any one or combination of the following:

- Crosswalks;
- Curb Bump Outs or Curb Extensions, where warranted;
- Pedestrian Crossing Signs (curbside, overhead or in the street);

- Rectangular Rapid Flashing Beacons (RRFBs)~~Pedestrian Activated Yellow-Flashing Warning Lights;~~
- Pedestrian Hybrid Beacons;
- Pedestrian Activated Traffic Control Signal (Red, yellow, green); and
- Medians or raised islands

1. ~~1620.12.~~ Crossing locations shall be designed to the following standards unless otherwise directed by the Department of Public Works:

- Street markings: Crosswalks on public streets shall consist of 24-inch block style white lines, placed 48 inches apart on center, for an overall width of 8 feet (or wider; at least as wide as the sidewalks served by the crosswalk).
- Street lighting: Crosswalk locations shall be adequately illuminated for visibility at nighttime.
- Signage: Select crosswalk locations may need to be accentuated through the use of signage mounted curbside, overhead, or on the roadway centerline, as described hereinafter. Crosswalk signs shall be placed directly adjacent to crosswalks, and advance warning signs shall be placed in accordance with MUTCD. Standard signs shall be black legend on a fluorescent background.

Critical Physical Factors:

Walking Speed:

- ~~This factor is applicable at signalized intersections and affects the length of the pedestrian clearance (flashing “don’t walk”) interval.~~
- ~~Average walking speed is generally measured as three and a half (3.5) feet per second. In areas with elderly or young children pedestrians, a rate of three (3) feet per second is appropriate.~~

Vehicular Sight Distance:

- ~~Sight distance shall be based on the posted speed plus 5 miles per hour or the 85th percentile travel speed as tabulated below.~~

Stopping Sight Distances (1)

Speed (mph)	Stopping Sight Distance (feet) *
25	155
30	200
35	250
40	305
45	360

50	425
----	-----

**Assumes level grade*

Source: AASHTO Policy reference 1, Exhibit 3-1 of that publication.

- ~~Sight distance shall be based on a driver eye height of 3.5 feet and a pedestrian height of 2.0 feet.~~
- ~~Parking shall be prohibited within twenty (20) feet from the centerline of a crosswalk and within thirty (30) feet at signalized and STOP sign locations.~~

~~1.20.2. General Standards for Crosswalk Installation:~~

- ~~1. The Manual on Uniform Traffic Control Devices (MUTCD) provides guidance for placement of crosswalks. In addition, crosswalks should:~~
 - ~~Occur where substantial pedestrian/vehicle conflicts exist. (See the Federal Highway Administration notebook titled "Traffic Conflict Techniques for Safety and Operations" which provides methods for conflict evaluation.)~~
 - ~~Occur at points of pedestrian concentration that can meet applicable standards or where pedestrians may not recognize the appropriate place to cross (e.g., loading islands, mid-block pedestrian crossings).~~
 - ~~Maintain suitable separation (approximately 300 feet) between non-intersection or mid-block crosswalks.~~
 - ~~Be installed based on an engineering study if located other than at a STOP sign or traffic signal. For mid-block locations, a study shall evaluate factors of need including but not limited to school crossings, age of pedestrians, and nearest alternative crosswalk location as well as safety issues such as traffic speed, volume, and sight lines.~~
 - ~~Consider advance warning signage if installed at uncontrolled locations and allow for restriction of parking for adequate visibility of the advance signage.~~
 - ~~No crosswalk spacing requirements are to be imposed at intersection locations. Other engineering factors are to be reviewed in the determination of suitability of the location.~~
- ~~2. The Crosswalk Installation Guidelines (Figure I-24) provide criteria for guiding evaluations of when crosswalks may be desirable at uncontrolled locations based on pedestrian and vehicular volumes. Crosswalks at uncontrolled locations shall be placed where these criteria are met; or where special requirements and/or plans exist that support the installation of a crosswalk.~~
- ~~3. Crosswalks proposed at signalized intersections shall include~~

~~pedestrian signal indications for substantial pedestrian crossings.¹ Each proposed location shall be evaluated based on through traffic volumes, turning vehicle volumes and signal phasing to determine which legs of the intersection are most appropriate for pedestrian crossings.~~

~~The default assumption is that crosswalks shall be provided on all intersection approaches and supplemental analysis must be provided that identifies specific engineering conclusions on why this cannot be accomplished.~~

¹Design and Safety of Pedestrian Facilities, 1998, ITE Technical Committee 5A-5

- ~~4. Marked crosswalks across stop controlled intersection approaches shall be considered where vehicular traffic may block pedestrian traffic². This will be assessed based on a visual observation of vehicular and pedestrian traffic flow at the intersection to determine if there is sufficient vehicular traffic to block the pedestrian crossing path for a significant period of time.~~

1.20.3. Design Criteria:

~~Street Markings: Crosswalks on public streets shall use a minimum of eight (8) inch wide solid white lines, which should be spaced to provide a minimum overall width of eight (8) feet. Wider line width is required for locations with higher posted speeds as shown below. Paint, wherever used, shall meet Maine Department of Transportation (Maine DOT) specifications. Additional designs may consist of longitudinal lines. Figure I-21 illustrates these typical crosswalk markings and the table below provides dimensions utilized in the City of Portland for various applications.~~

Crosswalk Dimensions

Type	Overall Width	Line Width	Spacing
Standard Crosswalk Marking (two lines) Posted Speed ≤ 35 mph Posted Speed > 35 mph	8' 8'	8" 12"	N.A.
Crosswalk with Longitudinal Lines (block style) (See Pedestrian Crossing Distances table)	8'	24"	Spacing 4' o.c.

~~The longitudinal or block style striping of crosswalks should be reserved for use at the following locations (see Pedestrian Crossing Distances table):~~

- ~~Uncontrolled locations of special significance, such as school walking routes, trail/shared use paths and mid-block crossings;~~
- ~~High volume pedestrian locations with at least 25 pedestrian crossings for each 4 hours or 40 crossings during the peak hour; and~~
- ~~High vehicle speed (> 35 mph posted speed) crossings.~~

1. ~~Street Lighting: Crosswalk locations shall be adequately illuminated for night-time use.~~

*Pedestrian Facilities Users Guide, March 2002, USDOT – FHWA

2. ~~Signage: Select crosswalk locations may need to be accentuated through the use of signage mounted curbside, overhead, or on the road centerline, as described below:~~
3. ~~Curbside Signs: There are three standard curbside signs consisting of a crosswalk warning sign, a school crossing warning sign, and an advance warning pedestrian crossing sign. The City of Portland also installs “yield for pedestrians” signs at crosswalks, as shown in Figures I-22 and I-23. Crosswalk signs shall be placed directly adjacent to crosswalks and advance warning signs shall be placed in accordance with the MUTCD guidelines as shown below.~~

Advance Warning Sign Placement (2)

85th Percentile Speed* (mph)	Advance Placement (feet)
25	125**
30	125**
35	125**
40	125
45	175

**or the posted speed when a speed study is not available.*

***recommended minimum for the City of Portland*

Source: Table 2C-4 of the MUTCD.

- 1.20.4. ~~Standard signs shall be black legend on a yellow background. The MUTCD also allows the use of a yellow-green fluorescent high grade reflective background for increased visibility. These higher grade signs shall be used where locations meet at least one of the following criteria:~~

- ~~Vehicle 85th percentile speeds or the posted speed is greater than or equal to 35 mph;~~
- ~~Pedestrian crossing volume of at least 25 per hour for four hours or~~

- ◆ ~~40 during the peak hour; or~~
- ◆ ~~School crossing.~~

1. ~~Overhead Signs and Flashing Warning Lights: Overhead signs supplemented with pedestrian activated flashers may be placed at high volume pedestrian crossing locations or where specific pedestrian safety issues have been identified.~~
2. ~~Centerline Signs: Centerline signs shall be able to withstand vehicle impact without damage to the vehicle and with minimal damage to the device and shall be anchored in place. Note that these devices must be removed without damaging the pavement prior to the start of winter season. The City recommends a device with a base anchored to the pavement with epoxy and a flexible upright paddle that is replaceable. The following criteria should be considered for these devices to be utilized:~~

- ◆ ~~Presence of a high crash location (HCL) as defined by Maine DOT:~~
Both of the following criteria must be met in order to be classified as an HCL:
 - ~~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; and~~
 - ~~A minimum of eight (8) accidents over a three (3) year period.~~
- ◆ ~~Principal or minor arterial, as identified in Figure 24.~~
- ◆ ~~At least 25 pedestrian crossings per hour for four (4) hours or 40 pedestrian crossings for the peak hour.~~

~~1.20.5. Traffic Control Signals: The following provides general guidance concerning installation of a pedestrian activated red-yellow-green traffic control signal. The MUTCD should be consulted for specific details:~~

- ◆ ~~The location is a school crossing and a traffic engineering study reveals that there are not adequate gaps in the traffic stream; or~~
- ◆ ~~There are 107 pedestrian crossings for each of four (4) hours or 133 crossings during any one hour and under both conditions for high volume roadways. Higher rates of pedestrian crossings are necessary for lower volume streets. The number of pedestrians may be reduced by 50% where they are predominantly elderly or young children to include crossing locations along school walking routes for elementary and middle school students.~~

~~1.20.6. Specific Guidelines for Crosswalk Use: The City of Portland has established~~

the following guidelines for pedestrian street crossing devices:

Pedestrian Crossing Devices

Device	Use*
Crosswalk	
8" lines, 8' total width	Where volume criteria of Figure 1-25 are met and speeds are less than 35 mph and at signalized intersections.
12" lines, 8' total width	At all unsignalized locations where volume criteria of Figure 1-25 are met and speeds are between 35 and 45 mph.
24" block style lines, 8' width	At mid-block locations where volume criteria of Figure 1-25 are met and speeds are between 35 and 45 mph, at all school and trail/shared-use path crossings and as noted in 1.20.3 (Design Criteria) above or at uncontrolled locations as determined by the Traffic Engineer.
Curbside signs	
Advance Crossing Signs	For all mid-block crosswalks and other uncontrolled locations as determined by Traffic Engineer.
Standard Grade Crossing Sign	At all locations where crosswalk lines alone are not sufficient to define the crossing location to motorists at the discretion of the Crosswalk Committee.
High Grade Crossing Sign	Speed greater than or equal to 35 mph; or 25 pedestrians crossing per hour for four hours or 40 pedestrians crossing for the peak hour
School Crossing Sign	In accordance with MUTCD
Other	
Overhead Signs/Flashers	On arterial roadways or roadways with at least two lanes of traffic in at
Centerline Signs	As noted in 1.20.4 above.
Traffic Control Signal	Consider at locations meeting MUTCD warrants for school crossings or

*All speeds are 85th percentile speeds for off-peak daytime periods or the posted speed.

1.1724. PUBLIC TRANSIT FACILITIES

Where required, public transit facilities shall meet the following standards:

1.1724.1. Transit Pullout Bays:

- Transit pullout bays shall be located in the City right-of-way along the property frontage; or
- Where space constraints prevent locating a transit pullout bay along the property frontage, transit pullout bays may be located within reasonable walking distance of the site.
- Where possible, transit pullout bays shall be located at intersections. At signalized intersections, far-side bus stops are preferred. Mid-block

bays are not preferred due to impacts to parking and traffic.

- The design of the pullout bay shall provide adequate space for vehicles to maneuver through facilities without causing damage to either the vehicles or facilities, as detailed ~~in Section I of the Technical Manual~~ herein.

~~1.1724~~.2. Transit Shelters:

1. Transit shelters shall be located within the site, directly adjacent to the right-of-way on which the public transportation route is established; or
2. Where site constraints prevent locating a transit shelter on the site, it shall be located within a public sidewalk area along the property frontage. If a transit shelter is to be located within a public sidewalk area, City sidewalk clearance requirements shall apply.
3. Where space constraints prevent locating a transit shelter within a public sidewalk area along the property frontage, it may be located within reasonable walking distance of the site.
4. Installation and ongoing maintenance of transit shelters on private property shall be the responsibility of the property owner. Ongoing maintenance of transit shelters located within the City right-of-way or within an easement held by the City shall be the responsibility of the City or of the local or regional transit authority serving the facility.

- ~~1.1724~~.3. Where necessary, developments shall provide easements to the City, sufficient in size to accommodate public transit infrastructure and access to the transit stop.

1.22. CONSTRUCTION PERMITTING AND TRAFFIC CONTROL PLANS

- 1.22.1. Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & charges are all outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Services.
- 1.22.2. Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Services. Rules and Regulations for these utility systems are available through the City Engineer's office of the

Department of Public Services. See also Section II of the Technical Manual for lateral abandonment requirements associated with demolition permits.

1.22.3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along arterial and/or collector streets are required to submit a satisfactory 'maintenance of traffic' (MOT) plan prior to any site plan, subdivision, or street opening permit approval.

Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

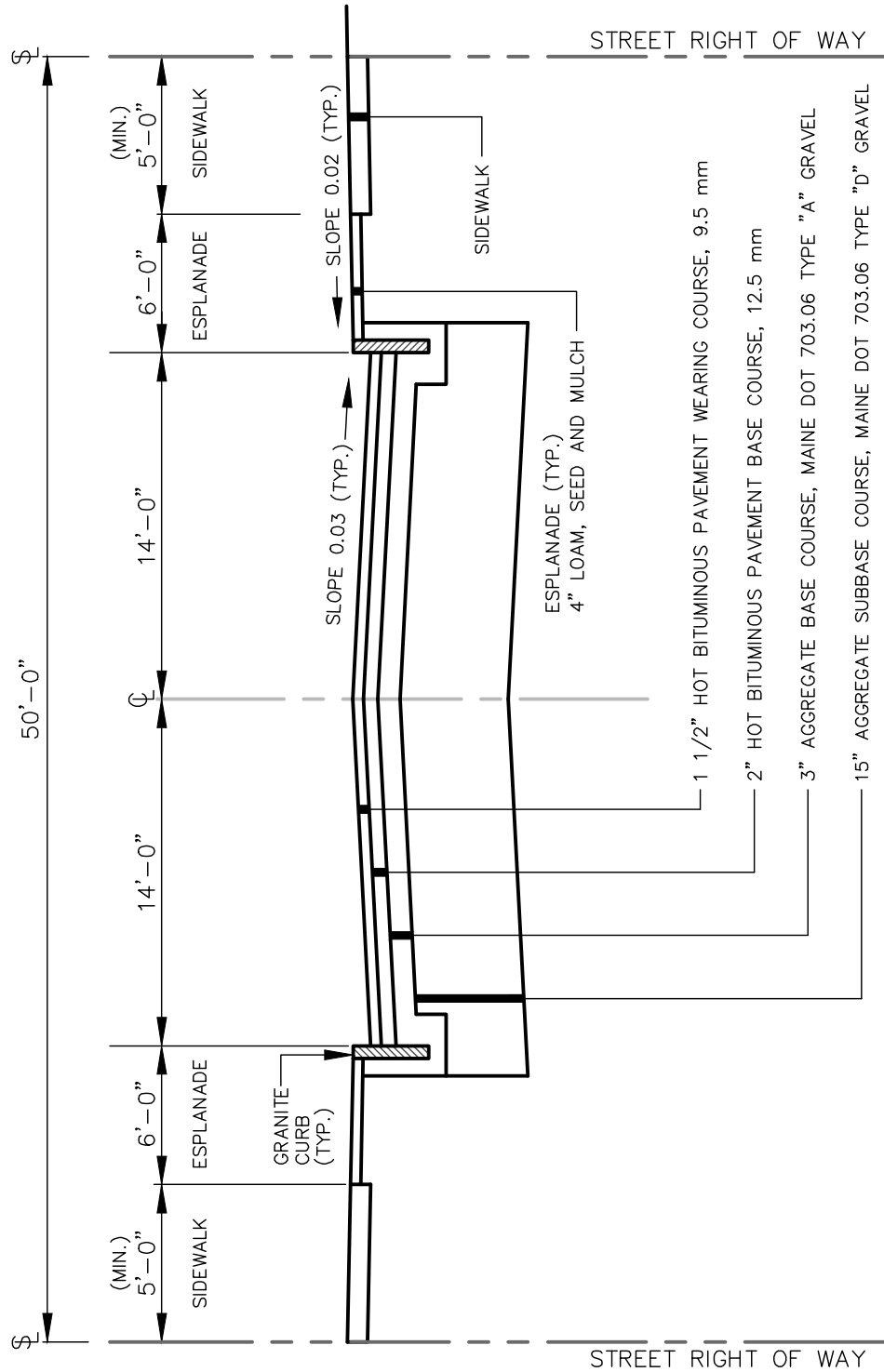
- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
- In extreme situations, flaggers may be required to allow for safe pedestrian and bicycle movement

1.22.4. All existing modes of travel in the work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Services.

- Traffic control for bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycles and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and/or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.

1.22.5. Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Services.

Commented [ND6]: Moved to Section 17.



LOCAL STREET CROSS SECTION

NOT TO SCALE

DATE:
NOV. 2022

REVISED:

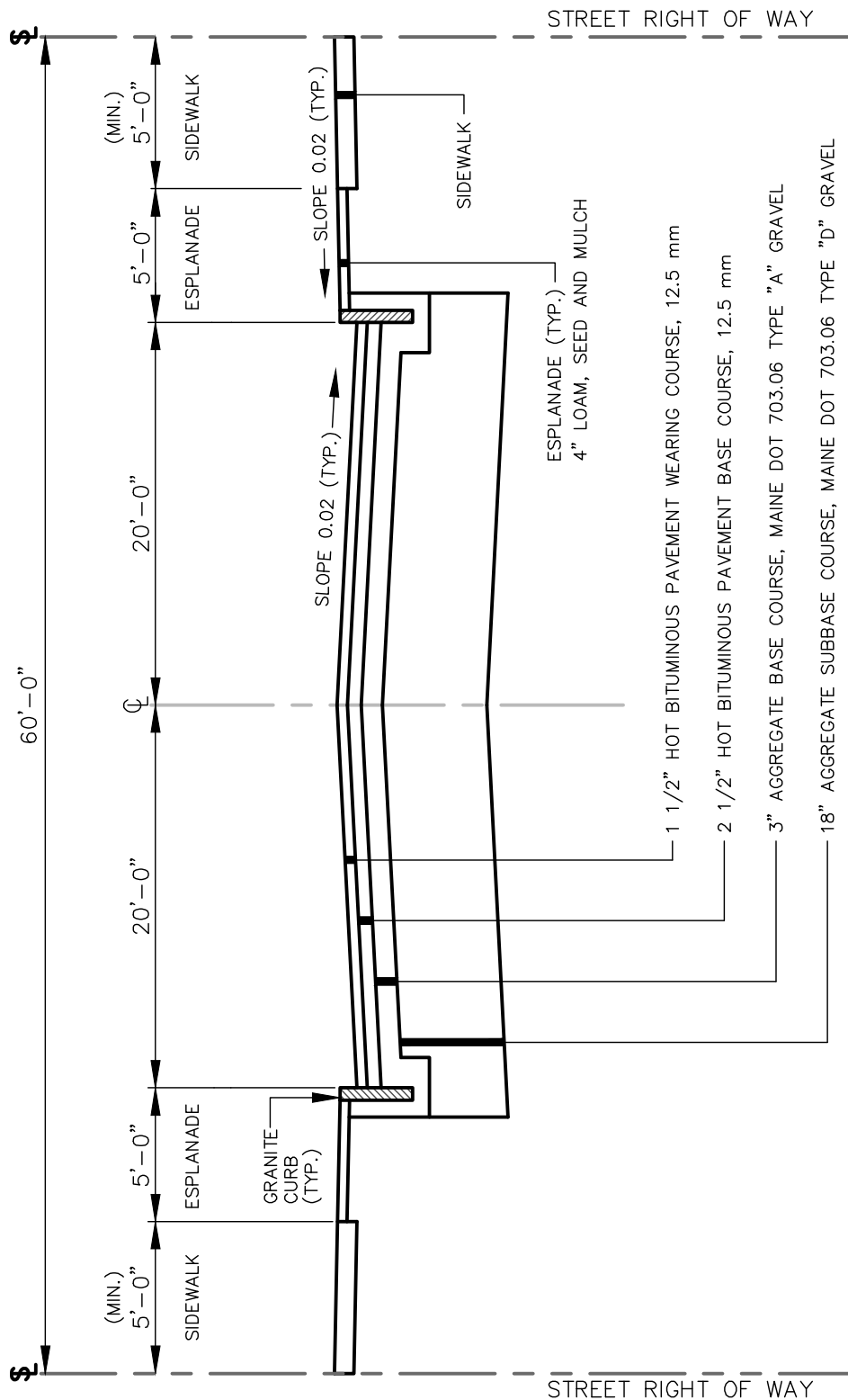
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

LOCAL STREET CROSS SECTION

I-1



COLLECTOR STREET CROSS SECTION

NOT TO SCALE

DATE:
NOV. 2022
REVISED:

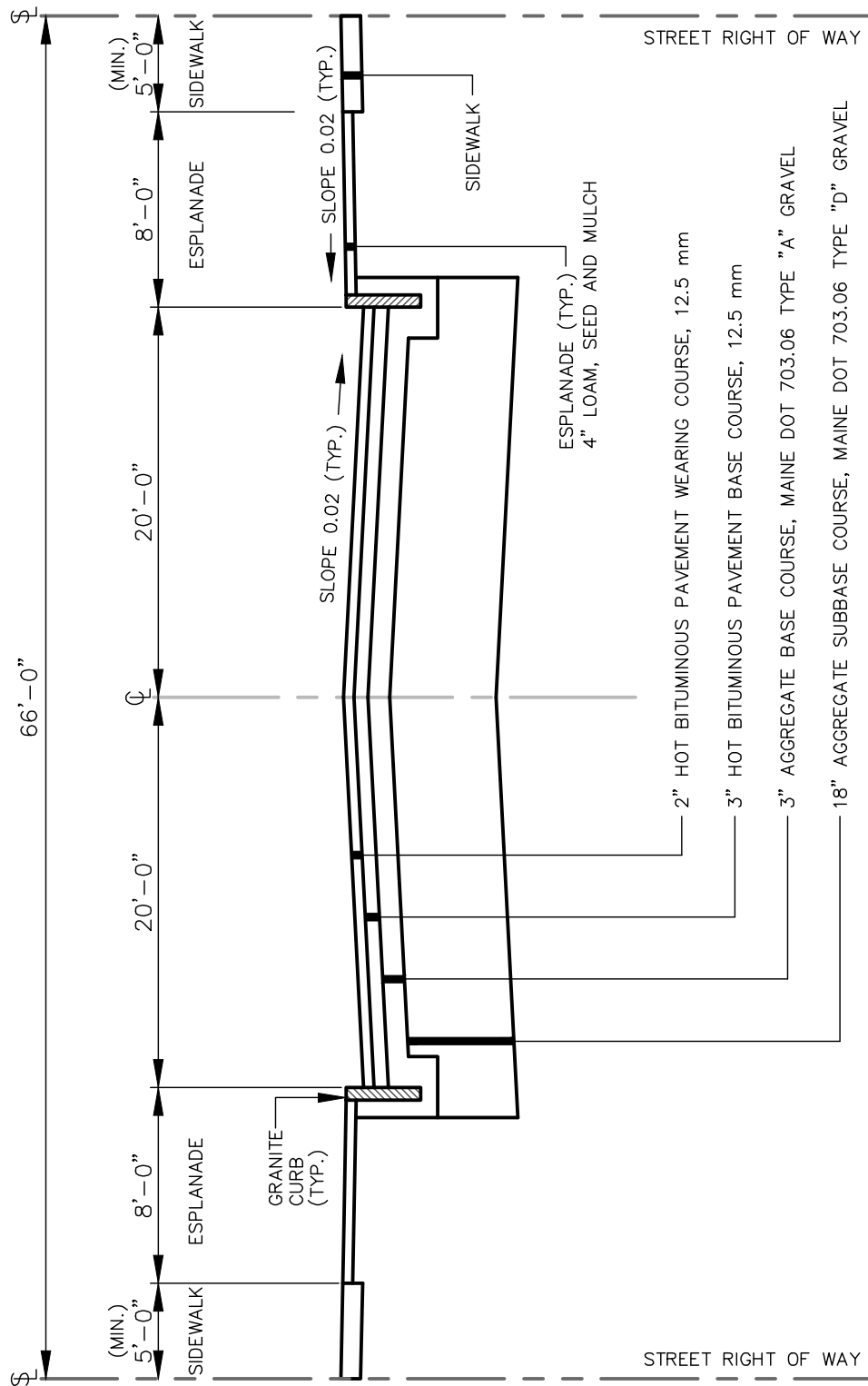
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

COLLECTOR STREET CROSS SECTION

I-2



ARTERIAL STREET CROSS SECTION

NOT TO SCALE

DATE:
NOV. 2022
REVISED:

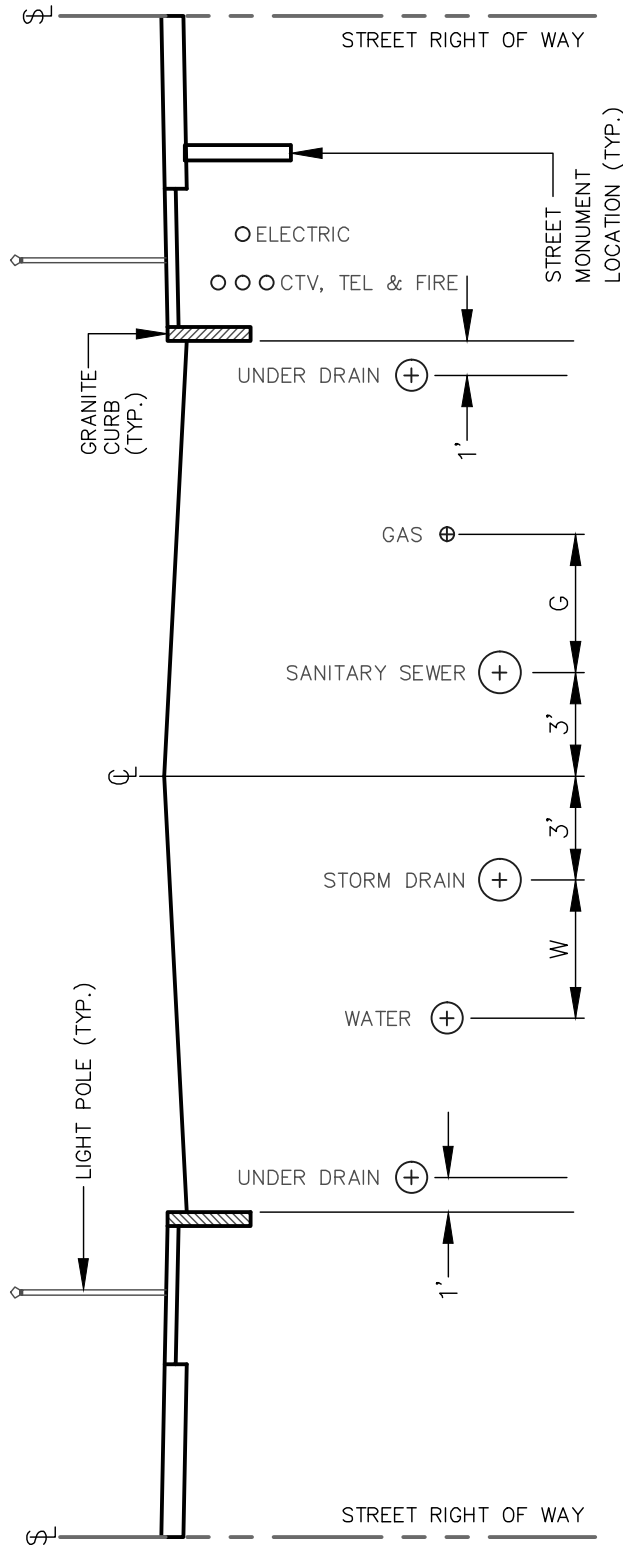
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**TRANSPORTATION
DESIGN STANDARDS
SECTION I**

FIGURE:

ARTERIAL STREET CROSS SECTION

I-3



NOTES:

1. DEPTH OF SANITARY SEWER AND STORM DRAIN PER CITY ENGINEER.
2. DEPTH OF UNDER DRAIN SHALL BE 3'-6" FROM GUTTER LINE TO PIPE INVERT.
3. DEPTHS OF ELECTRIC, TELEPHONE, CABLE TELEVISION AND FIRE TO BE AT LEAST 36 INCHES BELOW FINISH GRADE. DEPTHS OF OTHER UTILITIES PER REQUIREMENTS OF APPLICABLE UTILITY COMPANY. WHEN TREES ARE PROPOSED FOR THE ESPLANADE, THE UTILITIES DESIGNATED FOR THAT LOCATION SHALL MAKE NECESSARY PROVISIONS.
4. APPLICABLE WARNING TAPE SHALL BE PLACED OVER EACH UTILITY.
5. RIGID PVC CONDUIT IS REQUIRED FOR STREET AND DRIVEWAY CROSSINGS AND OTHER PAVEMENT CROSSINGS MORE THAN 12 FEET IN LENGTH. CONDUITS CROSSING STREETS SHALL BE ENCASED IN CONCRETE. CONCRETE SHALL BE DESIGNED TO HAVE MINIMUM 3,000 PSI COMP. STRENGTH AND SHALL HAVE A MINIMUM 4" THICK ENCASEMENT ON ALL SIDES OF CONDUIT.
6. UTILITY MANHOLES SHALL NOT BE LOCATED WITHIN TRAVEL LANE VEHICLE TRACKING TO THE EXTENT POSSIBLE.

STREET CLASSIFICATION	R.O.W. WIDTH (ft.)	UTILITY LOCATION DIMENSIONS	
		W (ft.)	G (ft.)
LOCAL	50	5	5
COLLECTOR	60	7	7
ARTERIAL	66	8	8

UTILITY LOCATIONS IN STREETS

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TECHNICAL STANDARDS MANUAL

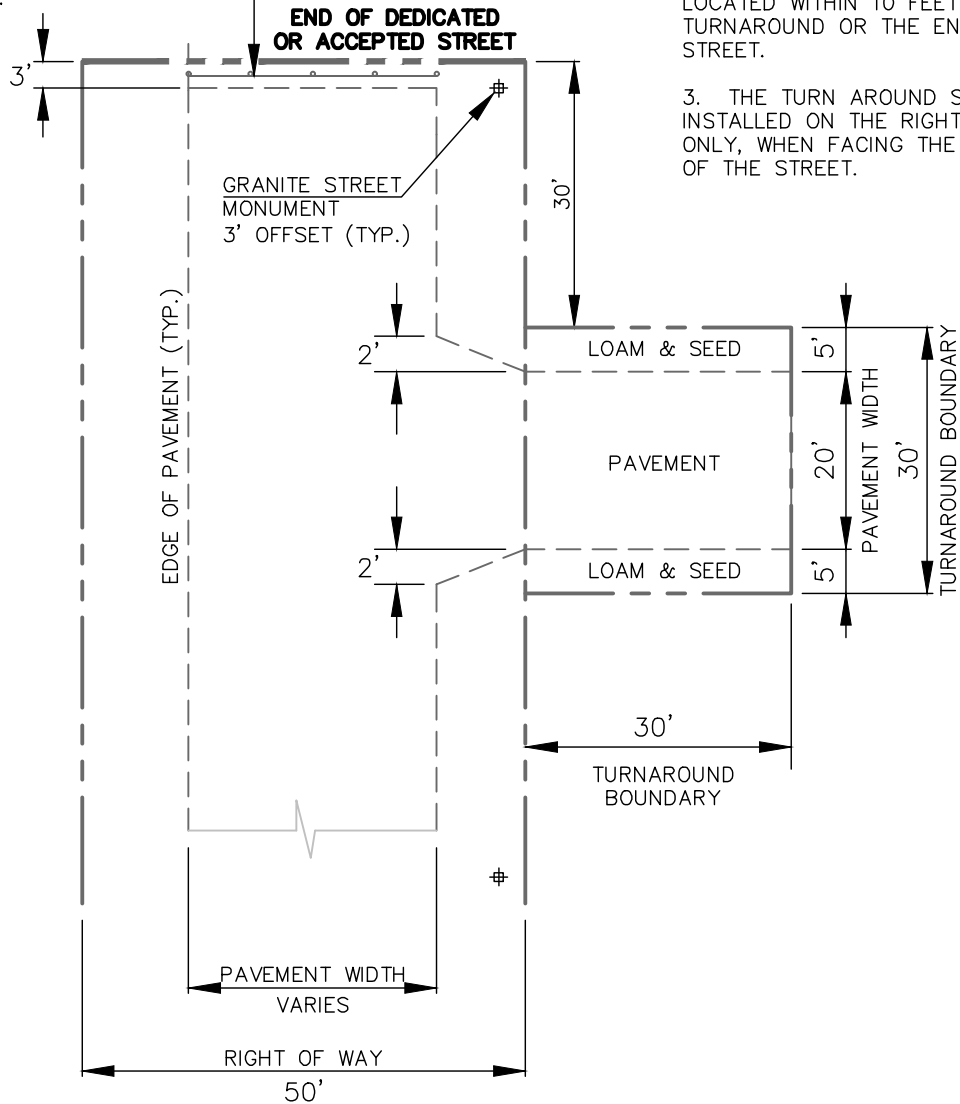
**TRANSPORTATION
DESIGN STANDARDS**
SECTION I

FIGURE:

I-4

UTILITY LOCATIONS IN STREETS

GALVANIZED STEEL OR PRESSURE
TREATED WOOD GUARDRAIL WITH OM4-2
END OF ROADWAY MARKER SIGN OR
APPROVED EQUAL. DPW RESERVES THE
RIGHT TO WAIVE THE REQUIREMENT OF A
GUARD RAIL BASED ON SITE SPECIFIC
SNOW STORAGE AND TURNAROUND
CONSIDERATIONS.



NOTES

1. A TURNAROUND EASEMENT SHALL BE CONVEYED TO THE CITY.
2. NO DRIVEWAYS SHALL BE LOCATED WITHIN 10 FEET OF THE TURNAROUND OR THE END OF THE STREET.
3. THE TURN AROUND SHALL BE INSTALLED ON THE RIGHT SIDE ONLY, WHEN FACING THE DEAD END OF THE STREET.

TURNAROUND ON DEAD END STREET

NOT TO SCALE

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**TRANSPORTATION
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SECTION I

FIGURE:

TURNAROUND ON DEAD END STREET

I-5

GENERAL NOTES

1. DESIGN OF ACCESSIBLE RAMPS AND ASSOCIATED FACILITIES ARE GOVERNED BY THE 2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN, WHICH IS DETAILED IN DOJ SECTION 28 CFR 35.151. ADDITIONAL GUIDANCE AND INFORMATION CAN BE FOUND IN THE PROPOSED PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES PUBLISHED BY THE U.S. ACCESS BOARD. IN ANY CASE WHERE THE DESIGN REQUIREMENTS ARE MORE STRINGENT BETWEEN ADA STANDARDS AND CITY REQUIREMENTS, THE ADA STANDARDS SHALL GOVERN.
2. SIDEWALKS SHALL BE CONSTRUCTED IN BRICK, CONCRETE, OR BITUMINOUS, ACCORDING TO THE SIDEWALK & DRIVEWAY APRON MATERIALS POLICY, UNLESS DIRECTED OTHERWISE BY THE CITY ENGINEER.
3. SIDEWALKS AND RAMPS SHALL BE BUILT ACCORDING TO THE FOLLOWING DIMENSIONS AND GRADES:
SIDEWALK RUNNING SLOPE: MATCH ADJACENT STREET GRADE
SIDEWALK CROSS SLOPE: 1.0% MINIMUM, 2.0% MAXIMUM
SIDEWALK WIDTH: 5'-0" MINIMUM, WIDER PREFERRED
ESPLANADE (WHERE PROVIDED) 2'-0" MINIMUM, 4'-0" OR GREATER PREFERRED IF LANDSCAPED.
4. TWO CURB RAMPS ARE REQUIRED AT EACH SIDEWALK CORNER. EACH CURB RAMP SHALL CONNECT THE PEDESTRIAN ACCESS ROUTE AT EACH PEDESTRIAN STREET CROSSING. IN ALTERATIONS WHERE PHYSICAL CONSTRAINTS PREVENT TWO CURB RAMPS FROM BEING INSTALLED AT A STREET CORNER, A SINGLE PEDESTRIAN CURB RAMP MAY BE PERMITTED.
5. OPPOSING CURB RAMPS AT A SINGLE CROSSING SHALL ALIGN TO PROVIDE A STRAIGHT PATH OF TRAVEL FROM THE TOP OF THE RAMP TO THE CURB RAMP ON THE OPPOSITE SIDE OF THE ROADWAY TO THE MAXIMUM EXTENT FEASIBLE.
6. ALL SIDEWALKS AND RAMPS SHALL DRAIN TOWARD THE STREET, DRIVEWAY, OR PARKING AREA, WITH A MAXIMUM CROSS SLOPE OF 2.0%.
7. LEVEL LANDINGS (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) AT THE BOTTOM OF PERPENDICULAR RAMPS SHALL BE WHOLLY CONTAINED WITHIN MARKED CROSSWALKS.
8. PONDING SHALL NOT BE PERMITTED WITHIN THE CURB RAMP LIMITS. RAMPS SHALL NOT ALTER ROADWAY DRAINAGE PATTERNS.
9. TRANSITION FROM RAMPS TO WALKS OR STREET SURFACE SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. PAVEMENT AT THE STREET SURFACE SHALL BE MILLED AND REPAVED TO ACHIEVE FLUSH CONDITION.
10. CURB RAMP AND FORM WORK SLOPES SHALL BE CHECKED WITH A DIGITAL LEVEL OF AN APPROPRIATE LENGTH. NO PORTION OF A RAMP RUN SHALL EXCEED THE MAXIMUM SLOPE REQUIREMENT.
11. THE COUNTER SLOPE WITHIN 2' OF THE CURB RAMP SHALL BE 5% MAXIMUM. IN ALTERATIONS, IF THE COUNTER SLOPE OF 5% MAXIMUM CANNOT BE ACHIEVED, THE SLOPE ELEVATION MAY BE ADJUSTED SO THAT THE COMBINED COUNTER SLOPE AND RAMP SLOPE DO NOT EXCEED 13.3%.
12. VERTICAL DROP-OFF EDGES TO RAMPS SHALL NOT BE BUILT UNLESS THE RAMP ABUTS AN ESPLANADE OR OTHER AREA NOT TO BE USED BY PEDESTRIANS.
13. AT MARKED CROSSWALKS, THE FULL WIDTH OF THE RAMP OR LANDING SHALL BE CONTAINED WITHIN THE PAVEMENT MARKINGS.
14. DETECTABLE WARNING PANELS SHALL BE PROVIDED ON ALL RAMPS AS PER FIGURE I-7 OF THESE STANDARD DETAILS.
15. RAMP FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
16. SIGNS, POLES, PLANTERS, MAILBOXES, ETC. SHALL NOT BE LOCATED WHERE THEY WILL INTERFERE WITH THE USE OF SIDEWALK RAMPS.
17. SIDEWALK RAMPS SHALL NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS, OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED, THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
18. THE PUBLIC SIDEWALK CURB RAMP STANDARDS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS. RAMP DESIGNS THAT ARE COMPLIANT WITH ADA BUT NOT LISTED IN THESE DETAILS MAY BE APPROVED BY THE CITY ENGINEER.
19. DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF THESE DETAILS AND TO ADA GUIDELINES TO THE MAXIMUM EXTENT FEASIBLE ON ALTERATION PROJECTS, AND WHEN STRUCTURALLY PRACTICABLE ON NEW CONSTRUCTION PROJECTS AS REQUIRED BY THE ADA ACCESSIBILITY GUIDELINES.
20. MAXIMUMS AND MINIMUMS DO NOT HAVE TOLERANCES AND ARE NOT TO BE EXCEEDED OR UNMET.
21. THE STANDARD TURNING SPACE (LEVEL LANDING) IS 4'-0" X 4'-0" SLOPING NO MORE THAN 2.0%. WHERE THE TURNING SPACE SHALL BE 4'-0" MINIMUM BY 5'-0" MINIMUM. THE 5'-0" DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.
22. DETECTABLE WARNINGS SHALL BE INSTALLED AT ALL SIGNED OR SIGNALIZED INTERSECTIONS. THEY SHALL HAVE A TRUNCATED DOME SURFACE. THE DOMES SHALL BE IN A SQUARE PATTERN AND ALIGNED WITH PEDESTRIAN TRAFFIC WHERE POSSIBLE.
23. DETECTABLE WARNINGS SHALL SPAN THE WIDTH OF THE PEDESTRIAN RAMP. SEE STANDARD DETAIL FIGURE I-7.
24. ALL DETECTABLE WARNING FIELDS PLACED AT THE SAME INTERSECTION SHALL BE MADE UP OF THE SAME UNIFORM MATERIAL TYPE. DETECTABLE WARNINGS SHALL BE CONTRASTING IN COLOR TO THE ADJACENT WALKWAY.
25. A RAMP WITH A RUNNING SLOPE LESS THAN 5.0% IS DEFINED AS A "BLENDED TRANSITION". BLENDED TRANSITIONS DO NOT REQUIRE A LEVEL LANDING AT THE TOP OF THE RAMP.
26. THE RAMP LENGTH SHALL NOT EXCEED 15 FEET. ADJUST RAMP LENGTH OR SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT FEASIBLE.
27. ALL CURB RAMP JOINTS AND GRADE BREAKS SHALL BE FLUSH.
28. RAMP GRADE BREAKS SHALL BE PERPENDICULAR TO THE RUNNING SLOPE.
29. THERE SHALL BE A MINIMUM OF 12" AGGREGATE SUBBASE COURSE - GRAVEL UNDER THE SIDEWALK SURFACE ON PEDESTRIAN RAMPS.
30. DRAINAGE STRUCTURES, UTILITY POLES, TRAFFIC SIGNAL EQUIPMENT OR OTHER OBSTRUCTIONS SHALL NOT BE INSTALLED IN THE CURB RAMP OR TURNING SPACE AREAS.
31. BEFORE RETROFITTING RAMPS, THE CONTRACTOR SHALL VERIFY REMOVAL LIMITS ARE SUFFICIENT TO PROVIDE POSITIVE DRAINAGE, MAINTAIN EXISTING DRAINAGE PATTERNS AND AVOID PONDING IN THE FINAL CONFIGURATION.
32. A TEMPORARY PEDESTRIAN ACCESS ROUTE SHALL BE PROVIDED WHENEVER THE EXISTING PEDESTRIAN ACCESS ROUTE IN THE PUBLIC RIGHT OF WAY IS BLOCKED BY CONSTRUCTION, ALTERATION, MAINTENANCE OR OTHER TEMPORARY CONDITIONS. REFER TO MUTCD FOR GUIDANCE.

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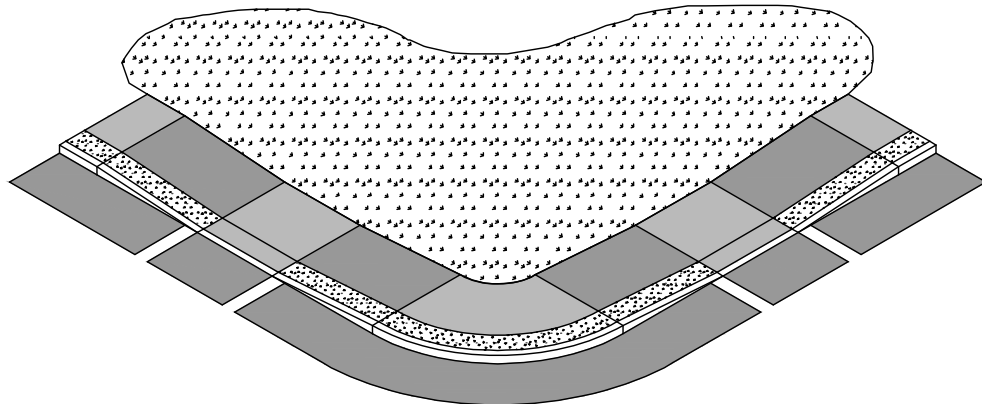
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DESIGN STANDARDS**
SECTION I

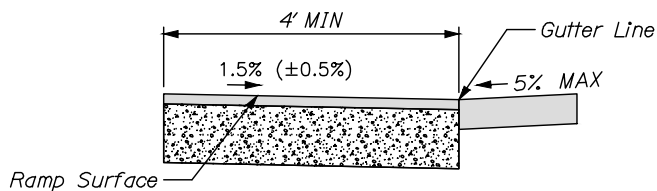
FIGURE:

**ACCESSIBLE RAMP
GENERAL NOTES**

I-6

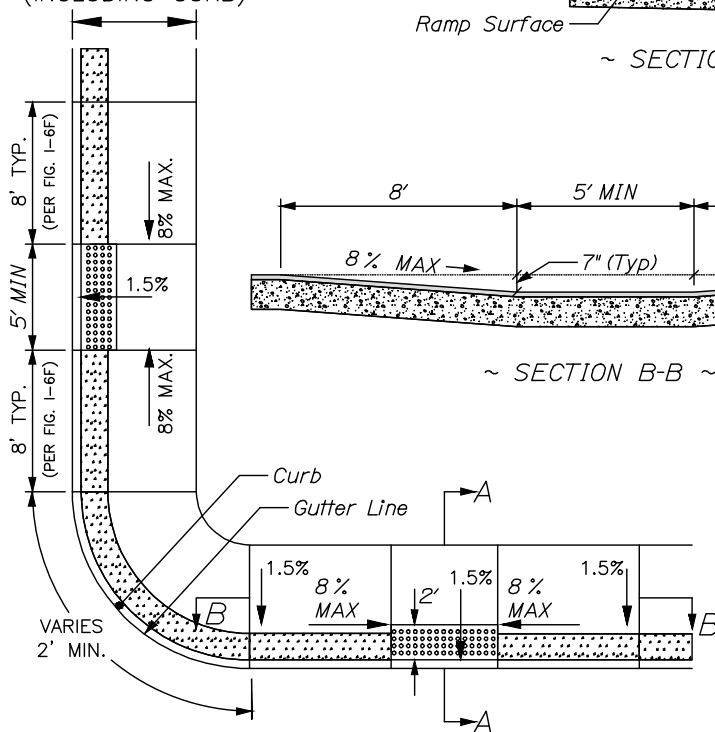


~ ISOMETRIC VIEW ~
(NOT TO SCALE)



~ SECTION A-A ~

LESS THAN 6.5'
(INCLUDING CURB)



~ SECTION B-B ~

NOTES:

1. THIS DESIGN IS THE PREFERRED OPTION WHEN THE SIDEWALK & ESPLANADE WIDTH IS LESS THAN 6.5'. USE OTHER OPTIONS ONLY WHEN REQUIRED BY DESIGN CONSTRAINTS.
2. A MINIMUM CURB REVEAL OF 4" IS REQUIRED AT THE APEX OF THE CURB RADIUS.
3. MINIMUM TERMINAL CURB LENGTH SHALL BE 4 FEET.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

PARALLEL ADA RAMP – SIDEWALK LESS THAN 6.5' WIDE
WITH OR WITHOUT ESPLANADE

NOT TO SCALE

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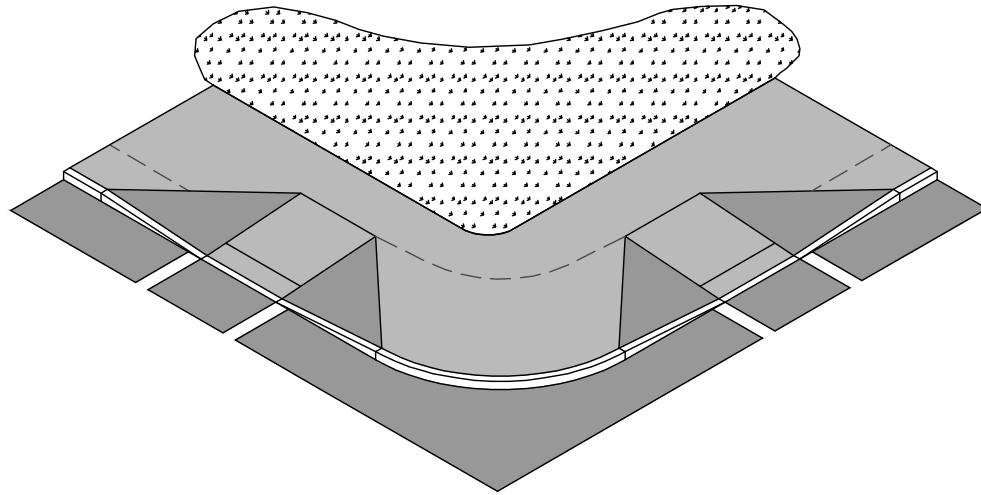
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SECTION I

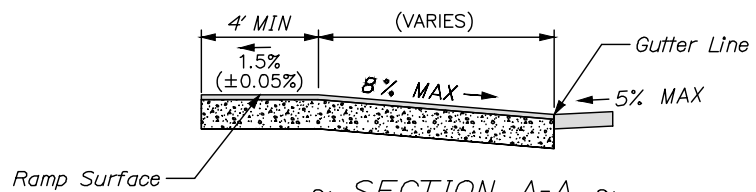
FIGURE:

PARALLEL ADA RAMP FOR SIDEWALK
LESS THAN 6.5' WIDE

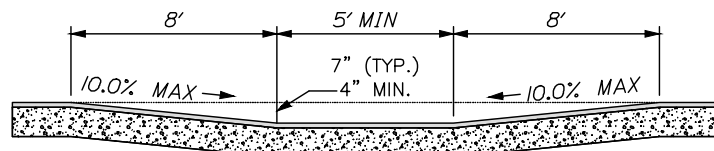
I-6A



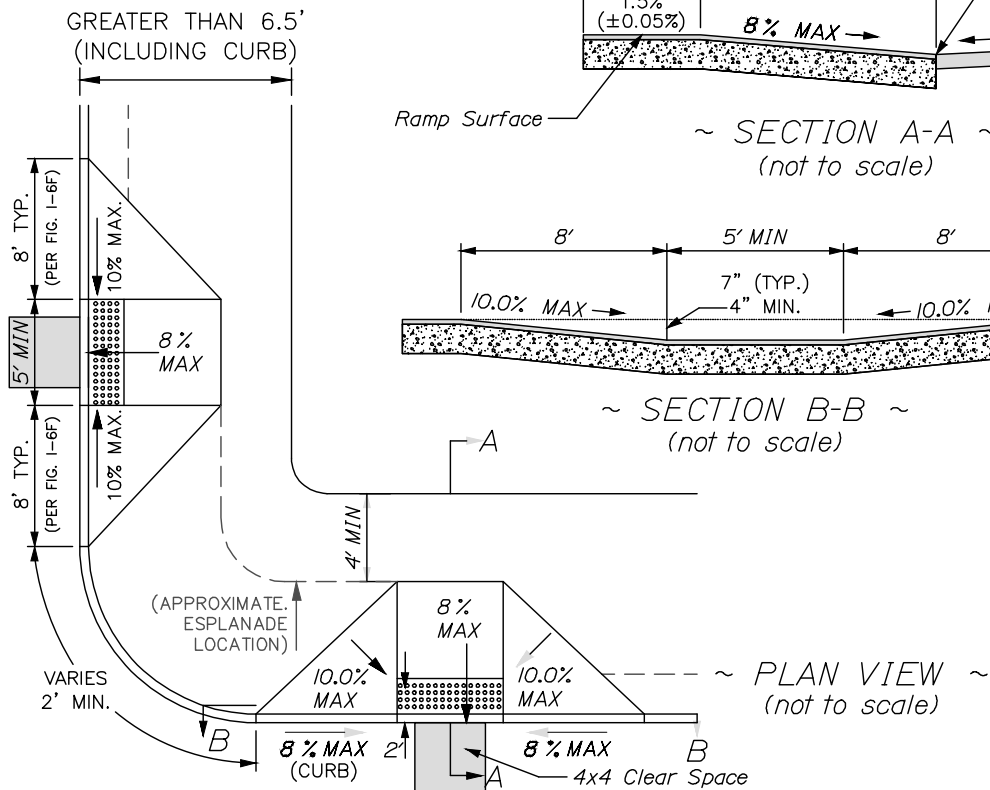
~ ISOMETRIC VIEW ~
(not to scale)



~ SECTION A-A ~
(not to scale)



~ SECTION B-B ~
(not to scale)



NOTES:

1. THIS DESIGN IS THE PREFERRED OPTION WHEN THE SIDEWALK WIDTH IS GREATER THAN 6.5'. USE OTHER OPTIONS ONLY WHEN REQUIRED BY DESIGN CONSTRAINTS.
2. A MINIMUM CURB REVEAL OF 4" IS REQUIRED AT THE APEX OF THE CURB RADIUS.
3. MINIMUM TERMINAL CURB LENGTH SHALL BE 4 FEET.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

**PERPENDICULAR ADA RAMP – SIDEWALK WIDTH GREATER THAN 6.5' WIDE
WITH OR WITHOUT ESPLANADE**

NOT TO SCALE

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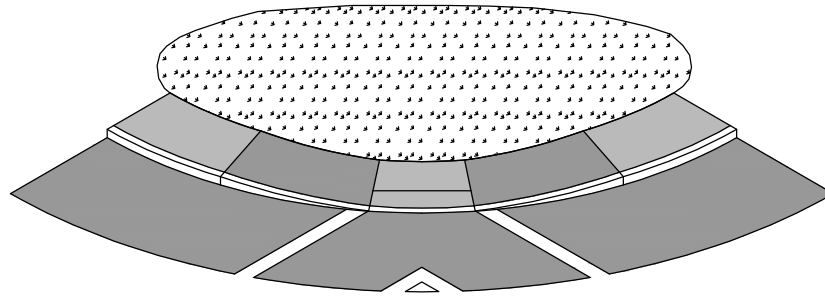
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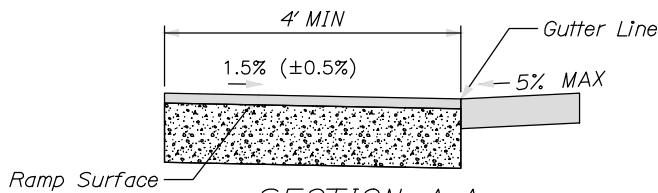
FIGURE:

**PERPENDICULAR ADA RAMP FOR SIDEWALK
GREATER THAN 6.5'**

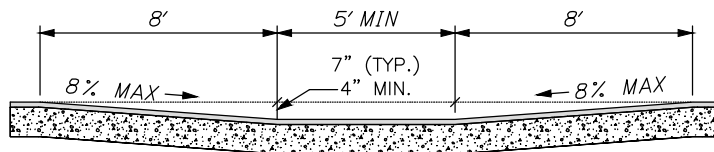
I-6B



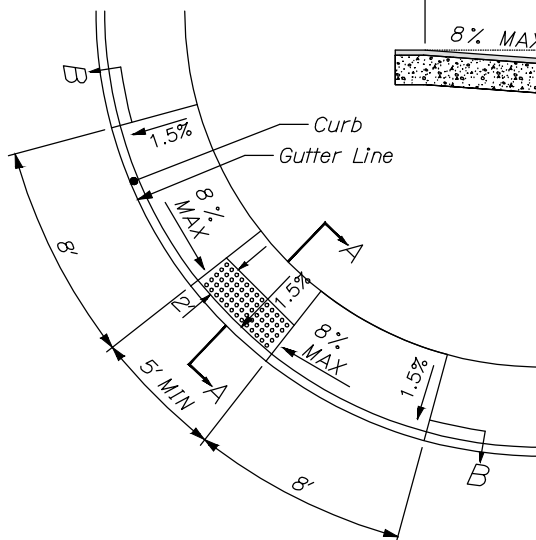
~ ISOMETRIC VIEW ~
(NOT TO SCALE)



~ SECTION A-A ~



~ SECTION B-B ~



~ PLAN VIEW ~

NOTES:

1. THIS LESS DESIRABLE DESIGN SHOULD NOT BE USED UNLESS REQUIRED BY DESIGN CONSTRAINTS. IT DOES NOT PROVIDE DIRECTIONAL CUES.
2. A MINIMUM CURB REVEAL OF 4" IS REQUIRED AT THE APEX OF THE CURB RADIUS.
3. MINIMUM TERMINAL CURB LENGTH SHALL BE 4 FEET.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

APEX RAMP – SIDEWALKS **LESS THAN 6.5'** WIDE
WITH NO ESPLANADE

NOT TO SCALE

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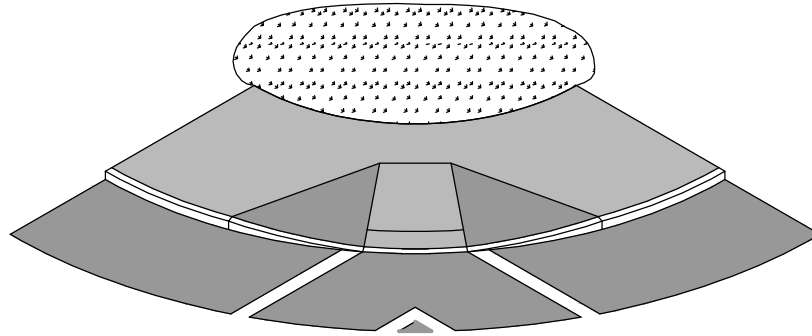
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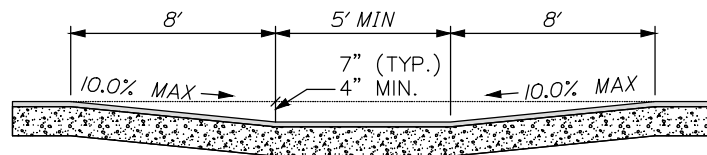
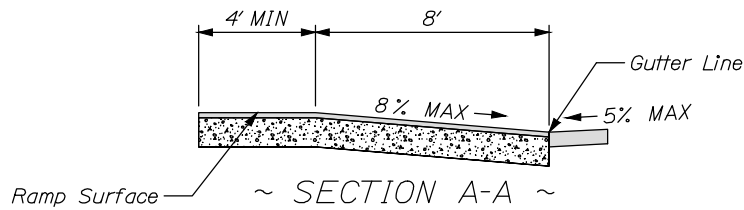
FIGURE:

**APEX RAMP FOR SIDEWALK
LESS THAN 6.5' WIDE**

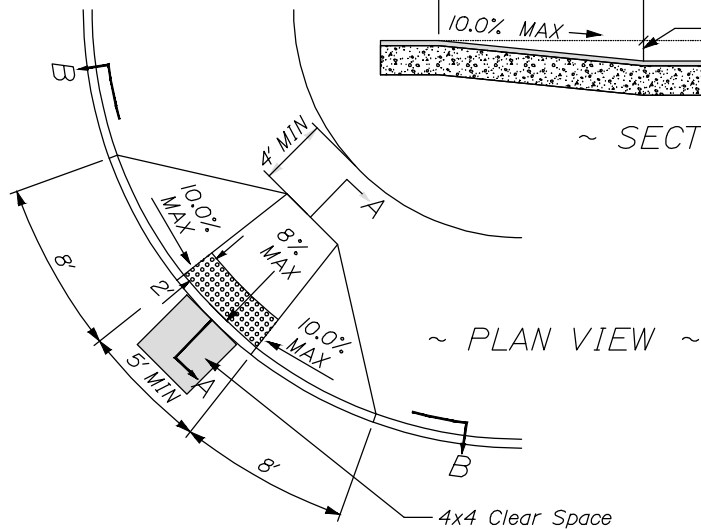
I-6C



~ ISOMETRIC VIEW ~
(NOT TO SCALE)



~ SECTION B-B ~



NOTES:

1. THIS LESS DESIRABLE DESIGN SHOULD NOT BE USED UNLESS REQUIRED BY DESIGN CONSTRAINTS. IT DOES NOT PROVIDE DIRECTIONAL CUES.
2. A MINIMUM CURB REVEAL OF 4" IS REQUIRED AT THE APEX OF THE CURB RADIUS.
3. MINIMUM TERMINAL CURB LENGTH SHALL BE 4 FEET.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

APEX RAMP – SIDEWALK GREATER THAN 6.5' WIDE
WITH OR WITHOUT ESPLANADE

NOT TO SCALE

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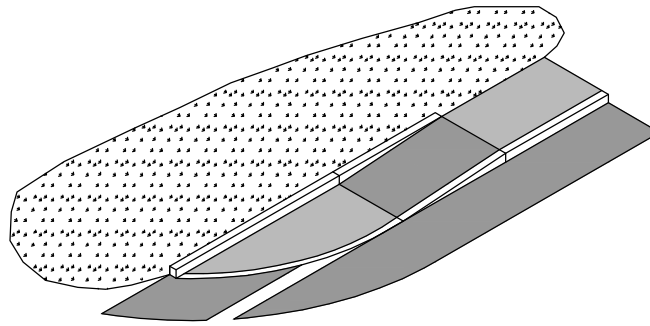
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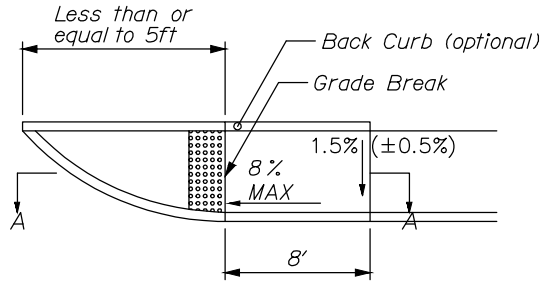
FIGURE:

**APEX RAMP FOR SIDEWALK
6.5' WIDE AND GREATER**

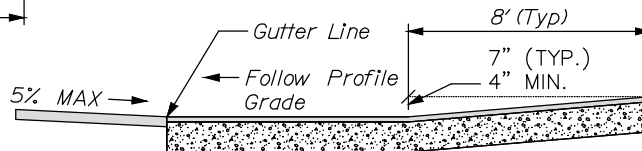
I-6D



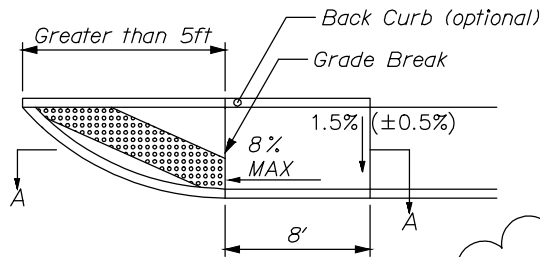
~ PERSPECTIVE VIEW ~
(NOT TO SCALE)



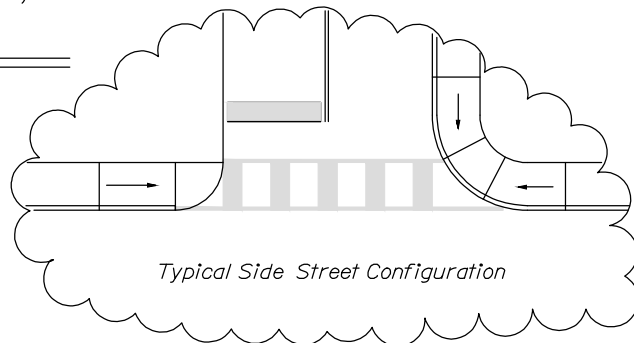
~ *PLAN VIEW* ~



~ SECTION A-A ~



~ **PLAN VIEW** ~



Typical Side Street Configuration

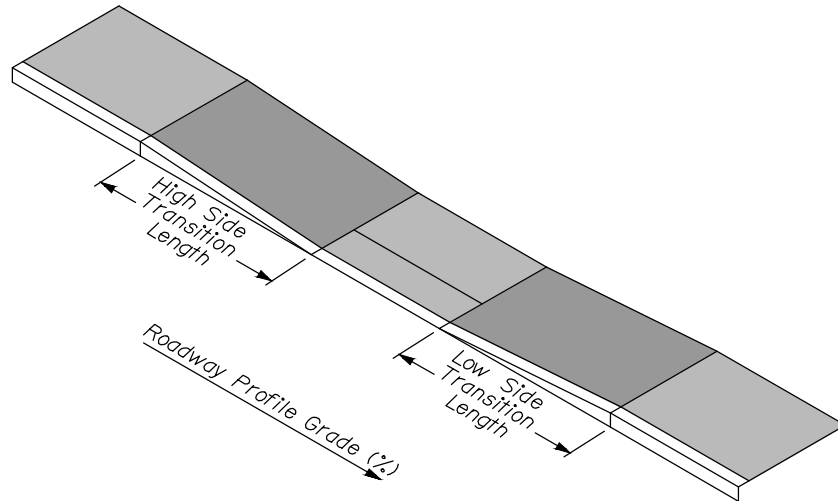
NOTES:

1. FOR USE ONLY WHEN NO SIDEWALK IS PRESENT ON THE SIDE ROAD.
2. USE *THIS* DETECTABLE WARNING PLACEMENT IF THE DISTANCE FROM THE GRADE BREAK TO THE GUTTERLINE IS LESS THAN OR EQUAL TO 5 FEET.
2. USE **THIS** DETECTABLE WARNING PLACEMENT IF THE DISTANCE FROM THE GRADE BREAK TO THE GUTTERLINE IS GREATER THAN 5 FEET.
3. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

**SIDE STREET RAMP
WITH OR WITHOUT ESPLANADE**

NOT TO SCALE

DATE: JUNE 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
REVISED:	SIDE STREET RAMP WHEN NO INTERSECTING SIDEWALK IS PRESENT		I-6E



Pedestrian Ramp Length Table						
Curb Reveal (Inches)		7	6	5	4	3
	Roadway Profile Grade	Minimum Transition Length Required (Feet)				
Low Side Transition Length	-7% and Lower	4.0	4.0	4.0	4.0	4.0
	-6%	8.0	4.0	4.0	4.0	4.0
	-5%	8.0	4.0	4.0	4.0	4.0
	-4%	8.0	8.0	4.0	4.0	4.0
	-3%	8.0	8.0	4.0	4.0	4.0
	-2%	8.0	8.0	8.0	4.0	4.0
	-1%	8.0	8.0	8.0	4.0	4.0
	0%	8.0	8.0	8.0	8.0	4.0
High Side Transition Length	1%	8.0	8.0	8.0	8.0	4.0
	2%	10.0	8.0	8.0	8.0	4.0
	3%	12.0	10.0	8.0	8.0	8.0
	4%	14.0	12.0	10.0	8.0	8.0
	5%	15.0	15.0	14.0	10.0	8.0
	6%	15.0	15.0	15.0	15.0	12.0
	7% and Higher	15.0	15.0	15.0	15.0	15.0

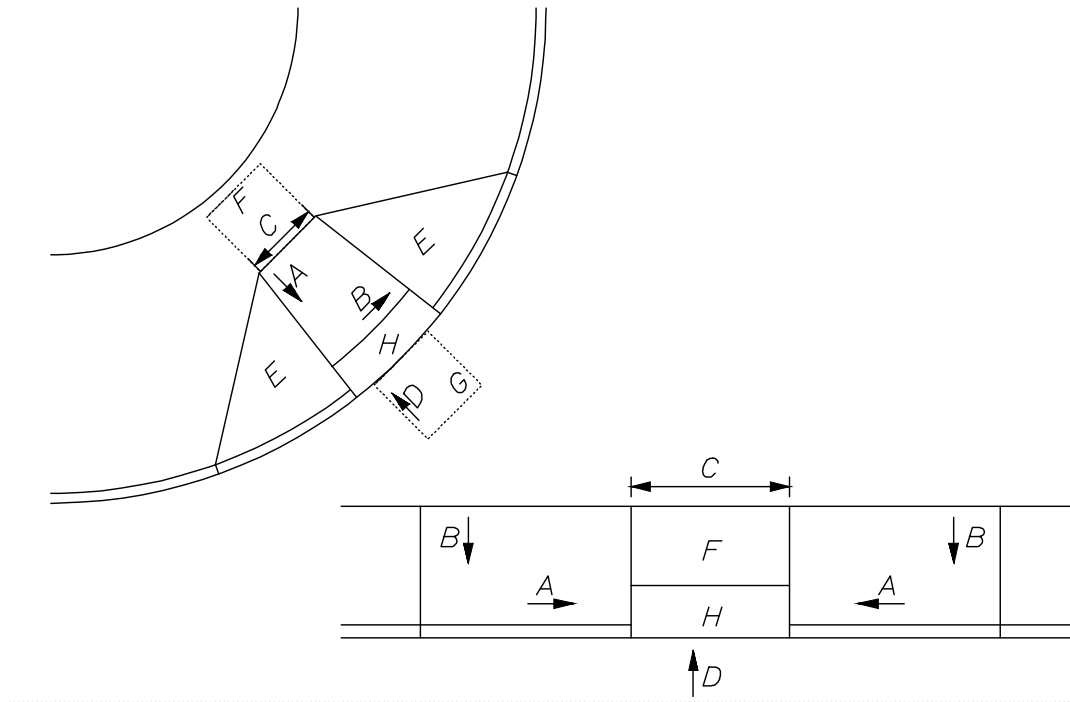
Choose roadway profile grade by rounding up for positive grades and down for negative grades. Round to the nearest whole integer. If constraints prevent placement of the ramp length required by the table, place the maximum length possible and check the slope. If above the maximum allowable slope, consider design modifications before considering technical infeasibility.

RAMP LENGTH TABLE FOR SIDEWALK RAMPS

NOT TO SCALE

DATE: JUNE 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE: I-6F
REVISED:			
PEDESTRIAN RAMP LENGTH TABLE FOR SIDEWALK RAMPS			

CURB RAMP REQUIREMENTS		
Running Slope	A	Max. 8.33% (1:12)
Cross Slope	B	Max. 2% (1:50) MIN. 1% <i>Ramp cross slope at street crossings without stop or signal control may match roadway profile.</i>
Clear Width	C	Min. 5 feet <i>For existing ramps only, ramp width may remain 4 feet.</i>
Counter Slope	D	Max. 5% (1:20) <i>Adjacent surface must be flush with the ramp.</i>
Flared Sides	E	Max. 10% (1:10)
Turning Space	F	4 feet by 4 feet <i>Maximum slope of 2% in any direction. May include Detectable Warnings</i>
Clear Space	G	4 feet by 4 feet <i>Located at the bottom of the ramp outside active travel lanes.</i>
Detectable Warnings	H	<i>Required at traffic controlled intersections and mid-block crossings, full ramp width.</i>



PEDESTRIAN RAMP REQUIREMENTS FOR SIDEWALK RAMPS

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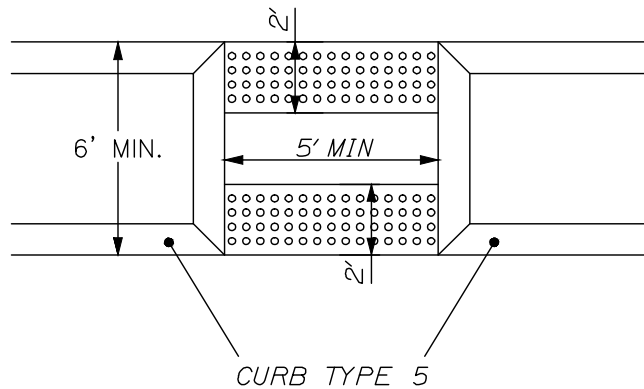
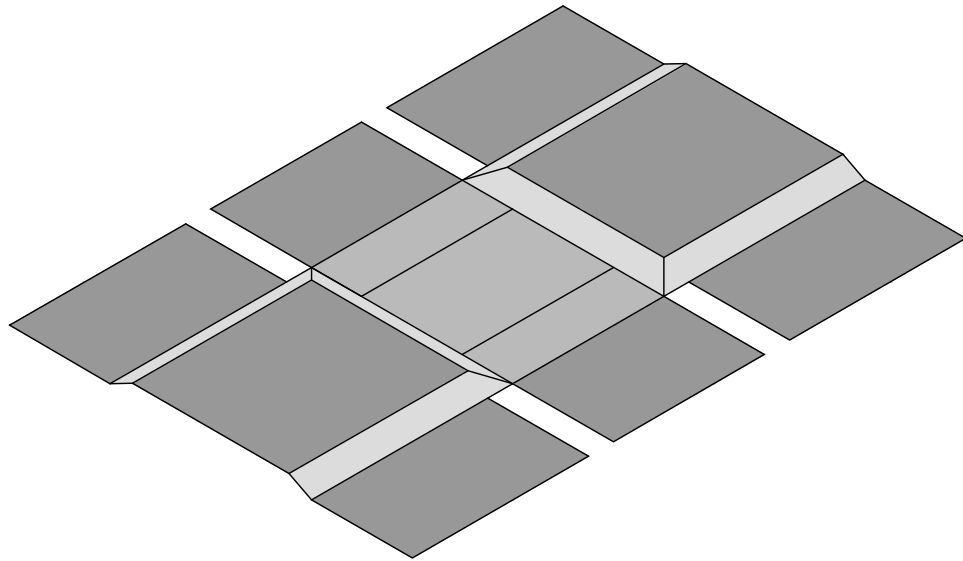
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FIGURE:

**PEDESTRIAN RAMP REQUIREMENTS
FOR SIDEWALK RAMPS**

I-6G



NOTES:

1. INSURE POSITIVE DRAINAGE (2% MAXIMUM CROSS SLOPE).

ISLAND PEDESTRIAN CROSSINGS

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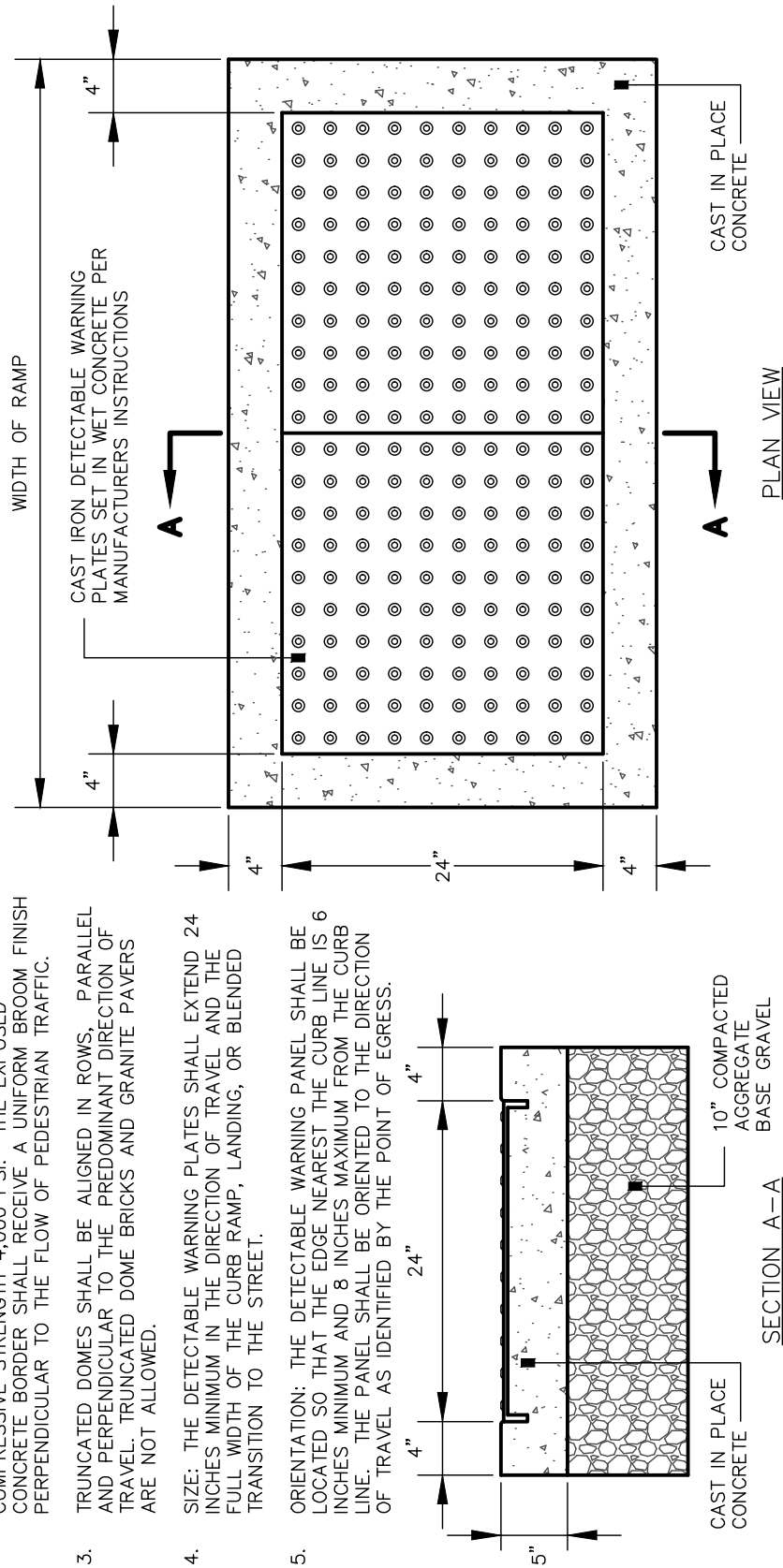
ISLAND PEDESTRIAN CROSSINGS

FIGURE:

I-6H

NOTES:

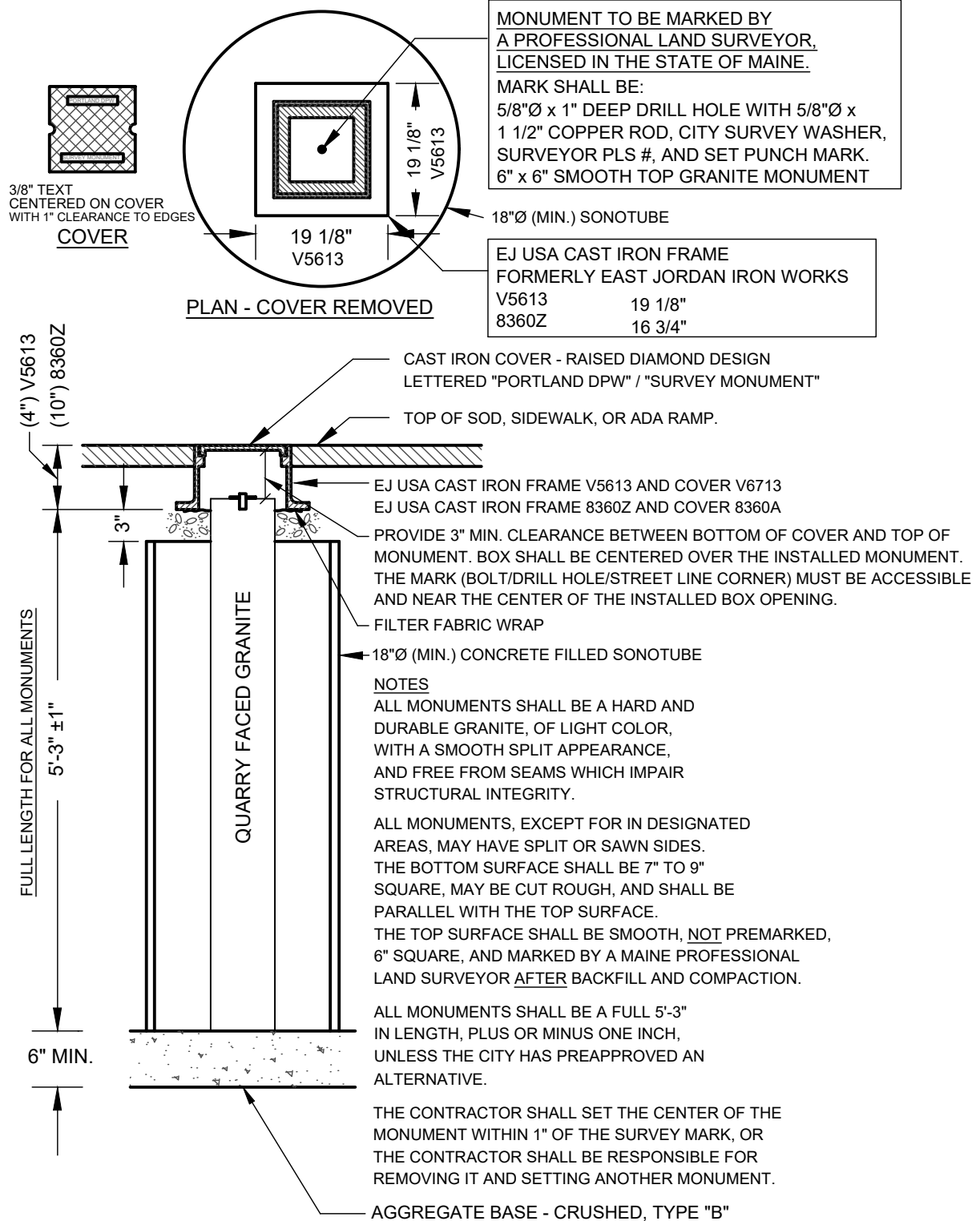
1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MDOT CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.



SIDEWALK RAMP DETECTABLE WARNING PANEL

NOT TO SCALE

DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
	SIDEWALK RAMP DETECTABLE WARNING PANEL		I-7



GRANITE STREET MONUMENTS - NEW OR REPLACEMENT

NOT TO SCALE

DATE:
AUGUST 2022

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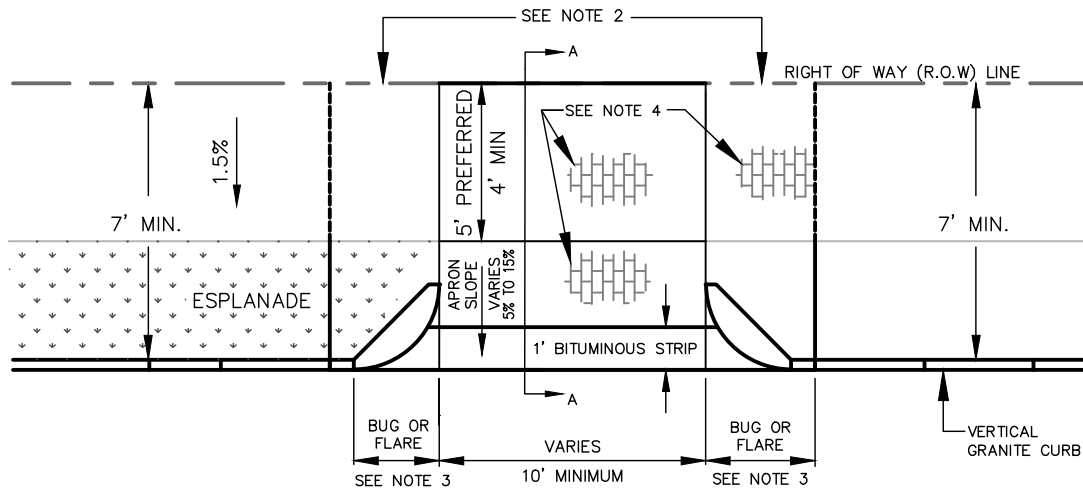
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

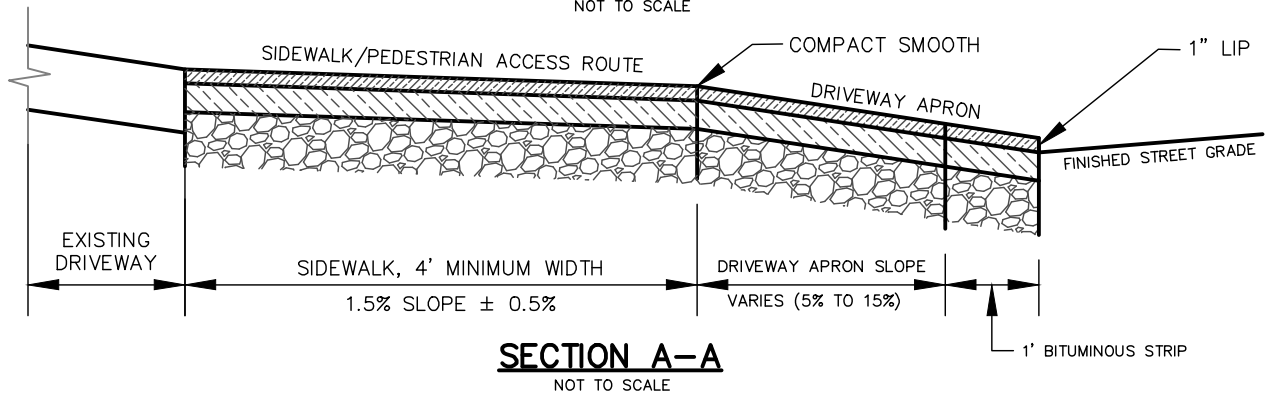
GRANITE STREET MONUMENT - NEW OR REPLACEMENT

I-8



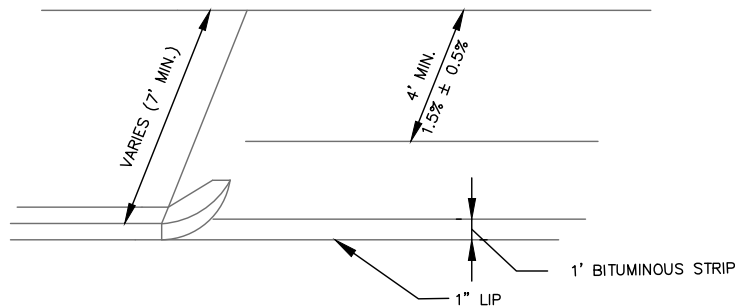
STANDARD RESIDENTIAL DRIVEWAY APRON LAYOUT

NOT TO SCALE



SECTION A-A

NOT TO SCALE



NOTES:

1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
3. TWO-FOOT RADIUS CORNER GRANITE PIECES ("BUGS") ARE REQUIRED AT LOW-VOLUME DRIVEWAYS UNLESS OTHERWISE DIRECTED BY DPW. AT OTHER DRIVEWAYS, STANDARD FLARE/TIPDOWN TREATMENTS SHALL BE USED.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK.
5. THIS LAYOUT MAY BE REQUIRED AT MINOR DRIVEWAYS SERVING COMMERCIAL OR INDUSTRIAL USES.

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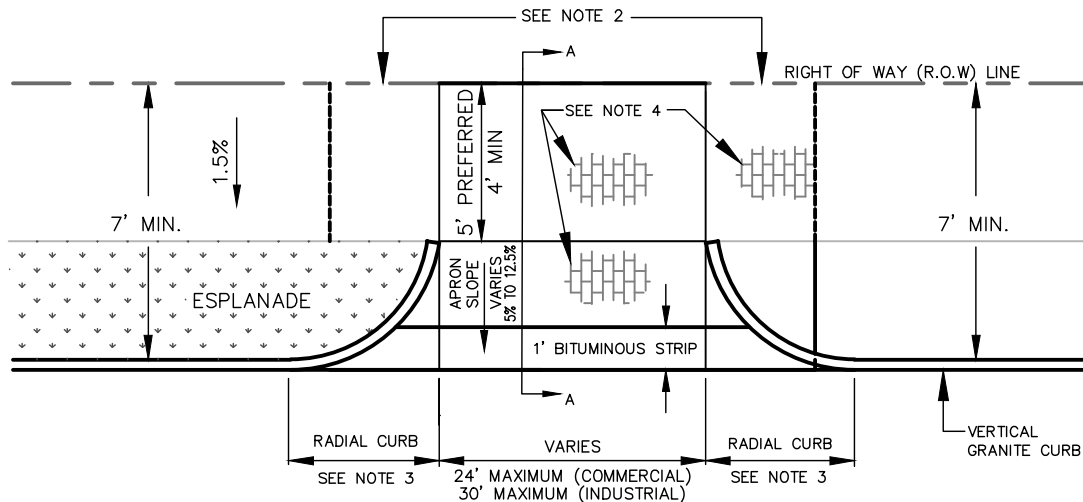
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

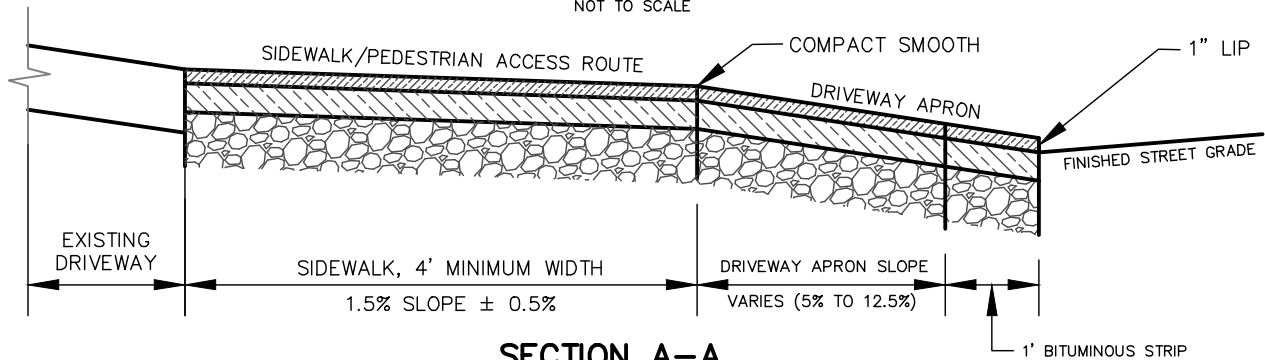
RESIDENTIAL DRIVEWAY APRON

I-9A



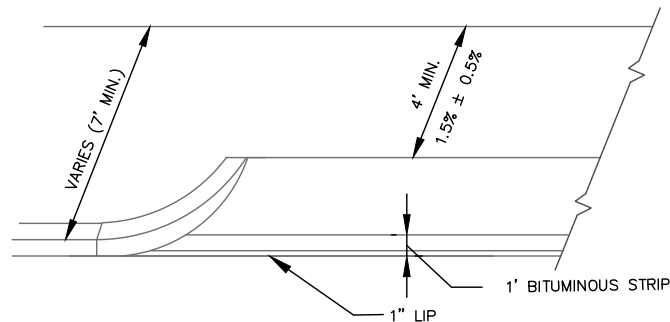
STANDARD COMMERCIAL DRIVEWAY APRON LAYOUT

NOT TO SCALE



SECTION A-A

NOT TO SCALE



NOTES:

1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
3. DRIVEWAY CURB RADIUS SHALL NOT BE LARGER THAN REQUIRED BY THE SITE'S DESIGN VEHICLE.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK..

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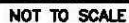
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TECHNICAL STANDARDS MANUAL

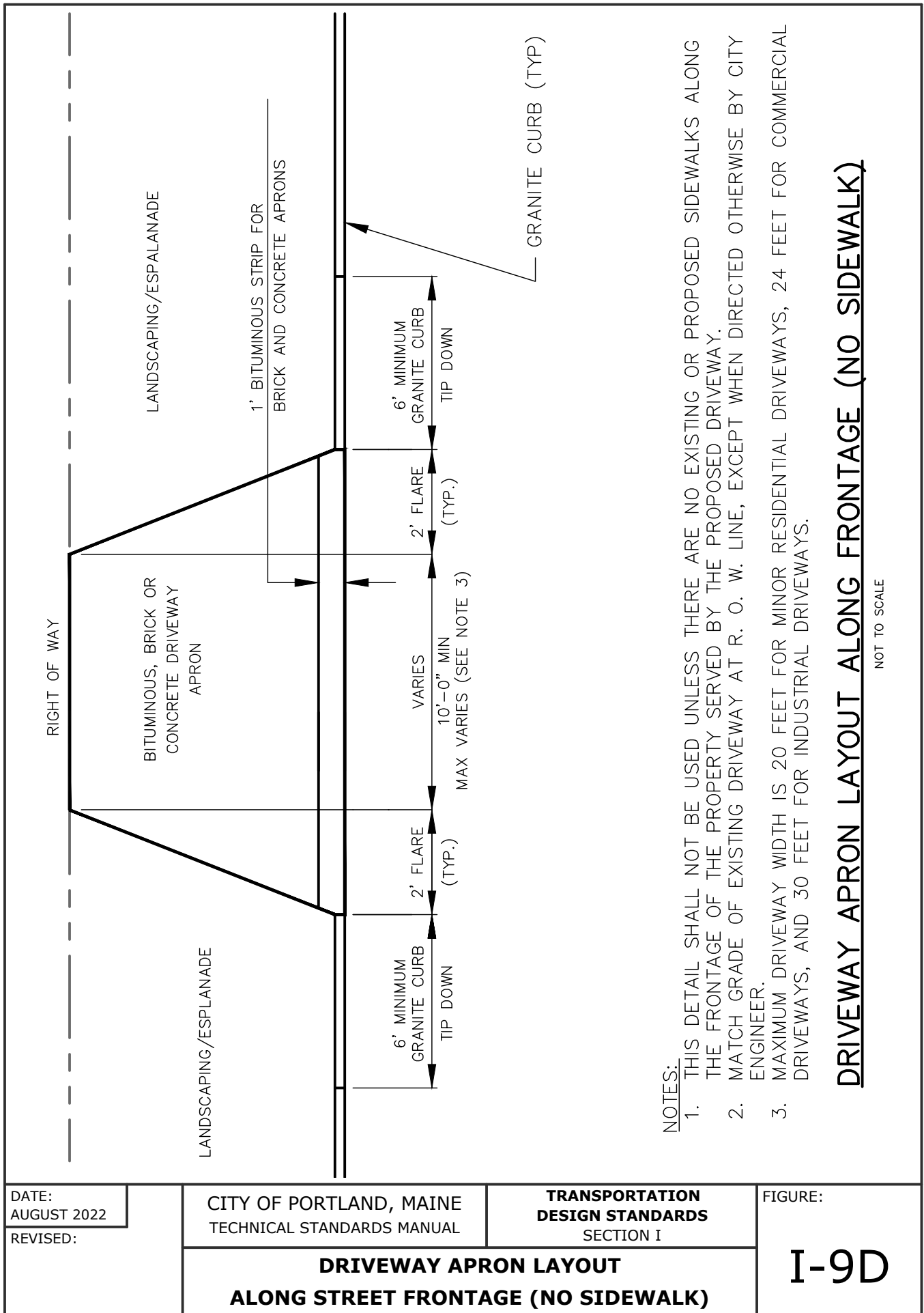
TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

COMMERCIAL/INDUSTRIAL DRIVEWAY APRON

I-9B





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DRIVEWAY APRON LAYOUT ALONG STREET FRONTAGE (NO SIDEWALK)			

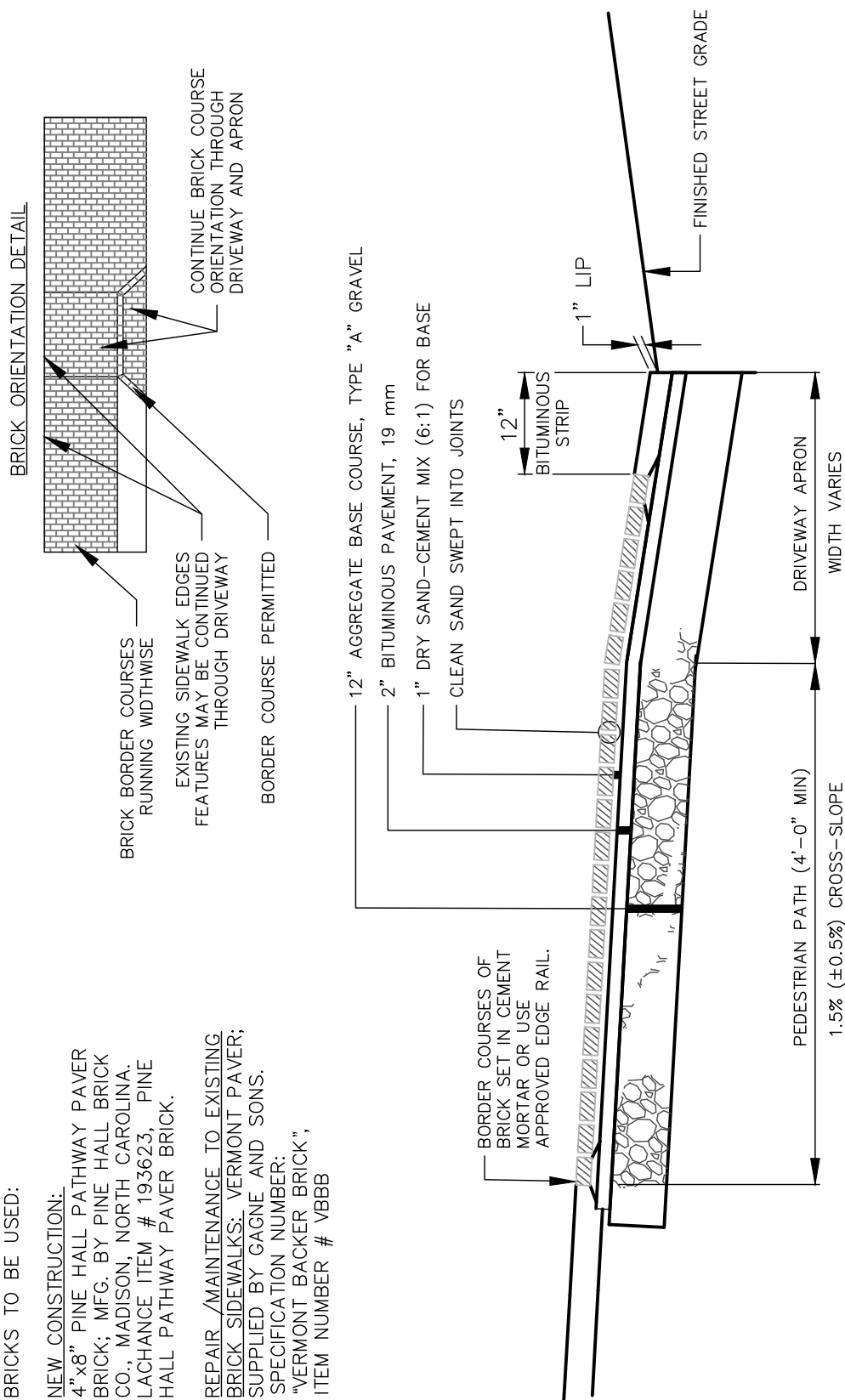
BRICKS TO BE USED:

NEW CONSTRUCTION:

4"x8" PINE HALL PATHWAY PAVEMENT
BRICK; MFG. BY PINE HALL BRICK
CO., MADISON, NORTH CAROLINA.
LACHANCE ITEM # 193623, PINE
HALL PATHWAY PAVEMENT BRICK.

REPAIR / MAINTENANCE TO EXISTING

BRICK SIDEWALKS: VERMONT PAVEMENT;
SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER:
"VERMONT BACKER BRICK",
ITEM NUMBER # VB88



BRICK DRIVEWAY APRON WITH BITUMINOUS BASE

NOT TO SCALE

DATE:
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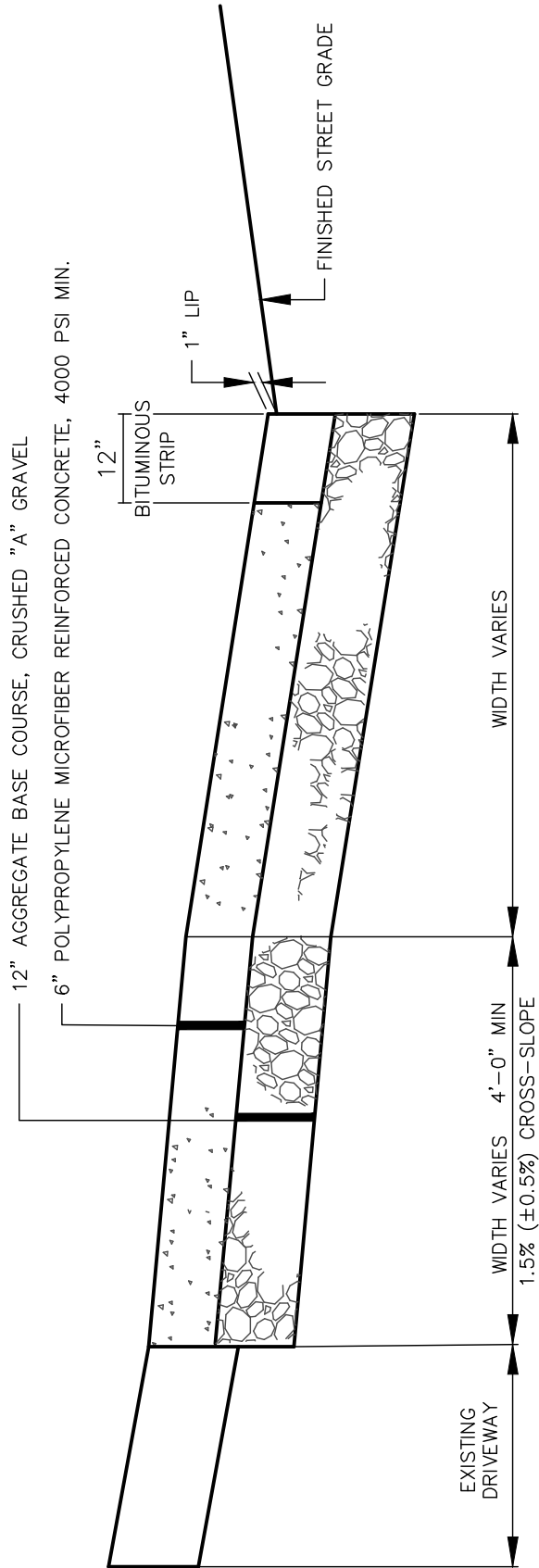
**TRANSPORTATION
DESIGN STANDARDS**
SECTION I

FIGURE:

**BRICK DRIVEWAY APRON
WITH BITUMINOUS BASE**

I-10A

NOTE
CONCRETE SIDEWALKS TO BE TREATED WITH CONSOLIDECK
SALTGUARD WB OR APPROVED EQUAL. FOLLOW MANUFACTURER'S
RECOMMENDATIONS FOR APPLICATION.



REINFORCED CONCRETE DRIVEWAY APRON

NOT TO SCALE

DATE:
AUGUST 2022

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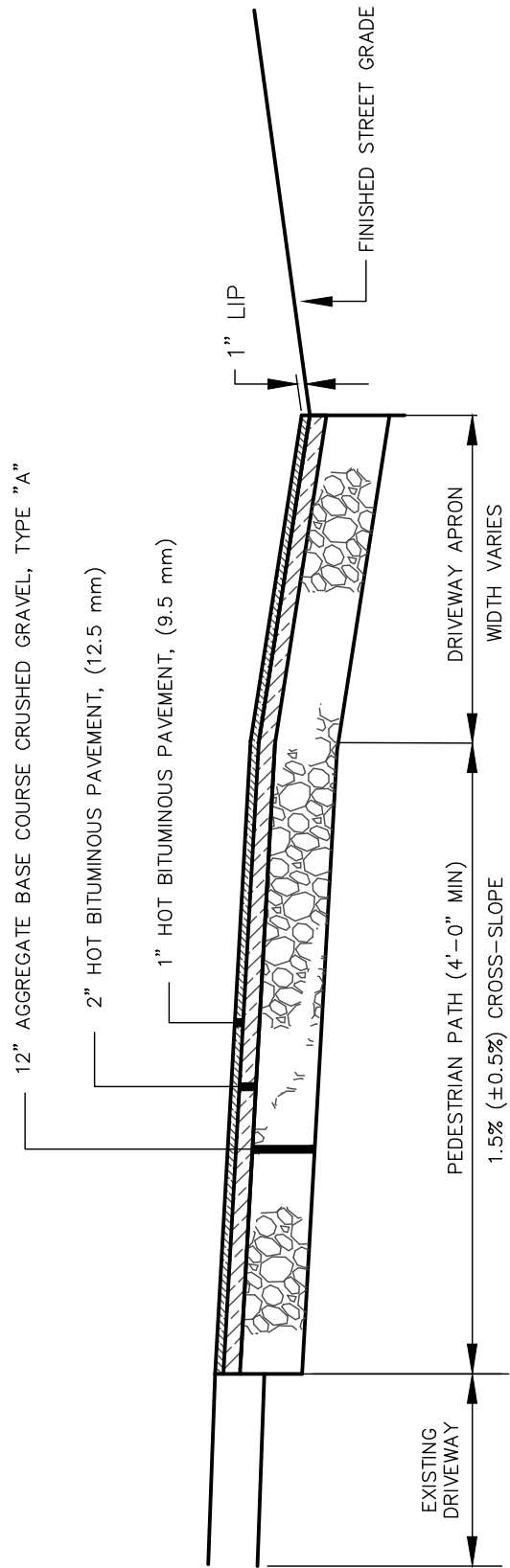
CITY OF PORTLAND, MAINE
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SECTION I

FIGURE:

REINFORCED CONCRETE DRIVEWAY APRON

I-10B



BITUMINOUS DRIVEWAY APRON

NOT TO SCALE

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FIGURE:

BITUMINOUS DRIVEWAY APRON

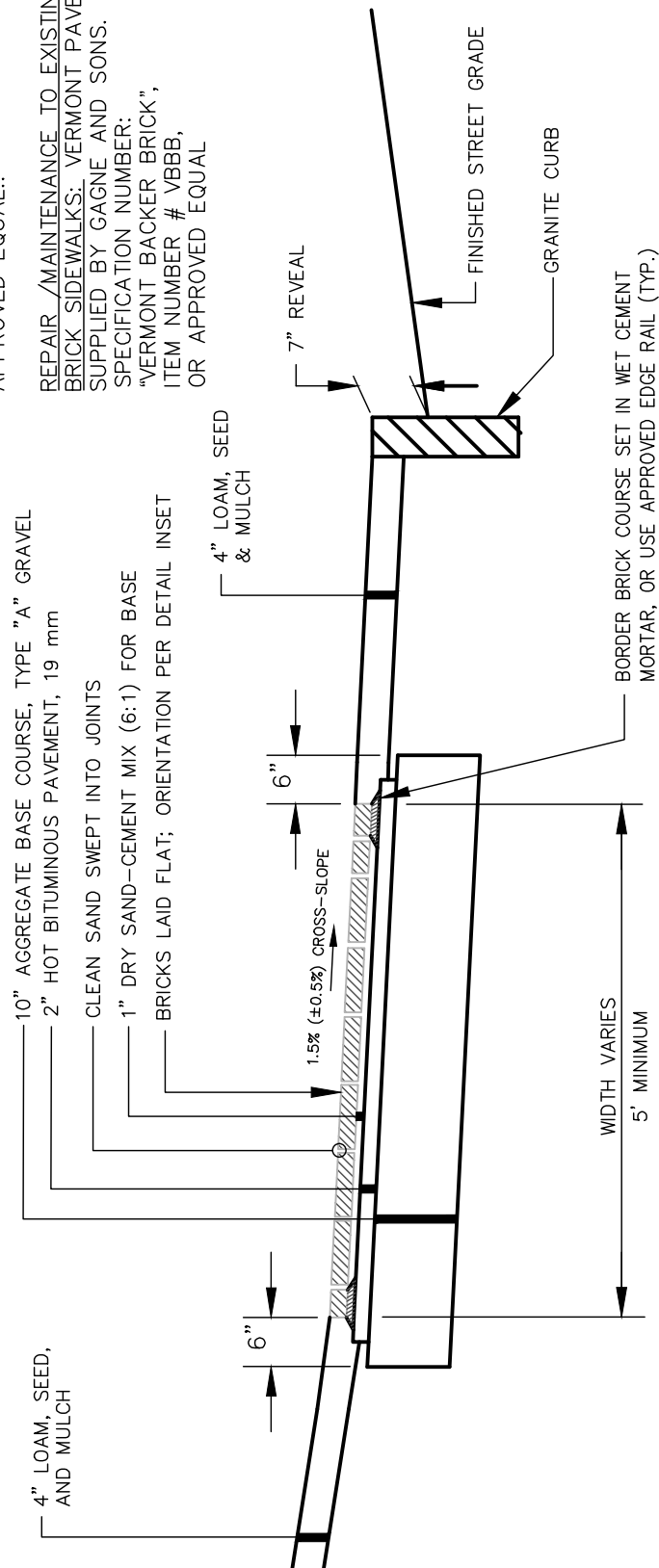
I-10C

BRICKS TO BE USED:

NEW CONSTRUCTION:

4"x8" PINE HALL PATHWAY PAVER
BRICK; MFG. BY PINE HALL BRICK
CO., MADISON, NORTH CAROLINA, OR
APPROVED EQUAL..
LACHANCE ITEM # 193623, PINE
HALL PATHWAY PAVER BRICK, OR
APPROVED EQUAL..

REPAIR /MAINTENANCE TO EXISTING
BRICK SIDEWALKS: VERMONT PAVER;
SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER:
"VERMONT BACKER BRICK",
ITEM NUMBER # VBBB,
OR APPROVED EQUAL



BRICK SIDEWALK WITH BITUMINOUS BASE

NOT TO SCALE

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AUGUST 2022
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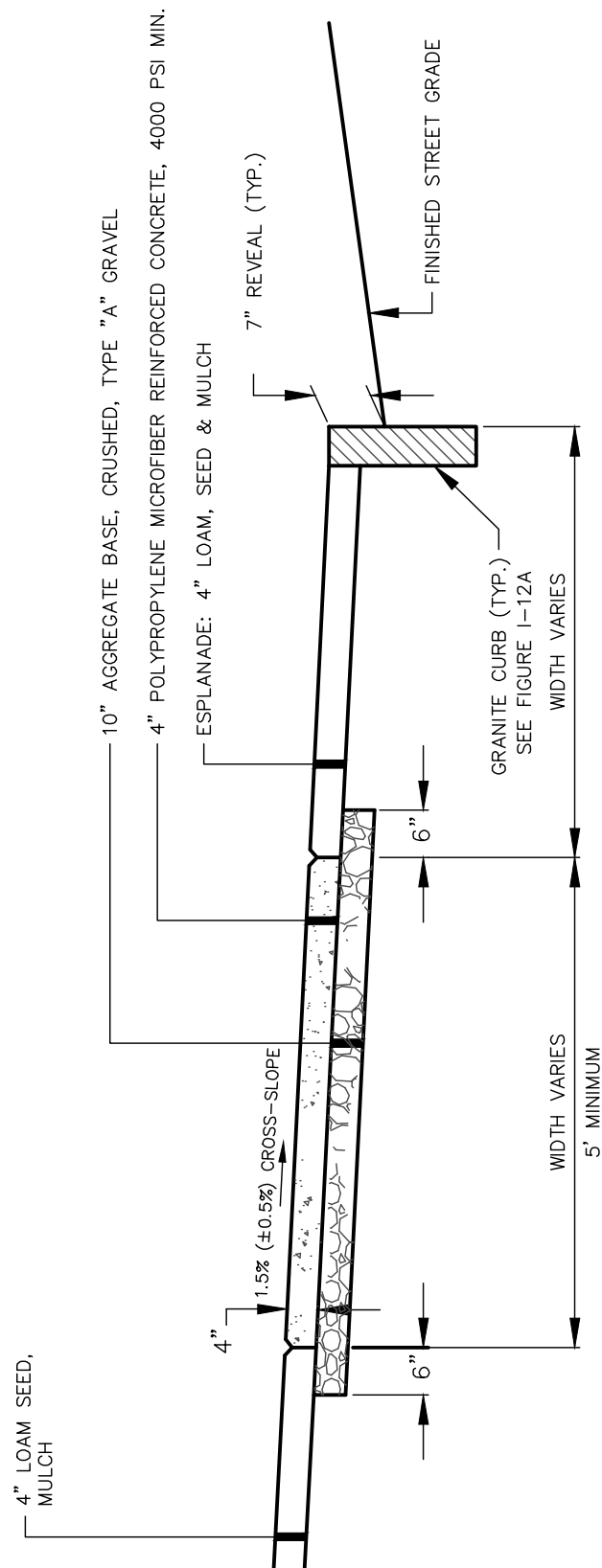
FIGURE:

BRICK SIDEWALK WITH BITUMINOUS BASE

I-11A

NOTE

CONCRETE SIDEWALKS TO BE TREATED WITH CONSOLIDECK SALTGUARD WB OR APPROVED EQUAL. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION.



REINFORCED CONCRETE SIDEWALK

NOT TO SCALE

DATE:
AUGUST 2022

REVISED:

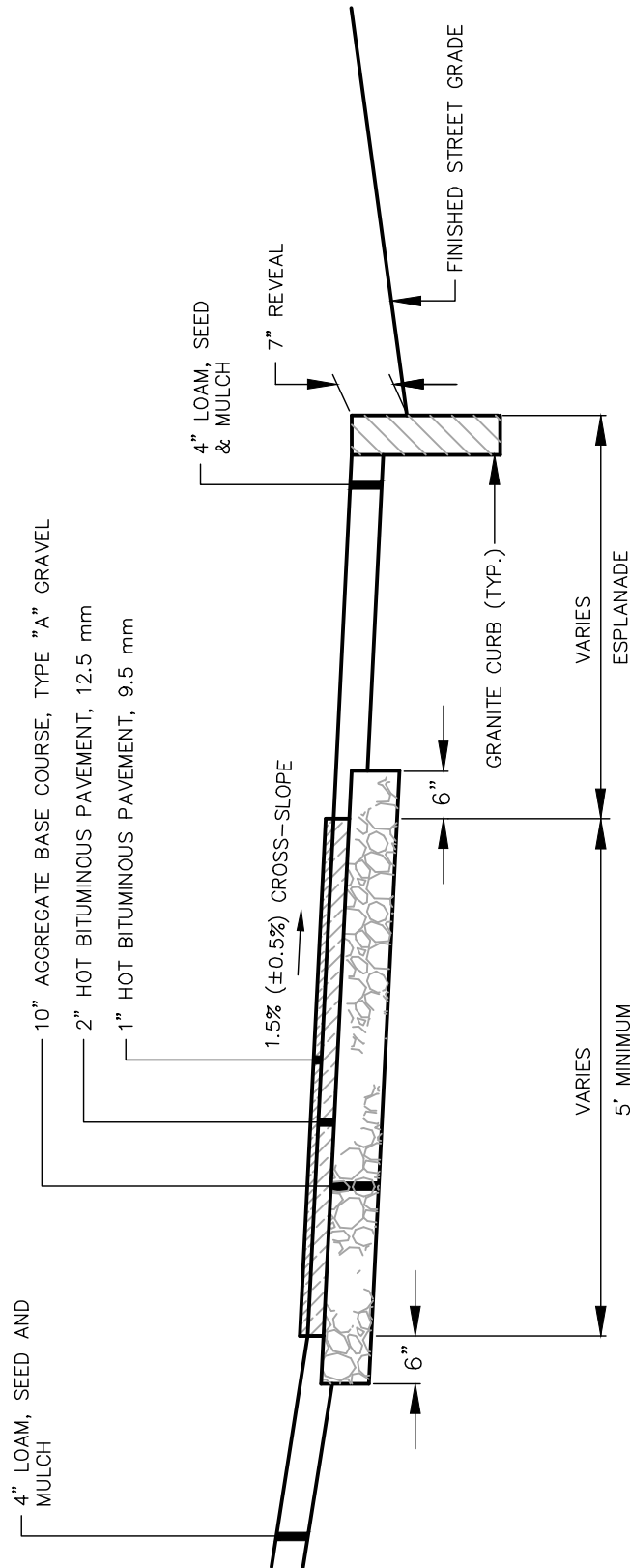
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**TRANSPORTATION
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SECTION I

FIGURE:

REINFORCED CONCRETE SIDEWALK

I-11B



BITUMINOUS SIDEWALK

NOT TO SCALE

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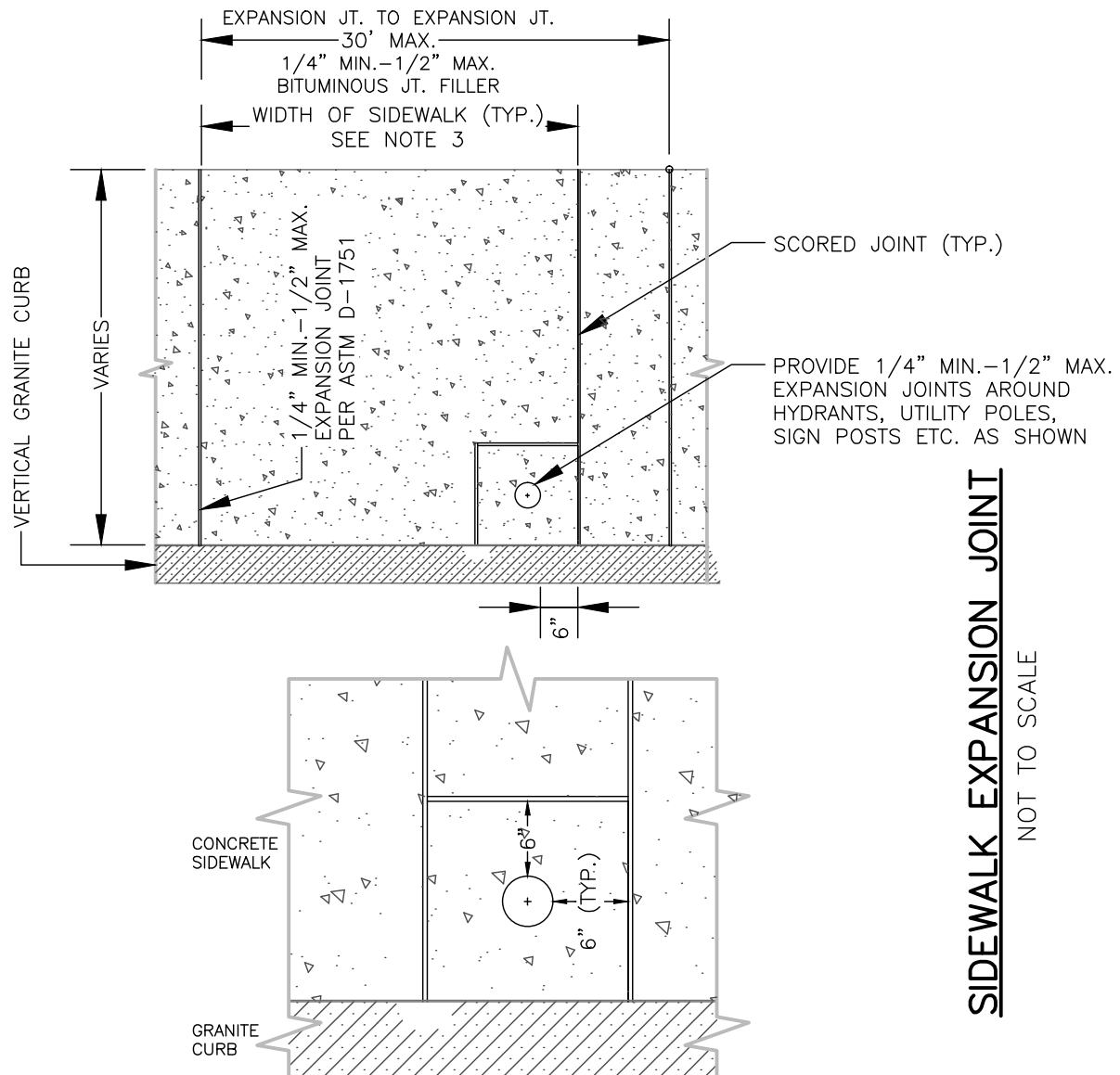
CITY OF PORTLAND, MAINE
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SECTION I

FIGURE:

BITUMINOUS SIDEWALK

I-11C

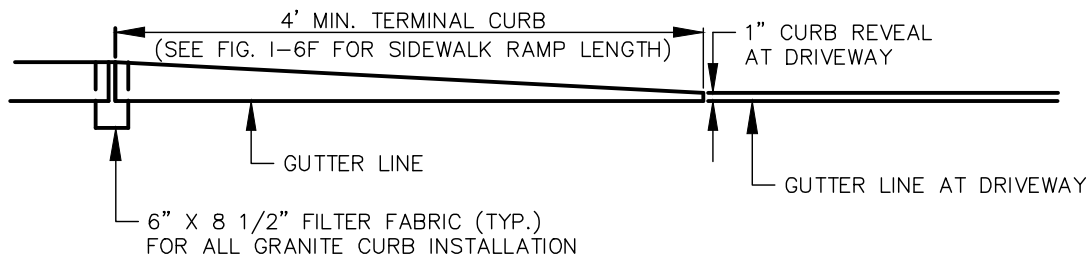


SIDEWALK EXPANSION JOINT
NOT TO SCALE

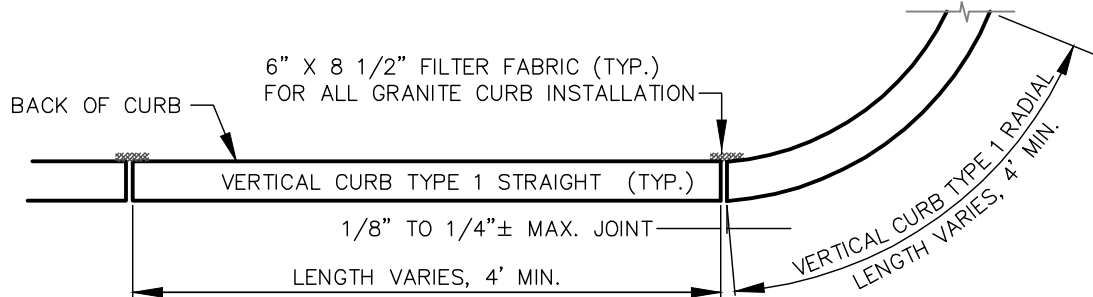
CONCRETE SIDEWALK JOINT NOTES:

- EXPANSION JOINTS SHALL BE LOCATED WHERE SIDEWALK ABUTS DRIVEWAYS, CURB OR OTHER ADJACENT STRUCTURES.
- SLABS SHALL BE PLACED ALTERNATELY IN LENGTHS, NOT TO EXCEED 30 LINEAR FEET OR AS DIRECTED AND SHALL BE SEPARATED BY AN EXPANSION JOINT OF PREFORMED EXPANSION FILLER 1/4" MIN.-1/2" MAX. IN THICKNESS AND SHALL EXTEND THE FULL LENGTH/DEPTH OF THE CONCRETE.
- THE SIDEWALK SURFACE SHALL BE SCORED INTO BLOCK UNITS. THE DEPTH OF SCORING SHALL BE AT LEAST ONE QUARTER OF THICKNESS OF THE SLABS (1" TYP.). SCORED JOINTS MUST BE COMPLETED AS PART OF THE FINISHING PROCESS. SAW CUTTING OF JOINTS IS NOT ALLOWED. SCORED JOINTS SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
 - IN LOCATIONS TO ENSURE BLOCK UNITS DO NOT EXCEED 36 SQUARE FEET.
 - AT THE SPACING THAT MATCHES ADJACENT TIP DOWN CURB
 - EXTENSION OF EXPANSION JOINTS LOCATED AT HYDRANTS & UTILITY POLES.
- ALL OUTSIDE EDGES OF THE SLAB AND ALL JOINTS SHALL BE ROUNDED WITH A 1/4" RADIUS EDGING TOOL.
- CONCRETE SHALL BE FINISHED BY MEANS OF A FLOAT, STEEL TROWELED AND BROOMED WITH A FINE BRUSH IN A TRANSVERSE DIRECTION.

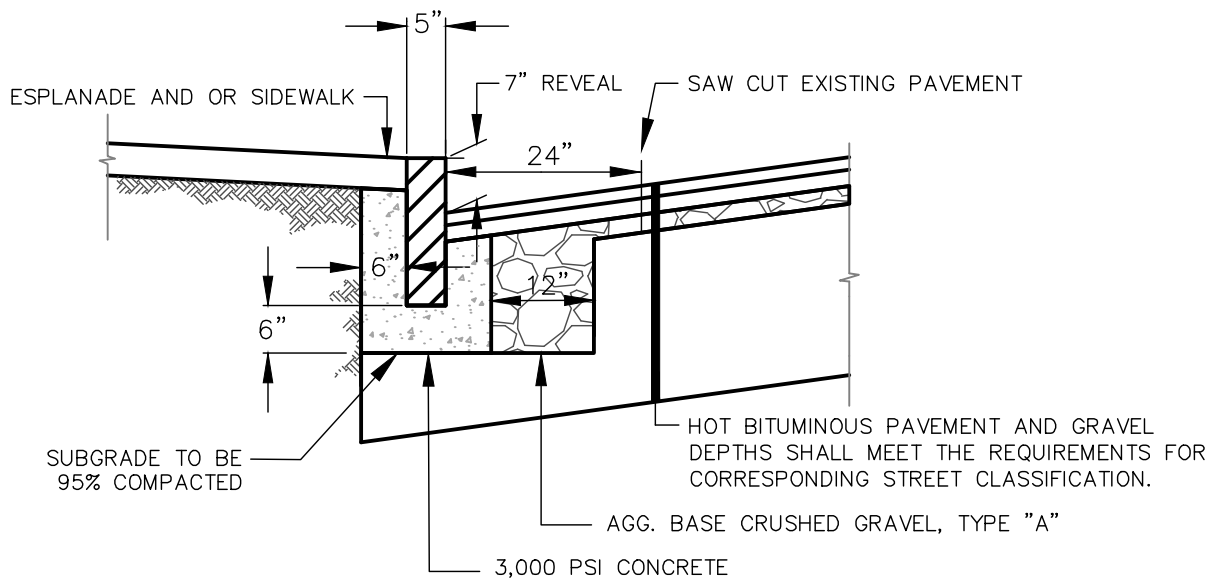
DATE: AUGUST 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
REVISED:	SIDEWALK EXPANSION JOINT		I-11D



TERMINAL CURB PROFILE



VERTICAL GRANITE CURB PLAN VIEW



VERTICAL GRANITE CURB CROSS SECTION

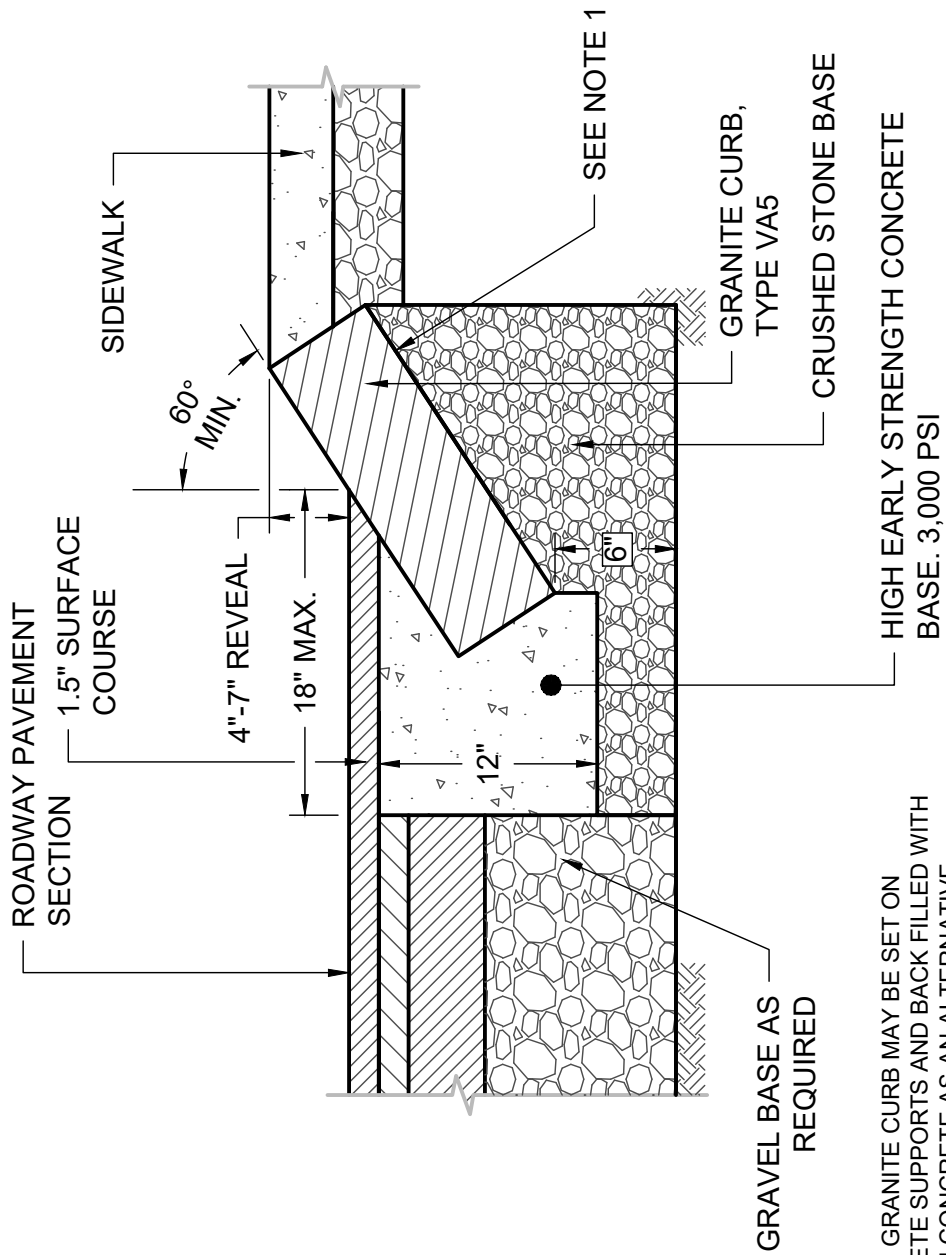
NOTES:

1. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
2. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
3. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
4. WOODEN SHIMS MAY BE USED TO SET CURB.

VERTICAL GRANITE CURB

NOT TO SCALE

DATE: NOV. 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
REVISED:	VERTICAL GRANITE CURB		I-12



NOTE 1:
SLOPED GRANITE CURB MAY BE SET ON
CONCRETE SUPPORTS AND BACK FILLED WITH
3000 PSI CONCRETE AS AN ALTERNATIVE
INSTALLATION METHOD.

SLOPED GRANITE CURB

NOT TO SCALE

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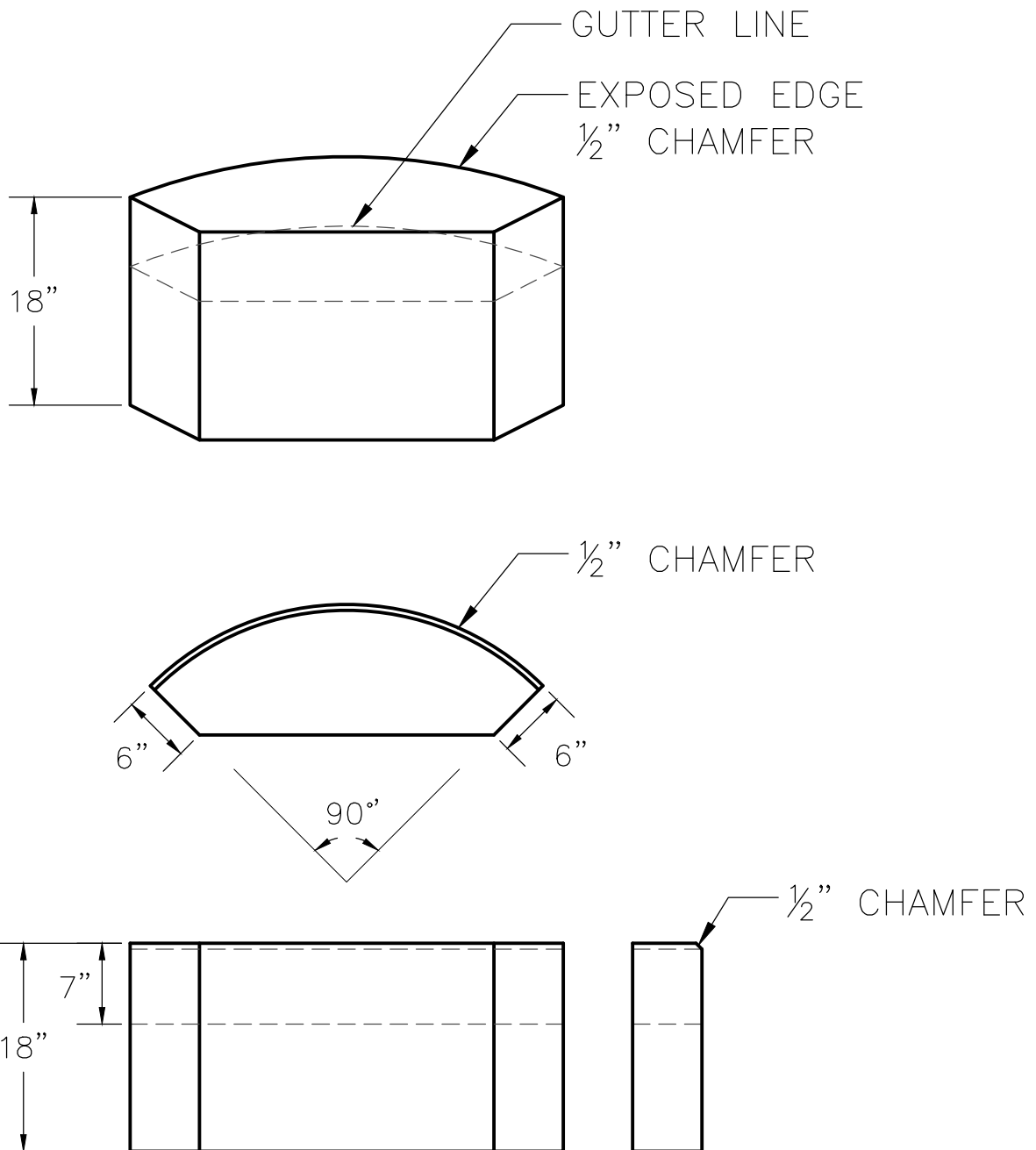
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TRANSPORTATION SYSTEMS
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FIGURE:

SLOPED GRANITE CURB

I-13



GRANITE RADIUS CORNER "BUG"

NOT TO SCALE

DATE:
JUNE 2022

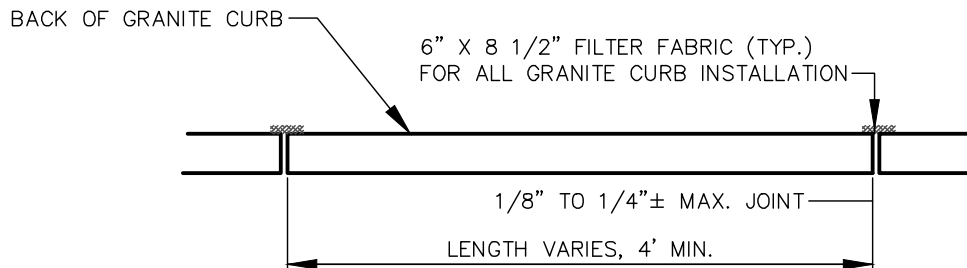
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

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FIGURE:

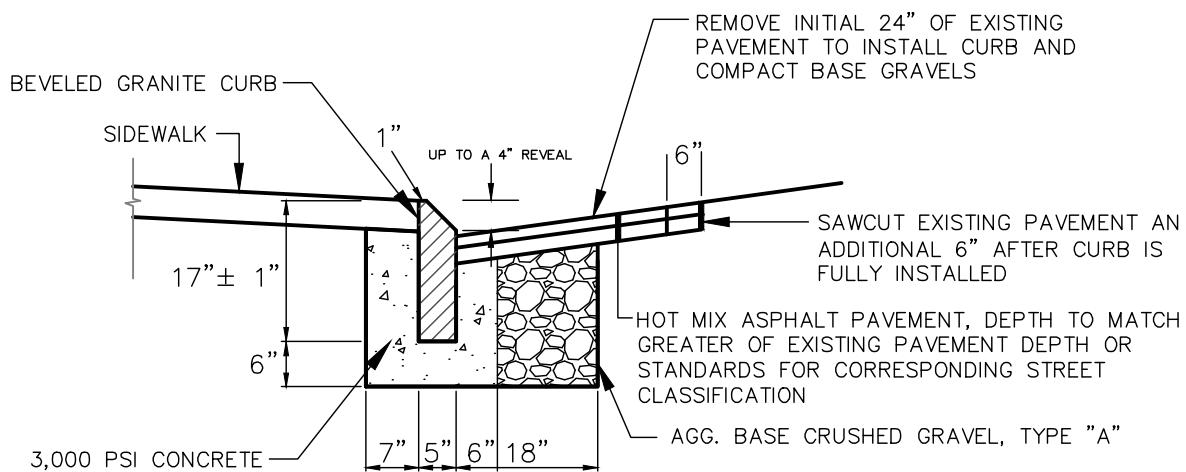
**GRANITE RADIUS CORNER
"BUG"**

I-14



VERTICAL GRANITE CURB PLAN VIEW

NOT TO SCALE



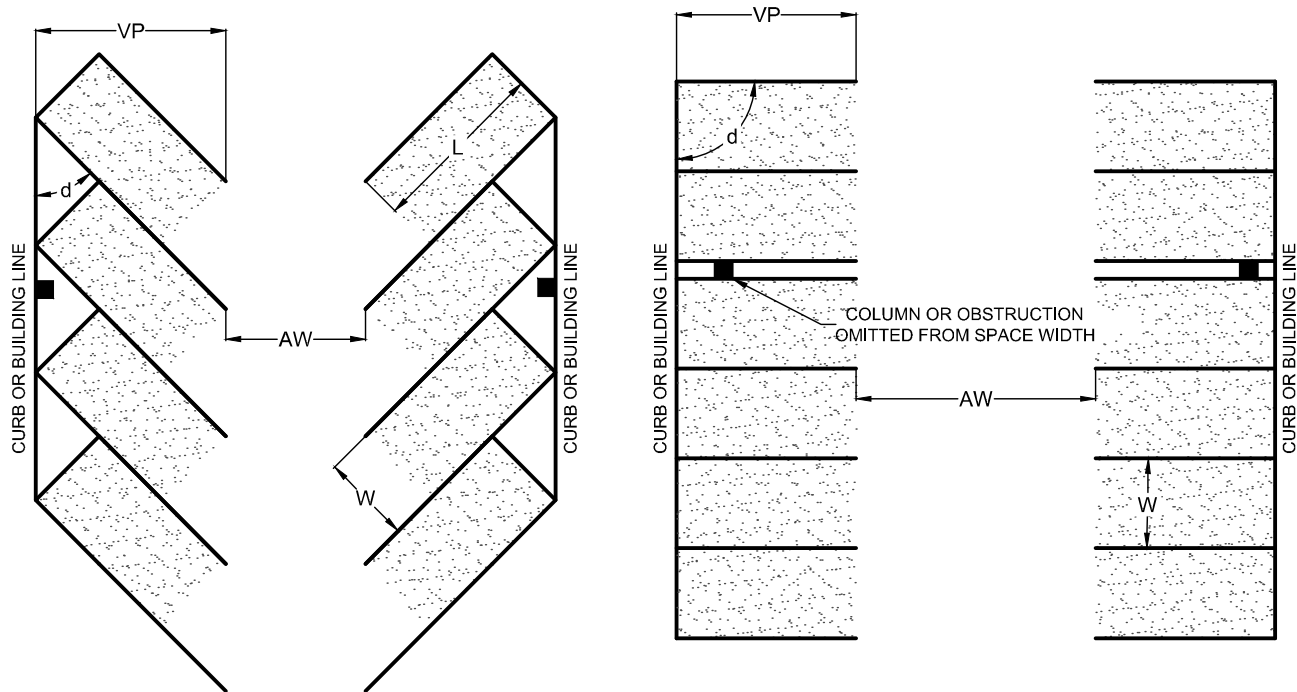
NOTES:

1. INSTALL PER MANUFACTURER'S SPEC'S
2. PROVIDE CUSTOM TRANSITION CURB THAT TIPS DOWN 3" IN BETWEEN MOUNTABLE AND VERTICAL CURBS. SAWCUT TRANSITION STONE IN THE FIELD FOR FLUSH JOINT WITH ADJACENT VERTICAL CURB
3. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
4. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
5. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
6. WOODEN SHIMS MAY BE USED TO SET CURB.

MOUNTABLE BEVELED GRANITE CURB CROSS SECTION

NOT TO SCALE

DATE: AUGUST 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
	MOUNTABLE BEVELED GRANITE CURB		I-15



Standard Parking Dimensions

Parking Angle (d)	Space Length (L)	Space Width (W)	Aisle Width (AW)	Vehicle Projection (VP)
90°	18	9	24	18.0
75°	18	9	22	19.7
60°	18	9	19	20.1
45°	18	9	14	19.0
30°	18	9	12	16.7
0° (parallel)	20	8	12	8.0

Compact Parking Dimensions

Parking Angle (d)	Space Length (L)	Space Width (W)	Aisle Width (AW)	Vehicle Projection (VP)
90°	15	8	24	15.0
75°	15	8	22	16.8
60°	15	8	19	17.5
45°	15	8	14	16.9
30°	15	8	12	15.2
0° (parallel)	15	7	10	7.0

NOTES:

All dimensions in feet

1. STANDARD SPACE WIDTH MAY BE REDUCED TO 8.5 FEET IN LOW-TURNOVER LOTS.
2. COMPACT SPACES SHOULD BE DESIGNED AS CLOSE TO STANDARD AS POSSIBLE WITHIN SITE CONSTRAINTS.
3. ACCESSIBLE PARKING SPACES SHALL BE PROVIDED IN ACCORDANCE WITH ADA, AND SHALL BE CONSIDERED A STANDARD PARKING SPACE WHEN CALCULATING THE PERMISSIBLE NUMBER OF COMPACT SPACES.
4. DIMENSIONS REPRESENT CLEAR WIDTH AND DO NOT INCLUDE OBSTRUCTIONS SUCH AS STRUCTURAL COLUMNS.

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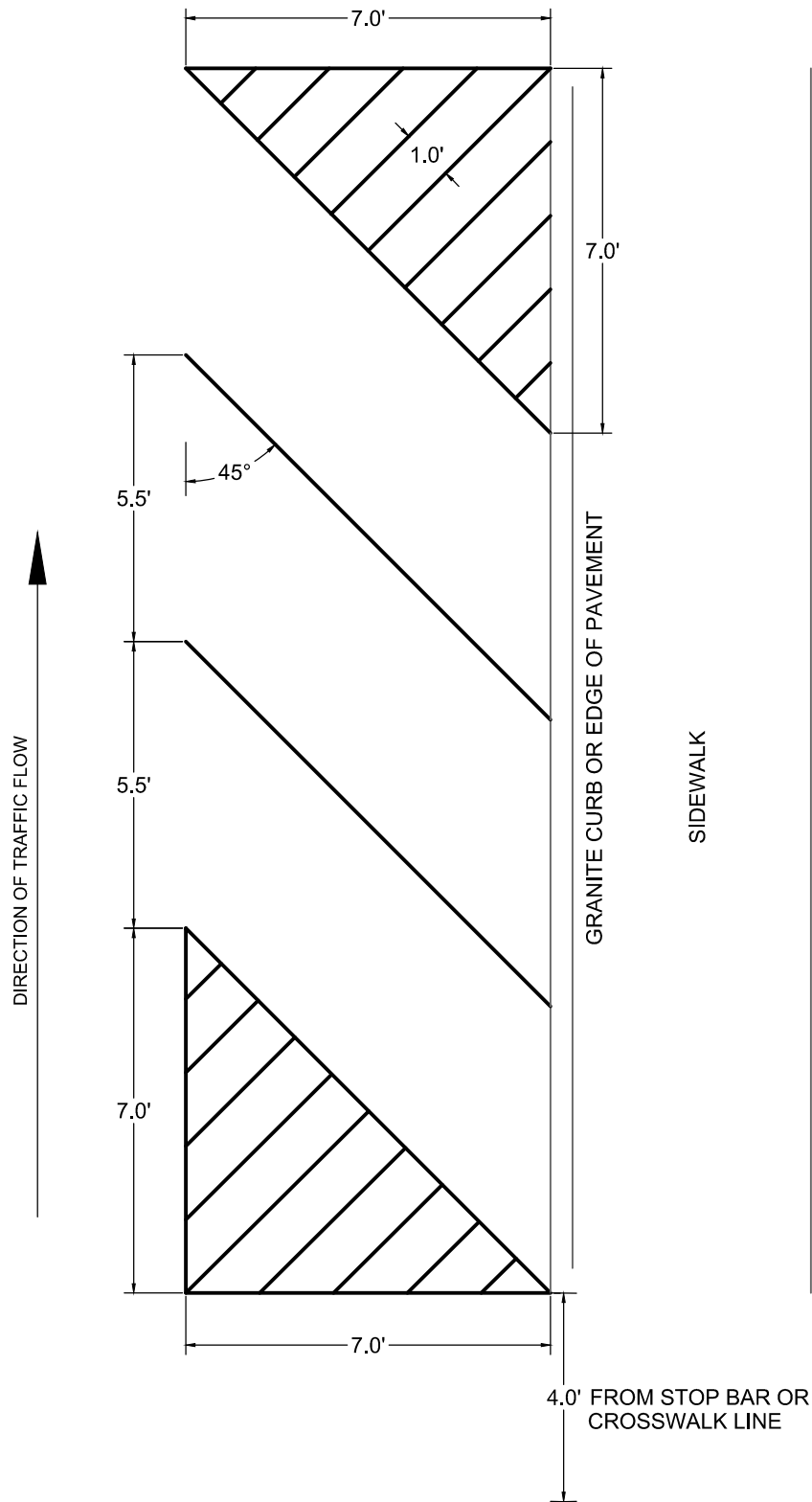
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FIGURE:

VEHICLE PARKING DIMENSIONS

I-16A



MOTORCYCLE PARKING

*ALL PAVEMENT MARKINGS SHALL BE 4 INCH WIDE WHITE LINES.

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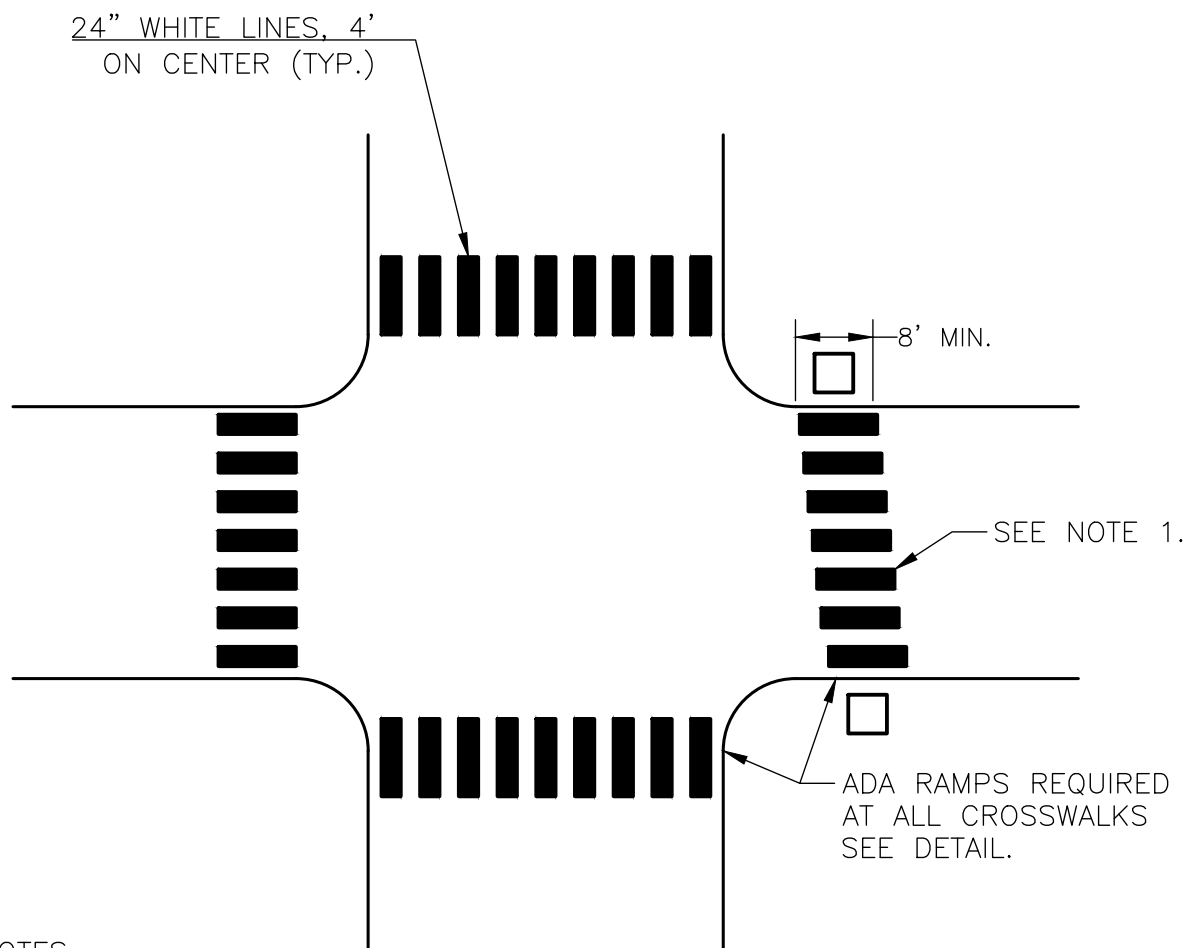
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FIGURE:

MOTORCYCLE PARKING DIMENSIONS

I-16B



NOTES:

- 1.) CROSSWALK BLOCKS SHALL BE STAGGERED AND REMAIN PARALLEL TO THE ROADWAY CENTERLINE AT SKEWED CROSSING LOCATIONS.
- 2.) CROSSWALK MARKINGS LOCATED ON ARTERIAL STREETS SHALL BE APPLIED WITH A THERMOPLASTIC MATERIAL (OR APPROVED EQUAL) MEETING ALL MANUFACTURER AND MUTCD REQUIREMENTS.
- 3.) THE ESTABLISHMENT PERIOD FOR CROSSWALK MARKINGS SHALL BE BASED ON MANUFACTURER'S SPECIFICATIONS AND SHALL AT A MINIMUM MEET MAINE DOT STANDARD SPECIFICATION 627.07 ESTABLISHMENT PERIOD REQUIREMENTS.

CROSSWALK MARKINGS

NOT TO SCALE

DATE: SEPT 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
	TYPICAL CROSSWALK MARKINGS		I-17

TYPICAL BIKEWAY PAVEMENT MARKINGS



SHARED USE LANE
SYMBOL



BICYCLE LANE
SYMBOL

TYPICAL BIKEWAY ROUTE SIGNAGE



R3-17
30"x24"



R3-17
30"x24"



R3-17B
30"x12"



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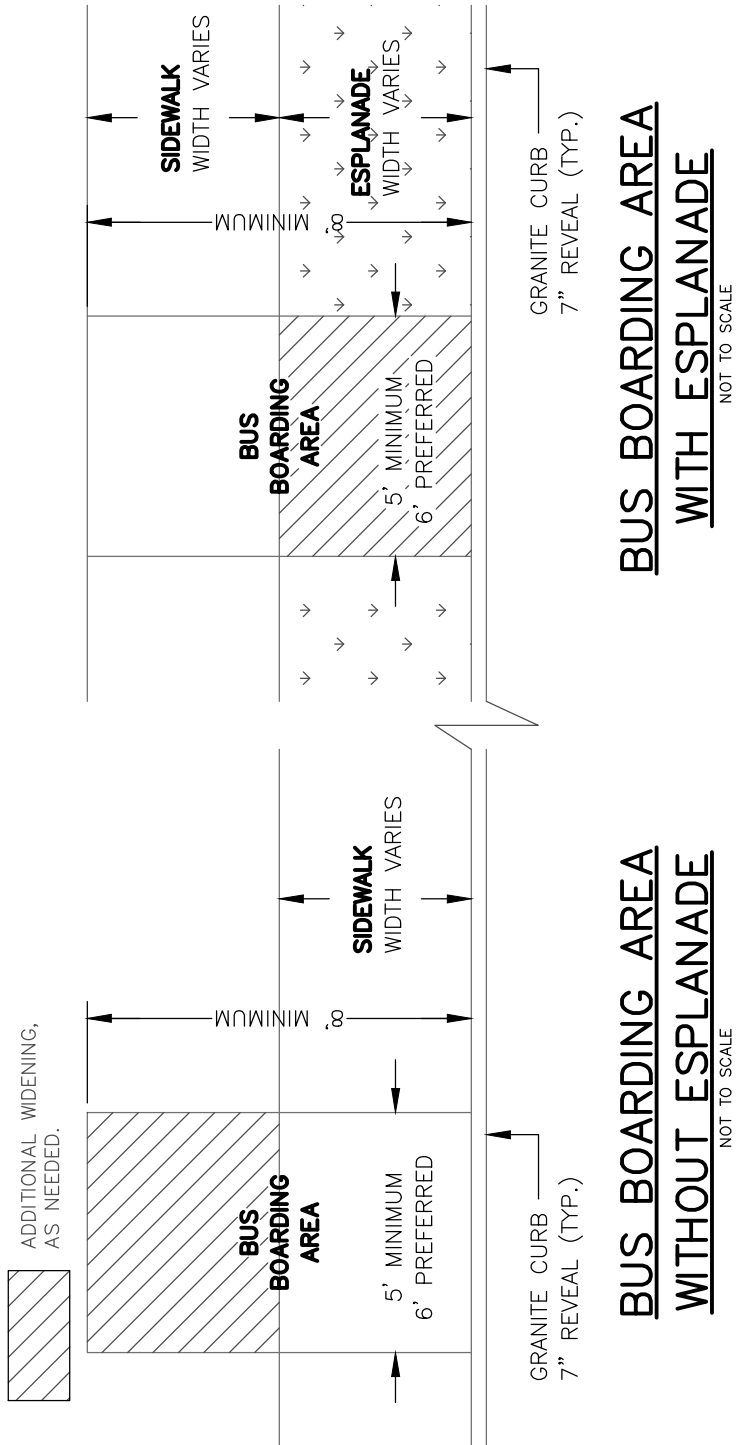
FIGURE:

**TYPICAL BIKEWAY PAVEMENT MARKINGS
AND BICYCLE ROUTE SIGNAGE**

I-18

NOTES:

1. **SURFACE.** BUS STOP BOARDING AREAS SHALL HAVE A FIRM, STABLE SURFACE.
2. **DIMENSIONS.** BUS STOP BOARDING AREAS SHALL PROVIDE A CLEAR LENGTH OF 8' MINIMUM, MEASURED PERPENDICULAR TO THE CURB OR VEHICLE ROADWAY EDGE, AND A CLEAR WIDTH OF 5' MINIMUM, MEASURED PARALLEL TO THE VEHICLE ROADWAY. THIS AREA SHALL BE CLEAR OF ANY OBSTRUCTIONS, INCLUDING BUT NOT LIMITED TO: BICYCLE RACKS, LIGHT POLES, UTILITY POLES, FIRE HYDRANTS, STREET SIGNS, STREET FURNITURE, NEWSPAPER BOXES OR SIMILAR OBSTACLES.
3. **CONNECTION.** BUS STOP BOARDING AREAS SHALL BE CONNECTED TO STREETS, SIDEWALKS OR PEDESTRIAN PATHS BY AN ADA ACCESSIBLE ROUTE.
4. **SLOPE.** PARALLEL TO THE ROADWAY, THE SLOPE OF THE BUS STOP BOARDING AREA SHALL BE THE SAME AS THE ROADWAY, TO THE MAXIMUM EXTENT PRACTICABLE. PERPENDICULAR TO THE ROADWAY, THE SLOPE OF THE BUS STOP BOARDING AREA SHALL NOT EXCEED 2%.



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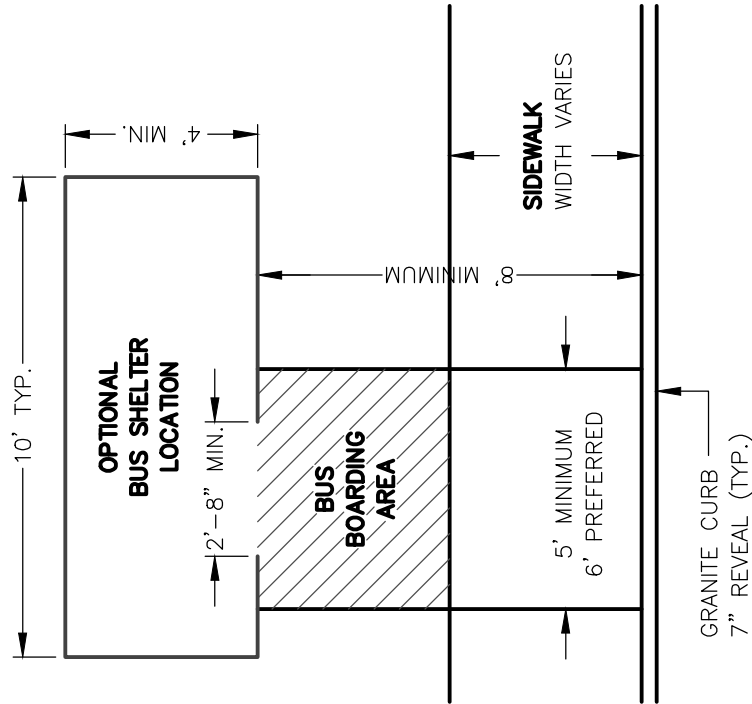
FIGURE:

I-39

**BUS STOP BOARDING AREA LAYOUT FOR
SIDEWALK WITH OR WITHOUT ESPLANADE**

NOTES:

1. **DIMENSIONS.** MINIMUM CLEAR FLOOR INTERIOR AREA ENTIRELY WITHIN THE PERIMETER OF THE SHELTER IS 2'-6" WIDE BY 4' DEEP TO PERMIT WHEELCHAIR OR MOBILITY AID USER ACCESS. THE MINIMUM SHELTER OPENING FOR WHEELCHAIR ACCESS IS 2'-8".
2. **CONNECTION.** BUS SHELTER OPENINGS WILL BE CONNECTED TO THE BUS BOARDING AREA BY AN ADA ACCESSIBLE ROUTE.
3. **SLOPE.** PARALLEL TO THE ROADWAY, THE SLOPE OF THE BUS BOARDING AREA SHALL BE THE SAME AS THE ROADWAY, TO THE MAXIMUM EXTENT PRACTICABLE. PERPENDICULAR TO THE ROADWAY, THE SLOPE OF THE BUS BOARDING AREA SHALL NOT EXCEED 2%.



**BUS SHELTER AND SHELTER SITING
WITHOUT ESPLANADE**

NOT TO SCALE

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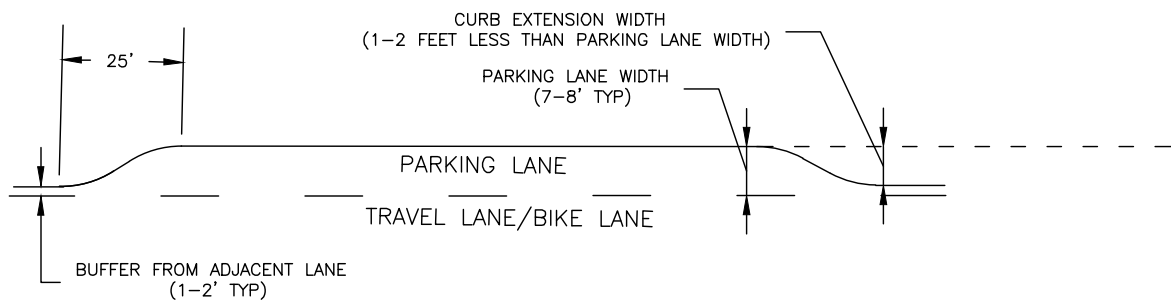
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FIGURE:

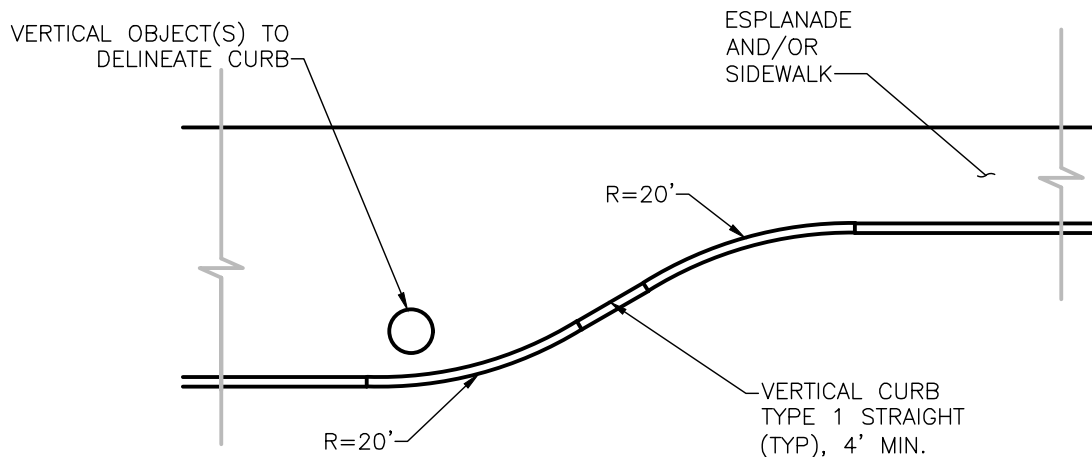
**BUS SHELTER AND SHELTER SITING LAYOUT
FOR SIDEWALK WITHOUT ESPLANADE**

I-40



NOTES:

1. CURB EXTENSIONS SHOULD NOT IMPEDE THE WIDTH OF THE ADJACENT VEHICLE TRAVEL LANE OR BICYCLE LANE.
2. PROPOSED MATERIALS SHALL BE CONSISTENT WITH THE CITY SIDEWALK MATERIAL POLICY.
3. DRAINAGE MODIFICATIONS SHALL BE MADE SO THAT CURB EXTENSIONS DO NOT IMPEDE STORMWATER FLOW.
4. CURB EXTENSIONS SHALL BE DESIGNED TO FACILITATE SNOW REMOVAL OPERATIONS WHILE MINIMIZING IMPACTS TO DRAINAGE AND ON-STREET PARKING.
5. ALL CURB EXTENSIONS SHALL BE REVIEWED AND APPROVED BY THE CITY ENGINEER.
6. THE POTENTIAL IMPLEMENTATION OF GREEN INFRASTRUCTURE FOR STORMWATER MANAGEMENT SHALL BE CONSIDERED AT EACH CURB EXTENSION LOCATION AND IMPLEMENTED IF FEASIBLE. THE WATER RESOURCES DIVISION OF PUBLIC WORKS MUST REVIEW AND APPROVE GREEN INFRASTRUCTURE SYSTEMS BEFORE BEING INSTALLED WITHIN CITY STREETS.



TYPICAL CURB EXTENSION

NOT TO SCALE

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REVISED:	TYPICAL CURB EXTENSIONS		I-CE

2. SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS

2.1. TECHNICAL REFERENCE

- 2.1.1. The following technical publications are recognized by the City of Portland for use in the design, construction and testing of sanitary and storm water systems:
- 2.1.2. Technical Report #16 (TR-16): Guides for the Design of Wastewater Treatment Works, Prepared by the New England Interstate Water Pollution Control Commission available for review at the Department of Public Works or online at www.neiwpcc.org/tr16guides.asp
- 2.1.3. Maine Department of Transportation (MDOT) Standard Specifications for Highways and Bridges, Current Edition.

2.2. SANITARY STANDARDS AND SPECIFICATIONS

- 2.2.1. Sewer and Storm drain systems shall be planned and constructed in accordance with the regulations contained in Chapter 24 of the City Code of Ordinances.
- 2.2.2. The information presented below are City of Portland exceptions to the TR-16 or additional required standards.
- 2.2.3. The introduction of non-contaminated water such as rain water, non-contact cooling water, groundwater from foundation drains, sump pumps, surface drains or any other sources of inflow shall not be ~~allowed~~ to discharge into ~~a~~ sewer which conveys sanitary waste unless approved by the Public Works Director~~City Engineer. When no other practical alternatives exist, this condition may be waived by the City Engineer. All~~
- 2.2.4. Appeals will be considered by the Director of Public Works~~Services~~. (Refer to: Sec. 24-44 of the City Code - Public sewer connection limitations).
- 2.2.5. It is not permissible to backfill any excavation with frozen materials, organic materials, clay or blasted ledge. The maximum size of backfill material shall not exceed six inch (6"). (Please refer to Division 2, Street Opening Permits in the City Code).
- 2.2.6. The Department of Public Works~~Services~~ shall be responsible for televising all new sewer construction for acceptability as soon as backfilling has been completed and access is available. The permittee will be invoiced for these services. Information on current rates is available in Chapter 24 Sewer Ordinancethrough the City of Portland Wastewater Maintenance Division.
- 2.2.7. Permits to connect to the municipal stormwater and sanitary sewer system are required and may be obtained from the Department of Public Works~~Services~~.
- 2.2.8. Covered or Enclosed parking areas, mechanical rooms, garages (parking areas

not exposed to rain and snow) shall direct surface drainage to a sanitary sewer.
Storm water from outside of these areas shall be directed away from this covered area so that additional storm water is not directed to the sewer.
Drainage from these areas shall be collected by an Oil/ Grit Separator as shown in Figure II-20 or an approved equal.

2.3. **SANITARY MANHOLES**

- 2.3.1. All manholes shall be designed in conformance with City of Portland standards as illustrated in Figure II-~~01~~02.
- 2.3.2. When constructing sanitary manhole channels, if the ~~mathematical~~Vertical difference between the invert elevation of the manhole channel and the invert elevation of the sewer pipe connecting to such manhole is two vertical feet (2') or greater, a standard City of Portland internal drop manhole shall be provided. Such drop manholes shall conform to the engineering specifications illustrated in Figure II-03. A minimum of two stainless steel pipe anchors shall be used and the manhole diameter shall be five feet (5') minimum. ~~Drop manholes on stormwater collection systems are permitted.~~
- ~~2.3.3. Internal drop connections are prohibited unless site specific constraints warrant an exception. Where exceptional circumstances necessitate a waiver to allow for construction of an internal drop connection, a minimum of two stainless steel pipe anchors shall be use and the manhole diameter shall be five (5) feet minimum. Waiver requests will be evaluated on a case by case basis.~~
- 2.3.3. Sanitary Service service laterals that are four inch (4") or six inch (6") shall not be connected to either stormwater or sanitary manhole into a sanitary manhole and only into a sanitary sewer main.
- 2.3.4. ~~Stormwater and~~ Sanitary manholes shall include frames and covers as shown in Figure II-05 or an approved equivalent. Both the frame and riser shall be machined to assure a proper fit.
- 2.3.5. Manhole covers shall be marked "SEWER" ~~or "Drain" accordingly.~~
- 2.3.6. Manhole frames shall be raised to grade using only brick and mortar as shown in Figure II-02 or approved equal.
- 2.3.7. Riser Rings without tabs as shown in Figure II-06 may ~~shall~~ be used to adjust manholes to grade with approval of the Department of Public Works.
~~Wastewater Maintenance Division.~~
- ~~2.3.6.~~2.3.8. All new sanitary manholes shall be vacuum tested before backfilling. Refer to TR-16 for testing standards.
- 2.3.9. All manholes shall have copolymer polypropylene plastic steps with 3/8" grade 60 rebar continuous throughout, spaced at one foot (1') intervals. ~~Steps are not required in sewer manholes.~~ Any structures delivered to the site with step

“holes” shall be filled with mortar.

2.4. SANITARY GRAVITY PIPES

2.4.1. The types of allowable pipe shall be used for purposes of sanitary sewers, ~~storm sewers, catch basin drains, or underdrains shall be:~~

- ~~• Reinforced Concrete Pipe (RCP) with a minimum strength of Class III;~~
- PVC Ring Type Sewer Pipe (SDR 35 or equivalent, minimum PS-46 rating)
- PVC Ring Type Sewer Pipe meeting ASTM F 789 or equal to SDR
- Ductile iron Pipe (DIP)
- ~~• ADS N 12 HP triple wall pipe meeting a minimum PS 46~~
- ~~• ADS SaniTite HP meeting a minimum PS 46~~
- High Performance Polypropylene Dual Wall Sewer Pipe (ADS SaniTite HP or equal) meeting ASTM F2736 and have a minimum pipe stiffness of 46 psi with pipe sizes twelve inch (12”) through thirty inch (30”).
- High Performance Polypropylene Triple Wall Sewer Pipe (ADS SaniTite HP or equal) meeting ASTM F2764 and have a minimum pipe stiffness of 46 psi with pipe sizes thirty inch (30”) through sixty inch (60”).

2.4.2. Minimum velocities ~~of surface water drains~~ for sanitary pipes shall not be less than ~~three (3.0) feet per second~~ two feet per second (2 ft/s).

2.4.3. All PVC connections shall be made with Solid PVC Couplings.

2.4.4. The classes of pipe indicated shall be minimums, however the actual class of pipe used shall be determined by soil weight and compaction loads applied to such pipe in accordance with standard engineering design criteria and subject to the approval of the ~~City Engineer~~ Department of Public Works.

2.5. FORCE MAINS

2.5.1. Force mains four inches (4”) or greater shall terminate at a transition manhole and flow by gravity within a minimum sized eight inch (8”) pipe to a City manhole.

2.5.2. Force mains less than four inches (4”) may terminate to the nearest precast concrete manhole as directed by the City.

2.5.3. Cores into existing manholes shall be made with coring machines and have link seal or equivalent wall penetration seals.

2.5.4. Termination of force mains three inches (3”) or less may be permitted into existing City-owned manholes if reconstruction or replacement is performed.

depending on the material and condition of the existing manhole as determined by the Department of Public Works. Existing brick manholes shall be allowed for less than four inch (4") termination of force mains if full manhole reconstruction or replacement is performed as determined by the Department of Public Works.

2.5.5. All force mains shall be at a minimum HDPE SDR-21 made with fully restrained connections or equal. Piping pressure ratings shall be at least two (2) times the operating pressure of the system.

2.5.6. Force main discharge shall be directed into the channel in the direction of gravity flow.

2.5.2.6. BUILDING SEWER LATERALS

2.5.1.2.6.1. Construction of building sewers and drains shall conform to Chapter 24 (Sewers) of the City Code of Ordinance.

2.5.2.2.6.2. All building sewer laterals shall have a minimum diameter of four inch (4") and a minimum slope of one eighth inch per foot (1/8 in/ft) installed, as shown in Figure II-12.

2.5.3.2.6.3. Typical Pipe Installation: Where a building sewer lateral is to be installed from the sewer main in the street to a property or building to be served, the lateral shall either extend to the building or to the street line of each lot to be served and the pipe shall be capped air-tight.

2.5.4.2.6.4. An accurate record of each building sewer, its location and its depth at the street line shall be kept by the developer's engineer and a copy of the same shall be provided to the ~~City Engineer~~ Department of Public Works.

2.5.5.2.6.5. ~~For new construction, t~~The location of the building sewer at the street line shall be physically marked by the placement of a two inch by four inch (2" x 4") wooden stake placed at the end of the lateral end-cap and extending one foot above finished grade.

2.5.6.2.6.6. Each stake shall be painted with a fluorescent paint and marked as storm or sanitary sewer with the depth indicated from grade to end-cap. A one quarter inch (1/4") thick by six inch (6") square ferrous metal plate or equivalent shall be placed horizontally one foot below grade over the end of the storm drain.

2.5.7.2.6.7. Building sewers and drains shall be connected to the main sanitary sewer line by the use of wyes, tee/gyes, Inserta-Tees or similar approved methods as determined by the Department of Public ~~Services~~ Works. A manhole shall be installed at the sewer main to connect building laterals when the building lateral is eight inches (8") or larger in diameter. The lateral connections shall be installed from the main toward the lot where possible. Inserta-Tees can be

installed on pipes when the main receiving pipe is at least twelve inches (12") in size and the lateral is not more than half the size of the main receiving pipe in order to use a coring tee-type connection.

2.6.8. Before connecting new pipes into an existing sewer line, the contractor shall obtain a sewer connection permit from the Department of Public ~~Services~~Works.

2.6.9. Accessory Dwelling Units (ADU) -sewer laterals

2.6.9.1. Per Chapter 24 of the City Code of Ordinance "A separate and independent building sewer shall be provided for every new building, and a separate connection shall be made for each building sewer." The Department of Public Works recognizes the following scenarios for the successful connection of the proposed ADU to the public sewer system. See Figure II-21 for additional information.

- The proposed ADU is connected to the primary residence. In this scenario, the ADU may be connected to the primary residence sewer lateral internal to the primary residence.
- The proposed ADU is a separate standalone building: In this scenario, a separate and independent sewer lateral will be provided from both buildings with independent connections to the sewer.
- The proposed ADU is a separate standalone building: In this scenario, a separate and independent sewer lateral will be provided from both buildings with a connection of the two laterals into a sewer manhole at the property line. The sewer manhole will be a minimum two-foot (2') size providing access to each sewer lateral. The sewer manhole may be placed on the existing sewer lateral from the primary residence with the ADU sewer lateral being fed into it.

~~2.5.8.2.6.10.~~ Backflow Protection: Fixtures installed on a floor level that is lower than the next upstream manhole cover of the public, or private sewer shall be protected from backflow of sewage by installing an approved type of backwater valve. Fixtures on such floor level that are not below the next upstream manhole cover shall not be required to be protected by a backwater valve. Fixtures on floor levels above such elevation shall not discharge through the backwater valve. Cleanouts for drains that pass through a backwater valve shall be clearly identified with a permanent label stating "backwater valve downstream." All new laterals connecting to a combined sewer system shall have a Backflow Prevention Valve. The valve shall be installed to assure easy access and maintenance. When a Backflow Valve is installed, it is imperative that introduction of rain water, non-contact cooling water, groundwater from foundation drains, sump pumps, surface drains or any other sources of inflow

~~not be allowed on the building side of the valve.~~

~~2.5.9.2.6.11.~~ All building floor drains shall discharge to the sanitary sewer system.

~~2.5.10.2.6.12.~~ Plugging of Abandoned Sewer Laterals: Prior to abandoning any storm water or sanitary sewer lateral, the applicant shall acquire a permit from the Department of Public Works. The applicant shall provide a 48 hour notice to the Public Works Dispatch stating the date and time the applicant wished to complete the work. The ~~Water Resources Sewer Maintenance Division will mobilize to the site and allow one hour to assist the applicant to plug the lateral in the following manner. The location of the lateral to be plugged shall be televised by the applicant and witnessed by Water Resources staff~~ City staff will televise the sewer main in the street on site to determine the location of the lateral to be plugged. The applicant shall excavate or other means plug the lateral at the main where the lateral connects to the street sewer, as determined by City staff. The lateral must be filled with pumped grout starting at the plug and filling out to the points of excavation.

2.7. STORM WATER MANHOLES

~~2.5.11.2.7.1.~~ Storm water manholes shall include frames and covers as shown in Figure II-05 or an approved equivalent. Both the frame and riser shall be machined to assure a proper fit.

~~2.7.2.~~ Manhole frames shall be raised to grade using only brick and mortar as shown in Figure II-042.

~~2.5.12.2.7.3.~~ Riser Rings without tabs as shown in Figure II-06 may ~~shall~~ be used to adjust manholes to grade with approval of the Department of Public Works. ~~Wastewater Maintenance Division.~~

~~2.5.13.2.7.4.~~ Manhole covers shall be marked "DRAIN".

~~2.5.14.2.7.5.~~ Steps are not required in storm manholes. Any structures delivered to the site with step "holes" shall be filled with mortar.

2.8. STORM DRAINS

2.8.1. The types of allowable pipe and fittings shall be used for purposes of storm drains:

- All pipes listed for sanitary sewers
- Reinforced Concrete Pipe (RCP) with a minimum strength of Class III;
- Smooth Bore High Performance Polypropylene Dual Wall Storm Drain Pipe. (ADS HP Storm or equal) meeting a minimum PS- 46.

2.8.2. Storm drain lateral may be connected into storm drain mains without the use

of a manhole when the lateral is less than half the diameter of the receiving pipe.

~~2.5.15.~~2.8.3. Minimum velocities of surface water drains shall not be less than three feet per second (3 ft/s).

~~2.5.16.~~2.8.4. Ribbed corrugated polyethylene pipe material, smooth wall interior, is not permitted except for underdrain installation. Underdrain diameter shall be no larger than six inches (6").

~~2.5.17.~~2.8.5. The classes of pipe indicated shall be minimums, however the actual class of pipe used shall be determined by soil weight and compaction loads applied to such pipe in accordance with standard engineering design criteria and subject to the approval of the Department of Public Works~~City Engineer~~.

2.8.6. Pre-fabricated tees are allowable on storm drains. A pre-fabricated tee connection shall be used and installed in accordance with manufacturer specifications.

2.8.7. Connection of catch basin/storm drain lateral leads to storm drain larger than eighteen inch (18") diameter may be performed with the use of a coring machine and suitable connection device. The connecting pipe shall not be more than half the size of the main receiving pipe in order to use a coring tee-type connection.

~~2.5.18.~~2.8.8. Underdrains shall be six inch (6") diameter perforated pipe SDR 35 PVC or corrugated ADPE with smooth interior wall (AASHTO M252 Type S). They shall have a minimum of two rows of perforations.

~~2.5.19. eighteen (18") not more than half the size of the main~~

2.6.2.9. CATCH BASINS

~~2.6.1.~~2.9.1. All catch basins and catch basin inlets shall be designed and constructed in accordance with Figures II-~~072~~ and THROUGH II-811.

~~2.6.2.~~2.9.2. Catch basin drain pipes of less than ten inches (10") in diameter are not permitted.

~~2.6.3. All catch basin drains shall be supplied, laid and bedded in a minimum of six inches (6") of crushed stone.~~

~~2.6.4.~~2.9.3. All catch basins shall have a four-foot (4') granite headstone of catch basin inlets conforming to City standards as shown in Figure II-11.

~~2.6.5.~~2.9.4. No radius catch basin stones shall be permitted.

~~2.6.6.~~2.9.5. All catch basins shall be constructed with a minimum sump of three feet (3').

~~2.6.7.~~2.9.6. Catch basins shall not be located in driveway openings.

~~2.6.8.2.9.7.~~ No storm drains or storm drain laterals ~~lines~~, with the exception of street field inlets and underdrains, shall be connected into a catch basin structure.

~~2.6.9.2.9.8.~~ Catch basin drains and catch basin inlet drain pipe slopes shall be such that minimum flow velocities shall not be less than three feet per second (3 ft/s).

2.9.9. Bee hive casting shall be used on drainage structures located at low points in grassed off road locations.

2.9.10. Field inlets or Type-F catch basins may be used when- outside of city street right of ways within lawn areas, with Department of Public Works approval. They must have a minimum of a twelve-inch (12") sump and can be plastic or concrete.

2.9.11. All catch basins are required to have a hood on the outlet pipe as shown in Figure II-09.

2.10. SUBSURFACE WASTEWATER DISPOSAL

~~2.6.10.2.10.1.~~ To ensure that adequate provisions have been made for subsurface wastewater disposal, developers are required to locate, design, and install all septic systems in accordance with the latest version of the Maine Subsurface Wastewater Disposal Rules, 144 CMR minimum 241, as described in Chapter 6, Section 6-18(A) of the City Code.

~~2.6.11.2.10.2.~~ Developers are required to obtain a permit through the City of Portland Inspections Division prior to the installation of any subsurface wastewater disposal system identified on an approved site plan.

2.11. GREASE INTERCEPTORS

2.11.1. Grease Control Equipment is required for all food establishments based on the City of Portland's Fats, Oils, and Grease Program found in the Rules and Regulations for Use of the Sewer System.

2.11.2. Concrete grease interceptors must have two chambers. Chamber A, where influent enters, must be two thirds (2/3)s of the tank volume.

2.11.3. Concrete grease interceptors must have three twenty-four-inch (24") access points.

2.11.4. Tank must be designed for H-20 traffic wheel load and a concrete strength of 5000 PSI at 28 days.

2.11.5. Joints must be sealed with butyl rubber joint sealant such as CS-102 Butyl Rubber Sealant.

2.11.6. Tees inside grease interceptors must be supported. Galvanized riser clamps on drops must be rodded to tank wall with galvanized fasteners six inch (6") below

service weight tee. Tees must be accessible via an unobstructed view for cleaning through top of grease interceptor.

2.6.12.2.11.7. High density polyethylene grease interceptors are accepted as an equivalent to concrete grease interceptors. Polyethylene units shall be properly anchored to prevent floatation.

2.6.13.2.11.8. A control manhole must be installed downstream of the interceptor before it enters the city sewer system. ~~Alternatively, a manhole must be installed at the connection to the sanitary sewer.~~

2.7.2.12. AGGREGATE SPECIFICATIONS

2.7.1.2.12.1. The provisions of Section 703 of the State of Maine Department of Transportation (MDOT) *Standard Specifications for Highways and Bridges* shall apply with the following additions and modifications:

2.7.2.2.12.2. 703.02 Coarse Aggregate for Concrete: Aggregates associated with roads and streets are specified in Section 1.8.

Designated Aggregate Size

	Percent Passing Sieve				
Sieve Size	2 in.	1½ in.	1 in.	¾ in.	½ in.
2 in.	95-100	100	-	-	-
1-1/2 in.	-	95-100	100	-	-
1 in.	50-70	-	90-100	100	-
3/4 in.	-	50-70	-	90-100	100
1/2 in.	15-30	-	25-60	-	90-100
3/8 in.	-	10-30	-	20-55	-
No. 4	0-5	0-5	0-10	0-10	0-15
F.M. (+0.20)	7.45	7.20	6.95	6.70	6.10

2.7.3.2.12.3. Aggregate used in concrete shall not exceed the following maximum designated sizes:

- ~~Two inches (2") for mass concrete.~~
- ~~One and half inch (1 ½") for piles, pile caps, footings, foundation mats, and walls eight inches (8") or more thick.~~
- ~~Three quarters of an inch (¾") for slabs, beams, and girders.~~
- ~~Half inch (1/2") for fireproofing on steel columns and beams.~~
- ~~One inch (1") for all other concrete.~~

2.7.4.2.12.4. 703.06 (a) Aggregate Base: Aggregate base ~~crushed, type "B" shall not~~

~~contain particles of rock which will not pass the two inch (2") square mesh sieve, and shall conform to the type "B" aggregate, as listed in the subsection of the Standard Specifications. "Crushed" shall be defined as consisting of rock particles with at least fifty per cent (50%) of the portion retained on the one quarter inch (1/4") square mesh sieve, having a minimum of two (2) fracture faces.~~

~~2.7.5.2.12.5. 703.06 (b) Aggregate Subbase: Gravel subbase shall not contain particles of rock which will not pass the three inch (3") square mesh sieve, and shall conform to type "D" Aggregate, as listed in this subsection of the Standard Specifications.~~

<u>Gravel Aggregate Table</u>			
<u>Sieve Size</u>	<u>Type B</u>	<u>Type D</u>	<u>Type F</u>
<u>3 in.</u>	=	<u>100</u>	=
<u>2 in.</u>	<u>100</u>	=	=
<u>1 in.</u>	=	=	<u>100</u>
<u>1/2 in.</u>	<u>35-75</u>	=	=
<u>1/4 in.</u>	<u>25-60</u>	<u>25-70</u>	<u>60-100</u>
<u>No. 40</u>	<u>0-25</u>	<u>0-30</u>	<u>0-50</u>
<u>No. 200</u>	<u>0-5</u>	<u>0-7</u>	<u>0-7</u>

~~2.7.6.2.12.6. 703.18 Common Borrow:~~ Common borrow shall not contain any particle of bituminous material.

~~2.7.7.2.12.7. 703.19 Granular Borrow:~~ Granular borrow shall contain no particles which will not pass a three inch (3") square mesh sieve.

~~2.7.8.2.12.8. 703.20 Gravel Borrow:~~ Gravel borrow shall not contain particles of rock which will not pass three inch (3") square mesh sieve.

~~2.7.9.2.12.9. 703.313~~ Crushed Stone $\frac{3}{4}$ " for Pipe Bedding and Underdrain: "Crushed Stone" shall be defined as rock of uniform quality and shall consist of clean, angular fragments of quarried rock, free from soft disintegrated pieces or other objectionable matter. Crushed stone used as a bedding material for pipe and underdrain shall be uniformly graded and shall meet the follow gradations. The stone shall be free from vegetable matter, lumps or balls of clay, and other inappropriate substances.

Sieve Designation	<u>City of Portland</u> Percentage by Weight Passing Square Mesh Sieve
<u>1 inch</u>	<u>100</u>
$\frac{3}{4}$ inch	<u>90-100</u> 100
$\frac{3}{8}$ $\frac{1}{2}$ inch	<u>20-55</u>
$\frac{3}{8}$ inch	<u>0-15</u>
No. 4	<u>0-50</u> 10

For pipe sizes ~~42 inches and larger:~~

Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
1 $\frac{1}{4}$ inch	100
$\frac{3}{8}$ inch	20-55
No. 4	0-10

FIGURE II-01 = LIST OF DETAILS

FIGURE II-02 = PRECAST CONCRETE MANHOLE

FIGURE II-03 = TYPICAL INSIDE DROP MANHOLE

FIGURE II-04 = GENERAL NOTES FOR MANHOLES AND CATCH BASINS

FIGURE II-05 = CAST IRON MANHOLE COVER AND FRAME

FIGURE II-06 = MANHOLE RISER RING

FIGURE II-07 = PRECAST CONCRETE CATCH BASIN

FIGURE II-08 = CATCH BASIN FRAME AND GRATE

FIGURE II-09 = CATCH BASIN HOOD

FIGURE II-10 = TYPICAL PAVEMENT GRADING FOR CATCH BASIN INLETS

FIGURE II-11 = 4' GRANITE HEADSTONE FOR CATCH BASIN INLET

FIGURE II-12 = TYPICAL PIPE TRENCH INSTALLATION AND NOTES

FIGURE II-13 = PLASTIC PIPE CONNECTION METHODS 1 & 2

FIGURE II-14 = PLASTIC PIPE CONNECTION METHODS 3 & 4

FIGURE II-15 = MASONRY PLUG

FIGURE II-16 = TYPICAL EXISTING LATERAL CONNECTION

FIGURE II-17 = TYPICAL HOUSE LATERAL TEE/WYE CONNECTION

FIGURE II-18 = FORCE MAIN CONCRETE THRUST BLOCK PLACEMENT

FIGURE II-19 = EXTERNAL GREASE TRAP DESIGN

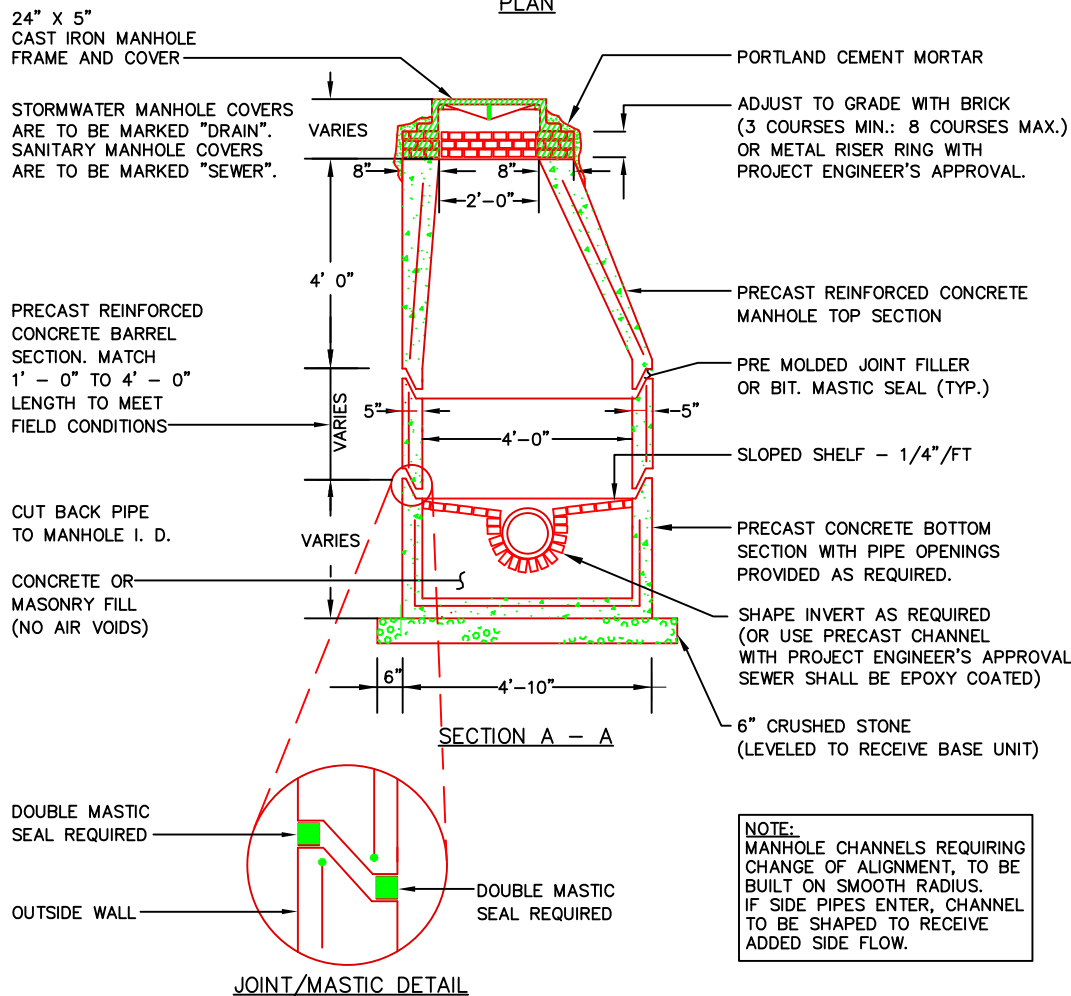
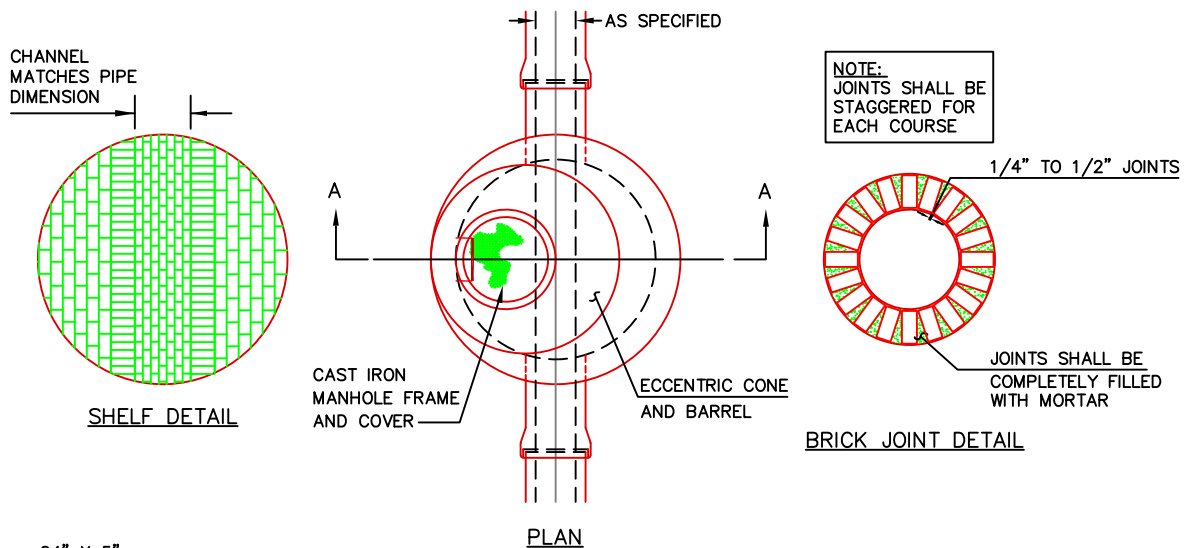
FIGURE II-20 = OIL / GRIT SEPARATOR

FIGURE II-21 = SEWER LINE CONFIGURATIONS FOR PRIMARY RESIDENCES
WITH AN ACCESSORY DWELLING UNIT

FIGURE II-22 = TYPE "B" UNDERDRAIN INSTALLATION ALTERNATIVE A

FIGURE II-23 = TYPE "B" UNDERDRAIN INSTALLATION ALTERNATIVE B

DATE: APRIL 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE:
REVISED:	LIST OF DETAILS		II-1



PRECAST CONCRETE MANHOLE

NOT TO SCALE

DATE:
DEC. 2009

REVISED:
DEC. 2021

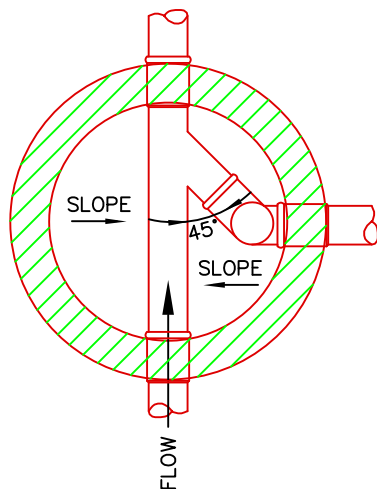
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

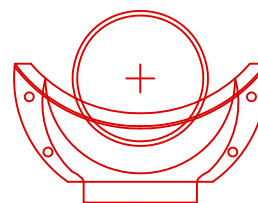
FIGURE:

II-2

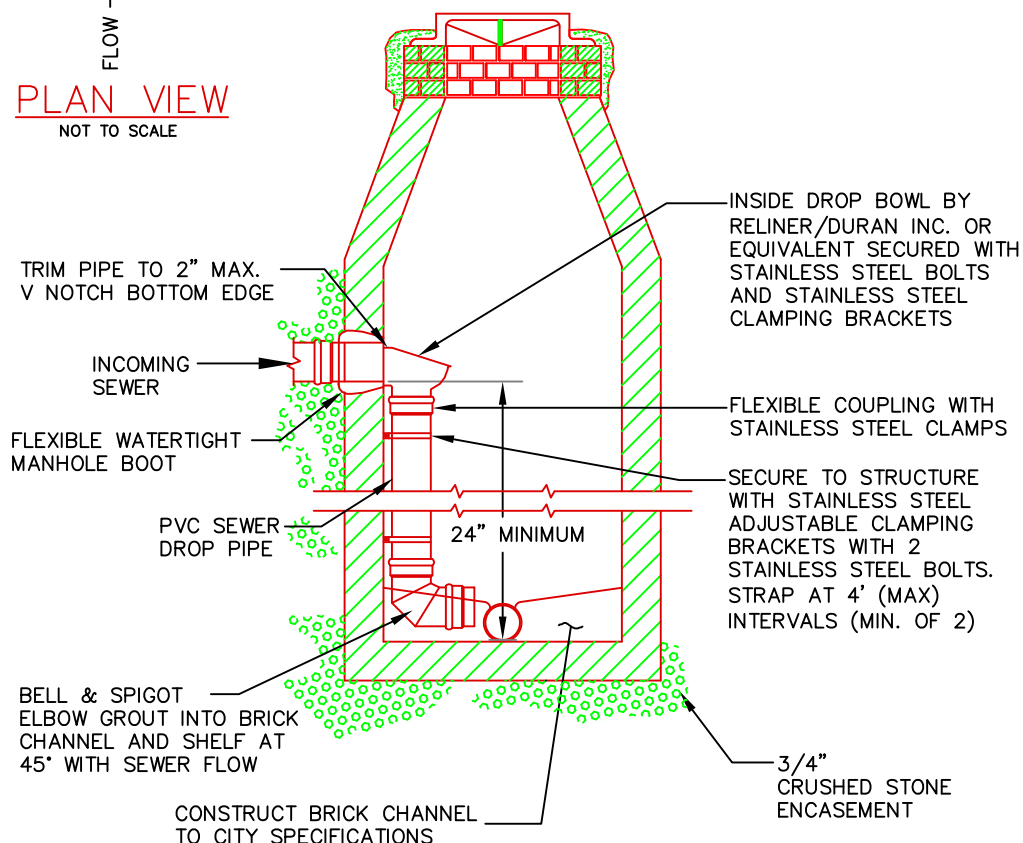
PRECAST CONCRETE MANHOLE



PLAN VIEW
NOT TO SCALE



**DROP BOWL
MOUNTING POSITION**
NOT TO SCALE



NOTES:

- 1) DROP MANHOLES ARE NOT REQUIRED FOR STORMWATER SYSTEMS.
- 2) MANHOLE MUST HAVE A MINIMUM DIAMETER OF 5' TO USE AN INSIDE DROP
- 3) ALL INSIDE DROP CONNECTIONS FOR SERVICES AND COLLECTOR SEWERS SHALL USE THE DROP BOWL AS SHOWN.

NOT TO SCALE

DATE:
APRIL 2022
REVISED:

CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-3

TYPICAL INSIDE DROP MANHOLE

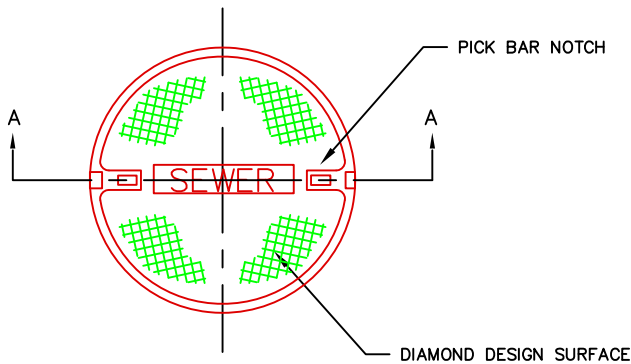
1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL PIPES ENTERING MANHOLES AND CATCH BASINS SHALL HAVE FLEXIBLE PIPE CONNECTIONS WITH STAINLESS STEEL BANDS. FILL ANY ANNUAL SPACE WITH NON SHRINK GROUT.
5. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID
6. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
8. INVERTS SHALL BE BUILT TO THE HEIGHT OF THE FOLLOWING AS DETERMINED BY THE LARGEST PIPE SIZE.
 - 8.1. FOR PIPE SIZES 4"-12" INVERTS SHALL GO TO THE TOP OF THE PIPE.
 - 8.2. FOR PIPE SIZES 15"-36" INVERTS SHALL GO TO THE SPRING LINE.
 - 8.3. FOR PIPE SIZES 42"-60" INVERTS SHALL GO TO THE 1/3 OF PIPE SIZE
9. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
12. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A HOOD / CASCO TRAP. SEE FIGURE II-09.
13. ALL MANHOLES AND CATCH BASINS REQUIRE BUOYANCY CALCULATIONS AND THE STRUCTURES SHALL BE MODIFIED AS NECESSARY BASED ON THOSE CALCULATIONS.

GENERAL NOTES FOR MANHOLES AND CATCH BASINS

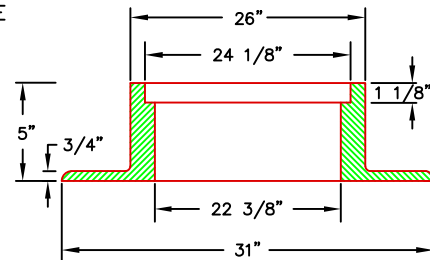
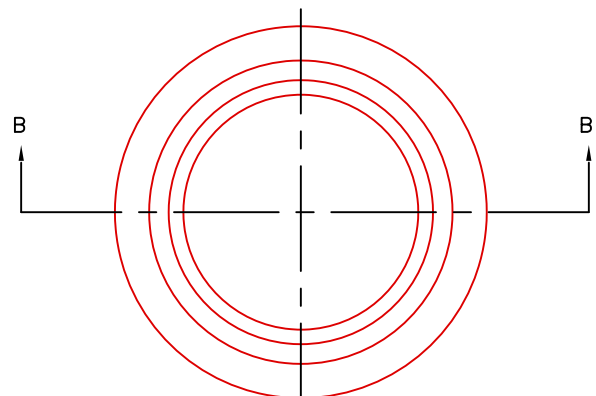
DATE: MARCH 2019	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE:
REVISED: AUG 2022	GENERAL NOTES FOR MANHOLES AND CATCH BASINS		II-4

NOTES:

1. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
2. APPROVED MANHOLE FRAMES:
 - 2.1. EAST JORDAN = 1690Z
 - 2.2. NEENAH = R-1496
 - 2.3. OR APPROVED EQUAL
3. APPROVED MANHOLE COVERS
 - 3.1. EAST JORDAN = 2160A
 - 3.2. NEENAH = R-1496
 - 3.3. OR APPROVED EQUAL



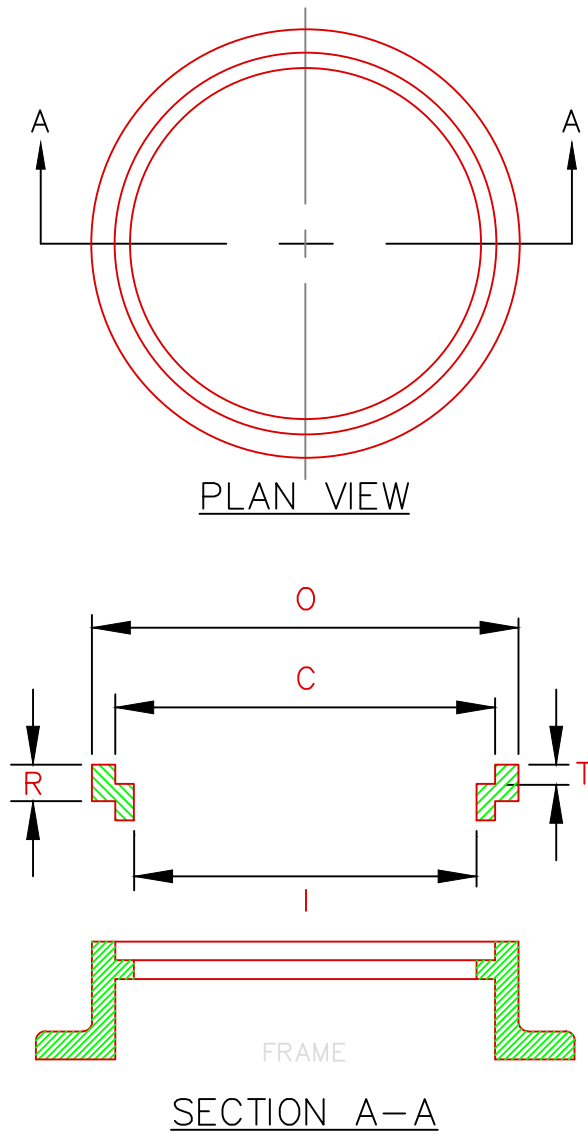
NOTE:
ALL SANITARY AND
STORMWATER/DRAIN MANHOLE
COVERS SHALL BE 24" x 5".



CAST IRON MANHOLE COVER AND FRAME

NOT TO SCALE

DATE: AUG 2009	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE: II-5
REVISED: DEC 2021	CAST IRON MANHOLE COVER AND FRAME		



SIZE	C	R	T	O	I	Wt.
R241 1/2	24	1 1/2	1 1/8	26 1/4	22 1/2	60
R242	24	2	1 1/8	26 1/4	22 1/2	80
R242 1/2	24	2 1/2	1 1/8	26 1/4	22	100
R243	24	3	1 1/8	26 1/4	22	120

MANHOLE RISER RING
NOT TO SCALE

DATE:
DEC 2009
REVISED:

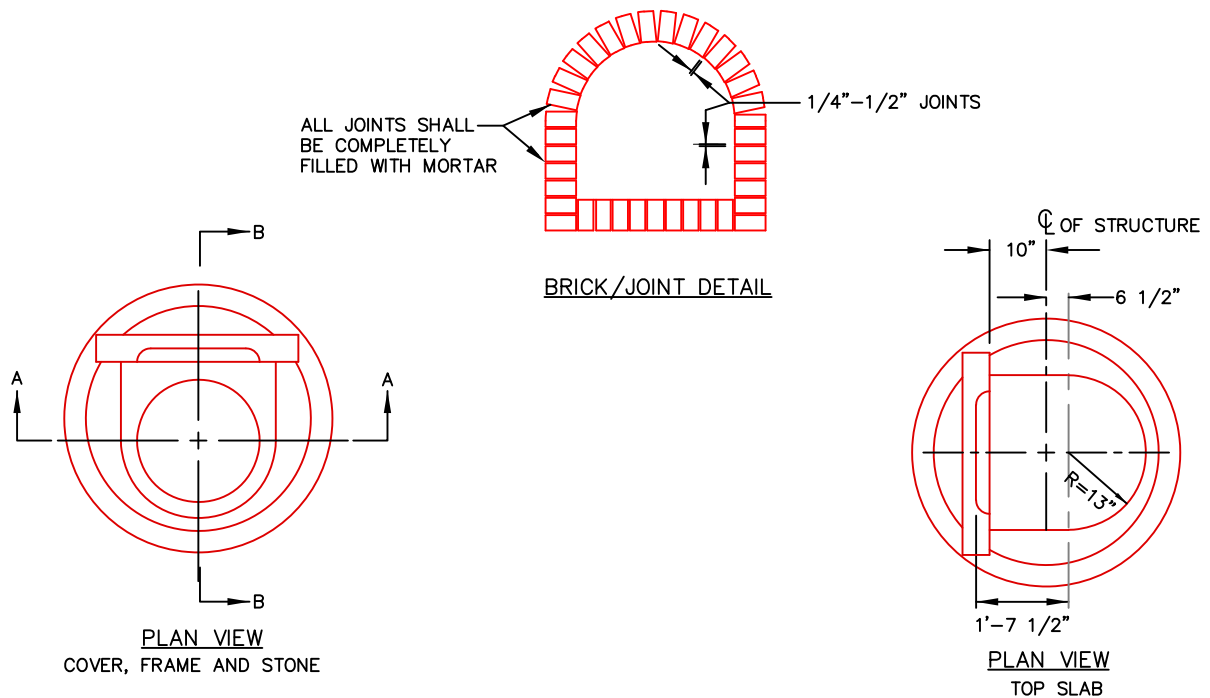
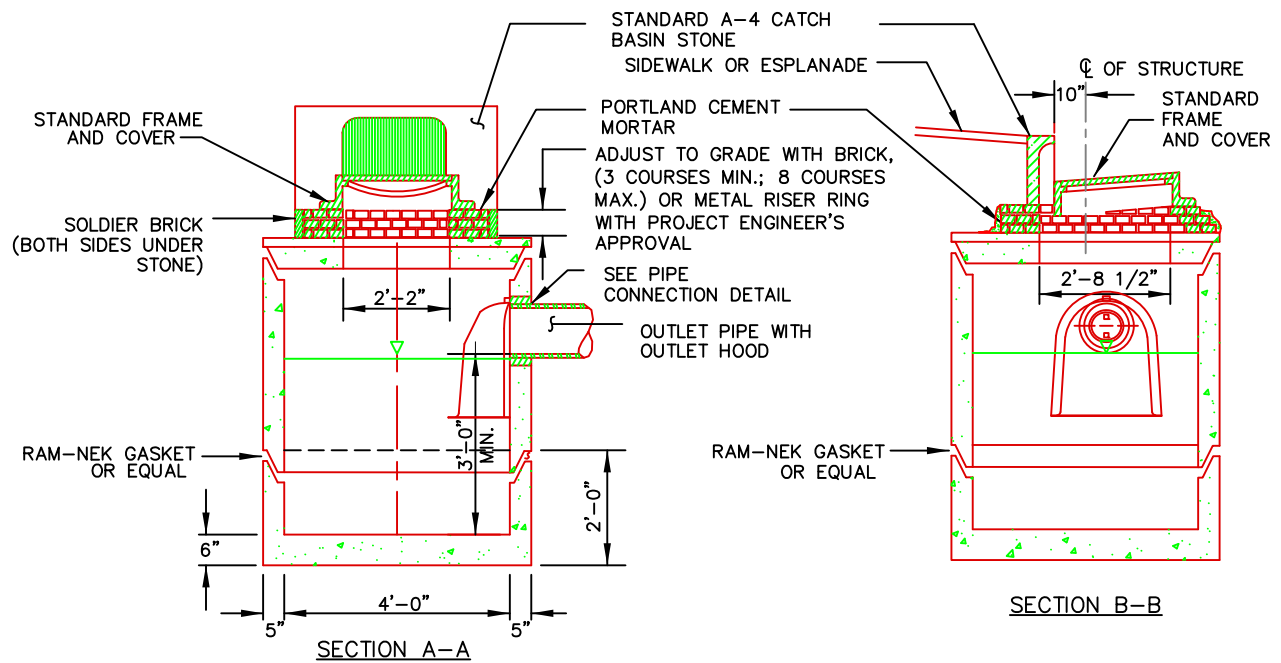
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**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

MANHOLE RISER RING

FIGURE:

II-6



PRECAST CONCRETE CATCH BASIN – TYPE "E"
NOT TO SCALE

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MARCH 2009

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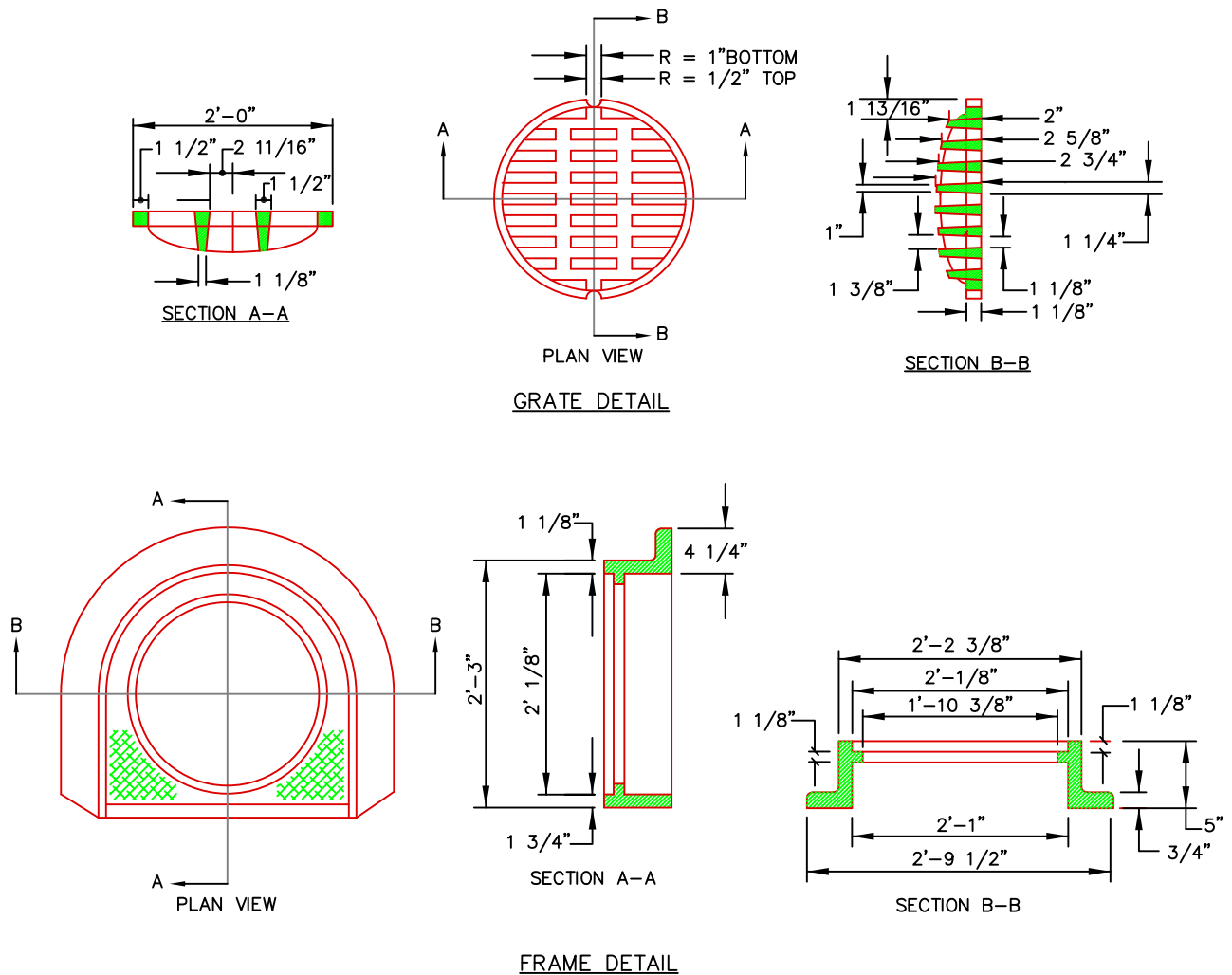
**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

PRECAST CONCRETE CATCH BASIN

FIGURE:

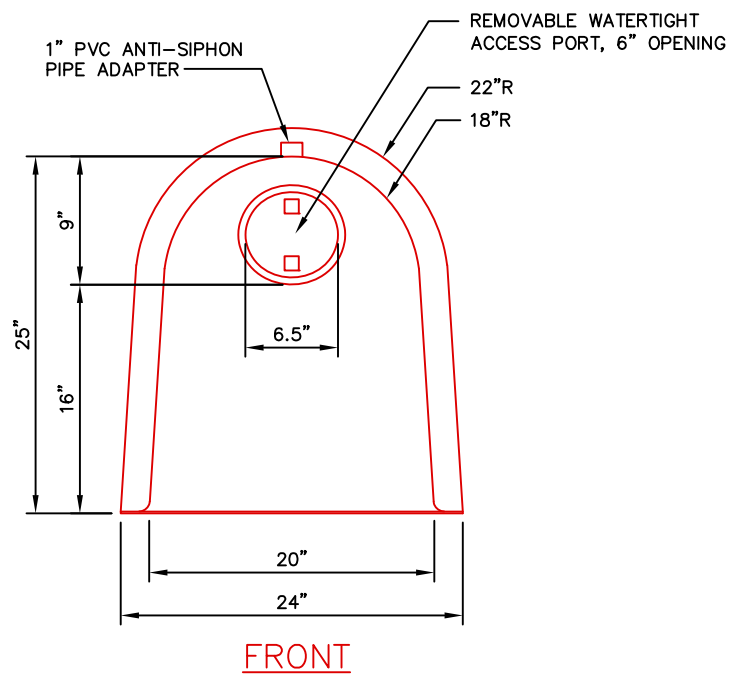
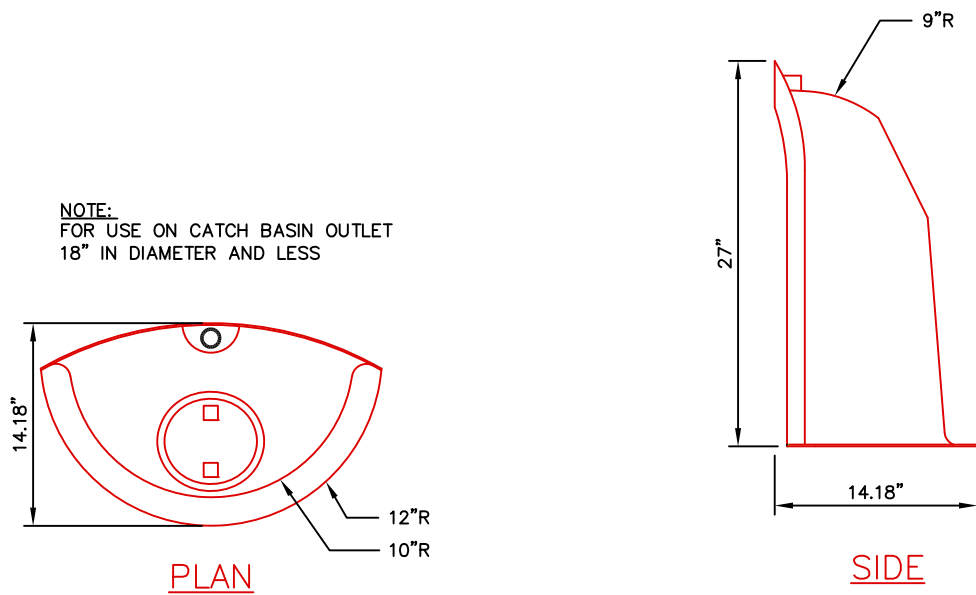
II-7

1. APPROVED CATCH BASIN FRAMES:
 - 1.1. EAST JORDAN = 7375Z
 - 1.2. NEENAH = R-3248
 - 1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
 - 2.1. EAST JORDAN = 2440M
 - 2.2. NEENAH = R-3248
 - 2.3. OR APPROVED EQUAL



CATCH BASIN FRAME & GRATE

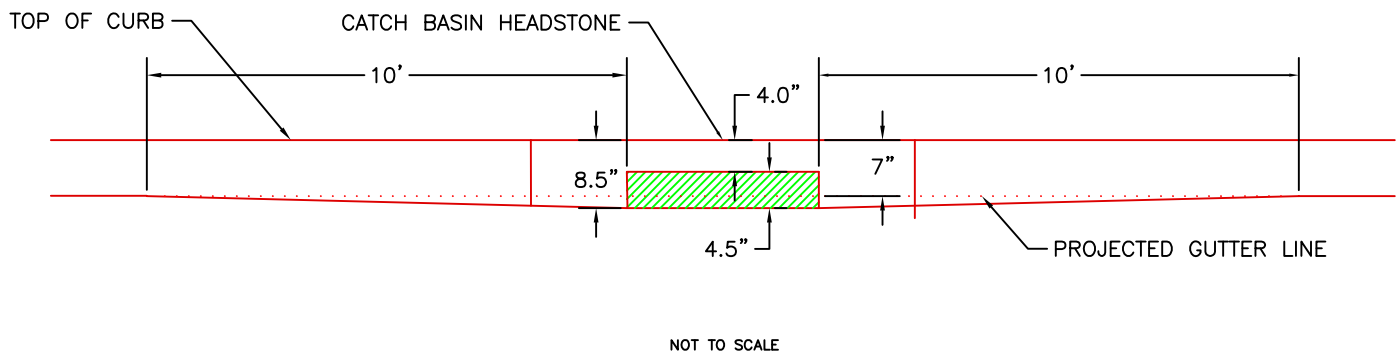
DATE: AUGUST 2009	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE:
REVISED: DEC. 2021	CATCH BASIN FRAME AND GRATE		II-8



CATCH BASIN HOOD
NOT TO SCALE

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REVISED:	CATCH BASIN HOOD		II-9

NOTE:
DISH 10' EITHER SIDE OF HEADSTONE FOR
CATCH BASIN AT LOW POINT



NOT TO SCALE

DATE:
AUG 2009

REVISED:
DEC. 2021

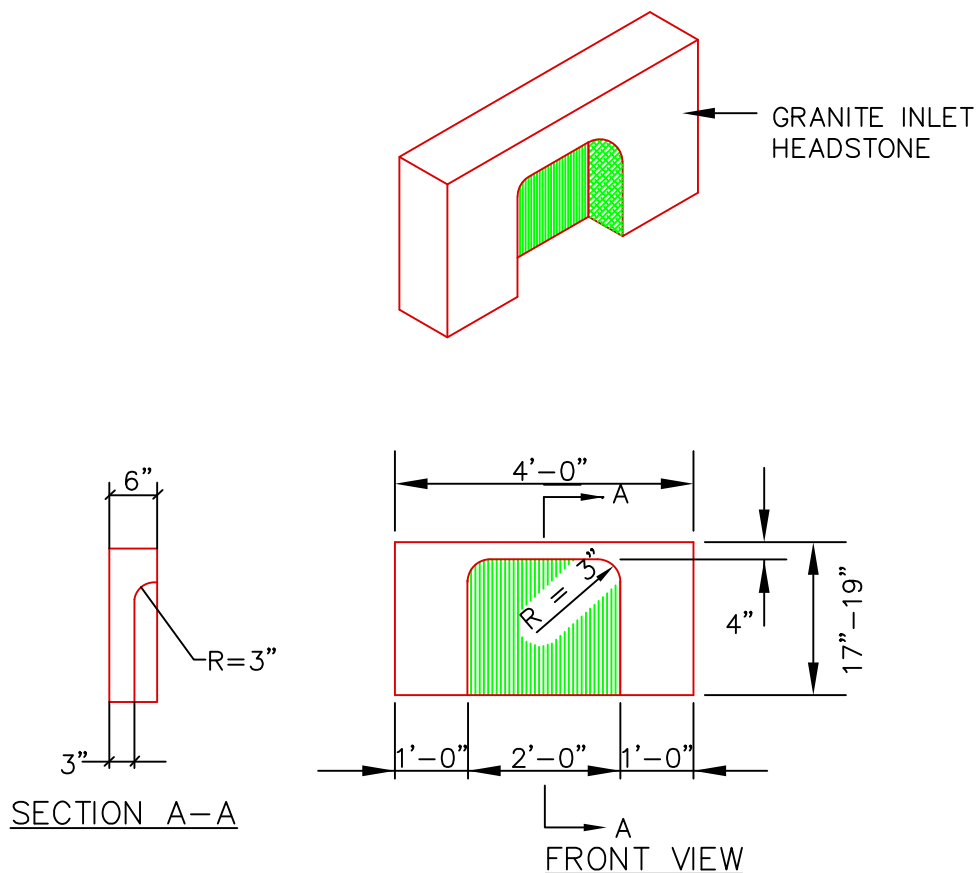
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**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

**TYPICAL PAVEMENT GRADING
FOR CATCH BASIN INLETS**

FIGURE:

II-10



4' GRANITE HEADSTONE FOR CATCH BASIN INLET

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TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

4' GRANITE HEADSTONE FOR CATCH BASIN INLET

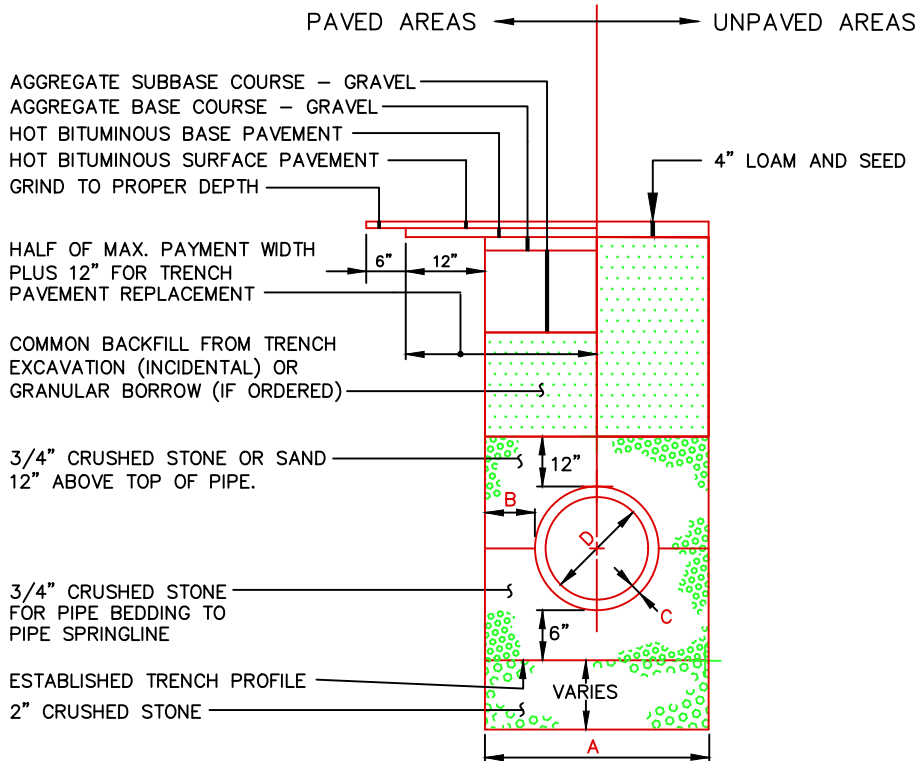
FIGURE:

II-11

NOTES:

DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES..



NOTES

1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. 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 DIMENSION **B** SHALL BE AT LEAST 9".
4. 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.

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36	6.0
42	7.0
48	7.0

TYPICAL PIPE TRENCH INSTALLATION

NOT TO SCALE

DATE:
AUGUST 2009

REVISED:
SEPTEMBER 2022

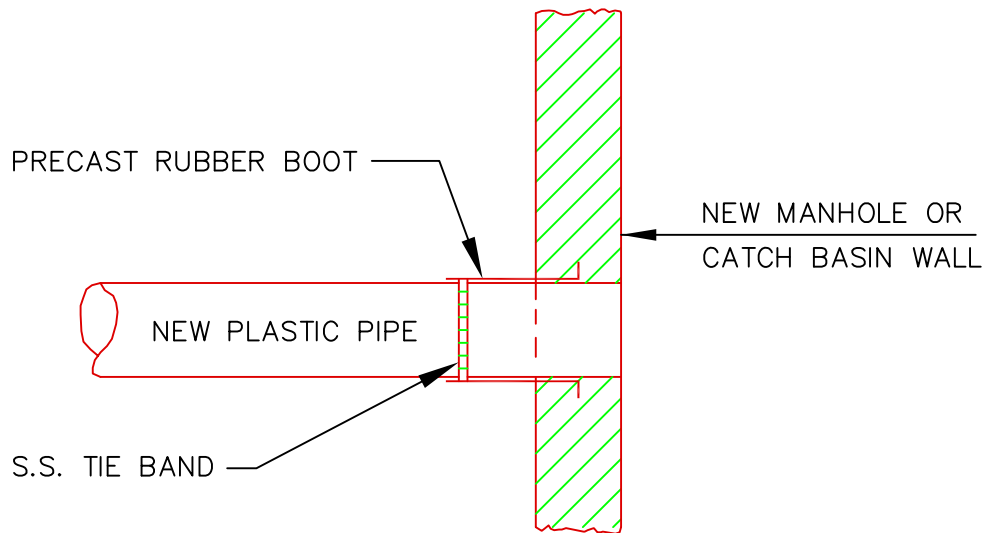
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**SANITARY SEWER AND STORM
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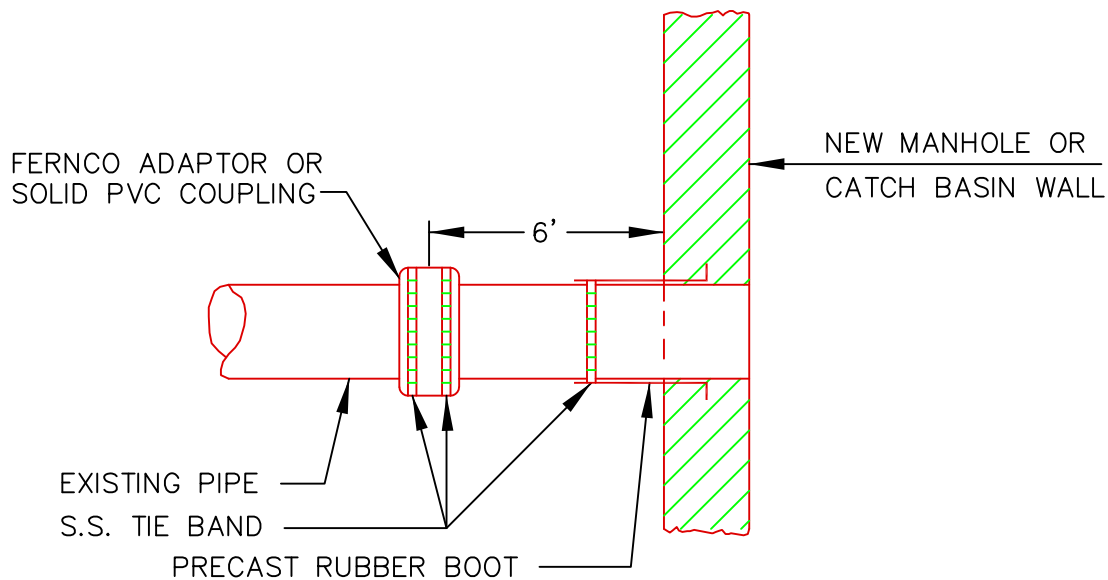
TYPICAL PIPE TRENCH INSTALLATION AND NOTES

FIGURE:

II-12



METHOD 2 – NEW CONSTRUCTION



METHOD 1 – EXISTING PIPE INTO NEW STRUCTURE

PLASTIC PIPE CONNECTIONS

NOT TO SCALE

DATE:
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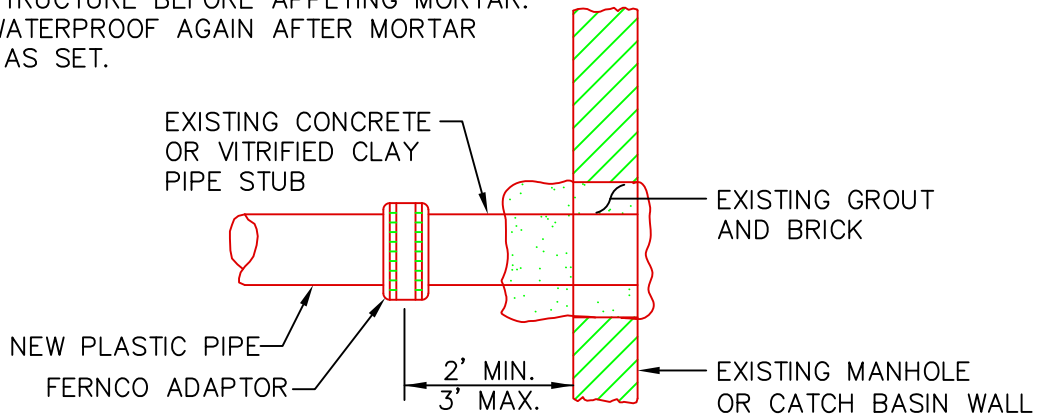
**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-13

PLASTIC PIPE CONNECTION METHODS 1 & 2

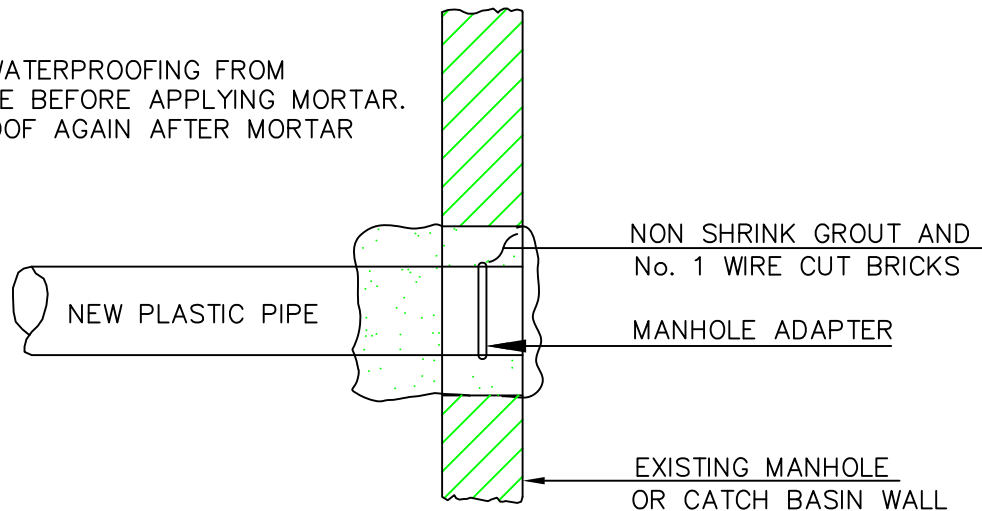
NOTE:
REMOVE WATERPROOFING FROM
STRUCTURE BEFORE APPLYING MORTAR.
WATERPROOF AGAIN AFTER MORTAR
HAS SET.



METHOD 4 – NEW PIPE TO EXISTING STRUCTURE STUB

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 SAW CUT THE STRUCTURE TO CREATE PIPE OPENING. THE NEW OPENING MUST THEN BE SEALED AND WATERTIGHT BOTH INSIDE AND OUTSIDE THE STRUCTURE.

NOTE:
REMOVE WATERPROOFING FROM
STRUCTURE BEFORE APPLYING MORTAR.
WATERPROOF AGAIN AFTER MORTAR
HAS SET.

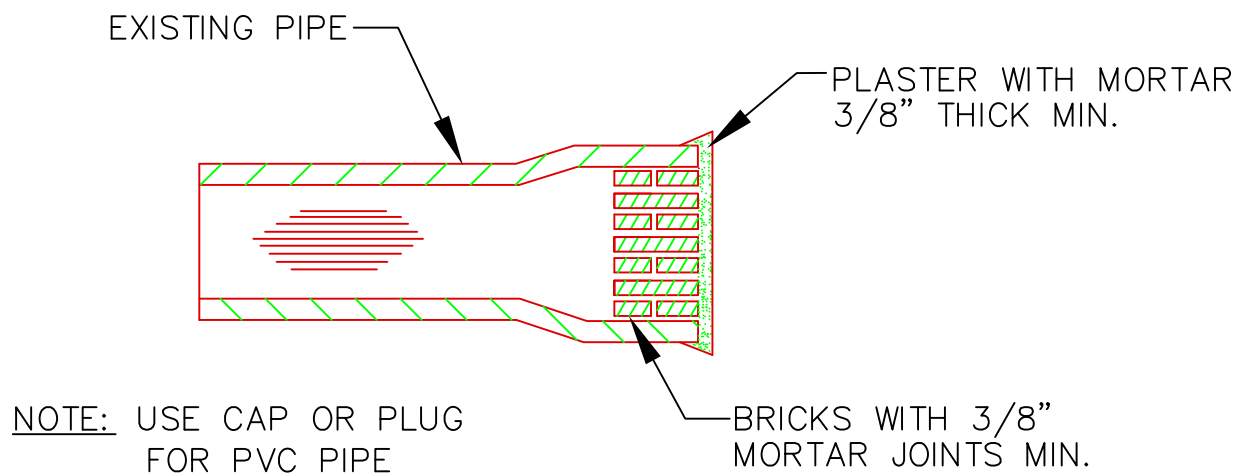


METHOD 3 – NEW PIPE INTO EXISTING STRUCTURE

PLASTIC PIPE CONNECTIONS

NOT TO SCALE

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REVISED:	PLASTIC PIPE CONNECTION METHODS 3 & 4		II-14



MASONRY PLUG

NOT TO SCALE

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TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

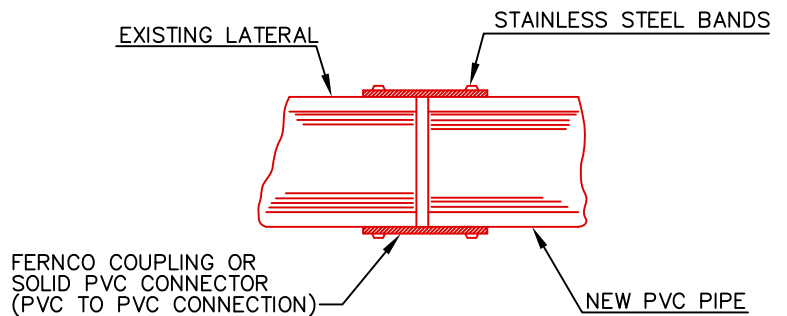
II-15

MASONRY PLUG

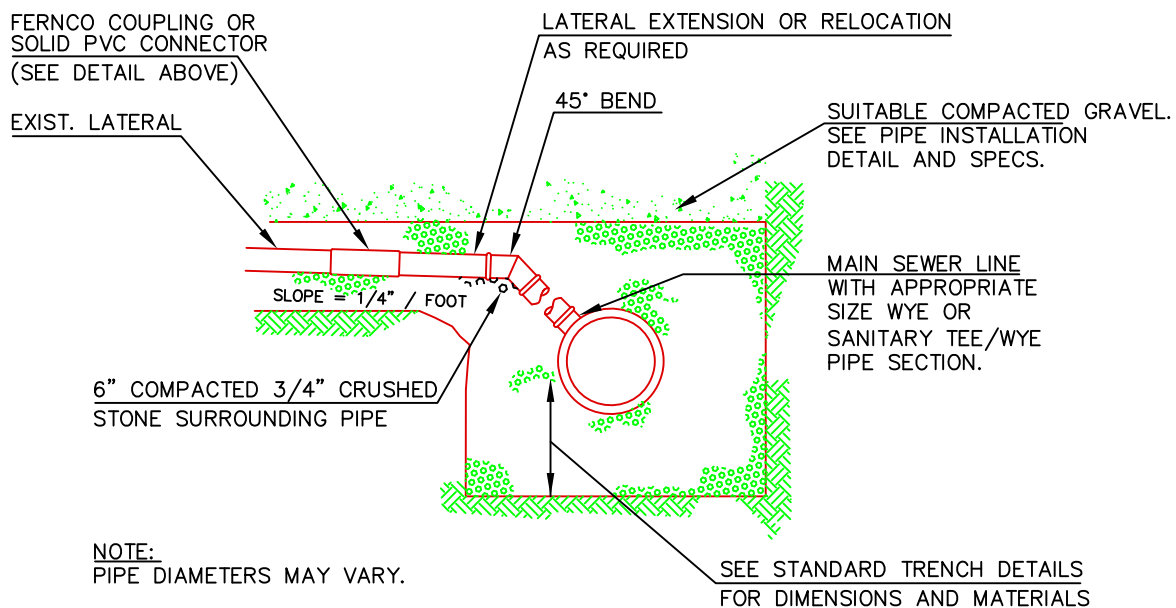
NOTE:

LOCATIONS AND ELEVATIONS OF STUBS SHOWN ON THE PLANS ARE TO BE CONSIDERED AS APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED TO SUIT FIELD CONDITIONS.

HOUSE CONNECTIONS AND CATCH BASINS CONNECTIONS TO THE MAIN LINE OF THE SEWER, SHALL CONSIST OF AN APPROPRIATE WYE BRANCH CONNECTION AS SHOWN ON THE PLANS, OR AS DIRECTED. ACTUAL WYE LOCATIONS FOR HOUSE CONNECTIONS AND CATCH BASIN CONNECTIONS SHALL BE DETERMINED DURING CONSTRUCTION. THE CONTRACTOR SHALL KEEP A COMPLETE RECORD OF WYE LOCATIONS WHICH SHALL BE GIVEN TO THE CITY OF PORTLAND UPON COMPLETION OF THE CONTRACT. ALL PVC TO PVC COUPLING SHALL BE "SOLID PVC COUPLINGS".



FERNCO COUPLING FOR REPAIR OR REPLACEMENT



SECTION

TYPICAL EXISTING LATERAL CONNECTION

NOT TO SCALE

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DEC. 2021

CITY OF PORTLAND, MAINE
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**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-16

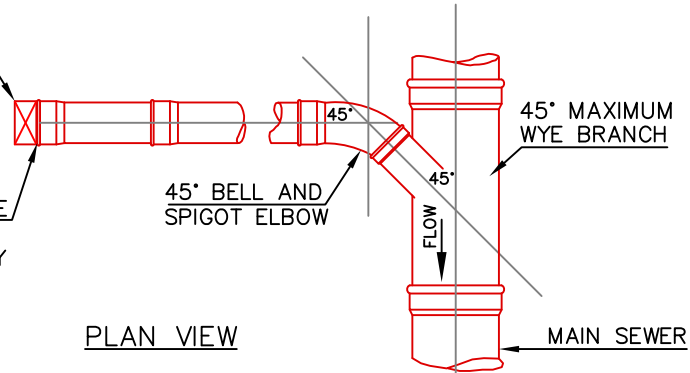
TYPICAL EXISTING LATERAL CONNECTION

NOTE:

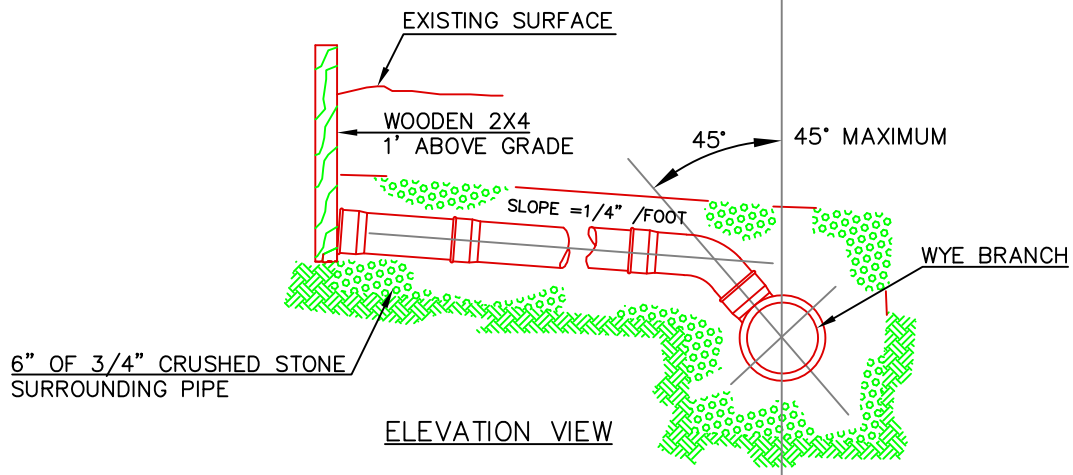
LOCATION / WARNING TAPE SHALL BE
INSTALLED OVER CENTERLINE OF PIPE AT A
MAXIMUM OF 24 INCHES BELOW FINISH GRADE.

EXTEND WOODEN 2X4
TO 1' ABOVE GRADE TO
DELINEATE END OF STUB.
MARK 2X4 WITH THE DEPTH
FROM GRADE TO PLUG.

FOR FUTURE CONNECTION, TERMINATE
AND PLUG LATERAL AT STREETLINE.
PLUG TO BE IDENTIFIED AS SANITARY
OR STORM.



PLAN VIEW



ELEVATION VIEW

TYPICAL HOUSE LATERAL TEE/WYE CONNECTION

NOT TO SCALE

DATE:
AUGUST 2009
REVISED:

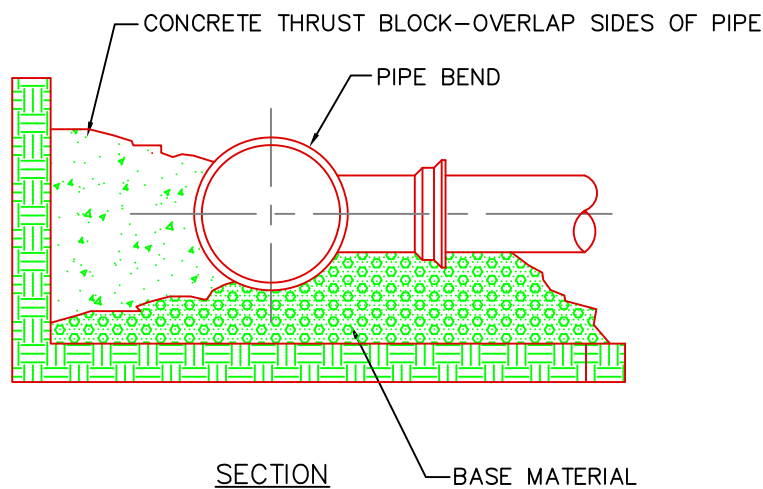
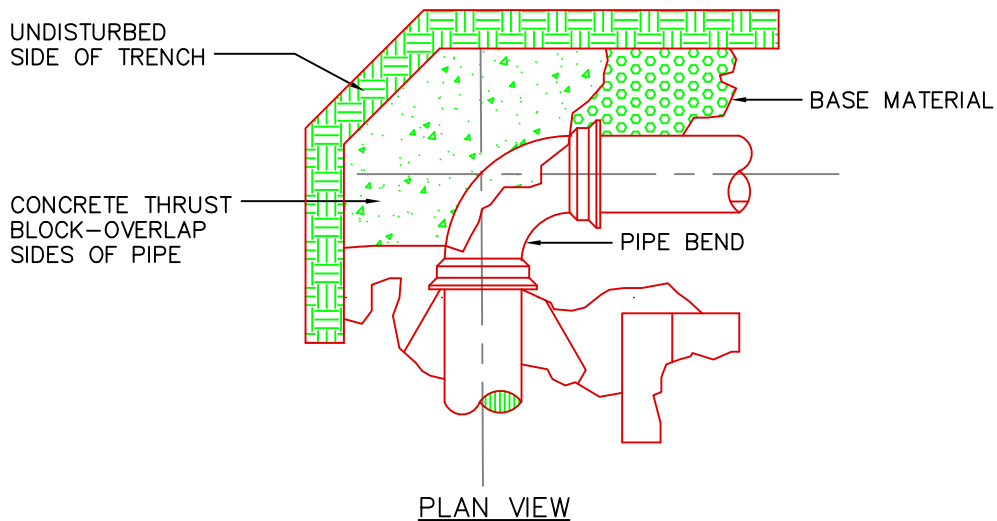
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TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-17

TYPICAL HOUSE LATERAL TEE/WYE CONNECTION



THRUST/RETAINER SCHEDULE		
1/4 BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK w/RETAINERS
1/8 BEND	(45°)	THRUST BLOCK w/RETAINERS
1/16 BEND	(22 1/2°)	THRUST BLOCK
1/32 BEND	(11 1/4°)	THRUST BLOCK

NOTE: KEEP CONCRETE LEAR OF PIPE JOINT, NUTS AND BOLTS

FORCE MAIN – CONCRETE THRUST BLOCK PLACEMENT ON VERTICAL & HORIZONTAL BENDS

NOT TO SCALE

DATE:
AUGUST 2009
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TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-18

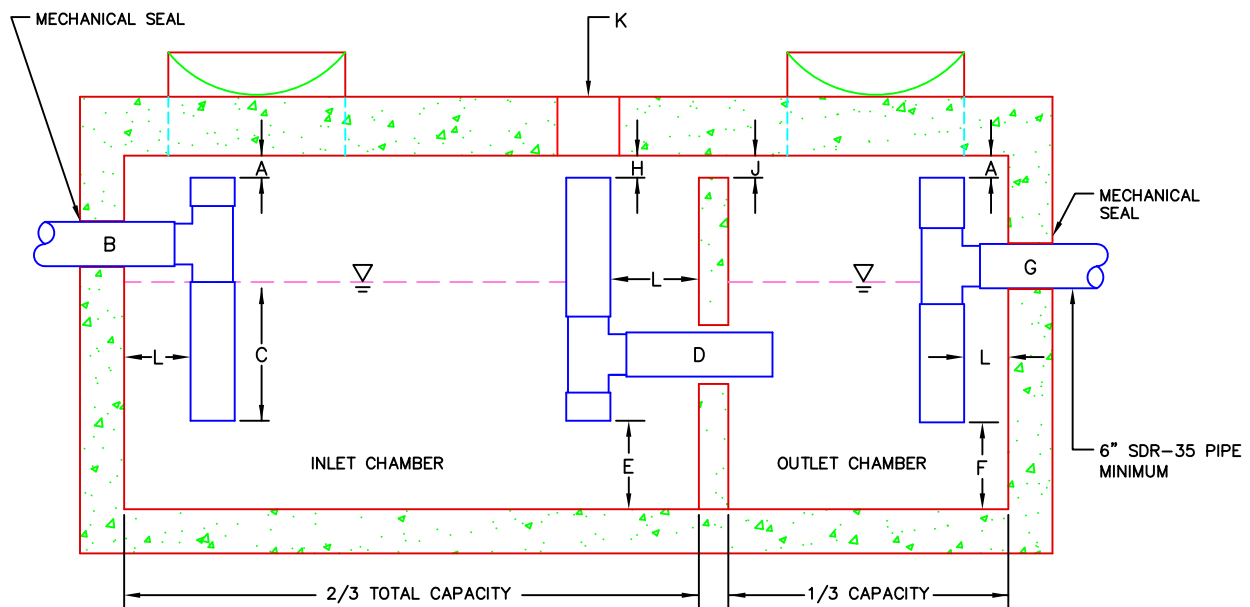
FORCE MAIN CONCRETE THRUST BLOCK PLACEMENT

1000 GALLON GREASE INTERCEPTOR:

- A) MINIMUM 6", BUT NOT LESS THAN PIPE DIAMETER.
- B) INLET PIPE INVERT TO BE 2 1/2" ABOVE LIQUID SURFACE.
- C) INLET PIPE TO TERMINATE 2/3 DEPTH OF WATER LEVEL.
- D) BAFFLE T
- E) 6" FROM FLOOR TO END OF BAFFLE PIPE.
- F) 6" FROM FLOOR TO END OF OUTLET PIPE.
- G) OUTLET PIPE NO SMALLER THAN INLET PIPE.
- H) TOP OF BAFFLE PIPE TERMINATES NO LOWER THAN BAFFLE HEIGHT.
- I) INLET CHAMBER IS $\frac{2}{3}$ TOTAL CAPACITY; OUTLET CHAMBER IS $\frac{1}{3}$ TOTAL CAPACITY.
- J) 6" MINIMUM DISTANCE FROM CEILING.
- K) MINIMUM 6" CLEANOUT.
- L) INLET AND OUTLET PIPES MUST BE SPACED SO THAT CLEAR ACCESS CAN BE MADE FROM MANHOLES.

THIS STRUCTURE MUST DISCHARGE TO A CITY OF PORTLAND STANDARD MANHOLE WITH CHANNEL AND MUST BE RATED.

DAILY PROCESS FLOW FROM THE FACILITY WITH NO SANITARY OR OTHER EXTRANEEOUS WASTES FLOWING THROUGH IT.

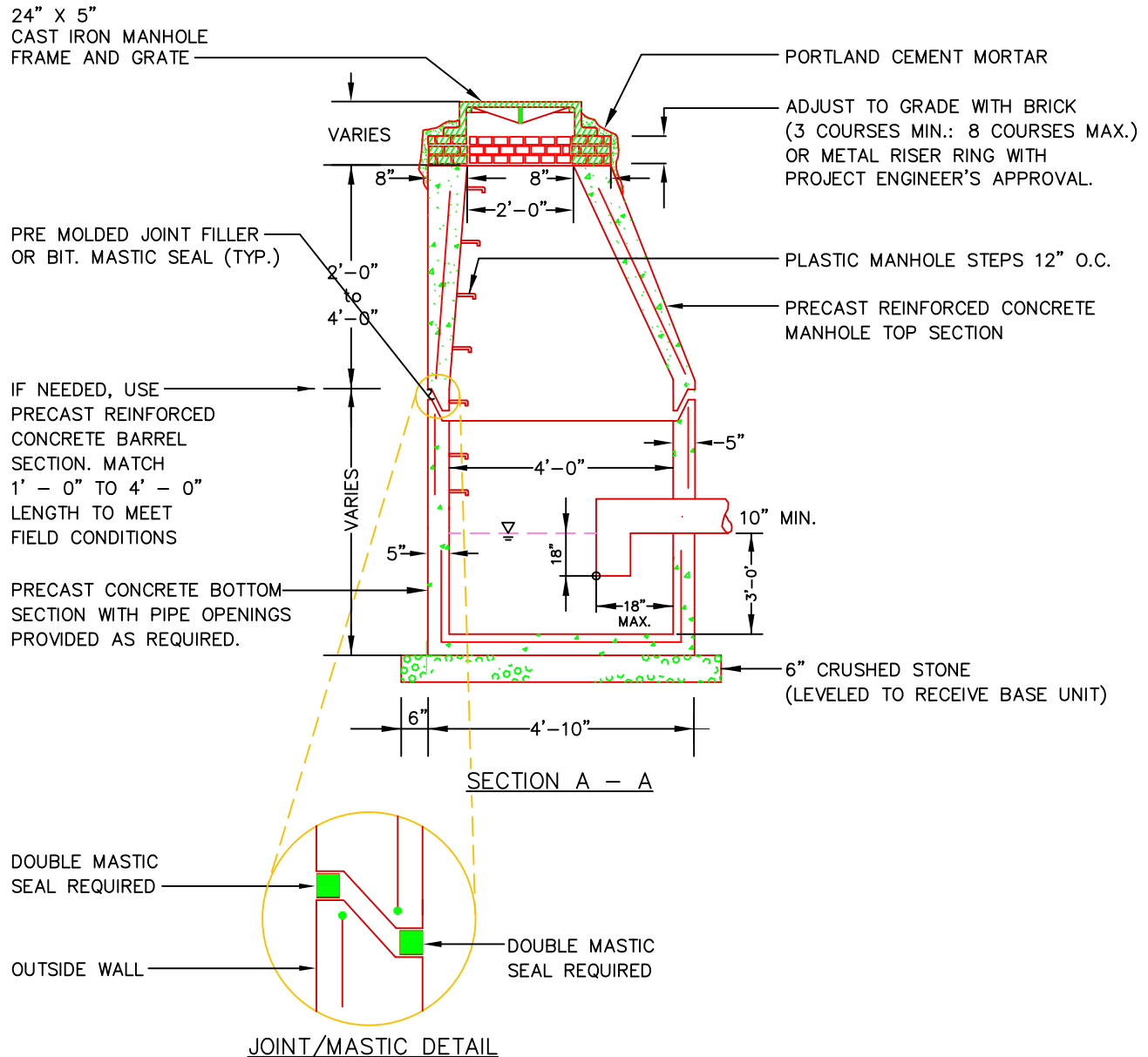


1000 GALLON GREASE INTERCEPTOR

DATE: APRIL 2014 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE: II-19
EXTERNAL GREASE TRAP DESIGN			

NOTES:

- FOR USE IN PARTIALLY OR TOTALLY ENCLOSED PARKING GARAGES, AUTOMOTIVE REPAIR FACILITIES OR ANY OTHER PROPOSED STRUCTURE WHERE DEEMED APPROPRIATE BY THE CITY ENGINEER.
- DISCHARGE SHALL BE TO SANITARY SEWER.
- A VENT PIPE MAY BE REQUIRED THAT HAS A VERTICAL OUTLET OFF TO THE SIDE OF THE STRUCTURE.



OIL / GRIT SEPARATOR

NOT TO SCALE

DATE:
FEB 2015

REVISED:
AUG 2022

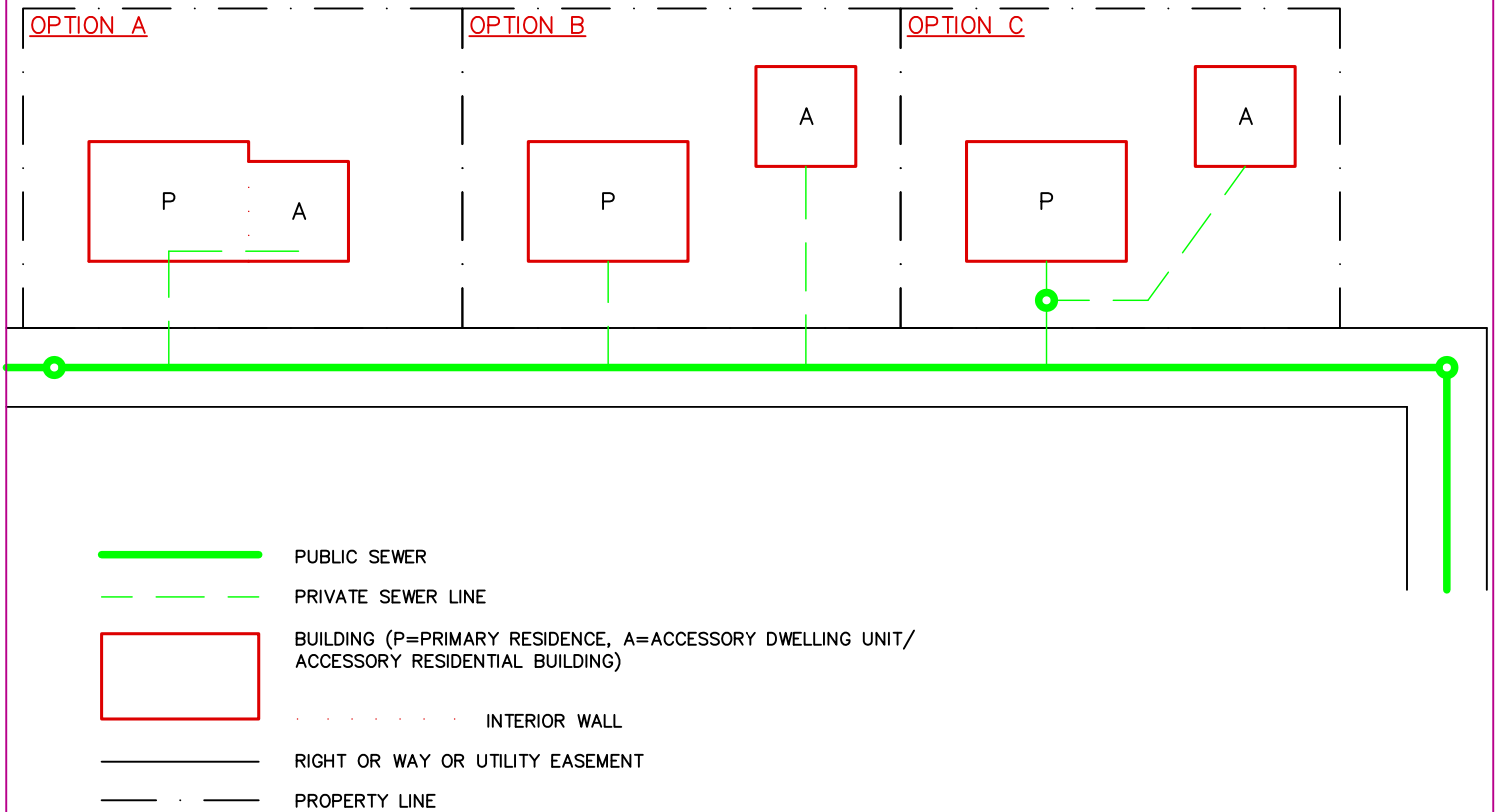
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**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-20

OIL / GRIT SEPARATOR



POTENTIAL SEWER LINE CONFIGURATION FOR PRIMARY RESIDENCES WITH AN ACCESSORY DWELLING UNIT
NOT TO SCALE

DATE:
APRIL 2022

REVISED:

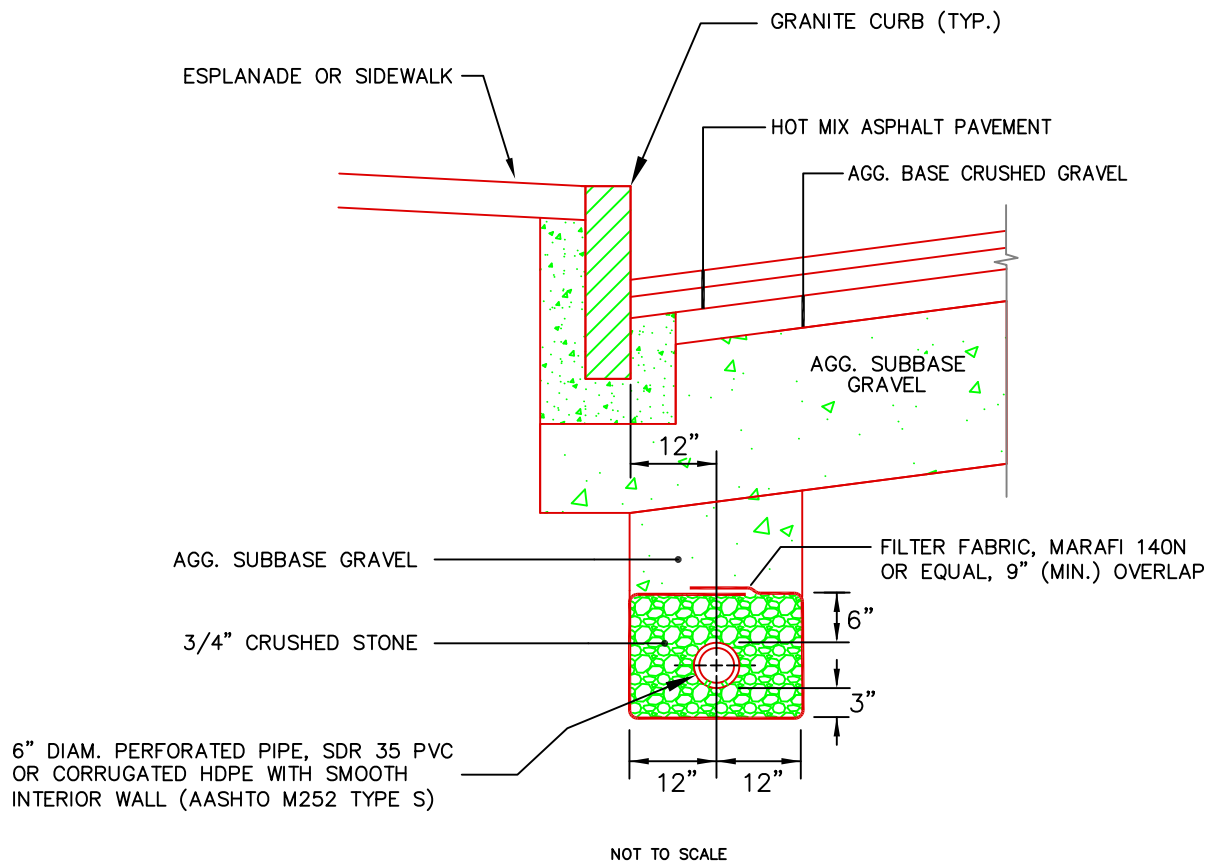
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**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-21

**SEWER LINE CONFIGURATIONS FOR PRIMARY
RESIDENCES WITH AN ACCESSORY DWELLING UNIT**



NOTES

1. UNDERDRAIN PIPE INVERT ELEVATIONS SHALL BE AT LEAST 42 INCHES BELOW GUTTER GRADES.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.

DATE:
AUGUST 2009

REVISED:
AUG 2022

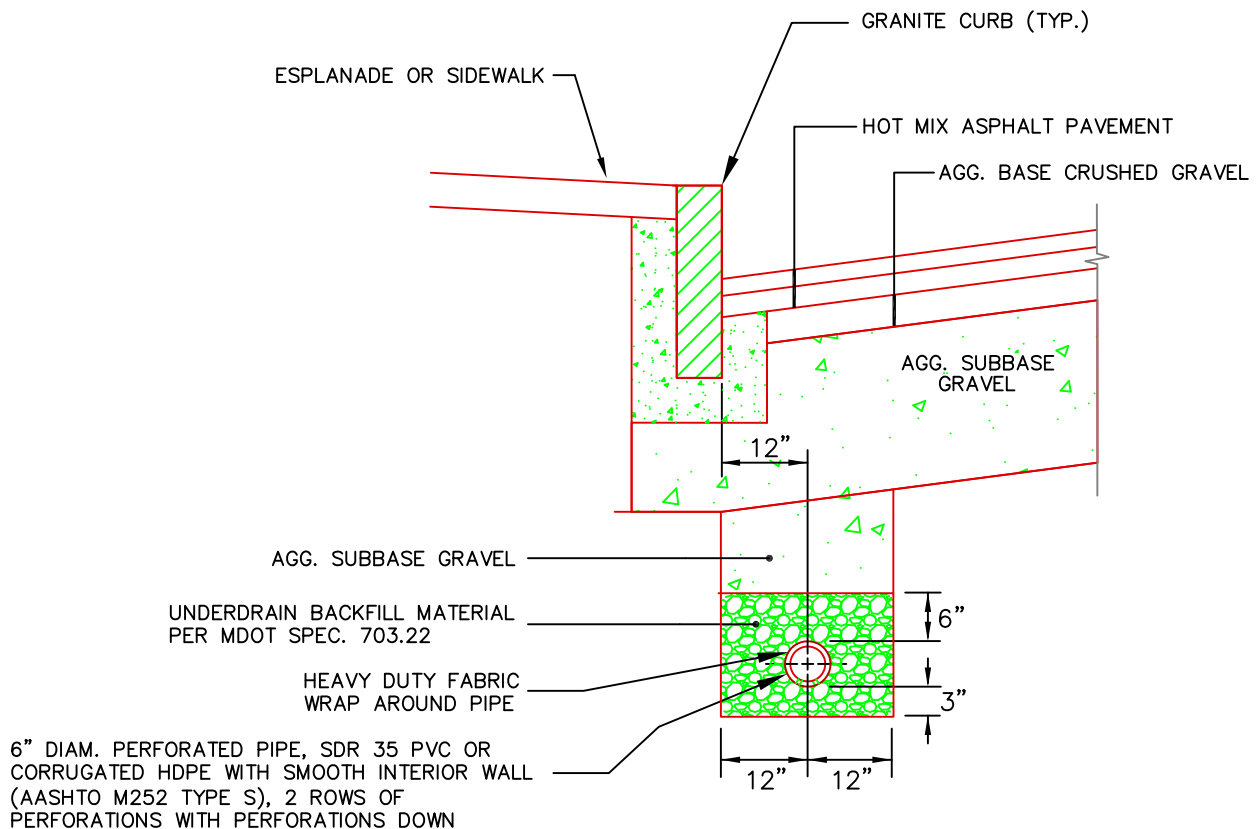
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**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-22

**TYPE "B" UNDERDRAIN INSTALLATION
ALTERNATIVE A**



NOTES

1. UNDERDRAIN PIPE INVERT ELEVATIONS SHALL BE AT LEAST 42 INCHES BELOW GUTTER GRADES.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN. THE PIPE SHALL BE FURNISHED WITH A HEAVY DUTY FABRIC WRAP, SUCH AS "FILTER SOCK" BY ADS.

DATE:
AUGUST 2009

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**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

**TYPE "B" UNDERDRAIN INSTALLATION
ALTERNATIVE B**

FIGURE:

II-23

4. LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS

4.1. DEFINITIONS

Feature mature tree: A tree ~~located on privately owned property~~ that meets at least one of the following criteria:

- 1.) Any tree that is on the Register of Big Trees promulgated by the Maine Department of Agriculture, Conservation & Forestry (the "Big Tree List")
- 2.) Certain trees 24" in diameter or greater (diameter at breast height or DBH) as identified by ~~the~~ City Arborist
- 3.) Ornamental trees 12" in diameter or greater (diameter at breast height or DBH) as identified by the City Arborist
- 4.) Rare tree specimen to include either a tree species classified as rare or endangered at either the state or federal level, ~~and/or included in the most current version of the Maine Register of Big Trees, published by the Maine Department of Conservation,~~ and/or stands of native trees that are rare or threatened as identified by ~~the~~ City Arborist.

Rare tree specimen: A tree that is ~~(1) of a species classified as rare or endangered at either the state or federal level and/or (2) included in the most current version of the Maine Register of Big Trees, published by the Maine Department of Conservation.~~

4.2. PRESERVATION OF SIGNIFICANT SITE FEATURES

The applicant shall clearly identify all significant natural features on the site, as defined in Article 14 of the Land Use Code, on the submitted boundary survey and site plan, and shall clarify the proposed measures for the preservation and protection of all such features both during and after construction.

4.3. PRESERVATION OF EXISTING VEGETATION

- 4.3.1. The applicant shall provide a tree survey performed by a licensed land surveyor, arborist, forester, or landscape architect. The tree survey shall clearly indicate forest type and the location, size and species of all existing trees 10" diameter at breast height (DBH) or greater on the site and in the right-of-way, and all feature mature trees on the site and in the right-of-way. For sites with a high density of existing trees, the survey shall identify all existing shade and ornamental trees that may have been part of a prior landscape scheme for the site and the location, average size and species of groves of trees, and individual trees greater than 16" DBH.

- 4.3.2. Trees or groups of trees to be preserved shall be inspected and approved by

the City Arborist or their designee and shall be clearly identified on the Site Plan, Subdivision Plat, Landscape Plan and Grading Plan. Where required by the reviewing authority, property deeds shall include language and plans to help ensure that current and future landowners are aware of all preservation requirements tied to the property. ~~The grading plan shall clearly indicate any proposed grade changes within the drip line of trees designated for preservation.~~

4.3.3. Tree Preservation efforts shall include post~~ed signs clearly identifying theing of~~ 'Tree Protection Zones' or 'Limit of Work Zones' ~~in the form of obvious signage.~~

4.3.4. Fencing or other protective barriers and signage shall be erected outside the drip line of individual, groupings of or perimeter trees to be preserved.

- No storage of construction equipment, digging, trenching or other soil disturbance shall be permitted within the drip-line of trees to be preserved.
- Areas of trees or other vegetation to be preserved shall not be used for temporary stormwater runoff storage during construction.
- Protective barriers and signage shall remain in place until completion of the project.

During the pre-construction meeting and prior to the onset of any construction including site work, the Department of Public WorksServices or their designee shall inspect all installed protective barriers.

4.3.5. Tree preservation locations and measures to protect preserved vegetation shall be identified or noted in detail on the Landscape Plan and cross-referenced on the Site Plan, Subdivision Plat and Grading Plan.

4.3.6. Upon completion of the project, plant material that has been designated for preservation shall be subject to the maintenance and inspection requirements outlined in this section. Preserved vegetation ~~and new plantings~~ that show signs of construction damage within a one year period following construction, including but not limited to bark damage or excessive root damage, grade changes other than those originally indicated in the approved grading plan, soil compaction due to heavy equipment traversing closely, or general decline due to mechanical or natural conditions shall be rejected and must be replaced prior to the release of any defect guarantee. Any rejected tree will be subject to the following replacement requirements:

- For every existing tree rejected that is between 10" and 156" in caliper DBH, one (1) replacement tree listed on the City of Portland approved native species list (Figure IV-1) shall be planted on the site.

- For every existing tree rejected that is 16" or more in caliper DBH, two (2) replacement trees listed on the City of Portland approved ~~native-species~~ list ([Figure IV-1](#)) shall be planted on the site.
- ~~For every existing tree rejected that is between 10" and 15" in caliper DBH, one (1) replacement tree listed on the City of Portland approved native-species list shall be planted on the site.~~

4.3.7. The developer shall be responsible for making all contractors aware of preservation requirements prior to any construction activities. See ~~specification~~[Figure](#) IV-2 for typical tree preservation detail.

[4.3.8 Where a waiver is requested under the landscape preservation standards of the land use code and planting of replacement trees is not feasible, financial contributions proportionate to the cost of required replacement trees shall be as indicated below.](#)

Contribution per required replacement tree	\$400.00
Contribution per existing feature mature tree removed*	\$100.00 per inch diameter
Contribution where applicant plants a tree to replace feature mature tree*	\$100.00 per inch diameter of removed existing feature mature tree less \$400.00

[*In cases of removal of a feature mature tree, these contribution amounts supersede the base replacement tree fee of \\$400.](#)

4.4. Reserved.

4.5. SITE LANDSCAPING

4.5.1. All Landscape Design

Site landscaping should ~~establish~~~~result in~~ attractive, low-maintenance outdoor spaces that incorporate site definition and screening and ~~be selected to achieve one or more of the following outcomes; promote a healthy and biodiverse urban ecosystem, further City goals around climate resiliency and mitigation, create or enhance areas of native habitat, improve stormwater treatment, and/or increase local food production.~~~~support biodiversity.~~

4.5.2. Screening and Buffers

Where required, buffer areas shall be comprised of existing trees and vegetation, new landscaping or a combination thereof to create a dense, mixed buffer incorporating both understory and tree canopy layers. While primarily of benefit from a ground level pedestrian viewpoint, such screening should also effectively provide screening when viewed from upper floors of surrounding properties, where applicable. New shrubs shall be approximately three (3) feet in mature height and shall be spaced six (6) to eight (8)~~6-8~~ feet apart. ~~Specification~~Figure IV-3 provides an example of buffering between compatible uses.

Buffers between land uses: Buffers between contrasting land uses may incorporate earthen berms not exceeding 4:1 slope, opaque fencing of high architectural quality, masonry wall or a combination thereof, in addition to landscape plantings. Where fencing or masonry wall is proposed as part of a buffer, less landscaping density is acceptable; however, buffers shall still include trees, shrubs and other vegetation. Figure IV-7 provides an example of screening between different land uses.

Buffers between site components: Landscaped buffers within the site shall complement and enhance ~~and~~ structures and site amenities, provide screening between structures, and buffer undesirable views from general public areas, from existing structures and from residents of proposed units. Accessory site elements such as parking and loading areas, utility structures, dumpsters, storage areas and other hardscaped or unvegetated areas, shall be located and screened from view from public areas and adjacent properties. Screening shall be accomplished with opaque fencing of high architectural quality, masonry wall and/or dense evergreen landscaping. Where fencing or masonry wall is proposed as part of a buffer, less landscaping density is acceptable; however, buffers shall still include trees, shrubs and other vegetation. ~~Specification~~Figures IV-6 and IV-7 provides an example of screening of accessory site elements.

4.5.3. Industrial and Commercial Development

In addition to other requirements of the City Code and of this section, industrial and commercial developments shall incorporate landscaping that:

- Enhances proposed buildings with foundation plantings in the vicinity of public entrances to all buildings and in areas with uninterrupted or predominantly blank facades (~~Illustration~~Figure ~~IV~~VI-5 provides an example of interior site landscaping for commercial and industrial sites).
- Defines roadways and driveway entrances.

4.5.4. Planned Residential Unit Development (PRUDs)

Required trees to be planted and/or preserved shall separate and screen proposed buildings and separate and screen proposed recreational uses. Where cul de sacs are provided, landscaping consisting of native or adapted low maintenance vegetation shall be provided. See ~~Illustration~~Figure IV-4 for typical cul de sac landscaping.

4.5.5. Parking Areas

Landscaping shall be incorporated into the development of surface parking to reduce adverse environmental and aesthetic impacts, to shade pavement to reduce heat island effect and to screen parking areas from public view. Plant materials shall be selected for appearance, durability, and tolerance to salt. ~~Illustration~~Figures IV-6a and IV-6b provide examples of parking lot screening.

Landscaping that abuts areas of vehicular use shall be adequately protected and separated from vehicles. Protection should take the form of physical or visual separation, such as ~~be in the form of~~ curb stops, bollards, or continuous curbing ~~or guardrails~~. ~~Protection~~Curbing and guardrails shall be designed with adequate visibility and durability in order to withstand normal snow plowing operations.

Landscaped islands shall be curbed and a minimum of eight (8) feet in width, not including curbing. The incorporation of bioretention into landscaped islands is strongly encouraged.

4.5.6. Snow Storage

Snow storage areas ~~shall not encroach on areas designated to meet minimum parking requirements but~~ may be located in landscaped areas provided that appropriate landscape materials are selected which can withstand such snow storage. Snow storage shall not be located where it would adversely impact the functionality of bioretention or other stormwater management systems.

4.5.7. Walls and Fences

Fences and walls within public view must be of high architectural quality. Chain link and wire mesh fences shall be vinyl coated, dark in color, out of direct public view and shall be complemented with landscaping.

- For residential development, chain link fence shall be a minimum of 6-gauge fence fabric.

- For commercial or industrial development chain link fence shall be 9-gauge fence fabric mounted on schedule 40 pipe posts.

~~Electrified or barbed fencing is not permitted.~~ Masonry walls shall be constructed of stone, brick or other durable and attractive materials.

~~Concrete block walls are not permitted except where variety in color, design and detailing of the materials are of high architectural quality.~~ Electrified or barbed fencing is not permitted.

4.5.8. Slope Stabilization

Stabilization of slopes between 5% and 50% shall incorporate installation of a mixture of vegetation, organic mulch and/or erosion control seed mix.

Stabilization of slopes greater than 50% must incorporate biotechnical and/or structural methods including but not limited to terracing rip rap or retaining walls in addition to vegetation. Retaining walls, if four (4) feet in height or greater from the ~~proposed finished grade~~ bottom of the footing to the top of the wall and/or if supporting a surcharge, must be designed by a licensed ~~structural~~ engineer and require a City of Portland Building Permit.

4.5.9. Low Impact Development (LID) Practices

It is the City's policy to encourage Low Impact Design (LID) strategies and practices to capture and infiltrate stormwater runoff. LID is the process of developing land to mimic the natural hydrologic regime. It incorporates land planning and design practices and technologies to achieve this goal. LID is also discussed in Section V of this Technical Manual.

LID strategies and practices relating to site landscaping requirements include but are not limited to bioretention, grassed filter strips, green roofs, rain gardens and vegetated swales.

4.5.10. Climate Positive Planting

Site landscaping should be selected in part to further the City's goals around mitigating the effects of a locally changing climate, with consideration given to the viability of species in a warming environment, the equitable extension of tree canopy to address the urban heat island effect, and the use of landscaping elements to reduce energy consumption.

4.6. STREET TREES

Arrangement and spacing of trees proposed in the City right of way and/or private roadway, shall be coordinated with the Portland City Arborist or their designee. ~~If it is determined by the City Arborist that there is not adequate space or conditions for street trees in the public right of way and/or private roadway or if there is a conflict between the location of proposed street trees and the location of existing or proposed underground utilities, the required number of street trees shall be provided on private property within twenty (2010) feet of the property line along the street frontage.~~ Tree species shall be selected according to the City of Portland recommended tree list (Figure IV-1). Trees proposed in the sidewalk shall be planted ~~in with approved tree wells/grates, as shown in Figures IV-4a, 4b, and 4c and as required by the City Arborist based upon site context and prospects for tree survival~~ 6. Adequate soil volume to ensure tree survival shall also be required, as determined by the City Arborist.

4.6.1. Residential Development

Single-family residential: Single-family residential developments shall provide a minimum of two (2) street trees per unit, planted in the City right of way and/or along private roadways unless otherwise approved and spaced twenty-five (25) to thirty-five (35) feet on center.

Multi-family residential: Multi-family residential developments shall provide a minimum of one tree per unit, planted in the City right of way and/or along private roadways unless otherwise approved and spaced twenty-five (25) to thirty-five (35) feet ~~thirty (30) to forty-five (45)~~ on center.

Single-family residential subdivisions: Single-family residential subdivisions shall provide a minimum of two (2) trees per lot, planted in the City right of way and/or along private roadways unless otherwise approved and spaced twenty-five (25) to thirty-five (35) feet ~~thirty (30) to forty-five (45) feet~~ on center.

4.6.2. Planned Residential Unit Developments (PRUDs)

Where a manufactured housing park or subdivision is also a planned residential unit development (PRUD), the development shall provide a minimum of two (2) street trees per unit, planted within eight (8) to ten (10) 8-10 ft feet of the City right of way and/or private roadway proposed as part of the development.

4.6.3. Commercial, Industrial and Institutional Development

Commercial, industrial and institutional developments shall provide street trees twenty-five (25) – thirty-five (35) feet ~~thirty (30) to forty-five (45) feet apart~~ on center in the City right of way along all street frontages unless otherwise

approved.

4.6.4. Street Tree Alternatives

Section 14.6.2 of the Land Use Code states that where the applicant can demonstrate that site constraints prevent the planting of required street trees in the City right-of-way and/or along private roadways, the review authority may permit the following to be counted towards the street tree requirement. The alternatives to a street tree in the ROWright-of-way should help achieve the objectives of a street tree and contribute to the street environment. The following specifications are provided to guide the applicant; the acceptability of the alternative to a street tree shall be at the discretion of the City Arborist.

- Existing healthy street trees located in the ROWright-of-way along the frontage of the site may be counted as street trees. Plans for protection and preservation of these trees during construction shall be included as part of the development review.
- Existing healthy trees that are six (6) inches or more in caliper, visible from the right of way and on the site within 20(twenty (20)) feet of the property line may be counted as street trees. Plans for the protection and preservation of these trees during construction shall be included as part of the development review.
- New street trees may be planted where visible from the right-of-way within 20(twenty (20)) feet of the property line, subject to the species being appropriate to the location and from the Recommended Tree List (Figure IV-1). Applicants should note that trees planted within the site would be subject to the Performance Guarantee ~~d~~Defect period provisions and should be documented on deed plans for future preservation.
- The preferable location for new street trees that cannot be located in the ROWright-of-way along the frontage of the site is on public land ~~or facilities~~ elsewhere in the neighborhood or in areas of the City with minimal tree coverage. Locations may include esplanades, ~~and~~ sidewalks and existing empty street tree wells or planting strips, in the neighborhood, and also places such as parks, playgrounds, and other areas where ~~the~~ public benefit would be derived from the addition of new trees. Evidence that the planting site was unlikely to be redeveloped in the near future and that the trees would be protected and maintained ~~looked after would also be~~ are required.
- ~~The requirement for street trees may be met by incorporating measures to enhance tree survival (such as raised planters, irrigation and structural soils) where these have been recommended and agreed by the City Arborist. The objective is to improve the likelihood of the new tree~~

~~becoming established and to reduce the need for costly maintenance in the future. The cost of the agree measure(s) would be the basis for the calculation, as follows:~~

~~$$\frac{\text{Cost of measure(s)}}{\text{Contribution currently assessed for a new street tree}} = (\# \text{ of street tree equivalent})$$~~

- ~~• Where the option to install other planted features is being considered, applicants will need to submit comprehensive information and document that the proposal would fully meet the ordinance requirements.~~
- Where the other alternatives are demonstrated to be ~~not in~~ feasible, a contribution for each required street tree may be made into the City of Portland's Tree Fund in accordance with the table below. The contribution ~~shall~~would be used by the City to provide street trees in the right of way or in the neighborhood of the proposals site or in other areas of the City with minimal tree coverage. The contribution would be considered a "one-time" ~~infrastructure~~ contribution which is payable prior to the issuance of a building permit. ~~It should be noted that at least 85% of the Tree Fund would be allocated towards new trees and 15% towards maintenance to ensure trees get established or to replace failing trees.~~
- Where the proposed development involves the removal of an existing street tree determined by the City Arborist to be a feature mature tree, the applicant shall be required to contribute to the tree fund as indicated below.

Contribution for new street tree	\$400.00
Contribution for tree to replace "heritage" or feature mature tree	\$100.00 per inch diameter of the removed existing "heritage" or feature mature tree
Contribution where applicant plants a tree to replace "heritage" or feature mature tree	\$100.00 per inch diameter of removed existing "heritage" or feature mature tree less \$400.00

4.7. PLANT SELECTION

- 4.7.1. All trees and shrubs shall comply with the standards set forth by the American Standard for Nursery Stock (ANSI Z60.1 - 2004). These standards are available through the Department of Public ~~Works Services and at~~ <http://anla.org/index.cfm?area=&page=Content&categoryID=260>

- 4.7.2. All trees and shrubs shall be nursery grown, healthy, free of disease and insect pests, and shall have a well-developed and compact root system. Plant material showing signs of a lack of proper nursery care or a lack of pruning or cultivation, or which is not true to name will be classified as collected stock regardless of its source and shall be rejected.
- 4.7.3. Proposed trees and shrubs installed as part of the landscaping plan shall be comprised of at least 50% native species.
- 4.7.4. The developer shall be responsible for preventing the spread of existing or the introduction of new invasive species on the site, as identified below. If, within one (1) year following construction, invasive species are identified on the site or if such species are pre-existing on the site but are determined to have spread by the City Arborist, the applicant shall be required to implement appropriate control measures prior to the release of the defect guarantee. Accepted mechanical and chemical control methods are provided by the Maine Natural Areas Program (MNAP) of the Maine Department of Conservation in their Invasive Plant Fact Sheets (available through the Department of Public Services and through the MNAP program website:
<http://www.maine.gov/doc/nrimc/mnap/features/invasives.htm>).

The following plant species are recognized as invasive species that are characteristically adaptable, aggressive, and have a high reproductive capacity.

- (1) Asiatic Bittersweet (*Celastrus orbiculata*);
- (2) Autumn and Russian Olive (*Elaeagnus umbellata* and *Elaeagnus angustifolia*);
- ~~(3) Black Swallowwort (*Cynanchum louiseae*);~~
- (4) Brazilian Waterweed (*Egeria densa*);
- (5) Common and Glossy Buckthorn (*Rhamnus cathartica* and *Frangula alnus*);
- (6) Common Reed (*Phragmites australis*);
- (7) Eurasian Milfoil (*Myriophyllum spicatum*);
- (8) Fanwort (*Cabomba caroliniana*);
- (9) Garlic Mustard (*Alliaria petiolata*);
- (10) Hydrilla
(*Hydrilla verticillata*);
- (11) Japanese Barberry (*Berberis thunbergii*);
- (12) Japanese Honeysuckle (*Lonicera japonica*);
- (13) Japanese Knotweed (*Fallopia japonica*);
- (14) Japanese Stilt Grass (*Microstegium vimineum*);
- (15) Lesser Celandine (*Ranunculus ficaria*);
- (16) Mile-a-Minute Weed (*Polygonum perfoliatum*);
- (17) Morrow and Tartarian Honeysuckle (*Lonicera morrowii* and *Lonicera tartarica*);
- (18) Multiflora/Rambler Rose (*Rosa multiflora*);

- (19) Porcelainberry (*Ampelopsis*
- ~~(20)~~ Milfoil (*Myriophyllum heterophyllum*);
- ~~(21)~~ Water Chestnut (*Trapa natans*);
- ~~-(22)~~ Norway Maple (*Acer platanoides*)
- (23) Yellow-flag Iris (*Iris pseudacorus*).

- 4.7.5. Trees selected from the Recommended Tree List ([Figure IV-1](#)) ~~of this Section~~ shall conform, at a minimum, to the sizes specified on the list.
- 4.7.6. All upright deciduous and evergreen shrubs shall be a minimum of 3 feet tall at mature height. All spreading evergreen and deciduous shrubs shall be a minimum of 2-2.5 feet in width at maturity.
- 4.7.7. Ground covers planted in lieu of grass shall be planted at a level of coverage equivalent to one complete growing season. Grass areas shall be planted with Kentucky Bluegrass (*Poa pratensis*), Red Fescue (*Festuca rubra*), Tall Fescue (*Festuca arundinacea*) or Perennial Ryegrass (*Lolium perenne* L.). Rolled turf, erosion reducing net or suitable vegetation ~~mulch~~ along with landscaping shall be used in swales or other areas subject to erosion. ~~Mulching material shall be a minimum of three (3) inch deep wood chip or bark mulch.~~
- 4.7.8. Mulching material shall be a minimum of three (3) inch deep wood chip or bark mulch. Inorganic mulches are not permitted.
- 4.7.9. No plantings used to satisfy City landscaping requirements shall be comprised of inorganic materials.

4.8 INSTALLATION AND MAINTENANCE OF PLANTINGS

- 4.~~8.17-10~~. Landscaping, earth moving and grading activities shall be performed according to standards accepted good planting and grading procedures and in accordance with the approved Site Plan, Subdivision Plat, Grading Plan and Landscape Plan.
- 4.~~8.27-11~~. No plant shall be moved after the bud break unless so authorized by the City Arborist or their designee. Planting periods are between April 1st and to July 1st and/or September 1st and November 1st. ~~Landscaping which cannot be installed prior to issuance of a Certificate of Occupancy shall be subject to a performance guarantee according to Article 14 of the City Land Use Code.~~
- 4.~~8.37-12~~. Tree planting and other landscaping for subdivisions that cannot be installed prior to release of the performance guarantee must be insured by a defect bond as described in Section Article 15 of the City Land Use Code.

4.~~8.47.13~~. All bare soil areas shall be vegetated and/or mulched prior to the issuance of a Certificate of Occupancy.

4.8.5. New vegetation that shows signs of construction damage within a one year period following construction, including but not limited to bark damage or excessive root damage, grade changes other than those originally indicated in the approved grading plan, soil compaction due to heavy equipment traversing closely, or general decline due to mechanical or natural conditions shall be rejected and must be replaced prior to the release of any defect guarantee.

Figure IV-1: City of Portland Recommended Tree List

Small Trees - (Mature Height < 25')					
Common Name	Botanical Name	Cultivars	Uses	Native	Notes
Amelanchier or Shadbush	<i>Amelanchier</i>	"Autumn Brilliance", "Cumulus", "Robin Hill Pink"	Street tree/ Naturalize	X	Single stem tree forms
European Hornbeam	<i>Carpinus betulus</i>	Upright forms available	Street tree		
American Hornbeam	<i>Carpinus caroliniana</i>		Lawn/Landscape	X	
Hawthorn	<i>Crataegus crusgalli</i>	"Cusgali", "Winter King"	Street tree		Thornless
Flowering Crabapple	<i>Malus x</i>	"Adirondack", "Springsnow"	Street tree		
Sargent Cherry	<i>Prunus sargentii</i>	"Accolade", "Pink Flair"	Street tree & Ornamental		
Striped Maple	<i>Acer pennsylvanicum</i>		Naturalize	X	Naturalizing in shaded areas
Magnolia	<i>Magnolia spp.</i>	Many cultivars	Ornamental		
Hop-Hornbeam	<i>Ostrya virginiana</i>		Naturalize	X	Tolerates shade / understory
Sourwood	<i>Oxydendrum</i>		Ornamental	X	Interesting lat summer flower
"Arnold's Promise" Witchhazel	<i>Hamamelis</i>				

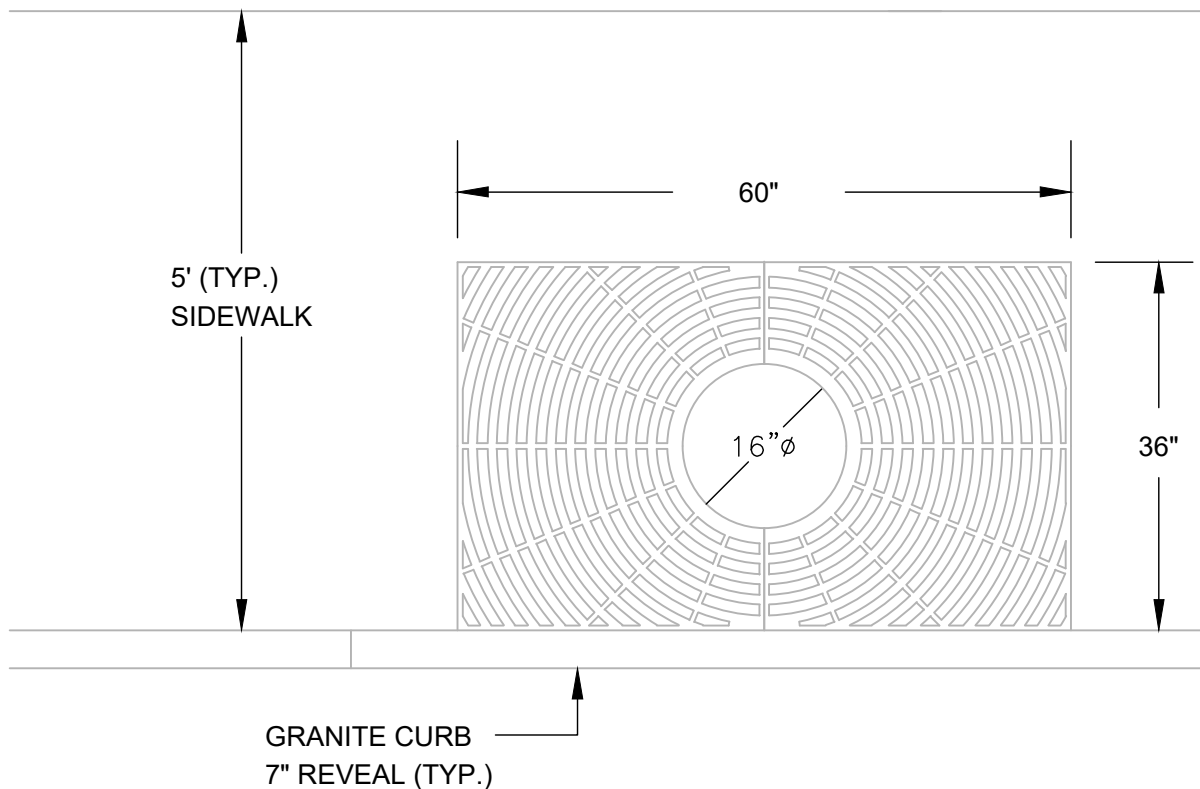
Medium Trees to Large trees 25' > 45'					
Common Name	Botanical Name	Cultivars	Uses	Native	Notes
Red Maple	<i>Acer rubrum</i>	"Armstrong", "Bowhall", "Karpick", "Red Pointe"	Street tree/ Landscape	X	Cultivars from upright to oval shape
Sugar Maple	<i>Acer saccharum</i>	"Green Mountain"	Naturalize Landscape use	X	
White Birch	<i>Betula papyrifera 'Renci'</i>	"Renaissance Reflection"	Naturalize	X	
River Birch	<i>Betula nigra</i>	"Heritage"	Naturalize	X	
Yellow Birch	<i>Betula lenta</i>		Naturalize	X	
Hackberry	<i>Celtis laevigata</i>		Street tree		
Ginkgo	<i>Ginkgo biloba</i>	"Mygar", "Autumn Gold"	Street tree		
Thornless Honeylocust	<i>Gleditsia inermis</i>	"Streetkeeper" (Upright form)	Street tree		
Tuliptree	<i>Liriodendron</i>		Street tree		
Tupelo	<i>Nyssa sylvatica</i>		Naturalize		
Swamp White Oak	<i>Quercus bicolor</i>		Street tree/Naturalize		
Red Oak	<i>Quercus rubra</i>		Street tree/Naturalize		
Upright-Growing Oaks	"Beacon" Oak "Urban Pinnacle" Oak "Kindred Spirit" Oak "Regal Prince"		Street tree/Naturalize Street tree/Naturalize Street tree/Naturalize Street tree/Naturalize		
American Elm	<i>Ulmus americana</i>	"Accolade", "Princeton"	Street tree	X	
Lacebark Elm	<i>Ulmus parvifolia</i>		Street tree		Interesting bark
Zelkova	<i>Zelkova serrata</i>	Musashino Zelkova	Street tree		

Conifers					
Common Name	Botanical Name	Cultivars	Uses	Native	Notes
Alaska Cedar	<i>Callitropsis nootkatensis</i>	Alaska Weeping Cedar	Buffer planting		Fast growing
Red Cedar	<i>Juniperus virginiana</i>		Naturalize/ Ornamental	X	
Eastern Larch or Tamarack	<i>Larix laricina</i>		Naturalize/ Ornamental	X	Deciduous
Dawn Redwood	<i>Metasequoia</i>		Ornamental		Deciduous
White Spruce	<i>Picea glauca</i>		Naturalize	X	
Serbian Spruce	<i>Picea omorika</i>		Ornamental		Upright / good for narrow locations
Pitch Pine	<i>Pinus rigida</i>	Small sizes available	Naturalize	X	Full sun, sandy soils
White Cedar	<i>Tuja occidentalis</i>	"Dark American", "Techny"	Naturalize	X	Can be pruned into hedge

Notes:
In the case of street trees, small trees (<25') are preferred in locations with overhead utilities, and fruiting varieties should generally be avoided.

NOTES:

1. 16"Ø EXPANDABLE TREE OPENING. 0.25" SLOT OPENINGS.
2. ALL TREE GRATES SHALL COMPLY WITH CITY TECHNICAL STANDARDS AND MUST BE APPROVED BY THE CITY ARBORIST.
3. FINAL PLACEMENT LOCATION OF TREE GRATES SHALL BE APPROVED BY DPW AND SHALL CONSIDER SIDEWALK WIDTH AND ADA COMPLIANCE, ON-STREET PARKING CONFIGURATIONS, ABOVE AND BELOW GROUND UTILITIES AND OTHER OBSTRUCTIONS.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY. SEE SIDEWALK CONSTRUCTION DETAILS IN SECTION 1 OF THE TECHNICAL MANUAL.
5. WHEN THE TREE GRATE IS INSTALLED IN A CONCRETE SIDEWALK, A NOTCH MUST BE INSTALLED ALONG THE EDGE TO HOLD THE GRATE, WHEN INSTALLED IN A BRICK SIDEWALK IT REQUIRES A FRAME TO BE INSTALLED TO HOLD THE GRATE IN PLACE.



PLAN VIEW

EXPANDABLE TREE GRATE WITH FRAME
NEENAH MODEL R-8810

NOT TO SCALE

<http://www.nfco.com/literature/TreeGrateCatalog22/Avenue.pdf>

DATE:
NOV. 2022

REVISED:

CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**LANDSCAPE AND
LANDSCAPING PRESERVATION
EXISTING VEGETATION
STANDARDS - SECTION IV**

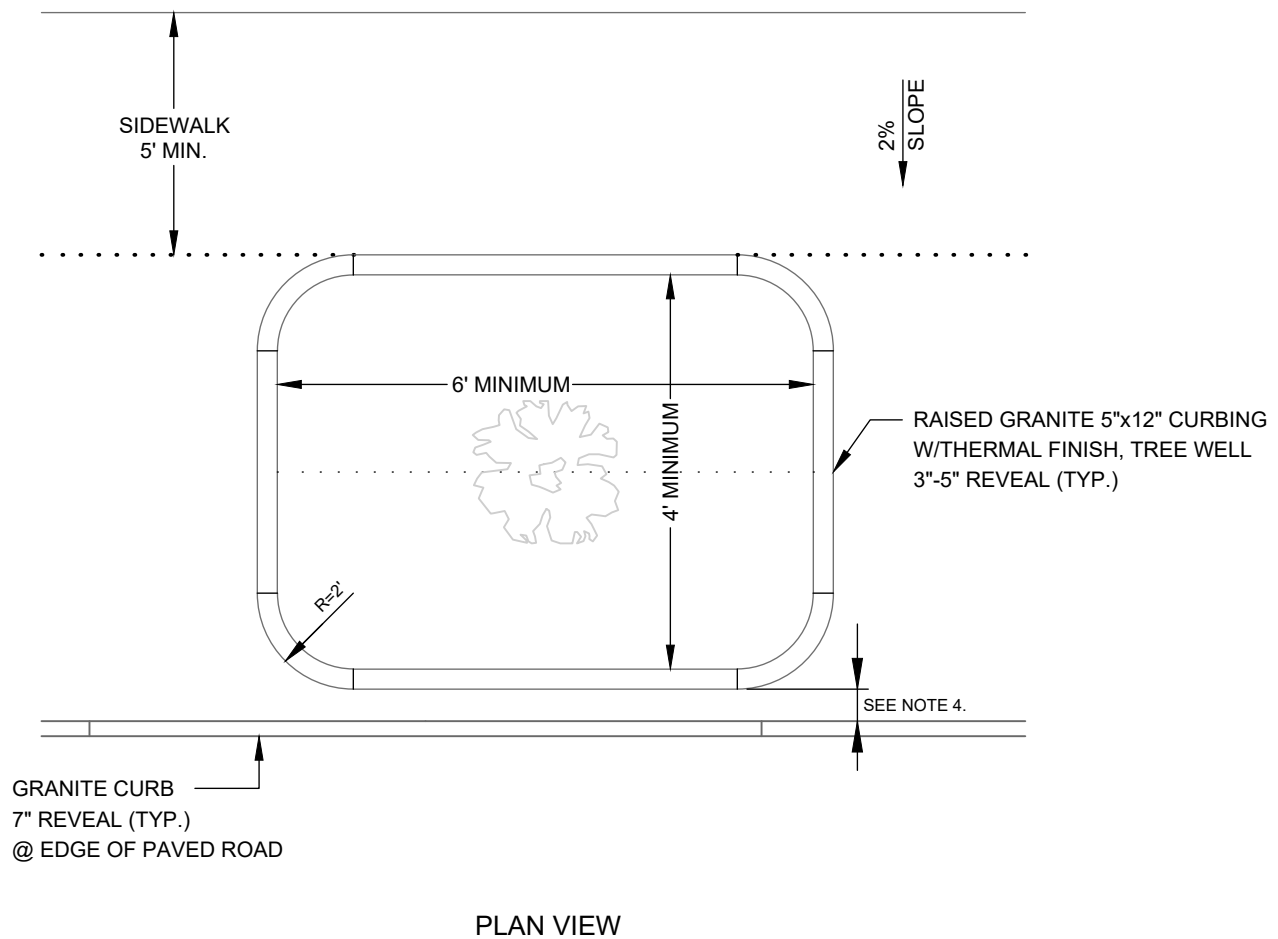
FIGURE:

**EXPANDABLE TREE GRATE WITH FRAME FOR
NARROW RESIDENTIAL URBAN STREETS**

IV-4A

NOTES:

1. ALL TREE WELLS SHALL COMPLY WITH CITY TECHNICAL STANDARDS AND MUST BE APPROVED BY THE CITY ARBORIST.
2. FINAL PLACEMENT LOCATION OF THE GRANITE CURB TREE WELL SHALL BE APPROVED BY DPW AND SHALL CONSIDER SIDEWALK WIDTH, STREET PARKING STATUS, ABOVE AND BELOW GROUND UTILITIES AND OTHER OBSTRUCTIONS.
3. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY. SEE SIDEWALK CONSTRUCTION DETAILS IN SECTION 1 OF THE TECHNICAL MANUAL.
4. RAISED CURB TREE WELL OFFSETS FROM THE CURB LINE SHALL TAKE THE LOCATION OF ON-STREET PARKING INTO ACCOUNT. WHERE ADJACENT TO ON-STREET PARKING AND SIDEWALK WIDTH ALLOWS, A MINIMUM OFFSET OF 2 FEET IS PREFERRED, UNLESS IT CAN BE DEMONSTRATED THAT THE PLACEMENT OF THE TREE WELLS WILL NOT INTERFERE WITH THE OPENING OF VEHICLE DOORS.



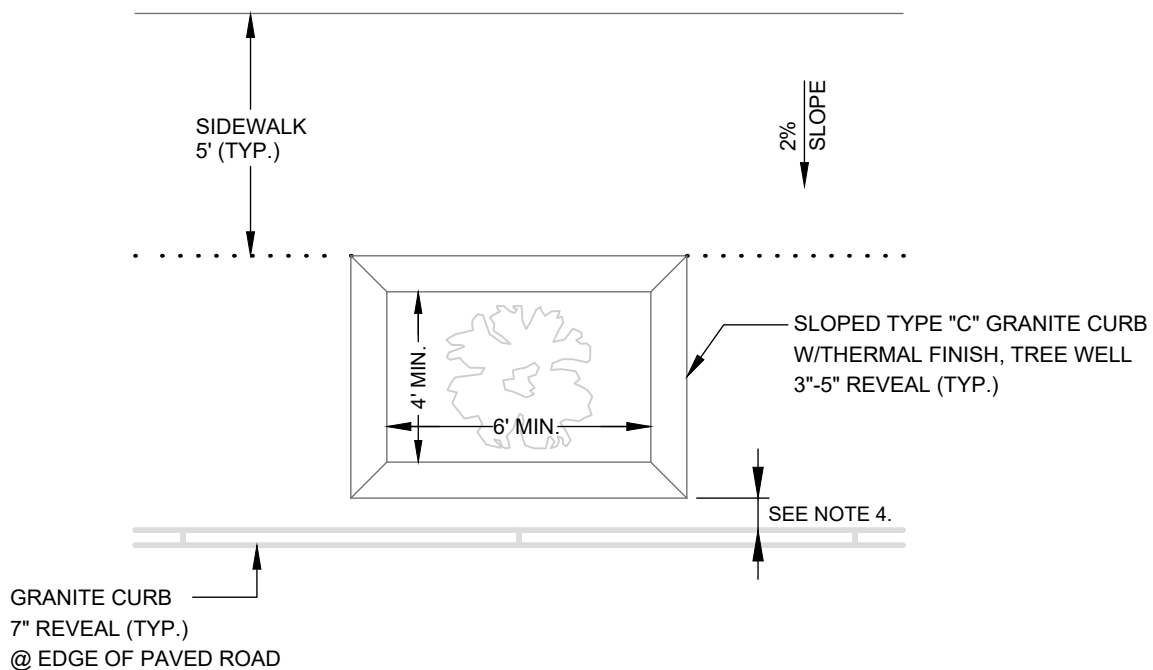
GRANITE BORDER TREEWELL IN SIDEWALK WITH NO ESPLANADE

NOT TO SCALE

DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS - SECTION IV	FIGURE:
	GRANITE BORDER TREE WELL IN SIDEWALK WITH NO ESPLANADE		IV-4B

NOTES:

1. ALL TREE WELLS SHALL COMPLY WITH CITY TECHNICAL STANDARDS AND MUST BE APPROVED BY THE CITY ARBORIST.
2. FINAL PLACEMENT LOCATION OF THE GRANITE CURB TREE WELL SHALL BE APPROVED BY DPW AND SHALL CONSIDER SIDEWALK WIDTH, STREET PARKING STATUS, ABOVE AND BELOW GROUND UTILITIES AND OTHER OBSTRUCTIONS.
3. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY. SEE SIDEWALK CONSTRUCTION DETAILS IN SECTION 1 OF THE TECHNICAL MANUAL.
4. RAISED CURB TREE WELL OFFSETS FROM THE CURB LINE SHALL TAKE THE LOCATION OF ON-STREET PARKING INTO ACCOUNT. WHERE ADJACENT TO ON-STREET PARKING AND SIDEWALK WIDTH ALLOWS, A MINIMUM OFFSET OF 2 FEET IS PREFERRED, UNLESS IT CAN BE DEMONSTRATED THAT THE PLACEMENT OF THE TREE WELLS WILL NOT INTERFERE WITH THE OPENING OF VEHICLE DOORS.



PLAN VIEW

SLOPED TYPE "C" TREE WELL IN SIDEWALK WITH NO ESPLANADE

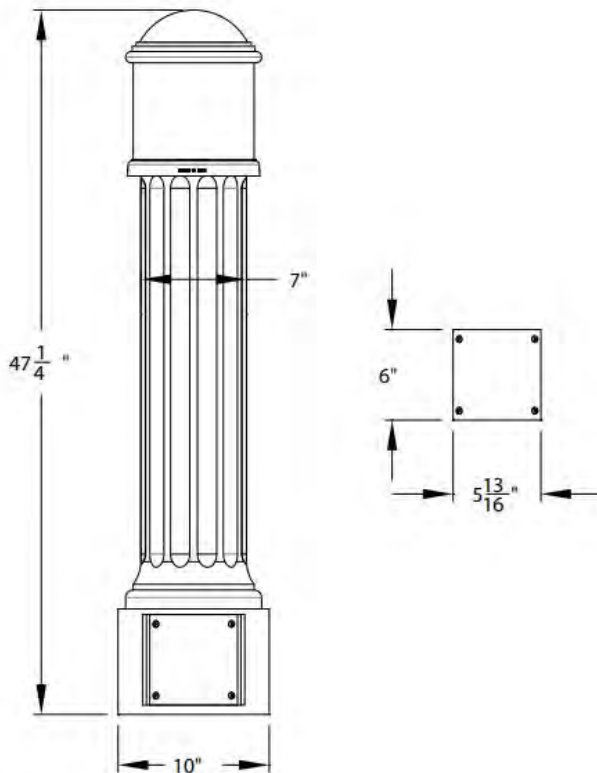
NOT TO SCALE

DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS - SECTION IV	FIGURE:
	SLOPED TYPE "C" GRANITE TREE WELL IN SIDEWALK WITH NO ESPLANADE		IV-4C



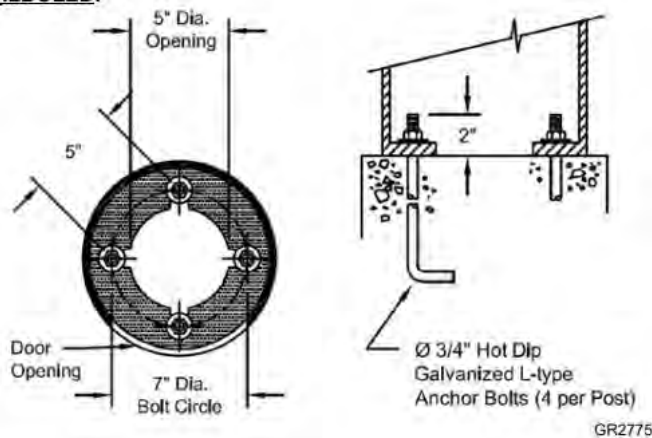
PORTLAND | me

Street & Sidewalk Lighting BOLLARD



Maximum standard weight - 58 lbs.
Maximum weight with Direct Burial Base Option - 88 lbs.

HLBOLED:



LUMINAIRE

Hamilton LED Series Cast Aluminum Bollard
Model: HLBOLED CA P40 30K MVOLT GL5 ACS BK
AO ABG

Mechanical Specifications

Be heavy grade A356.1 cast aluminum (aluminum with <1% copper)
Wet locations listed
One-piece casting with a removable top
All welders shall be certified per Section 5 of ANSI/AWS D1.2-90

Access door opening for anchor bolts and wiring access is 3" x 5" x 4.5"

The finish shall utilize a polyester powder coat paint to ensure maximum durability rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117) on standard BLACK.

Optical Specifications

IP65 light engine
Type 5 distribution with prismatic borosilicate glass and a smooth clear acrylic outer lens

Control Options

Field adjustable output to adjust output to luminaire – AO

Electrical Specifications

The driver shall meet the following requirements:

Certified by UL or CSA for wet locations
A factory programmable electronic driver with 0-10V dimming

LEDs shall have a minimum of 70 CRI and available in 3000K CCT

The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off.

FINISH

Black (standard)

APPLICATION

Sidewalk lighting where height is limited - underpasses, parks, piers

Can be used as a security bollard.

Spacing: To be determined by Department of Public Works per specific project

Date:
May, 2022

CITY OF PORTLAND, MAINE
TECHNICAL MANUAL

**MUNICIPAL STREET
LIGHTING STANDARDS**
SECTION 10

Figure:

X-3

Revised Date:

LIGHTED BOLLARD



LED Bollards

Pedestrian & Walkway Lighting

LED Bollards

Reliable Period Outdoor Lighting
for Pedestrian Areas
and Walkways



Holophane® decorative bollards provide an attractive pedestrian area solution to complement the full line of decorative posts by transitioning flawlessly from the street to pedestrian walkway. Our bollards offer robust cast aluminum construction, combined with a durable polyester powder coat finish. And now, our new LED bollards further enhances your space by providing an energy saving yet visually comfortable set of lighting solutions. The long life of our LED light engines is combined with robust construction to provide you an expected service life of 20 years or more.

The Holophane Difference

- + Lumen packages ranging from 520 to 3,070 lumens
- + Six period style form factors to compliment your architectural design
- + Three models with dedicated optics to further enhance performance and visual comfort
- + Five different optical distribution options
- + 2700K, 3000K and 4000K CCT
- + 20kV/10kA surge protection option available
- + Robust CSA rated mechanical design with IP66 optics
- + Polyester paint finish with 5,000 hour salt fog rating ensures system reliability
- + Utility-friendly design features including removable access door and optional three stage terminal block
- + Field-adjustable lumen output module to fine tune light levels
- + Optional external electrical receptacle
- + Eyebolts for chain linking bollards is also optional
- + Button style photocontrols with 3 voltage options

Optical LED Bollards

Each of the three optical LED bollards are available in multiple optical configurations to help control distribution and provide visual comfort. Options include prismatic glass refractors, specular louvers and opaque white lens.

Hamilton (HLBOLED)	Columbia (CLBOLED)	Plymouth (PLBOLED)
Optical Performance Options		
Two Aluminum louvered options + 520–1,330 lumens + White powder coat, Type V Symmetric + Anodized, semi specular, Type V Symmetric	Prismatic glass refractor + 1,260–3,000 lumens + Type III asymmetric + Type V symmetric	Opaque Lens + 1,000–2,500 lumens + No internal optic, Type V

Slotted LED Bollards

Slotted LED bollards all utilize a common optical configuration whereby light is emitted equally in all directions through an array of slots. This provides a symmetrical Type V distribution pattern.

North Yorkshire (NYBOLED)	Charleston (CHBOLED)	Wadsworth (WDBOLED)
Wide Slots + 920–2,260 lumens + No internal optic, Type V	Narrow Slots + 510–1,260 lumens + No internal optic, Type V	Wide Slots + 920–2,260 lumens + No internal optic, Type V



LED Bollards

Pedestrian & Walkway Lighting

Holophane Optical Engineering

Over a century of expertise in prismatic glass optics positions Holophane to provide customers with robust, reliable and highly efficient lighting solutions. The LED Bollards portfolio draws on that expertise to offer you multiple solutions for both your aesthetic and performance needs.



Acuity Brands Lighting, Inc.

Holophane Headquarters, 3825 Columbus Road, Granville, OH 43023

Acuity Brands Lighting Canada, Inc., 35B Minthorn Blvd., Markham, ON, L3T 7N5

Holophane, S.A. de C.V., Km. 31 Carretera Mexico-Cuautitlan 54900 Tultitlan Edo. De Mexico

Contact your local Holophane factory sales representative for application assistance, and computer-aided design and cost studies.

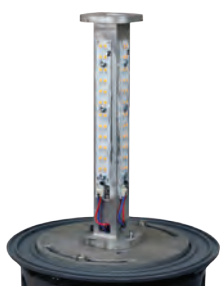
Warranty Five-year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Visit our web site at www.holophane.com

Prismatic Glass

Louver Options

Opaque White



Energy efficient LED Engine



Each of our optical configurations include an outer acrylic lens enclosure over the internal optical design

Catalog Number	HLBOLED CA P40 30K MVOLT GL5 ACS BK ABG	
Notes		Type

HLBOLED

Hamilton LED Series:
Cast Aluminum Bollard



General Description

The Hamilton is a decorative bollard which provides a fully integrated LED solution to complement the full line of decorative posts by transitioning flawlessly from the street to pedestrian walkway.

While maintaining the period style, the electronics are engineered to provide energy-efficient lighting and minimize maintenance components. Our bollards offer superior finish through the application of a polyester powder coat finish.

Intended use: Bollard for city streetscapes, public areas and parks, higher education campuses, paths and walkways.

Mechanical Specifications

The luminaire housing shall:

- Be heavy grade A356.1 cast aluminum (aluminum with <1% copper)
- Wet locations listed
- One-piece casting with a removable top
- Optical assembly is secured inside the shaft
- All welding shall be per ANSI/AWS D1.2-90
- All welders shall be certified per Section 5 of ANSI/AWS D1.2-90
- (4) 3/4" diameter by 18" long, hot dip galvanized L-type anchors bolts are provided and are to be installed on a 10.5" bolt circle
- Access door opening for anchor bolts and wiring access is 3" x 5" x 4.5"
- Optional Field or Factory installed hot-dip galvanized direct burial base for mounting without a concrete footing

The finish shall:

- Utilize a polyester powder coat paint to ensure maximum durability.
- Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117) on standard and RAL finish options.
- RAL (RALxxxxSDCR) paint colors are Super Durable Corrosion Resistant, 80% gloss.

Electrical Specifications

The driver shall meet the following requirements:

- Certified by UL or CSA for wet locations
- A factory programmable electronic driver with 0-10V dimming
- LEDs shall have a minimum of 70 CRI and available in 2700K, 3000K and 4000K CCT
- The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off, as standard with an optional 20kV/10kA surge protection, fail off with indicator light, option
- Optional GFI receptacle with wet-location cover, not CSA listed

Optical Specifications

- IP65 light engine
- Type 5 distribution with a smooth white acrylic outer lens
- Type 5 distribution with a either a white or semi-specular louver and a acrylic smooth white acrylic outer lens
- Type 3 or 5 distribution with prismatic borosilicate glass and a smooth clear acrylic outer lens

Control Options

The control options shall include, but not limited to, the following:

- Field adjustable output to adjust output to luminaire - AO
- Button style photocontrol

Certification and Standards

- UL 1598 - Wet Locations Safety Listing
- Suitable for ambient temperatures -40°C to 40°C

Warranty

5-year limited warranty. Complete warranty terms located at:

www.acuitybrands.com/support/warranty/terms-and-conditions

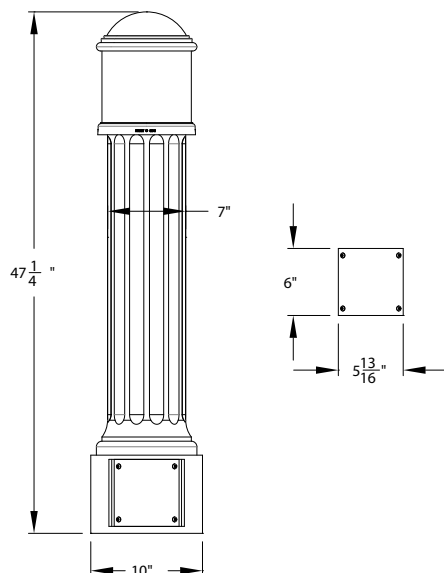
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Important Installation Notes:

- Factory-supplied templates must be used when setting anchor bolts. Acuity Brands Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- Acuity Brands Lighting is not responsible for the foundation design.

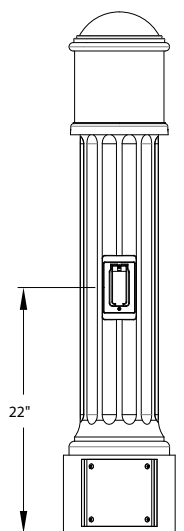


DIMENSIONAL DATA

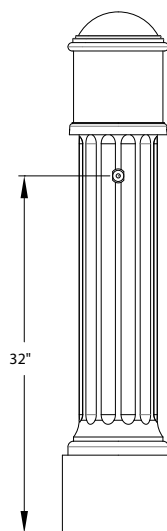


Maximum standard weight - 58 lbs.

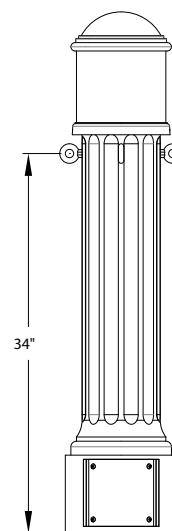
Maximum weight with Direct Burial Base Option - 88 lbs.



Receptacle Option



Photocell Option



Eyebolt Option

(more than 1 can be specified)

HLBOLED

Hamilton LED Series: Cast Aluminum Bollard



ORDERING INFORMATION

Example: HLBOLED CA P40 30K MVOLT GL5 ACS BK EB34B EB34D

Series	Material	LED Performance Package	Color Temperature	Voltage	Optics
HLBOLED	CA Cast Aluminum	P10 P10 Performance Package P20 P20 Performance Package P30 P30 Performance Package P40 P40 Performance Package	27K 2700K 30K 3000K 40K 4000K	MVOLT Auto-sensing voltage (120 thru 277) 50/60 HZ HVOLT Auto-sensing voltage (347-480) 50/60 HZ 120V 120V 50/60 HZ 277V 208-277V 50/60 HZ 347V 347V 50/60 HZ	GL3 Internal glass refractor, Type 3 GL5 Internal glass refractor, Type 5 LP5 Louver, painted white, Type 5 LS5 Louver, semi-specular, Type 5 NIO5 No internal reflector, Type 5

Lens	Color	Options / Controls
AWS Acrylic White Smooth Outer Lens ACS Acrylic Clear Smooth Outer Lens	BK Black BZ Bronze GH Graphite GN Green GR Grey PP Primer Paint WH White CMC Custom Match Color RALxxxxSDCR RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number. XX Standard Finish, TBD	AO Field adjustable output device EB34A Eyebolt (for chain by others) at 34° and 0° counterclockwise from door EB34B Eyebolt (for chain by others) at 34° and 90° counterclockwise from door EB34C Eyebolt (for chain by others) at 34° and 180° counterclockwise from door EB34D Eyebolt (for chain by others) at 34° and 270° counterclockwise from door PEC1 Button style photocontrol (120V) PEC2 Button style photocontrol (208V-277V) PEC3 Button style photocontrol (347V) DBB Factory Installed direct burial base for mounting without a concrete footing FGE GFI receptacle externally mounted with wet-location cover (120V) PIHEX Security Screws - Pin in hex exterior fasteners TB 3 position terminal block 20kV 20kv/ 10kA surge

Accessories: Order as separate catalog number.	
AADB2 R1	Bolt on 24" long, 3.5" scheduled 40 hot-dip galvanized steel pipe with 2" x 8" wireway opening: attachment hardware included
AB-31-4	Anchor bolts
TMP-58	Template

Important Installation Notes:

- Factory-supplied templates must be used when setting anchor bolts. Acuity Brands Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- Acuity Brands Lighting is not responsible for the foundation design.

HLBOLED

Hamilton LED Series: Cast Aluminum Bollard



OPTIONS MATRIX

Mounting		Performance Package				Voltage					Optic					Lens		Options														
		P10	P20	P30	P40	MVOLT	HVOLT	120V	277V	347V	GL3	GL5	LPS	LS5	NIO5	AWS	ACS	AO	DBB	EB34A	EB34B	EB34C	EB34D	FGE	PEC1	PEC2	PEC3	PIHEX	TB	20KV		
Performance Package	P10		N	N	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	P20	N		N	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	P30	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	P40	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Voltage	MVOLT	Y	Y	Y	Y		N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		Y	Y	Y	
	HVOLT	N	N	Y	Y	N		N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		Y	Y	Y	
	120V	Y	Y	Y	Y	N	N		N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		Y	Y	Y	
	277V	Y	Y	Y	Y	N	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N		Y	Y	Y	
Voltage	347V	N	N		Y	N	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		Y	Y	Y	Y	
	GL3	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	GL5	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	LPS	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N			N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Optic	LS5	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N			N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	NIO5	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N			Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N		Y		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	ACS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Lens	AO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	
	DBB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Options	EB34A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	EB34B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	EB34C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	
	EB34D	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	
	FGE	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	
	PEC1	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N		Y	Y	Y	
	PEC2	Y	Y	Y	Y	N	N	N		Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N		Y	Y	Y	
	PEC3	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N			Y	Y	Y	
	PIHEX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	
	TB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	
	20KV	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		

LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS

Use the factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient Temp		Lumen Multiplier
°C	°F	P10 - P40
0	32	1.04
5	41	1.03
10	50	1.02
15	59	1.02
20	68	1.01
25	77	1.00
30	86	0.99
35	94	0.98
40	104	0.97

PROJECTED LED LUMEN MAINTENANCE

Data references the extrapolated performance projections for the platforms noted in 25°C ambient, based on 6,000 hours of IED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11). To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Lumen Maintenance - LLD (Same for all LED packages)									L70 Hrs
P10 - P40	Hours	0	25,000	36,000	50,000	60,000	75,000	100,000	
	Factor	1	0.97	0.96	0.95	0.94	0.93	0.91	> 60,000

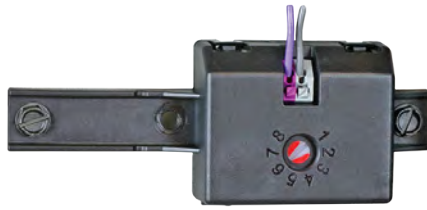
PERFORMANCE DATA

Performance Package	Distribution	Input Watts	27K (2700K CCT, 70 CRI)					30K (3000K CCT, 70 CRI)					40K (4000K CCT, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P10	GL3 ACS	12	1,181	98	1	3	2	1,197	100	1	3	2	1,260	105	1	3	2
	GL5 ACS		1,215	101	1	3	2	1,231	103	1	3	2	1,296	108	1	3	2
	LP5 ACS		499	42	0	3	1	506	42	0	3	1	532	44	0	3	1
	LS5 ACS		490	41	0	3	1	496	41	0	3	1	522	44	0	3	1
	NIO5 AWS		945	79	0	3	1	958	80	0	3	1	1,008	84	0	3	1
P20	GL3 ACS	19	1,812	95	1	3	2	1,836	97	1	3	2	1,932	102	1	3	2
	GL5 ACS		1,864	98	1	3	2	1,889	99	1	3	2	1,988	105	1	3	2
	LP5 ACS		781	41	1	3	1	791	42	1	3	1	833	44	1	3	1
	LS5 ACS		767	40	1	3	1	777	41	1	3	1	818	43	1	3	1
	NIO5 AWS		1,479	78	1	4	1	1,499	79	1	4	1	1,577	83	1	4	1
P30	GL3 ACS	25	2,322	93	1	3	2	2,352	94	1	3	2	2,475	99	1	3	2
	GL5 ACS		2,389	96	1	4	2	2,420	97	1	4	2	2,547	102	1	4	2
	LP5 ACS		1,030	41	1	3	1	1,044	42	1	3	1	1,098	44	1	3	1
	LS5 ACS		1,011	40	1	3	1	1,025	41	1	3	1	1,078	43	1	3	1
	NIO5 AWS		1,951	78	1	4	2	1,977	79	1	4	2	2,081	83	1	4	2
P40	GL3 ACS	32	2,802	88	1	4	3	2,839	89	1	4	3	2,988	93	1	4	3
	GL5 ACS		2,883	90	1	4	3	2,921	91	1	4	3	3,074	96	1	4	3
	LP5 ACS		1,246	39	1	3	1	1,263	39	1	3	1	1,329	42	1	3	1
	LS5 ACS		1,224	38	1	3	1	1,240	39	1	3	1	1,305	41	1	3	2
	NIO5 AWS		2,361	74	1	4	2	2,392	75	1	4	2	2,517	79	1	4	2

HLBOLED

Hamilton LED Series: Cast Aluminum Bollard

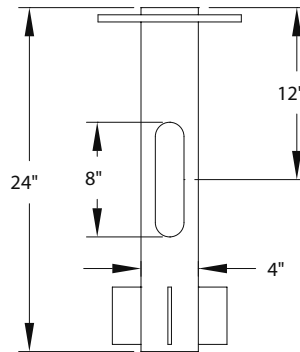
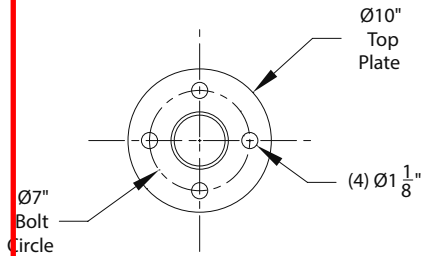
COMPONENTS & OPTIONS DATA



A0
Manual field adjustable output dimming device

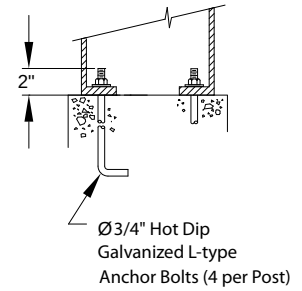
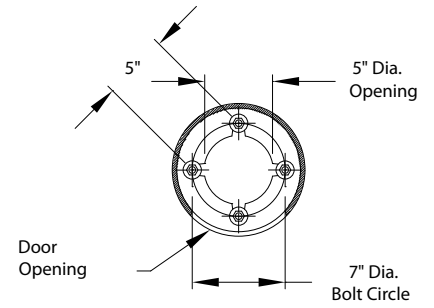


20KV
Safeguard your investment from extreme voltage spikes with our new Extreme 20kV/10kA SPD



DBB
Direct Burial Base

Weight - 30 lbs.



Base Detail

17. TRANSPORTATION STUDIES & PLANS

17.1. TRANSPORTATION STUDIES

17.1.1. Definitions. For the purposes of this section, **passenger car equivalents (PCE)** shall be defined as the number of passenger cars or, in the case of non-passenger vehicles, the number of passenger cars that would be displaced by non-passenger vehicles. One tractor trailer combination is the equivalent of two passenger cars.

17.1.2. Applicability: Developments that generate 100 PCE or more during a peak hour period, thus requiring a Traffic Movement Permit (TMP), shall meet the requirements of TMP regulations of State Law, in addition to all applicable transportation site plan standards of the City Code. The calculation of the PCE trip level for determination of TMP thresholds shall be made prior to trip reductions for other modes or shared trips.

For more information concerning state TMP requirements, please refer to <https://www.maine.gov/mdot/traffic/docs/229c305.pdf> ~~<http://www.maine.gov/mdot/traffic-counts/traffic-mvmt-app.php>~~ or contact the Maine Department of Transportation (MaineDOT). The City of Portland is the delegated reviewing authority for TMP applications.

Developments ~~that generating at least less than 100~~ 25 PCE and less than 100 PCE during a peak hour period may be required to complete a transportation study. The determination shall be made by the City Traffic Engineer, based upon the proximity of the development site to identified issues related to safety, congestion, and/or multi-modal accessibility. passenger car equivalents (PCE) but require a scoping meeting because they generate 25 PCE or more and are located

~~(1) on an arterial; and/or~~

~~(2) within ½ mile of a high crash location; and/or~~

~~(3) within ¼ mile of an intersection that has been identified in a previous traffic study as a failing intersection, with an overall level of service below level of service D,~~

~~shall meet the following standards, if a traffic study is required:~~

17.1.3. Preparation: ~~Transportation~~ studies shall be prepared, stamped, and signed by a Professional Engineer licensed in the State of Maine.

17.1.4. Scope of Study: The City ~~Transportation~~ Traffic Engineer, in consultation with the applicant's engineer, shall determine the ~~need for and~~ scope of the ~~transportation~~ study. The scope of the study may include, but is not limited to, the following elements: The requirements for the study shall be based on standard transportation engineering practice

A typical traffic study includes the following major sections:

- A description of the development proposal.
- A description of the existing multi-modal transportation conditions and context.
- Estimated trip generation by the development and design hour volume for site-affected driveway(s) and study intersections by mode. Trip generation will be based upon the latest edition of the current Institute of Transportation Engineers data, or approved alternate methodology, by mode. ~~Trip Generation publication unless suitable documented local data that meets ITE methodology is available.~~
- Trip distribution.
- Multi-modal level of service analysis pre-and post-development at study area intersections and roadway segments.
- Capacity analysis at study area intersections, including level of service (LOS), delay, volume-to-capacity ratios, and queue analysis. ~~for adjacent roadways and for any existing or proposed driveways.~~
- C~~Traffic~~ crash analysis within the study area, or expanded study area if deemed appropriate for adjacent roadways.
- Key findings ~~concerning regarding~~ multi-modal traffic and safety issues in the existing condition or as a result of project-generated trips. ~~impacts, problems, and deficiencies.~~
- Analysis of impacts to pedestrians, bicyclists, and transit service and users. ~~Proposed traffic improvements.~~
- Summary of findings and recommendations for transportation improvements and other impact mitigation measures.

17.1.5. Mitigation: Mitigation of development project impacts may be required under MaineDOT TMP regulations and/or by the City of Portland through a transportation study. In some cases, where safety or capacity improvements to vehicle operations are not feasible due to constraints, mitigation may consist of in-kind multi-modal improvements to pedestrian, bicycle, and/or transit facilities and service. Where required, mitigation measures shall be included in the applicant's traffic transportation study, and shall be approved by the Department of Public Works prior to site plan approval.

17.2. PARKING STUDY

Parking studies shall be produced by a licensed transportation ~~professional~~ engineer.

Where a parking study is required, data shall be determined by values contained in the current ~~most up-to-date~~ version of the Institute of Transportation Engineers

(ITE) publication titled Parking Generation, or through local, regional or other pertinent national data. If local or regional data is to be used, the scope and methodology of the parking study shall be coordinated with the City Transportation Traffic Engineer.

Parking studies for mixed-use developments shall reference best practices for shared parking, both in terms of calculations and studies, such as the Urban Land Institute's Shared Parking.

Where a parking study is required, the ~~applicant's engineer shall have a scoping meeting with the City Transportation Engineer or their designee to determine the need for and required scope of the study~~ scope of study shall be determined in coordination with the City Traffic Engineer. The requirements for the study shall be based on standard transportation engineering practices.

17.3. TRANSPORTATION DEMAND MANAGEMENT (TDM)

All TDM Plans shall ~~include specific provisions for the following:~~

17.3.1. Include a Transportation Narrative:

Every TDM plan shall describe how the project fits within the multimodal transportation system serving the district in which the development or site is located. The narrative should address the specifics of the land uses, occupants, visitors, and location of the development and how it is anticipated to relate to its transportation context.

The narrative for the transportation context should address applicable existing conditions and TDM challenges and opportunities for the site related to vehicular access and circulation, the quality of the bicycling and pedestrian environment and facilities, transit service levels and the transit-supportive environment, and current levels of parking and parking policies. For existing developed sites, the current state of any TDM-related efforts should be described.

17.3.2. Identify a TDM Coordinator to administer the TDM plan:

Every TDM Plan ~~shall need to~~ identify a TDM coordinator or coordinators ~~the plan administrator~~ and establish the roles and responsibilities of the ~~administrator~~ coordinator. The plan should demonstrate how the administration of the TDM plan and role of the TDM coordinator will reflect the scale of the site/development, proposed uses, parking and vehicle trip reduction targets, as well as the ownership and property management framework.

17.3.3. ~~Employee and Customer Survey~~ Document baseline TDM data:

The TDM plan shall identify baseline travel demand and supply data for the development or site in tabular format, against which future performance can be measured. Baseline data shall include:

- ~~existing trip generation and~~ future trip generation estimates, projections, (where applicable),
- ~~existing or proposed parking supply and projected future demand estimates (where applicable), and~~
- ~~existing or projected~~ estimated modal split, recognizing modal split as the uniform metric to be used in TDM reporting in subsequent years.

Baseline data shall correspond to the transportation analysis required for the project, and shall represent best estimates of transportation demand and modal split at time of occupancy, given the transportation context, and shall be prepared by a qualified professional using ITE trip and parking generation data or project-specific trip and parking generation figures based on another methodology as approved by the reviewing authority. ~~develop and use an employee and/or customer survey format that:~~

- ~~Is specifically designed to reflect the use mix within the development.~~
- ~~Is electronically tabulated.~~
- ~~Produces comparable data from year to year~~
- ~~Allows for compilation of data from multiple employers by third party.~~
- ~~Allows for data use by employees to foster car pooling and ride sharing.~~
- ~~Identifies barriers to or best practices in public transit, bicycle, and pedestrian transportation.~~
- ~~Can be conducted periodically (typically annually) and can be used to monitor program effectiveness and provide the basis for periodic plan adjustment (see monitoring section below).~~

1.13.4. Set ~~Parking and Trip Reduction~~ TDM ~~t~~Targets:

The TDM plan shall establish short-term (3-5 year) and long-term modal split TDM targets, based on documented baseline transportation demand data, the combination of land uses, location, transportation context, and other data for the site. TDM Modal split targets shall relate directly to the transportation infrastructure provided, TDM strategies to be employed, and site context, and

shall consider city-wide TDM goals as represented in plans such as *One Climate Future*. The metrics for TDM modal split targets shall be measurable, and shall include goals for reductions in single-occupancy vehicle trips and increases in non-single-occupancy trips, broken down by mode. The targets shall be described in both absolute values and percentage terms. The targets will be reviewed and updated based upon the annual TDM reporting. ~~intended TDM strategies to be employed use ITE trip generation and parking demand projections as the basis to establish a projected transportation demand and/or impact of the development. Alternatively, project-specific parking and trip generation projections may be used in place of ITE standards, if estimated by a licensed professional engineer and approved by the City. A project specific demand analysis may be advantageous to projects that can demonstrate reduced parking demand and trip generation based on approved assumptions in their TDM and Site Plan.~~

~~The TDM plan must use the specific use, location, local alternative transportation opportunities, and initial survey results to establish an achievable percentage reduction in transportation demand for the project. The TDM plan will utilize the stated parking and trip reduction targets as the basis for reduced infrastructure and contribution requirements for the Planning Board's evaluation.~~

17.3.5. Set cCustomized d Parking and Ttrip Rreduction and modal split Sstrategies:

Every TDM plan shall include a set of strategies designed to achieve the TDM targets. The strategies should must be customized to reflect the specific mix of uses, the population that will access the site, the scale of development, the location, the vehicle trip and parking reduction targets, modal split targets, and the transportation opportunities available to the site. The strategies should also reflect a broad mix of TDM approaches, including approaches that:

- Provide TDM infrastructure and operations to the site (e.g. on-site lockers and shower facilities, transit capital or operation funding, programming that supports TDM, such as guaranteed ride home or ride-matching programs)
- Incentivize TDM options (e.g. through parking cash-out, preferential carpool parking, subsidized transit passes, subsidized bicycle maintenance, or bikeshare memberships), and
- Educate users of the site about TDM options (e.g. through site-level information-sharing mechanisms, provision of transit maps and schedules, etc.).

For additional information on TDM strategies, see <https://www.portlandmaine.gov/721/TDM-Parking>. ~~proposed for the development. For example, A residential development will utilize a very different approach to reducing project generated parking and trips than an office building. Likewise, the administration of the TDM plan and the role of the TDM Coordinator must adequately respond to the scale of the development, the uses~~

~~in the development, as well as the ownership framework and management of the facility.~~

~~1.13.6. Education:~~

~~The TDM plan shall, at a minimum include provisions for the following. All educational information and programs shall be readily accessible to all project occupants.~~

- ~~• Transit maps and schedules. These shall be posted and updated by the TDM Coordinator, as necessary.~~
- ~~• Access to information concerning transportation providers and guaranteed ride home services such as: carpooling list serves and/or van pool providers.~~
- ~~• Internal information sharing such as posting a "Ride Board" or employee email list serve to facilitate carpooling and to share the results of employee and customer surveys.~~
- ~~• Educational and promotional materials that describe and identify the advantages and cost saving opportunities of using alternative transportation, including specific incentives offered by the employer.~~
- ~~• Recognition of employees who reduce the traffic impact of the development through newsletter, email, bulletin board, or other announcements.~~
- ~~• Information on bicycling routes, parking infrastructure and locations and other amenities or incentives that may be available.~~

17.3.6.7. Establish a monitoring and reporting plan:

All TDM plans must include provisions for monitoring program effectiveness over time to establish whether progress toward TDM ~~trip reduction~~ targets are being met.

Responsibility: TDM Coordinators and/or plan administrators are responsible for monitoring the efficacy of the TDM plan ~~periodically over time~~ and making adjustments to the plan as needed to achieve ~~trip reduction~~ modal split targets.

Methods: The methods ~~and scheduling~~ of monitoring shall be outlined in the TDM plan ~~and shall follow accepted transportation engineering~~. Monitoring methods will typically involve use of the periodic annual survey combined with ~~direct observation~~ other data collection, such as parking utilization counts where needed.

Reporting: The results of TDM plan monitoring shall be reported to the City of Portland on an annual basis using reporting tools(s) provided by the city.
~~compiled into a report that compares the results to trip reduction targets and parking demand projections. The monitoring results shall be provided to the Reviewing Authority according to the monitoring schedule established in the TDM plan.~~

~~1.13.8. Project Specific Standards:~~

~~Individual TDM Plans shall assess the following topics on a site-specific basis tailored to the transportation needs of the development.~~

~~1. Infrastructure:~~

~~On-site and off-site infrastructure improvements may be incorporated to achieve trip reduction targets and may include the following:~~

- ~~• Public Transit Access: The TDM plan shall identify how occupants and/or visitors will access public transit. Pedestrian links to bus routes and other transit links shall be identified and their usability assessed for sidewalk condition, ADA accessibility, street lighting, cross walk facilities, wayfinding, and general safety and attractiveness. The nearest sheltered public transit facility shall be identified. Deficiencies in the links to public transit that constitute barriers to its use shall be addressed in the TDM plan and in the site plan.~~
- ~~• Bicycle Parking: Minimum bicycle parking is a site plan requirement according to Article 14 of the Land Use Code. The TDM plan may incorporate additional bicycle parking, bicycle wayfinding, and/or covered parking to further encourage bicycle use.~~
- ~~• On-site Shower and Locker Facilities: Access to showers and locker facilities may be incorporated into the TDM Plan in order to encourage human-powered transportation alternatives.~~
- ~~• TDM Bulletin Board or Kiosk: TDM plans shall identify to occupants where information and educational material will be provided within the development a visible and convenient facility such as a transportation bulletin board and/or kiosk. In multi-tenanted facilities, transportation information shall be provided in the lobby of the structure or other such location that is accessible and frequented by a significant majority of occupants and visitors to the facility. The TDM coordinator shall be responsible for keeping all material current and available, as needed.~~

~~2. Incentives: Incentives available to users and/or occupants of the development may be incorporated to achieve trip reduction targets and may include the following:~~

- ~~• Parking “Cash Out”: TDM plans may include “parking cash out” incentives where employees have the choice of receiving monetary payments in lieu of provided parking. The efficacy of these programs will need to be carefully assessed and the method of monitoring must be described in the TDM plan.~~
- ~~• Public Transit Passes/Van Pool vouchers: Free or reduced price bus passes or van pool vouchers may be used as an incentive in the TDM plan. The use of transit options should be incorporated into the employee/customer survey and incorporated into the plan monitoring program. Transit payment options may be combined with parking cash out incentives, where appropriate.~~
- ~~• Preferred parking for car pool: Car pooling employees may be provided with more convenient and attractive parking, if available. If this option is incorporated into the TDM plan, the location of preferred parking shall be identified on the site plan and signed accordingly.~~
- ~~• Car sharing: Residential developments may incorporate shared car services or jointly owned vehicles into the TDM plan. Commercial development TDM plans may identify use of a shared vehicle for use by employees for either commercial or personal trips through the work day as a means to encourage alternative commuting to work.~~
- ~~• Telecommuting, flex time, and other flexible work scheduling mechanisms that promote fewer employee trips to work or promote alternative transportation travel.~~

~~*Other incentives infrastructure improvements and/or methods as may also be appropriate to the development.~~

1.1822. CONSTRUCTION PERMITTING AND TRAFFIC CONTROL PLANS

1.1822.1. Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & charges are all outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public [WorksServices](#).

1.1822.2. Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening

Clerk at the Department of Public ~~Works~~Services. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public ~~Works~~Services. See also Section II of the Technical Manual for lateral abandonment requirements associated with demolition permits.

- 1.~~1822~~.3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along ~~arterial and/or collector~~accepted city streets are required to submit a satisfactory 'maintenance of traffic' (MOT) plan prior to any site plan, subdivision, or street opening permit approval.

Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public by all modes of transportation through or along the construction work zone. On a case-by-case basis applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. These closures are to be limited to the shortest duration possible with durations specifically noted in the TCP documentation. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians. ADA-compliant access shall be maintained at all times and documented within Traffic Control Plans.
- In ~~extreme~~some situations, flaggers may be required to allow for safe pedestrian and bicycle movement

Additional information for temporary traffic control plans is provided in Chapter 6 of the MUTCD. (https://mutcd.fhwa.dot.gov/htm/2009/part6/part6_toc.htm)

- 1.~~1722~~.4. All existing modes of travel in the work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public ~~Works~~Services.

- Traffic control for bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycles and pedestrians.
- Where pedestrian traffic is significant, and/or where a detour would present a significant delay and/or safety issue to pedestrians, a temporary

walkway in the shoulder/parking lane/outside travel lane may be required where possible. Any temporary walkway shall be ADA-accessible, including temporary ADA ramps leading to/from the walkway where needed, and solid, detectable barriers along the edges of the walkway. Temporary walkways shall be kept clear of snow, ice and debris by the contractor at all times. Temporary walkways shall have a minimum clear width of five (5) feet.

- Pedestrian detours shall be considered as a last resort where no other practical option is available. Where pedestrian detours are allowed, pedestrians shall be directed to cross at existing crosswalk locations where practical. Temporary crosswalks and curb ramps may be required to shorten the overall detour. Any temporary crosswalk shall be ADA-compliant and shall be located where sight distance is adequate. All temporary crosswalks shall be approved by the Department of Public Works.
- Where construction requires the closure of a bicycle lane or shared use pathway alongside a high-volume and/or high-speed roadway, bicycle traffic shall be managed by the contractor in coordination with the Department of Public Works. Treatments may include a barrier-protected bicycle lane or shared use path, or bicycle detours as a last resort.
- Barrier systems utilized to separate the construction activity from the public street and/or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.

For reference, see also “How to Plan, Document, and Implement Pedestrian Mobility in and around Work Zones”
(<https://portlandmaine.gov/DocumentCenter/View/30884/Work-Zone-ADA>)

- 1.22.5. Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public WorksServices.

16. APPLICATION SUBMISSION REQUIREMENTS

16.1 SITE PLAN

The applicant shall submit for review a packet of materials and submissions in a form and content as specified by the Department of Planning and Urban Development to demonstrate compliance of the development with the site plan standards listed in Article 14 of the Land Use Code. Such submissions shall contain, at a minimum, the following elements:

A. General Submission Requirements For all Applications

1. Application form;
2. Applicable fees;
3. Project description;
4. Evidence of right, title and interest;
5. Evidence of state and/or federal approvals, if applicable;
6. Written assessment of project compliance with applicable zoning requirements;
7. Written assessment of project compliance with site plan standards;
8. Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site;
9. Written requests for waivers from the city's site plan or technical standards, if applicable;
10. Evidence of financial and technical capacity;
11. Boundary survey stamped by a professional surveyor licensed to practice in the State of Maine, drawn to scale and tied into the State Plane Coordinates, NAD 1983, Maine West Zone, as specified in Section 13 of the Technical Manual. A boundary survey of the site, may be waived by the Planning Authority for a review of Master Development Plan, where an existing conditions plan is available. The Boundary Survey requirement shall be met for each phase of development.

B. Written Materials for Site Plan Applications

1. Construction Management Plan, including a traffic control plan;
 2. A traffic study and other applicable transportation plans in accordance with Section [17](#) of the Technical Manual, where applicable;
 3. A narrative describing any significant natural features, wildlife and fisheries habitats or archaeological sites subject to the provisions of Section 14.6.2 of the land use code that are located on or near the project site and a description of the methods that will be used to protect such areas or sites during and post construction;
 4. A narrative describing site layout, on and off-site watershed hydrology, new and existing buildings and facilities, total impervious area, disturbed area and developed area created by the project;
 5. Stormwater runoff calculations as described in Section 5 of the Technical Manual;
 6. A narrative describing the development's consistency with applicable City Master Plans;
 7. Evidence of Utility Capacity to Serve;
 8. Estimated types and quantities of solid waste to be generated by the development. For new commercial and industrial development, a description of the estimated amount and type of recyclable material to be generated;
 9. A code summary referencing NFPA 1 and all Fire Department technical standards;
 10. Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14.6.4 of the land use code and/or in the City of Portland Design Manual;
 11. Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.
- C. Plans Required for Site Plan Applications – Plan based upon a standard stamped boundary survey meeting City of Portland standards, stamped by a professional engineer licensed to practice in the State of Maine, and including the following information:
1. Existing and proposed structures, as applicable, and distance from property

lines;

2. Approximate location of structures on parcels abutting the site;
3. All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;
4. Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;
5. Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;
6. Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;
7. Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;
8. Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;
9. Location of all snow storage areas and/or a snow removal plan;
10. Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14.6.2 of the land use code;
11. Location and proposed alteration to any watercourse;
12. A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
13. Proposed buffers and preservation measures for wetlands;
14. Existing soil conditions and location of test pits and test borings;
15. Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;
16. A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;

17. Grading plan;
 18. Ground water protection measures;
 19. Existing and proposed sewer mains and connections;
 20. Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
 21. Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
 22. Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
 23. Location and size of all on-site solid waste receptacles, including on-site storage containers for recyclable materials for any commercial or industrial property;
 24. Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
 25. A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
 26. 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;
 27. Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
 28. An exterior lighting plan in accordance with Section 12 of the Technical Manual;
 29. A master signage plan showing the location, dimensions, height, setback, materials, and illumination of all existing and proposed signs;
 30. Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.
- D. Exceptions for Minor Site Plan Applications
- On account of the scope and anticipated level of impact for certain types of Minor Site Plan applications, a complete submission package as detailed under

Section 16.1(B) and 16.1(C) is not required for the following types of development, which are defined for the purposes of application fee assignment and submittal requirements:

1. Minor Residential Development:
 - a. Development of a single-family or a two-family building, regardless of its size, excluding building additions, decks, or accessory structures; or
 - b. The addition of one or two dwelling units to a multifamily structure.
2. Low-Impact Site Development
 - a. Alteration of a watercourse or wetland as defined in Article 3 of the Land Use Code;
 - b. Alteration of a site where disturbance of land area is less than one (1) acre and consisting of either one or more of the following activities; stripping, grading, grubbing, filling or excavation. The Planning Authority shall exempt from review the loam and seeding of lawns and the cumulative placement of less than fifteen (15) cubic yards of fill on any lot provided such loaming or placement does not alter a drainage course, swale, wetland or redirect water onto adjoining property and does not violate any other provision of the Portland City Code or state or federal law. “Disturbed area” does not include routine maintenance, but does include re-development and new impervious areas;
 - c. The construction of any temporary or permanent parking area, paving of existing unpaved surface parking areas between 1,000 and 7,500 square feet or 5-25 spaces, or creation of other impervious surface areas between 1,000 and 7,500 square feet;
 - d. The rehabilitation or reconstruction, but not new construction, of piers, docks, wharves, bridges, retaining walls, and other structures located within the shoreland zone;
 - e. A site alteration in which vehicle access is proposed from more than one (1) street.
3. Plan Requirements for Minor Residential and Low-Impact Site Development, to be provided in addition to the general submission requirements for all site plan applications, listed under Section 16.1(A). Site plans shall be based upon the boundary survey and show the following information:

- a. Existing and proposed structures, as applicable, and distance from property lines;
- b. Existing and proposed paved areas, if applicable;
- c. Proposed ground floor area and finish floor or sill elevation;
- d. For minor residential only, exterior building elevation drawings (all sides);
- e. Location of proposed utilities;
- f. Identification and proposed protection measures for any significant natural features, as defined in Section 14.6.2 of the land use code;
- g. Identification and proposed protection for alterations of watercourses, if applicable;
- h. Identification and, if applicable, proposed impacts and protection measures for wetlands;
- i. For minor residential projects only, soil type;
- j. Existing and proposed grades and contours;
- k. Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed;
- l. Proposed stormwater management control;
- m. Soil erosion control plan;
- n. Existing vegetation to be preserved, proposed site landscaping, screening, and proposed street trees, if applicable;
- o. Existing and proposed curb and sidewalk;
- p. Location, area, and limits of the proposed site disturbance or alteration;
- q. Proposed pier, dock, wharf, pier, or slope stabilization in the Shoreland Zone, if applicable.

- E. Master Development Plan. A Master Development Plan is an optional submittal as part as part of the site plan review process. If the applicant elects to submit a Master Development Plan for review, it shall include the following information in addition to general submission requirements listed above:
1. A neighborhood context map, at a scale not less than one (1) inch equals one hundred (100) feet, providing a graphic description of the neighborhood in which the tract lies, including roads, utilities and other public facilities, major existing buildings and structures. There shall also be a statement and/or plan as to the general impact of the proposed Master Development Plan upon the area, indicating how the Master Development Plan relates to surrounding properties and what measures will be taken to create appropriate transitions and access from the subject property to abutting public properties (i.e. parks, waterfront, etc.) or other neighboring tracts (if applicable).
 2. A conceptual site plan drawn to a scale of not less than one (1) inch equaling fifty (50) feet, or series of drawings at the same scale, and any necessary supporting information, showing:
 - a. The approximate boundary lines of existing and proposed lots within and immediately adjacent to the Master Development Plan, with approximate areas and dimensions. With respect to residential areas, the proposed density, lot configuration, circulation and a typical plot plan shall be included in the application.
 - b. An analysis of the natural features of the site, including existing and/or adjacent natural waterways, wetlands, floodplains, topography, soil conditions and other natural features requested or required by the Planning Authority.
 - c. An analysis of the designated view corridors, historic resources, and archeological resource associated with the site.
 - d. Existing/proposed buildings and other significant structures, building groupings, exterior building elevations and entrances, parking areas, and other significant physical features of the site.
 - e. The context and design approach, including context drawings, perspective renderings, photographic montages, or computer-generated graphics depicting the proposed development within the surrounding building and environmental context, and building elevations. These drawings shall include the following:

- i. Illustrations of all sides of the structures;
- ii. Views of major entries or prominent building features;
- iii. Illustration of building articulation and elements;
- iv. Building finish composition; and
- v. Views of the pedestrian and streetscape experience.

The submission shall include a digital three-dimensional model tied to a specific location that is submitted as a KML, KMZ, DXF, or DWG file on a CD or DVD or such format as approved by the Planning Authority. It is the applicant's responsibility that the model is complete and represents the proposed development accurately using best practice modeling techniques and layering standards.

- f. Major circulation patterns surrounding and serving the site, the existing and proposed lines of streets (including the street width), ways, easements and any public areas within or next to the site.
- g. Major landscaping elements, features, open space, and plans for preservation of natural features.
- h. An analysis of the public safety services needed to support the master plan.
- i. An analysis of the anticipated impacts on the public-school system to support the Master Development Plan.
- j. A generalized drainage plan for the site, indicating drainage ways, flow, points of outfall, and indicating impacts of development on affected drainage basins. The plan shall include contour information at not less than two-foot (2') contour intervals and document anticipated quantities of run-off characteristics. General statements concerning storm water management techniques shall also be submitted with the application.
- k. The plan shall clearly show Master Development Plan boundaries, north arrow, date, scale, legend, the title "Master Development Plan Concept Site Plan" followed by the formal project name, and the name(s) of applicant(s), engineer(s), designer(s) and/or agent(s).
- l. A traffic analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies, including

current traffic counts for streets surrounding the project, analysis of the existing capacity of those streets, projections of the amount of traffic that will be generated by the proposed development, and the ability of the street system to absorb the increased traffic without decreasing the level of service below an acceptable level – said level to be determined by the Planning Authority in concert with the Department of Public Works. In cases where the Master Development Plan is subject to a Traffic Movement Permit (TMP) for all phases, the TMP submissions and review shall supersede these requirements.

- m. A utilities analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies. Said analysis shall contain an inventory of existing utilities including, but not limited to, storm sewers and drains, sanitary sewers, electrical lines, fire alarm boxes and lines, gas lines/mains, water mains, lighting, curb and gutter, etc. Said inventory shall illustrate utility locations, sizes, diameters, carrying capacity and present load on the system. The engineer's report shall state if the current system is capable of adequately serving the proposed development. If the current utility system is found to be inadequate for the proposed development, the report shall confirm the deficiencies and make recommendation(s) as to the infrastructure improvements necessary to properly service the proposed development and maintain the existing service. The report shall also present a formal plan for infrastructure improvements, documenting timing, funding mechanisms and coordination with the City; and
- n. Any other supportive information the applicant feels may be beneficial in the evaluation of the request.
- o. The Planning Authority or Planning Board may reduce the level of information required at the Master Development Plan review stage, provided more detailed supportive documentation is provided at final major site plan review of the Master Development Plan or phases thereof.

16. 2. SUBDIVISION

The applicant shall submit for review a packet of materials and submissions in a form and content as specified by the Department of Planning and Urban Development to demonstrate compliance of the development with the subdivision standards listed in Article 15 of the Land Use Code. Such submissions shall contain, at a minimum, the following elements:

A. Subdivision Plat. The following information shall be shown on the subdivision plat unless otherwise indicated:

1. Date, north point, title and graphic scale. Scale shall not be more than 60 feet to the inch unless lots are more than an acre, but in no event more than 100 feet to the inch;
2. Based on a recent survey by the subdivider, existing contours at two feet intervals or as otherwise required by the Public Works Authority. Existing structures which are to remain will shall be delineated;
3. Names of proposed streets, width of rights of way, and typical cross section reservation, and depth of construction materials;
4. Locations, widths and purposes of other rights of way or easements to be recorded;
5. All appropriate street curve information, including point of curvature, point of tangency, tangent distance, radii and interior angle, in standard engineering format;
6. Location of those utilities existing on or adjacent to the tract to be subdivided, including size and elevation of buried or underground utilities (may be shown on separate plan);
7. Tract boundary lines and property lines of lots, with accurate dimensions and either bearings or deflection angles. All lots shall be numbered;
8. Names of adjacent property owners with parcels over 25,000 square feet or names of adjacent subdivision;
9. Designation of flood hazard areas, as defined by the National Flood Insurance Program and shown on the city flood hazard boundary map, as well as any other areas in the subdivision subject to inundation by storm water or storm sewer overflow;
10. All potential wetlands within the proposed subdivision, regardless of the size of those wetlands;
11. Any river, stream or brook within or abutting the proposed subdivision. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S. § 480 B, Subsection 9.
12. Existing historic sites and structures which either appear on the National

Register or are nominated to the National Register by the state historic preservation officer;

13. Proposed private and public utility system including water, gas, telephone, fire hydrants, and any other services which shall supply the area (may be shown on separate plan);
14. Sanitary sewer and storm drain plans and profiles showing size, kind and slope of pipe, proposed manhole rim and invert elevations and catch basin locations and drains (may be shown on separate plan);
15. Lighting plan showing the location, design, height and spacing from each other of the support poles, in accordance with standards and specifications established by the Public Works Authority (may be shown on separate plan);
16. Tree plan showing groups of existing, sizeable trees which the subdivider intends to preserve (may be shown on separate plan);
17. A detailed plan of the entire subdivision and the immediate vicinity showing all existing and proposed drainage both on- and off-site including drainage swales, ditches, etc., with directional flow arrows and approximate slope grades, and showing proposed finished "spot elevations" around the perimeter of the subdivision. Proposed drainage shall be shown as it may affect or restrict development on individual lots and with reference to improvements for which a performance guarantee is required under this article. Where deemed feasible by the Public Works Authority, proposed finished contours at intervals of two feet shall be provided on the drainage plan upon request (may be shown on separate plan);
18. Location and designation of any zoning district boundaries affecting the subdivision;
19. All future phases and sections of the subdivision proposed by the subdivider (may be shown on separate plan);
20. Proposed parks and school sites, or other public open space that the developer proposes to convey to the city;
21. Names, addresses and stamp or certification, if applicable, of registered professional engineer, subdivider, and owner:
22. At the option of the subdivider, any other information that may be necessary for the full and proper consideration of the subdivision shall be submitted in writing;

23. Streets and right of way monuments and property line markers;
24. Vicinity sketch (may be shown on separate plan);
25. Total site data, including total area of the subdivision, total area in streets, total area in recreation or open space and number of house lots;
26. Profiles of each street or way in the subdivision shall be shown on the subdivision plat. They shall be drawn to a longitudinal scale of 40 feet to one foot and a vertical scale of four feet to one inch. Such profiles shall include separate profiles of each side line and center line of the street or way. Any buildings abutting on the street shall be shown in standard engineering format as requested by the Public Works Authority.

B. Supplemental Submission Items. The following submission items shall be provided if required by the Planning Board and insofar as feasible:

1. When private sewage systems are used, the results and supporting data of a soil test of each lot in the subdivision conducted by a soil evaluator licensed in the state;
2. When the adequacy of the subdivision's load bearing capacity is in question, the results and supporting data of test borings conducted by a professional engineer registered in the state;
3. When conditions warrant, a program which shall be implemented by the subdivider to control dust, erosion and sedimentation and/or vehicular traffic during construction;
4. Evidence of the applicant's financial capability to carry out all phases of the proposed development;
5. Evidence of technical capacity to undertake the development;
6. Evidence of state and federal approvals, licenses or permits required by law, or the status of applications therefor;
7. Price range of houses that will be built in the subdivision;
8. Traffic impact analysis;
9. High intensity soil survey, if required by the Planning Authority;

10. Types and estimated quantities of solid waste to be generated by the development;
11. Construction plan outlining the anticipated sequence of construction of the major features of the project including without limitation roads, retention basins, sewer lines, seeding and other erosion and sedimentation control measures, and pollution abatement measures and also setting forth the approximate dates for commencement and completion of the project;
12. A narrative and a plan showing all proposed buffer strips, their dimensions, and maintenance plans and responsibilities;
13. A description of any wetlands, wildlife and fisheries habitats, archaeological sites or unusual natural areas located on or near the project site and a description of the methods that will be used to protect such area; and
14. Where submission drawings are available in electronic form, the applicant shall submit any available electronic CADD.DXF files with final plans.

C. Recording Plat. The Recording plat shall be an original ink drawing on linen or mylar, or as necessary to be acceptable to the Registry of Deeds, and shall be tied to an accepted street or to a proposed street under construction and bonded to insure construction. The plat shall show the following:

1. Title, date, graphic scale, north arrow, name, signature and registration number or seal of a registered land surveyor licensed in the state, name and address of developer and owner;
2. Tract boundary lines and property lines of lots, with accurate dimensions and either bearings or deflection angles. All lots shall be numbered;
3. All appropriate street curve information, including point of tangency, tangent distance, radii and interior angles, in standard engineering form;
4. Street names, width of street rights of way and typical cross section showing only surface dimensions of roadway pavement, esplanade and sidewalk reservation;
5. Street and right of way monuments and property markers. Iron pipes shall be designated by a small circle at the point of installation;
6. Locations, dimensions and purposes of any easement or right of way;
7. Purpose for which sites, other than residential lots, are dedicated or

reserved; it being understood that any reservations of areas shall be subject to the proper zoning thereof;

8. Reference to recorded subdivision plats of adjoining platted land by book and page number;
9. Space for the signatures of the Planning Board and date of approval;
10. Where required by 30 A M.R.S. § 4406, the fact that initial approval or subsequent amendment of a subdivision is based in part upon the granting of a variance from any of the applicable subdivision approval standards.

To: Chair Stanley & Members of the Planning Board
From: Matthew Grooms, AICP
Date: May 6, 2022
Re: Technical Manual Updates: Sections 1, 2, 4, and 10
Meeting Date: May 10, 2022

I. INTRODUCTION

The Department of Planning & Urban Development, in collaboration with the Department of Public Works and the Department of Parks and Recreation, has prepared a package of amendments to the City of Portland Technical Manual, Sections 1, 2, 4 and 10, pertaining to transportation systems and street design, sanitary sewer and storm drain design, landscaping and landscape preservation, and municipal street lighting. These edits include both substantive amendments, such as new or revised review standards and technical details, along with less substantive edits, such as updates to terminology and code references. Per Section 2.1.10 of the Land Use Code, revisions to the *Technical Manual* fall under the jurisdiction of the Planning Board.

II. GENERAL EDITS TO TECHNICAL MANUAL

Below is a summary of proposed changes. For the changes shown in redline format, please refer to Attachments 1-8.

A. Section 1 and Section 17 - Transportation Systems and Street Design Standards and Transportation Studies and Plans. (Attachments 1-3)

- Removed traffic study, parking study, transportation demand management plan, and construction management plan requirements from Section 1 and created new Section 17 of the Technical Manual for transportation studies and plans.
- Renumbered sections based upon these edits.
- ‘Department of Public Services’ has been replaced by ‘Department of Public Works’.
- Where applicable, exact requirements written verbatim (i.e. DOT, AASHTO, local code) have been removed and replaced with references to the current local, state or federal requirements.

B. Section 2 – Sanitary Sewer and Storm Drain Design Standards (Attachments 4-5)

- Separated out standards for sewer systems and storm systems across the section.
- ‘Department of Public Services’ has been replaced by ‘Department of Public Works’.
- Revised approval authority in certain instances from ‘City Engineer’ to ‘Public Works Director’.

C. Section 4 - Landscaping and Landscape Preservation Standards (Attachments 6-7)

- References to appendix figures were revised to be consistent in terminology, (i.e. ‘Figure-XX’).
- In certain instances, existing content was assigned new sub-headings or relocated

within the section to help with navigation, legibility, and administration.

- Instances where the term, 'Department of Public Services' remain have been replaced with 'Department of Public Works'.

D. Section 10 – Municipal Street Lighting Standards (Attachment 8)

- City has selected a comparable replacement for the X-3 lighting bollard, for use in public rights of way, due to the existing model no longer being manufactured.

Note that in addition to the above list, changes to code references have been incorporated into nearly every section of the *Technical Manual*.

III. PROPOSED ADDITIONS TO SECTION 1 AND SECTION 17 (NEW) – TRANSPORTATION SYSTEMS AND STREET DESIGN STANDARDS, AND TRANSPORTATION STUDIES & PLANS (ATTACHMENTS 1-3)

Existing Section 1 of the Technical Manual has been comprehensively reformatted and reorganized, which gives the edited document the appearance of being almost entirely rewritten. As such, content shifts and reformatting are being presented within the redlined version of this document as existing material to aid with legibility. Only substantive edits are shown in redline. These include updated ADA requirements, standards for concrete sidewalks, driveway aprons, curbing, bike lanes, bus stops, curb extensions, traffic islands and pedestrian crossings. Further, several elements that currently exist within Section 1, such as requirements around traffic studies, parking studies, and transportation demand management (TDM) plans, have been relocated to a new Section 17.

For a complete overview of the substantive changes being proposed within this section, please see the accompanying memo from the Department of Public Works (Attachment 8).

IV. PROPOSED ADDITIONS TO SECTION 2 – SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS (ATTACHMENTS 4-5)

Section 2 of the Technical Manual has been comprehensively reformatted and reorganized, which gives the edited document the appearance of being almost entirely rewritten. As such, content shifts and reformatting are being presented within the redlined version of this document as existing material to aid with legibility. Only substantive edits are shown in redline. The majority of this update is a reorganization of the standards to make it more clear which standards are intended for sewer systems and which are for storm drain systems. Previously, these were mixed together and described individually throughout the section. Other substantive edits include provisions to allow accessory dwelling units (ADUs) to tie into the principal unit's sewer lateral, as opposed to a new connection within the City right-of-way. Similarly, standards were introduced for grease interceptors, force mains, and the use of catch basins for on-site field inlets. These standards generally represent a matter of codifying existing practice.

For a complete overview of the substantive changes being proposed within this section, please see the accompanying memo from the Department of Public Works, Water Resources Division

(Attachment 9).

V. PROPOSED ADDITIONS TO SECTION 4 – LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS (ATTACHMENTS 6-7)

A. Definitions (Section 4.1)

- Feature Mature Tree – A new definition was drafted for feature mature tree, based upon the current definition of a ‘heritage tree’. The heritage tree ordinance, as currently in effect, provides additional protections and enhanced tree replacement/fee requirements for certain trees located within established historic districts. These trees include trees on the ‘Register of Big Trees’ list promulgated by the Maine Department of Agriculture, Conservation & Forestry, certain trees 24” inches in diameter or greater, and rare tree specimens. The ‘feature mature tree’ term is currently in use within Section 4, clearly referring to what would be a heritage tree located outside of established historic districts. Given this, and that no definition currently exists, staff have drafted a new definition based upon the heritage tree definition that is more general and broadly applicable in nature. Staff also removed the term ‘heritage tree’ from the section, as heritage trees are governed under a separate ordinance.

B. Preservation of Existing Vegetation (Section 4.3)

- Section 4.3.1 - Staff recommend introducing a tree survey requirement to identify trees 10” DBH (Diameter at Breast Height) not only on the development site, as is currently required, but also within the right of way (ROW) adjacent to the site.
- Section 4.3.4 - Staff recommend requiring that all tree preservation signage required to be erected and maintained throughout construction be placed outside of the drip line of individual, groupings, or perimeter trees to be preserved. This is consistent with other preservation elements, such as fencing or other protective barriers, and is intended to maintain the health of the tree(s).

C. Site Landscaping (Section 4.5)

- All Landscape Design (Section 4.5.1) - Staff have introduced new introductory language pertaining to all landscape design, which expands the stated purpose of site vegetation and landscaping. The current version encourages low-maintenance landscaping that provides site definition and screening, while supporting biodiversity. The statement has been expanded to encourage landscaping which achieves one or more additional functions, such as furthering climate resiliency and mitigation, creating or enhancing areas of native habitat, improving stormwater management and treatment, and increasing local food production. These edits are supported by policies adopted in Portland’s Plan, One Climate Future, and the currently drafted Community Agriculture Plan.
- Screening and Buffers (Section 4.5.2) - Currently, opaque fencing may be utilized as a site element to screen or buffer contrasting land uses. Staff have introduced additional clarifying language requiring that such fencing be of high architectural quality.
- Parking Areas (Section 4.5.5) - The language requiring some form of separation between

vehicular parking areas and landscaped areas has been modified to allow for either physical or visual forms of separation, with bollards being introduced as an example of such separation.

- Snow Storage (Section 4.5.6) - Staff propose striking a requirement that snow storage be sited so as not to encroach upon required off-street parking. The rationale for this is that off-street parking requirements do not explicitly permit the temporary occupation of required off-street parking spaces, and as such, per Article 19 of the City's Land Use Code, an applicant would not be permitted to routinely store snow atop required off-street parking.
- Slope Stabilization (Section 4.5.8) – Within this subsection, staff have modified the requirement for a retaining wall. Currently, any wall measuring four (4) feet in height from the bottom of the footing to the top of the wall is required to be designed by a licensed engineer. This differs from the City's building permit requirement, which only requires a building permit and engineered design if the wall measures four (4) feet from the proposed finished grade to the top of the wall. Staff recommend modifying this requirement to reflect this, and to also specify that the wall must be designed by a licensed structural engineer.
- Climate Positive Planting (Section 4.5.10) – A new sub-section was introduced titled 'Climate Positive Planting', which encourages new development to prioritize landscaping that furthers the City's climate goals; specifically by requiring that the viability of planted vegetation in a warming climate be considered, by prioritizing expansion of the City's tree canopy in an equitable manner to address the urban heat island effect, and encouraging the use of landscaping elements to reduce energy consumption.

D. Street Trees (Section 4.6)

- Street Trees/Residential Development (Sections 4.6 and 4.6.1) - Staff recommend expanding the street tree requirements to include not only public right-of-way (ROW) but also along private roadways, for example as part of a PRUD.
- Street Trees (Section 4.6) – Edits are suggested to revise planting area requirements for street trees from 10 feet to 20 feet. This aligns with the requirement in Section 4.6.4., which allows for existing trees located within 20 feet of the right-of-way to be counted towards a project's street tree requirement.
- Street Tree Alternatives (Section 4.6.4) – Where an applicant can demonstrate that it is infeasible to plant street trees in the prescribed amount within the right-of-way, that applicant may fulfill the requirement by providing one of six street tree alternatives.
 - The City's preferred alternative is to have the required street trees planted elsewhere within the neighborhood in which the development is occurring on public land, within esplanades or within parks, playgrounds or other locations with tangible public benefit. Staff have introduced two additional alternative locations, those being in areas of the city identified as having minimal tree coverage, or within existing empty street tree wells or planting strips. The first additional alternative is recommended as a means to prioritize and further tree equity across the city. The second alternative is being proposed to reinforce the primary purpose of street

trees, to create comfortable streetscapes and expand the City's tree canopy.

- Staff propose striking one of the alternatives, which was already struck from the Land Use Code as part of ReCode, which states that the incorporation of measures to enhance tree survival, such as raised planters, irrigation and structural soils, may count towards street tree requirements. Staff's rationale for this edit is that a developer should take necessary measures to ensure a tree's survival, and in the event that such measures are cost prohibitive, a developer should pursue one of the other alternatives.
- Staff propose striking a second alternative, which states that other planted features may count towards a development's street tree requirement. Staff's rationale for this edit is that other planted features, such as green screens, green roofs, new trees well away from public spaces, and shrubbery, do not provide an in-kind public benefit when compared with street trees, particularly shading of public right-of-way.
- A new alternative has been introduced which would allow for existing, healthy trees located within the right-of-way to be counted towards a development's street tree requirement. Currently, we explicitly permit existing trees to be maintained on an applicant's property as an alternative, and in practice, permit existing trees within the right of way to count. This amendment simplify codifies existing practice and encourages preservation of existing mature trees.
- Similar to the above recommendation where a developer would be encouraged to plant new street trees in neighborhoods or locations with minimal tree coverage, staff recommend that street tree contribution funds be similarly directed to increase tree equity city-wide. Staff also recommend eliminating an existing requirement which states that 85% of the Tree Fund be allocated towards new trees, and 15% be allocated towards maintenance. In discussions with Parks and Forestry staff, it was determined that this prescriptive requirement did not adequately account for the constantly evolving needs of our street tree network, and that for example, this requirement might artificially limit the City's ability to respond when additional on-going maintenance is required.

E. Installation and Maintenance of Plantings (Section 4.8)

- Planting Selection (Existing Section 4.7) – This section has been split into two separate sections, with standards related to the installation and on-going maintenance requirements of site vegetation now housed within a standalone section for improved legibility and navigation.
- Section 4.8.2 - A statement requiring that landscaping not installed prior to an issuance of a certificate of occupancy be subject to a performance guarantee has been struck, as performance guarantee requirements already require this, and are listed in the City's Land Use Code.
- Section 4.8.5 - An existing requirement, currently located within Section 4.3, which requires that new vegetation planted as part of site development which shows signs of construction damage within a one-year period following construction be rejected and replaced in kind

prior to the release of the defect guarantee. As Section 4.3 specifically pertains to landscape preservation, this language has been introduced within this proposed new section to apply directly to new vegetation.

VI. STAFF ANALYSIS

Section 2.1.10 of the City's Land Use Code requires that in order for the Planning Board to approve technical standards, such standards should be additional to and consistent with the provisions of the Land Use Code, necessary and reasonable, and "in accordance with sound engineering...practice." As discussed above, the proposed updates to the *Technical Manual* represent clerical edits, reorganization to assist with document legibility and administration, or new policy directly informed either by engineering best practice, or in the case of landscape standards, recommendations from One Climate Future and Portland's Plan, which are in line with best practices observed elsewhere. For example, a major theme expressed in these edits is the notion of tree equity, and ensuring that we not only expand our city's tree canopy, but target expansion in areas with limited tree canopy. In looking at the city's tree coverage, these areas often coincide with neighborhoods exhibiting lower median household incomes, and higher percentages of households of color as well as neighborhoods that have transitioned from predominantly manufacturing to commercial or residential uses. The emphasis on tree equity in our street tree alternatives, and the direction of tree funds towards areas of low tree coverage as opposed to other locations within the neighborhood of development, is an important step towards achieving this goal. Similar changes include the introduction of a climate positive planting standard, and revision to the landscaping purpose statement.

VII. NEXT STEPS

Following the Planning Board workshop on May 10th, staff will consider and incorporate feedback from the Board and members of the public as necessary, and will prepare revised drafts for further Board consideration or action.

VIII. ATTACHMENTS

1. Section 1 – Transportation Systems and Street Design Standards - Suggested Edits
2. Section 1 –Detail Revisions
3. Section 17 – Transportation Studies and Plans – Suggested Edits
4. Section 2 – Sewer and Storm Drain Design Standards – Suggested Edits
5. Section 2 – Detail Revisions
6. Section 4 – Landscaping and Landscape Standards – Suggested Edits
7. Section 10 – Municipal Street Lighting Detail Revision
8. Department of Public Works – Transportation Division Memo
9. Department of Public Works – Water Resources Division Memo

To: Chair Stanley & Members of the Planning Board
From: Nell Donaldson, Director of Special Projects
Date: September 9, 2022
Re: Technical Manual Updates: Sections 1, 2, 4, 10, & 17
Meeting Date: September 13, 2022

I. INTRODUCTION

On May 6, the Department of Planning & Urban Development, with assistance from the Departments of Public Works and Parks & Recreation, appeared before the Planning Board to review a slate of draft amendments to the *City of Portland Technical Manual*. These amendments affect Section 1 (Transportation Systems and Street Design Standards), 2 (Sanitary Sewer and Storm Drain Design Standards), 4 (Landscaping and Landscape Preservation Standards), and 10 (Municipal Street Lighting Standards), and include the reorganization of material into a new Section 17 (Transportation Plans and Studies). In large part, the proposed edits represent an effort to bring standards into alignment with current and best practice, and to reorganize material for legibility.

This memo does not revisit the first draft edits presented at the May 6 workshop, but instead focuses on 2nd draft revisions, with an emphasis on edits made in response to Planning Board input, public feedback, and the recommendations of several third-party reviews. For a complete summary of the 1st draft edits, see the May 6 staff memo (*Attachment 1*).

II. THIRD PARTY REVIEWS

At the May meeting, Planning Board members suggested that staff obtain third party reviews of proposed *Technical Manual* amendments. In response, staff distributed drafts to several consultants who regularly engage in development review, and thus are familiar with the application of *Technical Manual* standards. Section 1 was reviewed by Tom Errico of TY Lin International, the City's consulting traffic engineer (*Attachment 2*), as well as by Will Savage of Acorn Engineering (*Attachment 3*). Lauren Swett of Woodard & Curran, who conducts civil engineering reviews for the City, reviewed the proposed amendments to Section 2 (*Attachment 4*). Staff also met with Sarah Cushman, of Cushman Transportation Consulting, regarding proposed edits to the Transportation Demand Management provisions of Section 17 of the *Technical Manual* (*Attachment 5*).

It is important to note that, in addition to continued coordination with the Department of Public Works and the Department of Parks and Recreation, staff consulted with other departments as necessary on 2nd draft edits as well, including the Departments of Permitting & Inspections and Sustainability.

III. 2nd DRAFT EDITS

Below is a summary of 2nd draft edits to the *Technical Manual*, suggested both on the basis of the feedback received at the May 6 workshop and the recommendations of the third-party reviewers.

A. Section 1: Transportation Systems and Street Design Standards (*Attachment 6*, with new text edits indicated in purple.)

- 1.5: Revised driveway location and design standards to allow DPW discretion around larger driveway openings and driveway separation standards.

- 1.6: Revised language around detectable warning panels to allow for their installation at driveways where warranted, and modified conditions where curb extensions are merited to allow for instances of mid-block crossings and areas of safety concern which may not qualify as high crash locations.
- 1.8: Revised roadway construction, surface, and aggregate standards to align with MaineDOT standards.
- 1.10: Added language to clarify that parking areas must be built to allow for delineation of parking spaces and aisles.
- 1.13: Revised bicycle lane design standards to provide additional detail on standard bike lane paint and striping requirements, address the placement of bike lane buffers, address the potential for obstructions within bike lanes, address conditions in which sufficient width is not immediately available, and speak to general design standards for bike lanes, including parking-separated bike lanes, with a reference to best practice design guides. Note that staff pursued this approach, rather than a more prescriptive one, in acknowledgement of the wide variation in street design contexts within the city.
- 1.14: Refined EV charging requirements to clarify EV-ready standards, acknowledge the potential for Level 3 charging stations in certain land use contexts, address projects with significant supplies of proposed parking, and revise the required number of EV-ready spaces to better align with projected demand. In the case of this last edit, the refined requirement for 50% EV-ready spaces (rather than the current 80%) is based on a calculator developed by the U.S. Department of Energy, which estimates the number of Level 2 workplace charging stations necessary to meet demand at various levels of adoption within a given region. These projections were applied against the total number of existing parking spaces within the area of the 2017 *Parking Study for Downtown, Old Port, and the Eastern Waterfront*, to arrive at a rough target for EV-ready parking spaces.
- Details: Made minor revisions to correct typos or clarify.

For a complete overview of 1st and 2nd draft edits proposed to Section 1, including a list of edits to details, please see the accompanying memo from the Department of Public Works (*Attachment 11*).

B. Section 2: Sanitary Sewer and Storm Drain Design Standards (*Attachment 7*, with new edits indicated in [purple](#).)

- 2.2: Revised language to clarify that spaces surrounding enclosed parking areas should direct stormwater away from the sewer system.
- 2.5: Revised language regarding force main connections into existing manholes.
- 2.6: Revised backflow prevention language to clarify when backflow prevention is necessary.
- 2.8: Added underdrain specifications.
- 2.12: Revised aggregate specifications to eliminate redundancy with Section 1.
- Details: Made minor revisions to correct typos or clarify.

For an overview of the 1st and 2nd draft edits to Section 2, including edits to details, please see the accompanying memo from the Department of Public Works (*Attachment 12*).

C. Section 4: Landscaping and Landscape Preservation Standards (*Attachment 8*, with new edits indicated in purple.)

- 4.6: Revised street tree language to allow for the application of one of three new tree well details, based on the location and suitability of the site for tree survival.
- Details: Updated Detail IV-4a and added new details for tree wells. Revised recommended tree list (to be incorporated into Figures IV-1A and IV-1B) to reflect lessons learned regarding survivability.

D. Section 10: Municipal Street Lighting Standards (*Attachment 9*)

- No additional changes proposed.

E. Section 17: Transportation Studies and Plans (*Attachment 10*, with new edits indicated in purple.)

- 17.1: Revised transportation study scope elements to reflect a more multi-modal approach to traffic analysis.
- 17.3: Revised Transportation Demand Management requirements to promote consistency around metrics across sites, ensure that targets are derived from transportation analysis and designed relative to the local context, and require strategies in each of several Transportation Demand Management categories – infrastructure/operations, incentives, and education.

IV. STAFF ANALYSIS

Section 2.1.10 of the City's land use code grants the Planning Board the authority to review and approve technical standards through the *Technical Manual*. In order to do so, the Planning Board must find that such standards are additional to and consistent with the provisions of the land use code, necessary and reasonable, and "in accordance with sound engineering...practice." As discussed previously, in addition to clerical edits for the sake of clarity or consistency and reorganization to assist with document legibility and administration, the proposed edits to the *Technical Manual* also include substantive edits. These edits are generally designed to reflect lessons learned through practice, and to bring standards into alignment with state and national guidance in engineering and other relevant fields.

V. NEXT STEPS

Following the Planning Board workshop, staff will consider and incorporate feedback from the Board and members of the public as necessary, and will prepare revised drafts for public hearing.

VI. ATTACHMENTS

1. May 6 Memo to the Planning Board
2. Section 1 Review by Tom Errico, TY Lin International
3. Section 1 Detail Review by Will Savage, Acorn Engineering
4. Section 2 Review by Lauren Swett, Woodard & Curran
5. Section 17 Review by Sarah Cushman, Cushman Transportation Consulting
6. 2nd Draft Revisions to Section 1 – Transportation Systems and Street Design Standards
7. 2nd Draft Revisions to Section 2 – Sewer and Storm Drain Design Standards
8. 2nd Draft Revisions to Section 4 – Landscaping and Landscape Standards
9. 1st Draft Revisions to Section 10 – Municipal Street Lighting Standards
10. 2nd Draft Revisions to Section 17 – Transportation Studies and Plans
11. Summary of Updates to Chapter 1 of the *Technical Manual*, DPW

12. Summary of Updates to Chapter 2 of the *Technical Manual*, DPW
13. Public comment

City of Portland | Department of Public Works

Michael Murray, Acting Director



To: Planning Board

From: Keith Gray, City Engineer, Justin Pellerin, Senior Engineer

Date: May 6, 2022 Updated 8/26/2022

Re: Summary of Updates to Chapter 21 of the Technical Manual

Notes: 8/26/2022 updates to this memo listed in red.

The Department of Public Works, Engineering Division, proposes to make changes to the City of Portland Technical Manual Section 1, Transportation Systems and Street Design Standards. The last time this section was updated was in 2017. The updates are significant in places, providing guidance for changes in best practices, removal of obsolete or overly complex items, and addition of a number of details. In addition, transportation study requirements have been moved to a new Section 17 for convenience of reference and shared commonality in the project approval process. These changes, in part are intended to address detail and design changes already informally adjusted by DPW to reflect current needs and practices. Further, the Department has recognized that many other best practice documents exist outside of this manual, including other City documents, and best exist separately from the Technical Manual. Items of note, changes or additions are as follows:

- Section 1 retitled as “Transportation Design Standards” to focus on specific design needs
- Moved Traffic Studies, Parking Studies, and TDM to a newly created “Section 17” for consistence
- “Sidewalks and Driveway Aprons” is now “Sidewalks and Curb Ramps” with driveway aprons in its own section
- Updated language on Americans with Disabilities Act (ADA) requirements to reflect current requirements
- Updated language on the City’s sidewalk Material Policy as per current policy requirements
- Updated language on curb extension and design approvals based on operational needs for vehicles
- New language on construction materials, pedestrian access routes, and design parameters for sidewalks
- Reduced discussion on requirements such as permitting and roadway design, with reference provided to MaineDOT Standard Specifications instead to promote consistence with City and State projects
- Parking requirements referencing the City Land Use Code for both automobiles and bicycles
- Bicycle routes and lanes design updates reference the City’s Bike Route Network Map and AASHTO design requirements for ease and consistency of reference
- Updates to City Traffic Control devices stating compliance with the Manual on Uniform Traffic Control Devices (MUTCD) and reference to the City’s Traffic Signal Policy and Guidance Manual
- The crosswalk subsection has been updated to specify that all public crosswalks shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). Other updates include public improvements definition, street markings, street lighting and signage guidance. All other standards were removed and referred to the MUTCD. Crosswalk types have been combined into a single, block-based crossing marking for consistency and clarity
- Language updated to address comments from third party transportation engineer reviewer Tom Errico throughout the document. See updated document with track changed updated language and responses to the review comments.

- Updates have been made to section 1.8 Roadway Construction, Surface and Aggregate standards to better align with Maine DOT standard specifications.

A list of the standard detail changes associated with Section 1 have been provided as part of this submission. Detail changes have been generally made for the following reasons:

- Consistency in numbering (subject to further adjustment prior to final Planning Board approval)
- More clarity in design requirements and updates where best practices have changed
- New details provided where new requirements have been provided
- Updates made to several details to address comments provided by Acorn Engineering who provided a third-party review of the section 1 details.
- Updates made to several details to provide further clarity.

In addition, the New Chapter 17, Transportation Studies includes:

- Transportation Studies section moved from Section 1, which references the location of MaineDOT's Traffic Movement Permit requirements and other requirements based on Passenger Car Equivalents (PCE's) generated by planned development projects
- Updated language to mitigation and reference to the City's Traffic Impact Fees
- Updated language on parking studies and data collection/analysis
- Updates to Transportation Demand Management (TDM) to reference emerging best practices and to provide Applicants with additional guidance for TDM Plan development
- **Updates made per Tom Errico's comments.**

Name of Detail	June 2022 Proposed		Comments (Aug 22 Updates in Red)
	2011 Detail Number	Detail Number	
LOCAL STREET CROSS SECTION	I-1	I-1	
COLLECTOR STREET CROSS SECTION	I-2	I-2	
ARTERIAL STREET CROSS SECTION	I-3	I-3	
UTILITY LOCATIONS IN STREETS	I-4	I-4	
TURNAROUND ON DEAD END STREET	I-5	I-5	
ACCESSIBLE RAMP GENERAL NOTES		I-6	New Detail
PERPENDICULAR RAMP FOR WIDE SIDEWALK WITH NO ESPLANADE	I-6A	I-6A	
APEX PEDESTRIAN RAMP FOR SIDEWALK LESS THAN 6.5' WIDE		I-6B	New Detail
APEX PEDESTRIAN RAMP FOR SIDEWALK 6.5' WIDE AND GREATER		I-6C	New Detail
SIDE STREET PEDESTRIAN RAMP WHEN NO INTERSECTING SIDEWALK IS PRESENT		I-6D	
RAMP LENGTH TABLE		I-6E	
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DRIVEWAY APRON AT CONSTRAINED SIDEWALK		I-9C	Removed 6.5' or less from title Aug 2022
DRIVEWAY APRON LAYOUT ALONG STREET FRONTAGE (NO SIDEWALK)		I-9D	Updated Detail title for clarity Aug 2022
BRICK SIDEWALK WITH BITUMINOUS BASE	I-10	I-11A	
BRICK DRIVEWAY APRON WITH BITUMINOUS BASE	I-11	I-10A	Fixed Typo Aug 2022
BITUMINOUS SIDEWALK	I-12	I-11C	
BITUMINOUS DRIVEWAY APRON	I-13	I-10C	Revised detail to add clarity Aug 2022
REINFORCED CONCRETE SIDEWALK	I-14	I-11B	
REINFORCED CONCRETE DRIVEWAY APRON	I-15	I-10B	Added salt guard note shown on I-11B Aug 2022
SIDEWALK EXPANSION JOINT		I-11D	Revised detail to add clarity Aug 2022
VERTICAL GRANITE CURB FULL DEPTH STREET CONSTRUCTION	I-16	I-12	Revised detail to add clarity Aug 2022
VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREETS	I-17		Detail no longer needed. Information included in I-12
SLOPED GRANITE CURB FULL DEPTH STREET CONSTRUCTION	I-18	I-13	
SLOPED GRANITE CURB INSTALLATION IN EXISTING STREETS	I-19		Detail no longer needed. Information included in I-13
MOUNTABLE BEVLED GRANITE CURB		I-15	
GRANITE RADIUS CURB		I-14	
SLIPFORM CONCRETE CURB			Removed Aug 2022.
TYPICAL CROSSWALK MARKINGS	I-22	I-17	Revised detail to show skewed crossing scenario and added notes Sept 2022
VEHICLE PARKING DIMENSIONS	I-27, I-28, I-29, I-30	I-16A	Consolidated into 1 detail
MOTORCYCLE PARKING	I-31	I-16B	
BIKE LANE CROSS SECTION WITH NO PARKING	I-36		Deleted Aug 2022
BIKE LANE CROSS SECTION WITH PARKING	I-37		Deleted Aug 2022
TYPICAL BICYCLE LANE PAVEMENT MARKINGS AND BICYCLE ROUTE SIGNAGE	I-38	I-18	Detail Number Changed August 2022
BICYCLE NETWORK MAP	I-35		Deleted Aug 2022; out of date
BUS STOP BOARDING AREA LAYOUT FOR SIDEWALK WITH OR WITHOUT ESPLANADE	I-39	I-39	
BUS SHELTER AND SHELTER SITING LAYOUT FOR SIDEWALK WITHOUT ESPLANADE	I-40	I-40	

Tech Manual Final Updates

Justin Pellerin <jrp@portlandmaine.gov>
To: "Donaldson, Helen" <hcd@portlandmaine.gov>
Cc: Kevin Kraft <kkraft@portlandmaine.gov>

Thu, Nov 10, 2022 at 1:17 PM

Hi Nell,

Please see attached section 1 and 4 details revised and added for the planning board hearing on 11/22/22.

Additions:

- Curb Extension Detail

Revisions:

- Updated Pavement classifications for Local, Collector and Arterial Streets per guidance from DPW's senior paving engineer
- Section 4 Details 4A, 4B, 4C updated notes.

There was nothing else in the section 1 narrative we wanted to tweak.

Please note that we will need to go through and make sure all the figure numbers are correct and all the unchanged details towards the end make it in the final version before it's released to the public.

Thanks
Justin Pellerin, P.E.
Senior Engineer
Department of Public Works
jrp@portlandmaine.gov
207-874-8881



4 attachments

-  **SECTION_I_FigureS_I_01_40_DTALs_rev_2022_1110.pdf**
4375K
-  **Figure_IV_04B_Granite_Curb_TreeWell_SW_2022_1107.pdf**
164K
-  **Figure_IV_04C_Typical_Granite_Curb_TreeWell_Brick_SW_2022_1107.pdf**
162K
-  **Figure_IV_04A_Expandable Tree Opening_R-8810_2022_1107.pdf**

follow up on TM Section 4

Justin Pellerin <jrp@portlandmaine.gov>

Fri, Nov 4, 2022 at 12:16 PM

To: Helen Donaldson <hcd@portlandmaine.gov>

Cc: Kevin Kraft <kkraft@portlandmaine.gov>, Jeremiah Bartlett <jbartlett@portlandmaine.gov>, "Thomas.errico@tylin.com" <thomas.errico@tylin.com>

Hi Nell

I spoke with Jeremiah and Tom Errico. We are all in agreement that the current Technical manual minimum two-way 90 degree driveway aisle width standard of 24' should remain and any variances to this standard should continue to be reviewed as a waiver request and determined on a case by case basis. 24' is the widely accepted industry standard for this parking configuration. Any variances less than this standard could be based on a multitude of site specific factors which are not easily represented in a single set of design standards. We are requesting that this process continue forward unchanged.

Thanks and let us know if you have any questions.

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To: Planning Board

From: Nathaniel Smith, Project Engineer Water Resources

Date: September 1, 2022

Re: Summary of Updates to Chapter 2 of the Technical Manual

The Department of Public Works, Water Resources Division, proposes to make the following changes to the City of Portland Technical Manual Section 2 Sanitary Sewer and Storm Drain Design Standards. The last time this section was updated was in 2011. The majority of this update was a reorganization of the standards to make it more clear which standards are based for sewer systems and which are for storm drain systems. Previously standards for sewer and storm were mixed together and described by item. Now each system has its own standards for pipes, manholes and other associated parts. Other global changes include changing all references of Department of Public Services to Public Works. Specific changes and or additions are as follows.

- New sections added:
 - New language about enclosed parking, mechanical rooms, and garages not exposed to the elements shall direct surface drainage to an oil/grit separator first then to the sanitary sewer. **Edited per Lauren Swett's review to include her comments.**
 - New Section providing standards for the use of force mains for sanitary sewers. **Revised 2.5.4 as recommended by Lauren Swett.**
 - New section providing standards for Accessory Dwelling Units. This section was added due to the increase of applicants wanting to install ADU's.
 - New language added on how to raise manhole frames to grade.
 - New language was added to Catch Basins to provide standards and the allowance to use field inlets when outside of the street right of way.
 - New language that all catch basins are required to have a hood on the outlet pipe.
 - New section providing standards for Grease Interceptors. These standards match Portland's Fat's, Oil, and Grease Program requirements.
 - New table showing the specifications for Gravel Aggregate.
- Edited Language
 - Revised sanitary manholes text to say that steps are not required.
 - Revised the two specifications for plastic pipe.
 - Revised the requirement that sanitary pipes shall have a minimum velocity of 2 ft/sec.
 - Revised the language on when and how a building sewer can connect to the city main with the use of a coring machine and Inserta-Tee's.

- Revised 2.6.10: Edited the language when a back flow preventer is necessary to be installed.
- Revised the language on how to plug abandoned sewer laterals to clarify who to contact and the manner to plug the lateral.
- Revised storm manholes text to say that steps are not required.
- Revised language to storm drains laterals on when and how a connection can occur using a coring machine and an Inserta-Tee.
- Added underdrain pipe specifications as recommended by Lauren Swett.
- Revised 2.12 Aggregate specifications. Removed gravel and concrete specifications which are specified in chapter 1.
- Revised the crushed stone pipe bedding specifications to match Maine DOT specifications for Type C crushed stone and deleted the separate different requirement for stone for pipes over 42 inches. Contractors just use the ¾" stone for all size pipes.
- Details:
 - Figure II-01 = A new table was added to list all of the details
 - Figure II-02 = Was figure 01 - Manholes - Removed the steps from the figure.
 - Figure II-03 = Changed figure from an outside drop manhole to an inside drop manhole.
 - Figure II-04 = Revised the manhole notes to give invert specifications for how large the pipes are. Added buoyancy calculations are required as recommended by Lauren Swett.
 - Figure II-05 = Revised the MH frames and covers to current approved ones. The old frames and covers are no longer made.
 - Figure II-06 = No changes.
 - Figure II-07 = Was #08. Also revised to provide more detail on the catch basin detail. Added Hood to the detail.
 - Figure II-08 = Was #07. Revised CB frames and covers to current approved ones like MH's. The old frames and covers are no longer made.
 - Figure II-09 = Revised CB hood from the old cast iron one to a new plastic one which we have been using on city projects.
 - Figure II-10 = Rotated detail and also reduced the dish from 3" to only 1.5".
 - Figure II-11 = Rotated detail. No other changes.
 - Figure II-12 = Rotated detail. No other changes. Revised gravel specifications to match Chapter 1 changes.
 - Figure II-13 through 15 = No changes.
 - Figure II-16 = Change "Y" to "WYE" in notes.
 - Figure II-17 = No changes.

- o Figure II-18 = Rotated detail. No other changes.
- o Figure II-19 = External Grease Trap – revised detail and notes to meet current text language.
- o Figure II-20 = New detail for Oil and Grit Separator. Added a note about vent pipes as recommended by Lauren Swett.
- o Figure II-21 = New detail for Accessory Dwelling Units that match the text changes.
- o Figure II-22 and 23 = These two details were in Section 1 – Transportation (#20 & #21). These both are how to install underdrains so they asked us to put them in Section 2. The details also were rotated and updated to match transportations changes.



MEMORANDUM

TO: Nell Donaldson, Director of Special Projects, City of Portland
CC: Nathaniel Smith, Project Engineer, Water Resources, City of Portland
FROM: Lauren Swett, PE
DATE: June 23, 2022
RE: Review of Revisions to Section 2 of the Technical Manual

Woodard & Curran has performed a technical review of Section 2 Sanitary Sewer and Storm Drain Design Standards from the City of Portland's Technical Manual. We have reviewed the red-lined version of the Section 2 text as well as the Section 2 Details. We have the following comments and suggestions for consideration as the City finalizes these documents.

Section 2 Sanitary Sewer and Storm Drain Design Standards

- 2.2.8 I would suggest adding additional clarification to the enclosed parking/garage requirements for drainage being directed to the sanitary sewer. There have been project questions in the past when there is a covered parking area that is open on the sides. I would suggest maybe adding the word covered (i.e. "covered or enclosed parking"). I also like how the oil separator detail refers to the spaces as "partially or totally enclosed parking garages". I would also suggest adding a statement that stormwater from outside of these areas shall be directed away from these areas so that additional stormwater is not directed to the sewer. **Added**
- 2.5.4 I do not understand this statement – it starts with an implication that existing brick manholes are allowed, but then says that replacement is performed. I think there may just be extra wording here. **Revised**
- 2.9.7 Should this restriction clarify that on-street catch basins could connect into other catch basins? In some cases drainage may run catch basin to catch basin in the street before connecting to a manhole. **At this time we want to leave it as is.**
- 2.11.8 For the option with a grease trap to install a manhole at the connection to the sanitary sewer, can this be done even for pipes smaller than 8" that wouldn't need a manhole at the main? **Removed**

Sewer and Storm Drain Details

- Figure II-4 I would suggest adding a note here that all manholes and catch basins require buoyancy calculations, and structures shall be modified as necessary based on those calculations. **Added**
- Figure II-7 The detail notes that an outlet hood is required but does not show it or give the reference to the detail. **Added**



- Figure II-9 The detail does not include any specific acceptable manufacturers. **As long as the meet the specifications we don't usually specify exact manufactures.**
- Figure II-20 One piece of the oil water separator that is often forgotten is that they typically need to have a vent pipe that has a vertical outlet off to the side of the structure. I would suggest adding a note that a vent pipe may be required. **Added**
- Figure II-22 I believe that the granite curb detail has been updated to require concrete embedment of the curb. I'm not sure if it's worth updating this detail to match? **Added**
- Figures II-22 & II-23 This detail gives specific allowable pipe requirements for underdrain. Should this information be added to the text of the standard with the information on stormdrain pipe materials? **Added**

Tree Fund Trees

2 messages

Jeff Tarling <jst@portlandmaine.gov>

Thu, Nov 10, 2022 at 8:51 AM

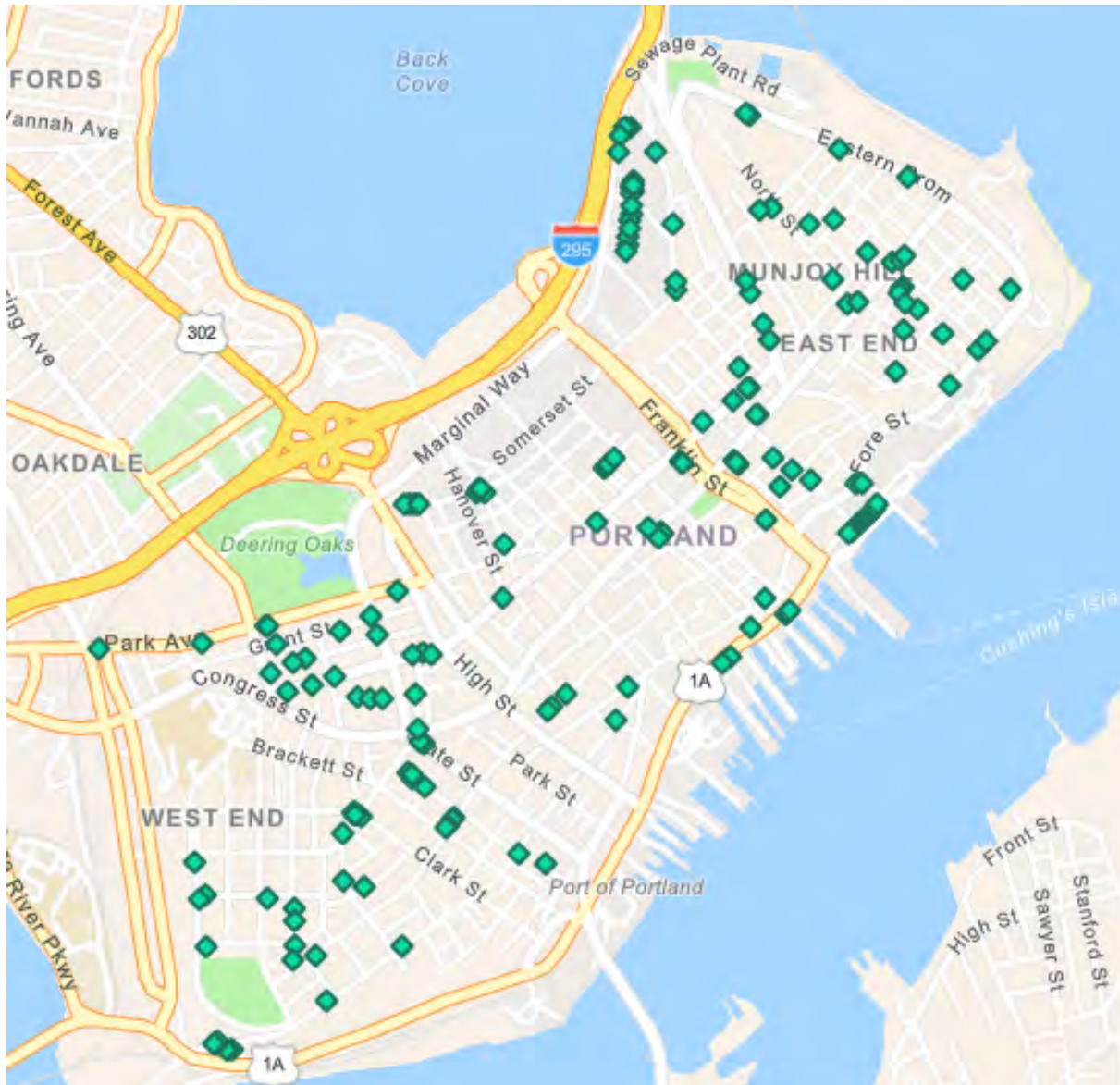
To: Helen Donaldson <hcd@portlandmaine.gov>

Cc: Alex Marshall <amarshall@portlandmaine.gov>

Planning Tree Fund, tree information:

See our 2020 - 2021 Tree Planting Map using Tree Funds, 183 trees were planted in various neighborhoods. The list is attached below.

Tree acquisition costs continue to rise, our average shade tree price for a 2" caliper in 2022 was \$275. Certain slow growing species like Ginkgo can range an additional \$100. Factoring in transportation, site preparation, planting mix, and mulch the overall cost likely exceeds our current tree donation amount. Contract plant cost estimates range from the industry standard (tree cost) x 2.5 and we have contract cost this season of \$150 per tree. This can vary depending on location, mobilization, the number of trees and site conditions.



Jeff Tarling
 City Arborist - City of Portland Maine
 Parks, Recreation & Facilities
 Forestry, Parks & Horticulture
 212 Canco Road - Suite A
 Portland, ME. 04103
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 **TreeFundTrees.xlsx**
 16K

Helen Donaldson <hcd@portlandmaine.gov>
 To: Kevin Kraft <kkraft@portlandmaine.gov>

Thu, Nov 10, 2022 at 10:28 AM

PARKS, REC, and FACILITIES: TREES PLANTED WITH TREE FUND TREES

	Address	Neighborhood	Species	Year_Planted	Notes:
1	519 Cumberland Ave	PARKSIDE	Maple, Red (Redpointe)	2022	
2	205 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
3	72 Melbourne St	EAST END	Cherry (Pink Flair)	2021	
4	151 Cumberland Ave	EAST BAYSIDE	Amelanchier	2022	
5	57 Washington Ave	EAST END	Maple, Red (Somerset)	2021	
6	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
7	33 NEAL ST	WEST END	Cherry (Pink Flair)	2020	
8	278 State St	PARKSIDE	Maple, Red (Armstrong)	2021	
9	304 Eastern Prom	EAST END	Elm (Accolade)	2021	
10	377 Cumberland Ave	WEST BAYSIDE	Crabapple	2020	
11	18 Kellogg St	EAST END	Crabapple (Adirondack)	2020	
12	81 Spruce St	WEST END	Maple, Red (Armstrong)	2021	
13	1 Longfellow Sq	DOWNTOWN	Maple, Red (Redpointe)	2020	
14	71 Federal St	EAST END	Maple, Red (Redpointe)	2020	
15	111 Sherman St	PARKSIDE	Cherry (Accolade)	2022	
16	70 Bowdoin St	WEST END	Maple	2022	
17	Bayside Trail (89 Cove St)	EAST BAYSIDE	Cherry	2022	
18	93 Washington Ave	EAST END	Hackberry	2021	
19	Bayside Trail (89 Cove St)	EAST BAYSIDE	Maple, Red	2022	
20	471 Danforth St	WEST END	Birch, River	2021	
21	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
22	51 Hampshire St	EAST END	Cherry, Sargent	2022	
23	536 Cumberland Ave	PARKSIDE	Cherry (Accolade)	2022	
24	87 Atlantic St	EAST END	Crabapple (Adirondack)	2022	
25	8 North St	EAST END	Crabapple (Adirondack)	2022	
26	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
27	58 Alder St	WEST BAYSIDE	Maple, Red	2022	
28	Acr 366 Spring St	WEST END	Cherry (Pink Flair)	2020	
29	164 Pearl St	WEST BAYSIDE	Hackberry	2021	
30	31 Fore St	EAST END	Cherry (Pink Myst)	2021	
31	22 Eastern Promenade	EAST END	Maple, Red (Redpointe)	2020	
32	76 Congress St	EAST END	Crabapple (Adirondack)	2020	
33	76 Atlantic St	EAST END	Maple, Red (Bowhall)	2020	
34	9 Boyd St	EAST BAYSIDE	Cherry, Sargent	2022	
35	378-388 Eastern Prom	EAST END	Sycamore, American	2020	
36	70 India St	EAST END	Cherry (Pink Flair)	2020	
37	72 Pine St	WEST END	Hackberry	2020	
38	45 TYNG ST	WEST END	Hawthorn, Crusgali	2020	
39	129 Grant St	PARKSIDE	Crabapple (Adirondack)	2022	
40	251 Congress St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
41	155 Anderson St	EAST BAYSIDE	Maple, Red (Redpointe)	2022	
42	Acr 88 Spring St	DOWNTOWN	Sycamore	2020	
43	59 Deering St	PARKSIDE	Elm (Accolade)	2021	
44	Danforth St	WEST END	Maple, Red (Bowhall)	2021	
45	37 Danforth St	DOWNTOWN	Elm, American (Princeton)	2021	
46	139 Cumberland Ave	EAST BAYSIDE	Honey Locust (Skyline)	2022	
47	Neal St & Bowdoin St	WEST END	Elm	2022	
48	279 Danforth St	WEST END	London Planetree (Exclamation)	2021	
49	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
50	58 Alder St	WEST BAYSIDE	Amelanchier	2022	
51	2 Commercial St	EAST END	Cherry (Accolade)	2020	
52	77 Congress St	EAST END	Cherry (Pink Flair)	2020	
53	43 Washington Ave	EAST END	Maple, Red (Karpick)	2021	
54	36 ATLANTIC ST	EAST END	Cherry (Pink Flair)	2020	
55	195 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
56	51 Hampshire St	EAST END	Cherry, Sargent	2022	
57	107 Anderson St	EAST BAYSIDE	Cherry (Accolade)	2022	
58	Bayside Trail (Cove St to Diamond St)	EAST BAYSIDE	Maple, Red (Karpick)	2022	
59	Danforth St	WEST END	Maple, Red (Bowhall)	2021	
60	341 FORE ST	DOWNTOWN	Cherry (Pink Flair)	2020	
61	Acr 88 Spring St	DOWNTOWN	Sycamore	2020	
62	63 Myrtle St	WEST BAYSIDE	Hackberry	2021	
63	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
64	471 Danforth St	WEST END	Birch, River	2021	
65	32 Alder St	WEST BAYSIDE	Hackberry	2020	

PARKS, REC, and FACILITIES: TREES PLANTED WITH TREE FUND TREES

	Address	Neighborhood	Species	Year_Planted	Notes:
66	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
67	181 Western Prom	WEST END	Maple	2022	
68	146 Sherman St	PARKSIDE	Crabapple (Adirondack)	2022	
69	110 North St	EAST END	Maple, Red (Redpointe)	2021	
70	556 Cumberland Ave	PARKSIDE	Cherry, Amur	2021	
71	148 Newbury St	INDIA STREET	Maple, Red (Redpointe)	2020	
72	28 Marion St	EAST END	Maple, Red (Somerset)	2021	
73	236 Eastern prom	EAST END	Elm (Accolade)	2021	
74	110 Winter St	WEST END	Cherry (Pink Flair)	2020	
75	77 Pine St (Andrew's Sq)	WEST END	Oak	2022	
76	207 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
77	390 Congress St	DOWNTOWN	Maple, Red (Karpick)	2021	
78	Acr 215 Commercial St	DOWNTOWN	Crabapple	2020	
79	175 State St	DOWNTOWN	Elm (Accolade)	2021	
80	Franklin St & Cumberland Ave	DOWNTOWN	Cherry (Accolade)	2020	
81	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Amelanchier	2022	
82	96 WINTER ST	WEST END	Cherry (Pink Flair)	2020	
83	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
84	284 Cumberland Ave	DOWNTOWN	Elm (Accolade)	2020	
85	150 Park Ave	PARKSIDE	Hackberry	2021	
86	2 Commercial St	EAST END	Cherry (Accolade)	2020	
87	100 Commercial St	DOWNTOWN	Elm, American (Princeton)	2021	
88	365 Danforth St	WEST END	Crabapple (Adirondack)	2021	
89	447 Cumberland Ave	PARKSIDE	Maple, Red (Bowhall)	2021	
90	40 Deering St	PARKSIDE	Elm	2022	
91	71 Walnut St	EAST END	Maple, Red (Somerset)	2021	
92	87 Atlantic St	EAST END	Oak (Upright)	2022	
93	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
94	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
95	411 Marginal Way	EAST BAYSIDE	Cherry	2022	
96	300 Park Ave	VALLEY STREET	Maple, Red (Armstrong)	2021	
97	113 Winter St	WEST END	Honey Locust (Street Keeper)	2020	
98	19 Anderson St	EAST BAYSIDE	Oak, Swamp White (Beacon)	2021	
99	378-388 Eastern Prom	EAST END	Sycamore, American	2020	
100	18 Pleasant St	DOWNTOWN	Oak, Swamp White (Beacon)	2020	
101	390 Congress St	DOWNTOWN	Oak, Swamp White (Beacon)	2021	
102	389 Congress St (City Hall)	DOWNTOWN	Honey Locust (Street Keeper)	2021	
103	673 Congress St	DOWNTOWN	Elm (Accolade)	2020	
104	76 Congress St	EAST END	Crabapple (Adirondack)	2020	
105	98 CARROLL ST	WEST END	Maple, Sugar	2020	
106	446 Cumberland Ave	PARKSIDE	Maackia (Starburst)	2021	
107	Franklin St & Cumberland Ave	DOWNTOWN	Cherry (Accolade)	2020	
108	72 Grant St	PARKSIDE	Cherry	2022	
109	230 Anderson St	EAST BAYSIDE	Crabapple	2022	
110	47 India St	EAST END	Maple, Red (Bowhall)	2020	
111	48 Deering St	PARKSIDE	Elm	2022	
112	39 Neal St	WEST END	Cherry	2022	
113	2 Commercial St	EAST END	Cherry (Accolade)	2020	
114	139 Cumberland Ave	EAST BAYSIDE	Honey Locust (Skyline)	2022	
115	411 Marginal Way	EAST BAYSIDE	Crabapple	2022	
116	457 Cumberland Ave	PARKSIDE	Hackberry	2021	
117	Bayside Trail (89 Cove St)	EAST BAYSIDE	Cherry	2022	
118	100 Commercial St	DOWNTOWN	Elm, American (Princeton)	2021	
119	113 Vaughan St	WEST END	Maackia, Amur	2021	
120	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
121	411 Marginal Way	EAST BAYSIDE	Cherry	2022	
122	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
123	264 STATE ST	PARKSIDE	Maple, Red (Red Sunset)	2020	
124	158 Fore St	EAST END	Maple, Red (Redpointe)	2021	
125	37 Wilson St	EAST END	Cherry, Sargent	2021	
126	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
127	77 Pine St (Andrew's Sq)	WEST END	Oak	2022	
128	230 Commercial St	DOWNTOWN	Cherry (Pink Flair)	2022	
129	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
130	Spring St & Oak St	DOWNTOWN	Sycamore	2020	

PARKS, REC, and FACILITIES: TREES PLANTED WITH TREE FUND TREES

	Address	Neighborhood	Species	Year_Planted	Notes:
131	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
132	127 Congress St	EAST END	Crabapple	2020	
133	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Oak (Upright)	2022	
134	114 Emery St	WEST END	Oak	2022	
135	109 MIDDLE ST	DOWNTOWN	Magnolia (Merrill)	2020	
136	Danforth St	WEST END	Maple, Red (Bowhall)	2021	
137	123 Sherman St	PARKSIDE	Crabapple (Adirondack)	2022	
138	89 Pine St	WEST END	Maple, Red	2022	
139	Bayside Trail (89 Cove St)	EAST BAYSIDE	Cherry	2022	
140	28 Park Ave	PARKSIDE	Crabapple (Adirondack)	2022	
141	63 Atlantic St	EAST END	Cherry (Pink Myst)	2021	
142	61 St Lawrence St	EAST END	Cherry (Pink Myst)	2021	
143	156 Oxford St	WEST BAYSIDE	Hackberry	2021	
144	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
145	411 Marginal Way	EAST BAYSIDE	Crabapple	2022	
146	164 Danforth St	WEST END	Crabapple (Adirondack)	2021	
147	21 Merrill St	EAST END	Cherry (Pink Myst)	2021	
148	75 Alder St	WEST BAYSIDE	Maple, Red	2022	
149	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
150	251 Congress St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
151	107 Anderson St	EAST BAYSIDE	Cherry (Accolade)	2022	
152	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
153	390 Congress St	DOWNTOWN	Maple, Red (Karpick)	2021	
154	208 PINE ST	WEST END	Elm (Accolade)	2020	
155	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
156	158 Fore St (AC Hotel)	EAST END	Zelkova (Musashino)	2021	
157	Bayside Trail (89 Cove St)	EAST BAYSIDE	Maple, Red	2022	
158	117 Winter St	WEST END	Honey Locust (Street Keeper)	2020	
159	150 Park Ave	PARKSIDE	Crabapple (Adirondack)	2021	
160	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Karpick)	2022	
161	358 SPRING ST	WEST END	Cherry (Pink Flair)	2020	
162	100 Commercial St	DOWNTOWN	Elm, American (Princeton)	2021	
163	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
164	87 Atlantic St	EAST END	Oak (Upright)	2022	
165	411 Marginal Way	EAST BAYSIDE	Elm	2022	
166	26 Deering St	DOWNTOWN	Elm	2022	
167	51 Hampshire St	EAST END	Cherry, Sargent	2022	
168	208 Park Ave	PARKSIDE	Crabapple (Adirondack)	2021	
169	11 Morning St	EAST END	Cherry (Accolade)	2022	
170	58 Alder St	WEST BAYSIDE	Maple, Red	2022	
171	390 Congress St	DOWNTOWN	Oak, Swamp White (Beacon)	2021	
172	197 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
173	6 Eastern Promenade	EAST END	Maple, Red (Redpointe)	2020	
174	Bayside Trail (89 Cove St)	EAST BAYSIDE	Maple, Red	2022	
175	471 Danforth St	WEST END	Maple, Red (Somerset)	2021	
176	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
177	63 Myrtle St	WEST BAYSIDE	Hackberry	2021	
178	5 Moulton St	DOWNTOWN	Honey Locust	2022	
179	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
180	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
181	65 Merrill St	EAST END	Maple, Red (Somerset)	2021	
182	27 North St	EAST END	Crabapple (Adirondack)	2021	
183	77 Pine St (Andrew's Sq)	WEST END	Oak	2022	



Helen Donaldson <hcd@portlandmaine.gov>

Fwd: Technical Manual & bike lanes

Christine Grimando <cdg@portlandmaine.gov>
To: Helen Donaldson <hcd@portlandmaine.gov>

Wed, Aug 31, 2022 at 2:50 PM

Christine Grimando, AICP
Director
Planning & Urban Development Department
[389 Congress Street](#)
[Portland, Maine 04101](#)
cdg@portlandmaine.gov
www.portlandmaine.gov
<https://www.recodeportland.me>



----- Forwarded message -----

From: **Maggie Stanley** <MStanley@cwsarch.com>
Date: Wed, Aug 31, 2022 at 2:14 PM
Subject: RE: Technical Manual & bike lanes
To: Winston Lumpkins <winston.lumpkins@gmail.com>
Cc: planning@portlandmaine.gov <planning@portlandmaine.gov>, Matthew Grooms
<mgrooms@portlandmaine.gov>

Winston,

Thank you for your email. All of our communications on particular agenda items need to be included in the public record as public comment so I am copying planning staff here so they will be included. The meeting you attended was a workshop where the public and board members were able to provide feedback, but no vote occurred and this agenda item has not come back to us yet for final approval. If I remember correctly there had not been an evaluation of the separated bike lanes as of yet, but per my feed back would be considered, either in this update or future.

Your detailed comments and descriptions of the bike lane are exactly as I experienced them as a user, and with my own research came to the conclusion that they do not meet the standards of other cities that have installed them have used. They were a good idea, that was executed in rapid speed with very little public input and disregard of that input given. If there were fewer curb cuts in that stretch of roadway, they more properly connected to bike lanes at the end of the separated stretch and were wider, they may have been more successful. Thank you for including your comments and the Mass DOT standards.

Maggie Stanley

OFFICE 207-774-4441 | **MOBILE** 207-266-7803



From: Winston Lumpkins <winston.lumpkins@gmail.com>
Sent: Wednesday, August 31, 2022 1:32 PM
To: Maggie Stanley <MStanley@cwsarch.com>
Subject: Technical Manual & bike lanes

Dear Chair Stanley,

I hope you'll forgive my finding your email on google. Perhaps it's inappropriate for me to email the chair of the planning board. Please let me know if that's the case.

I'm Winston Lumpkins, Vice Chair of the Portland Bicycle & Pedestrian Advisory Committee, an Ad-Hoc committee which advises the city.

I've been researching the Technical Manual & happened to listen to the 5/10/22 Planning Board workshop on the Technical Manual. During that meeting you mention the lack of standards for Separated bike lanes, and mentioned your own experiences with the Park Ave bike lanes. I don't think Staff addressed your question?

I'm curious if you have any thoughts on what could be done to include them in the Technical Manual? Is it entirely up to the planning board?

I strongly believe that we need such standards & it seems like the Technical Manual is probably the right place to put them.

I'll include my own amateur comparison between the Park Ave lanes & the Mass DOTs Standards, as it may interest you.

Sincerely,

~Winston

Winston Lumpkins IV (he/him/his)

Vice Chair, Portland Bicycle & Pedestrian Advisory Committee

<https://www.portlandbikeped.org/>

winston.lumpkins@gmail.com

207-408-1508



Helen Donaldson <hcd@portlandmaine.gov>

Technical Manual Planning Updates

Bill Weber <wjweber77@gmail.com>

Thu, Sep 1, 2022 at 4:46 PM

To: Kevin Kraft <kkraft@portlandmaine.gov>, hcd@portlandmaine.gov, Andrew Zarro
<azarro@portlandmaine.gov>

Kevin, I noticed the Planning Board has a workshop next week on Technical Manual Updates. The sections to be reviewed include street design, sewer and storm drain design, site landscaping, etc. Section 16 of the Technical Manual covers Application Submission Requirements. Is there an opportunity to discuss revisions to these requirements? I am particularly interested in Greenhouse Gas estimates that the developer can provide when they submit their application.

As I am sure the Planning Department is aware, the One Climate Future Plan, Portland and South Portland Climate Action Plan, requires the city to consider the impact on climate change in its decision making process. Can we discuss this further? Thanks

--

Bill Weber
66 Roaring Brook Road
Portland, ME 04103
(207) 232-9802

Zack Barowitz <zbarowitz@gmail.com>

8:47 AM (2 hours ago)

to Planning Board, Portland Bicycle-Pedestrian Advisory Committee

Dear Chair Stanley and members of the Planning Board:

In your consideration of the technical manual I would like you to include standards for widening sidewalks. As you know, bloated roadways cause all sorts of problems from speeding, to pollution, to safety, to lost economic development opportunities. Unfortunately, anytime this matter comes up, the impracticality of moving the storm drains is used to shoot it down. However, there are design and engineering solutions that could allow for widening the sidewalks while keeping the storm drains where they are. And the good news is that it is not a matter of inventing the wheel as there are numerous good, better, and best practices available.

So while I totally understand why some people might prefer paint, there are certain contexts where a road narrowing would reap far greater rewards. I want us to be ready.

Thank you,

Zack

--

[207-838-6120](tel:207-838-6120)

[917-696-5649](tel:917-696-5649)

ZacharyBarowitz.com



George Rheault

11:59 AM (44 minutes ago)

to Planning, Christine, me, Abigail

The rewrite of the landscaping standards is fatally flawed and needs to be rebuilt with an entirely new intellectual foundation.

The Planning Board needs to acknowledge our urban environment and the benefits encouraging urbanism brings to our society.

As the attachment makes clear, we have choices to make whether we are going to have real urbanism or whether we are going to have warmed over auto-centric suburbanism.

Trees in an urban environment are entirely secondary to the built environment. To give them precedence FOR SOME APPLICANTS is dumb and wrong and is part of why our planning apparatus to show for all the effort put behind it since the mid-1920s.





Winston Lumpkins <winston.lumpkins@gmail.com>

10:09 AM (1 hour ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov, Andrew Zarro, Victoria Pelletier, Roberto Rodríguez

Dear Chair Stanley & Members of the Portland Maine Planning Board,

I'm Winston Lumpkins, Chair of the Portland Bicycle & Pedestrian Advisory Committee.

The committee has discussed the Draft of the Technical Manual at length, but we have not yet adopted a consensus on changes. What follows are my own opinions.

Thank you to those who've been putting the work into this document. It's really very good. These comments are not exhaustive, given the short period of time available for public review. Given the opportunity PBPAC would be happy to go over the proposed revisions in their entirety.

I want to encourage the planning board to adopt some of the changes in particular: The updated driveway apron requirements, the updated Bicycle parking specifics, doorzone warning buffers between bike lanes and parked cars and, of course, the strongly worded suggestion to look at travel lane width & configuration if necessary to provide bicycle lanes of minimum width.

There is much more that I like in the draft, however, I will address a few ways in which it could be improved:

I think in addition to Neck Downs, AKA bulb outs, we should be using raised sidewalk crossings when vehicle speed needs to be reduced. [This Guide](#) covers their application & even addresses stormwater concerns, beginning in section 3.14.

A raised sidewalk crossing on a street with a bike lane allows the cyclist to continue without having to merge with traffic & allows the bike lane to be continuous. They also do away with sidewalk grade changes, which can be difficult for those with mobility difficulties to traverse. I think they should be used at many intersections between Major streets & neighborhood streets in addition to problematic crossings of Major streets.

Raised Sidewalk Crossings should be used when a multi-use trail crosses a street it's grade separated from, and that use case should be mandatory. Ideally, that would have been in place when the Bayside Trail was extended from Elm to Brattle Street. It should be in place for all future intersections of multi-use trails & travel lanes, especially in cases where the trail might have higher traffic volume than the street.

I strongly advise the Planning board to direct the DPW & the Planning department to reference the [Massachusetts DOT's separated bike lane guide](#) instead of the FHWA guide.

It's a more exhaustive, clearer, more current document. I am a year round commuting cyclist & I would be far more comfortable with separated bike lanes if the Mass DOT's standards were used.

I would like to see requirements that new street lights have the ability to sense bicycles- I know that some new ones can do this, but it should, eventually, be universal. I would like to see us start using separate bicycle signals. If we're serious about separated bike lanes we need to get serious about Portland's ridiculously dangerous intersections. At the very least, we should consider, in some cases, allowing bicycles to proceed at the same time as pedestrians.

Thanks for reading these comments & for all the work put into improving the Technical Manual.

Sincerely yours,
~Winston Lumpkins

Winston Lumpkins IV (he/him/his)

Chair, Portland Bicycle & Pedestrian Advisory Committee

<https://www.portlandbikeped.org/>

winston.lumpkins@gmail.com

207-408-1508



Helen Donaldson <hcd@portlandmaine.gov>

Status of Technical Manual process and adtl. comments

Winston Lumpkins <winston.lumpkins@gmail.com>

Tue, Oct 11, 2022 at 11:13 AM

To: Helen Donaldson <hcd@portlandmaine.gov>, planning@portlandmaine.gov, planningboard@portlandmaine.gov

Dear Ms. Nell Donaldson, Chair Stanley & the planning board,

First of all I want to inquire about the status of the Technical manual update- is there a timeline for the eventual vote & public hearing? You mention in the meeting on the 13th that you'd welcome follow up comments & further comments on the material, is that still the case, and what's the timeline for comments to be useful?

I do really like the process around re-code, and think that the Technical manual is at least as important to the day to day lives that people in Portland live. That said, I do like the changes proposed so far, so I don't want to bash the process, but, some level of robust process & opportunity for regular people to comment without necessarily reading through the technical language would be nice.

Additional comments from the workshop on the 13th September:

A month late, I want to provide some brief follow up comments in response to the discussion on the 13th of September. Again, I'm speaking for myself here, and not [BBPAC](#), though, I draw on the experiences of all the Cyclists & Pedestrians in my life when I form my own opinions:

Chair Stanley mentions riding with the pedestrian signal, as it's safer. She's right, which is why it would be really nice if it was clearly legal.

Technically, the "Idaho stop" which allows cyclists to treat stop signs as yield signs & stop lights as stop signs has proven to be safer. It's not Maine State law, and thus, riding with the pedestrian signal, while very often the safest thing you can do, is illegal as far as I know. As someone who has been ticketed for a moving violation by the PPD (running a blinking red at midnight- in compliance with the Idaho stop, which I'd read was safer, but which isn't legal), I can't bring myself to do it. I'm unsure about whether or not Portland could adopt the Idaho stop on a citywide basis- but I am sure the Planning board can't.

Improvements could be as simple as providing a few signs in places where it's really obviously safer to proceed like that (Franklin & congress perhaps) which state: "Cyclists may proceed with pedestrian signals" or something. I'm not sure if council action might be needed to ensure the police recognize the legality of such signs.

For fully separated signal phases, we're beginning to transition to infrared cameras which can differentiate a bicycle from a car. In theory, these should allow a signal phase to exist which wouldn't be automatically used every time, but, could be triggered by a cyclist in a bike box (like the ones just painted on Baxter & Prebble & the ones planned for Elm & Marginal way) or a bicycle in a separated lane or multi use path.

Ideally cyclists in bike boxes should be allowed to clear the intersection, or at least get most of the way through before the cars are allowed to. Which would technically be a leading bike interval. Part of me would love to tie separate signal phases to bike boxes, as I think they're useful in the same places. For instance: the intersection where York Street, State Street & the Casco Bay Bridge meet springs to mind- cars are allowed to go straight onto York, or the Casco bay bridge, presenting a significant risk of right (or I guess straight) hook for cyclists proceeding from the bike lane onto the bridge- cars NEVER signal their intentions, so, you just have to guess. A bike box & separate signal phase would probably help a lot in

making that intersection less dangerous.

I would also like to point out that any intersection design which asks a cyclist to push a walk button is bad. Though this email reflects just my personal opinion, I think I can safely say that most cyclists hate them & will often do something sketchy & just wait for a real or imagined gap in traffic, instead of pushing the walk signal.

Finally, I wanted to comment on the new raised crosswalks on Stevens Ave:

I've heard multiple people say they're less raised than they used to be, which allows cars to travel over them faster, partially mitigating the good they do... Clearly, they aren't free, and so should really be as good as possible. Without clear standards, it's hard to comment on complain- anything is better than nothing when nothing is required- also, without technical standards, presumably they are simply made up by the construction crew?

Raised Crosswalks seem like they are only installed where people ask for them, not everywhere pedestrian traffic, car speed etc. means they should be used. They shouldn't be handed out only to neighborhoods with the required political clout to get them. **Pedestrian safety shouldn't be a reward for privileged neighborhoods, it should be standardized & implemented equitably.**

Thanks for all the work you're all doing, as I've said, I do really like many of the proposed changes,

Sincerely,
~Winston Lumpkins IV

East End, Portland Maine

Winston Lumpkins IV (he/him/his)

Chair, Portland Bicycle & Pedestrian Advisory Committee
<https://www.portlandbikeped.org/>

winston.lumpkins@gmail.com
207-408-1508

Public Comment - Technical Manual - Landscaping: Overcomplicating Tree Protection

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0 views



George Rheault <george.rheault@gmail.com>

12:16 PM (16 minutes ago)

to Planning Board, Christine Grimando, jmy, Abigail Reed, jra...@portlandmaine.gov

Why is the Planning Board endorsing the MOST EXPENSIVE TREE PIT solutions when much less expensive options exist? The budget from AUTUMN 2022 says that a raised granite planter will cost a minimum of \$4,750 which is probably more now AND cheaper because it was part of a large bundle of such planters which probably brought the cost down (see below).

Also - see attached lots of DIY solutions made out of wood which the City of Portland apparently endorses since they are allowed to persist in the sidewalk medians.

Also - what about SUNKEN tree grates (see attached photos) - when are those mandated and needed versus a granite curb raised planter?

Also - why not just allow simple tree guard fencing like they use in New York City? [Tree Guards : NYC Parks \(nycgovparks.org\)](#)

SOURCE LINK: [Tree Canopy Funding Details - Google Docs](#) (from here: [Tree Canopy Overview - Bayside Blitz - Google Docs](#) which is from here [Approved ARPA Projects - Google Docs](#))

Tree Canopy Funding

Proposal for American Rescue Plan Act Funding

This project will consist of funding a one-year surge of tree planting in the Bayside neighborhood, an area bounded by Cumberland Ave, Washington Ave, Marginal Way, and Forest Ave. In a typical year, the City plants between 170-200 trees city-wide, with approximately 30 of those trees being in the Bayside neighborhood. Bayside currently has a much lower canopy cover rating and a lower overall number of trees than other areas of the City. This project aims to make positive progress on correcting that inequity.

Bayside is a notoriously difficult neighborhood to plant trees due to the fact that it is a dense neighborhood with not many green spaces or sidewalk esplanades in which to plant trees. What trees do exist often do not survive to maturity due to road salt, accidents, or vandalism. In order for trees to be successful in sidewalk plantings in this neighborhood, raised granite curb planters are necessary in order to divert salt away from the roots and give adequate room for the tree to grow without soil compaction. This project will fund granite curbed planter materials and construction, sidewalk alterations and repairs, labor costs, project management costs, tree watering equipment, and the actual trees themselves. It will result in 80 trees being planted in Bayside, in conditions that will allow them to thrive and grow to maturity. An approximate breakdown of costs are below:

- Tree Watering Equipment: \$75,000
- Project Management: \$27,500
- Granite Curb Raised Planter: \$95,000 (20 @ \$4,750/piece)
- Planting Supplies (mulch, stakes, watering bags): \$12,500

- Labor Costs: \$20,000
- Trees: \$20,000 (80 @ \$250/tree)













Public Comment - Technical Manual - Landscaping: Site Plan Tree Planting Compliance

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George Rheault <george.rheault@gmail.com>

9:09 AM (4 minutes ago)

to Planning Board, Christine Grimando, jmy, Abigail Reed, jra...@portlandmaine.gov

During the two previous workshops for this item, Kevin Kraft boldly assured the members of the Planning Board that any early demise of street tree plantings (required as part of site development approvals) was easily remedied by simply holding property owners to the terms of their initial site plans.

The Planning Board was its typical credulous self in response. Apparently, they accepted this nonsense hook, line and sinker.

A real Planning Board, doing serious work and not just rubber stamping, would have asked some key follow-up questions, such as:

- 1.) What does enforcement of replacing dead "after-the-Certificate-of-Occupancy-is-received" street trees per an approved site plan actually look like? Does the property owner first receive a violation letter from Permitting & Inspections? Corporation Counsel? The Planning Department? A knock on the door from Jeff Tarling with a chainsaw in his hands? What are the steps in the process from identifying the problem all the way to full replacement? Does the city arborist do annual inspections of all approved site plans going back the last 10 or 20 years seeing as it takes this long for a street tree to get fully established?
- 2.) Has this enforcement process been successfully attempted - in the recent past or EVER? When and where? Is the replaced street tree thriving and who is monitoring that?
- 3.) Legally, can the property owner be asked to do this multiple times (if the street trees die more than once) until the street tree finally "takes" and reaches maturity?

Below are all very recent projects in "Greater Bayside" that each have at least one or more recently planted dead street trees (evidenced by stumps, rotting trunks or completely empty tree pits that once held once-upon-a-time-alive saplings).

What is the Planning Department or the city arborist doing to ensure that the owners of these properties actually replace dead street trees per their approved site plans so that the costs (other than the cost of enforcement) do not fall to the City to fund the purchase and installation of a replacement tree?

- Pearl Place - Both ONE and TWO - Oxford/Pearl/Lancaster (AVESTA)
- 60 Parris Street (Jack Soley but not run by Condo HOA)
- 70 Anderson Street (REDFERN)
- 85 Anderson Street (REDFERN)
- 405 Cumberland Avenue (AVESTA)

Technical Manual Updates
Sections 1, 2, 4, 10, 16, & 17

Submitted to:	Chair Stanley & Portland Planning Board	Prepared By:	Nell Donaldson, Director of Special Projects
Public Hearing Date:	November 22, 2022	Date:	November 18, 2022

I. INTRODUCTION

In two previous workshops, one on May 6 and one on September 13, the Department of Planning & Urban Development, with assistance from the Departments of Public Works and Parks & Recreation, appeared before the Planning Board to review a slate of draft amendments to the *City of Portland Technical Manual*. These amendments affect Section 1 (Transportation Systems and Street Design Standards), Section 2 (Sanitary Sewer and Storm Drain Design Standards), Section 4 (Landscaping and Landscape Preservation Standards), and Section 10 (Municipal Street Lighting Standards), and include the reorganization of material into a new Section 17 (Transportation Plans and Studies). The proposed edits represent an effort to bring the city's technical standards into alignment with current and best practice, and to reorganize material for legibility.

The *Technical Manual* edits to Sections 1, 2, 4, 10, and 17 were developed by staff across Planning, DPW, and Parks, and have been revised several times over the course of this review in response to Board feedback, public feedback, and internal staff dialogue. At the request of the Board, edits to Sections 1, 2, and 17 were also reviewed by third parties who regularly engage with the *Technical Manual*; comments from third party reviewers have been integrated into the final draft materials before the Board.

This report provides a final summary of proposed changes to the *Technical Manual*, with a focus on edits made in the time since the September 13 workshop based on Board and public feedback and subsequent internal review across departments. Redlines of each affected section have been attached for reference, as have all proposed revised details (*Attachments 1-6*). For ease of reference, first draft (May 6) edits to *Technical Manual* sections appear in red in the attached redlines, second draft (September 13) edits appear in purple, and final draft (November 22) edits appear in blue. For a complete summary of the first and second draft edits, see the May 6 and September 13 staff memos (*Attachments 7 and 8*) as well as change logs prepared by the Department of Public Works (*Attachment 9 and 10*).

II. OVERVIEW OF PROPOSED EDITS

- A. Section 1: Transportation Systems and Street Design Standards** (*Attachment 1*). The most significant structural change to Section 1 is that standards for required plans and studies have been relocated to a new section, Section 17, leaving Section 1 to focus squarely on transportation engineering standards and the right-of-way. In addition, many of the standards within Section 1 have been updated to reflect current and best practice. Changes include updates to standards for the design and construction of driveways, sidewalks and ramps, curb extensions, vehicular parking (including EV parking), bicycle parking, bicycle facilities, traffic control devices, crosswalks, and public transit facilities.

In the time since the September 13 workshop:

- *Section 1.6.5 and Figure I-CE:* DPW staff has added a curb extension detail providing general guidance for the design and construction of these street elements.
- *Section 1.13:* In response to public comment, staff has added a reference to the MassDOT's *Separated Bike Lane Planning & Design Guide* as a guide for the design of bicycle facilities.

It should be noted that staff in the Department of Public Works and Planning considered modifying the drive aisle width standard to address concerns raised by the Planning Board regarding the prevalence of waivers. After consulting with Tom Errico of TY Lin International, who participates in waiver review as a third party engineer for the city, DPW has advised that the existing 24' drive aisle width standard for right-angle parking be maintained and that waiver requests to reduce the drive aisle width continue to be considered on a site by site basis (*Attachment 9*). No changes are proposed in the final draft.

- B. Section 2: Sanitary Sewer and Storm Drain Design Standards (*Attachment 2*).** Section 2 of the *Technical Manual* has been restructured to differentiate between standards intended for sewer and standards intended for storm drain systems. In addition, updates are proposed to sewer standards for ADUs, manholes, gravity pipes, force mains, and backflow prevention, and treatment of abandoned sewer laterals. With respect to stormwater, updated standards for manholes, drainpipes, catch basins, and grease interceptors are proposed. There are no additional edits based on feedback from the September 13 workshop.
- C. Section 4: Landscaping and Landscape Preservation Standards (*Attachment 3*).** Revisions to Section 4 of the *Technical Manual* include changes to a number of landscaping standards. The landscape preservation standards have been updated, adding clarification on the applicability of provisions surrounding 'feature mature trees.' Several changes are proposed to street tree standards, including the standardization of tree spacing requirements, the introduction of language around required soil volumes, and updates to the provisions around street tree alternatives. Provisions around maintenance of required plantings have been clarified. Edits also include updated tree well details and an updated recommended tree list.

Following the September 13 workshop, staff made the following new edits:

- *Sections 4.1 & 4.3:* The proposed definition of 'feature mature tree,' which is currently undefined but used in the *Technical Manual*, was refined to match the definition of 'heritage tree' as used in the City's code of ordinances. This will provide consistency for staff and applicants in the application of tree preservation standards moving forward. In association with this change, Section 4.3 has been modified to address the preservation of feature mature trees within setbacks in a manner consistent with site plan standards and current practice.
- *Section 4.6:* Street tree standards have been revised to remove redundant language and modify language for consistency with the land use code. In addition, standards have been revised to require adequate soil volumes for street trees and standardize street tree spacing for all land uses. On the advice of Parks and Recreation staff and the City Arborist, tree contributions have not been modified at this time, nor have street tree ratios. Parks has provided a memo speaking to current costs (*Attachment 11*). Moving forward, staff will

continue to evaluate these policies to ensure they are in alignment with latest regulations and best practices.

- *Figure 4-1:* Lastly, the tree list has been modified to add a missing Latin name and include notes regarding the use of small trees and non-fruiting varieties in certain street tree contexts.

D. Section 10: Municipal Street Lighting Standards (*Attachment 4*). In Section 10, a replacement bollard detail is proposed, since the existing model is no longer being manufactured.

E. Section 17: Transportation Studies and Plans (*Attachment 5*). As noted above, Section 17 represents a new proposed section of the *Technical Manual*, comprised of elements relocated from the existing Section 1. All of these elements relate to transportation plans and studies. Standards have been updated to reflect current and best practice and lessons learned through the review of these documents. Standards for transportation studies have been updated to reflect a more multi-modal approach; parking studies have been updated to encourage shared parking in mixed-use sites; TDM plans have been updated to simplify data collection, monitoring, and reporting requirements and move reference material outside of the *Technical Manual*; and construction management plans have been modified to strengthen requirements around the continuation of ADA-compliant access across all modes during construction.

There are minimal changes to this section in the time since the September 13 workshop, one to correct a title, and the second to clarify language around transportation studies and the mitigation of project impacts.

It should be noted that a clerical edit to Section 16 (Application Submission Requirements) of the *Technical Manual* has also been included here, to ensure a correct reference to the new Section 17 (*Attachment 6*).

III. PUBLIC COMMENT

Over the course of this review, staff and the Board have received eight written comments from four different members of the public (*Attachment 12*). Several of these comments focus on the transportation standards of the *Technical Manual*, including standards for bike infrastructure, sidewalks, and curb extensions and raised crosswalks. One comment also raised questions about submission requirements, and three raised concerns about standards for landscape preservation, street trees, and ensuring longevity in required plantings.

IV. STAFF ANALYSIS

Section 2.1.10 of the City's land use code grants the Planning Board the authority to review and approve technical standards through the *Technical Manual*. In order to do so, the Planning Board must find that such standards are additional to and consistent with the provisions of the land use code, necessary and reasonable, and "in accordance with sound engineering...practice." As discussed previously, in addition to edits for the sake of clarity or consistency and reorganization to assist with document legibility and administration, the proposed edits to the *Technical Manual* also include substantive edits designed to reflect lessons learned through practice, and to bring standards into alignment with state and national guidance in engineering and other relevant fields.

V. MOTION FOR THE BOARD TO CONSIDER

On the basis of material provided in this report, public testimony, and other information provided during the Planning Board's review at the November 22, 2022 public hearing, the Planning Board finds that the proposed revisions to Sections 1, 2, 4, 10, 16, & 17, of the *City of Portland Technical Manual* **[are / are not]** consistent with the requirements of Section 2.1.10(P) of the land use code and **[approves, approves with conditions, or does not approve]** such revisions.

VI. ATTACHMENTS

1. Final Draft Revisions to Section 1 – Transportation Systems and Street Design Standards
2. Final Draft Revisions to Section 2 – Sewer and Storm Drain Design Standards
3. Final Draft Revisions to Section 4 – Landscaping and Landscape Standards
4. Final Draft Revisions to Section 10 – Municipal Street Lighting Standards
5. Final Draft Revisions to Section 17 – Transportation Studies and Plans
6. Final Draft Revisions to Section 16 – Application Submission Requirements
7. May 6 Memo to the Planning Board
8. September 13 Memo to the Planning Board
9. Summary of Updates to Section 1 & 17 of the *Technical Manual*, DPW
10. Summary of Updates to Section 2 of the *Technical Manual*, DPW
11. Street Tree Memo, Parks, Recreation, & Facilities
12. Public comment

1. TRANSPORTATION SYSTEMS AND STREET DESIGN STANDARDS

1.1. TRAFFIC STUDIES

For the purposes of this section, **passenger car equivalents (PCE)** shall be defined as the number of passenger cars or, in the case of non-passenger vehicles, the number of passenger cars that would be displaced by non-passenger vehicles. One tractor trailer combination is the equivalent of two passenger cars.

Developments that generate 100 PCE or more, thus requiring a Traffic Movement Permit (TMP), shall meet the requirements of TMP regulations of State Law, in addition to all applicable transportation site plan standards of the City Code. For more information concerning state TMP requirements, please refer to <http://www.maine.gov/mdot/traffic-counts/traffic-mvmnt-app.php> or contact the Maine Department of Transportation (MDOT). The City of Portland is the delegated reviewing authority for TMP applications.

Developments that generate less than 100 passenger car equivalents (PCE) but require a scoping meeting because they generate 25 PCE or more and are located

(1) on an arterial; and/or

(2) within ½ mile of a high crash location; and/or

(3) within ¼ mile of an intersection that has been identified in a previous traffic study as a failing intersection, with an overall level of service below level of service D,

shall meet the following standards, if a traffic study is required:

- 1.1.1. Traffic studies shall be prepared, stamped and signed by a Professional Engineer licensed in the State of Maine.
- 1.1.2. Scope of Study: The City Transportation Engineer, in consultation with the applicant's engineer, shall determine the need for and scope of the traffic study. The requirements for the study shall be based on standard transportation engineering practice

A typical traffic study includes the following major sections:

- A description of the development proposal
- A description of existing conditions.
- Estimated trip generation by the development and design hour volume for affected driveway(s) and study intersections.
- Trip generation will be based upon the latest edition of the ITE *Trip Generation* publication unless suitable documented local data that meets ITE methodology is available.
- Trip distribution
- Capacity analysis for adjacent roadways and for any existing or proposed driveways.
- Traffic crash analysis for adjacent roadways.
- Key findings concerning traffic impacts, problems, and deficiencies.
- Proposed traffic improvements.
- Summary of findings and recommendations for transportation improvements and other impact mitigation measures.

Commented [ND1]: Move to Section 17.

~~1.2. Reserved~~**1.31. HORIZONTAL ALIGNMENT OF STREETS**

The horizontal alignment of all proposed streets shall conform to the following standards:

- Horizontal curves shall have centerline radii of not less than 110 feet.
- The alignment centerline shall be straight for at least 100 feet between reverse curves whenever either curve has a centerline radius of less than 200 feet.
- When two streets intersect and one street is an arterial or collector street, or both streets are arterial or collector streets, the angle of intersection shall be 90 degrees. When two streets intersect and neither street is an arterial or collector street, the angle of intersection shall be at least 75 degrees and no greater than 105 degrees.
- When two streets intersect, adjoining right-of-way lines shall be connected by a circular arc with radius of at least ten (10) feet. The connecting arc shall be tangent to the right-of-way lines on both streets. When the angle of intersection is other than 90 degrees, a radius greater than ten (10) feet may be required.
- All dead-end streets shall provide for a turnaround at the end of the street, subject to approval by the reviewing authority. Turnarounds shall be designed to facilitate future street connectivity and shall always be

designed to the right (refer to Figure I-5).

- Street intersections with more than four (4) legs shall be prohibited.
- The minimum distance between intersections on any street shall be as follows unless the City EngineerDepartment of Public Works determines that unique conditions of the site necessitate a lesser length. The distance between intersections shall be measured from the intersection of street centerlines at one intersection to the intersection of street centerlines at the other intersection. Streets shall be classified in accordance with the Federal Highway Administration-Functional Classification Guidelines as set forth by MaineDOT.

Local Street and Local Street Intersection	<u>2</u> 300 feet
Local Street and Collector Street Intersection	<u>2</u> <u>5</u> 300 feet
Local Street and Arterial Street Intersection	<u>3</u> 500 feet
Collector Street and Collector Street Intersection	<u>4</u> 500 feet
Collector Street and Arterial Street Intersection	500 feet
Arterial Street and Arterial Street Intersection	500 feet

1.24. STREET GRADES

1.24.1. Street grades shall conform to the following standards, as shown in Figures I-1, I-2, and I-3:

- The maximum grade for the centerline of all streets shall not exceed eight (8) percent.
- The minimum grade for the centerline of all streets shall not be less than one-half (0.5) percent.
- The cross slope for local streets shall be three (3) percent0-03. The cross slope for other street classifications shall be two (2) percent0-02.
- Cross slopes for sidewalks shall be one (1) percent minimum and two (2) percent maximum0-02, sloping down and away from the street line to

the top of the curb at the gutter line, including pedestrian access routes across driveways, as shown in Figure I-10C13.

- Street grades at intersections shall not be more than three (3) percent for a distance of one hundred (100) feet from the center of the intersection.

1.2.2 Curbless "shared streets" shall be considered on a case-by-case basis after consideration of context, design, and maintenance. Approval of any curbless "shared street" shall be subject to review by the Department of Public Works.

1.35. VERTICAL ALIGNMENT

Where two adjacent street segments are proposed to have different straight line centerline finish grades, vertical curves shall be used to connect the adjacent street segments. Vertical curves shall be parabolic and tangent to each of the adjacent grades. The minimum vertical curve length, "L", shall be calculated based on the following formula

$$L = K \times A$$

where "A" is the absolute value of the algebraic difference between the beginning grade and the ending grade of the vertical curve, with both grades expressed in percent, and "K" is a factor whose value depends on street design speed, which is related to street classification. The design speeds, in miles per hour, for this section's street classifications are as follows:

Local Street	25 mph
Collector Street	30 mph
Arterial Street	35 mph

The K values corresponding to the minimum vertical curve lengths for the above street classifications and vertical curve types (sag curve or crest curve) are as follows:

Local Streets

Crest Vertical Curves: K = 20

Sag Vertical Curves: K = 30

Collector Streets

Crest Vertical Curves: K = 30

Sag Vertical Curves: K = 40

Arterial Streets

Crest Vertical Curves: K = 50

Sag Vertical Curves: K = 50

1.46. SIGHT DISTANCE

Where driveways or new streets enter an existing street, vehicular sight-distance shall conform to standards established by the Maine DOT as contained in their publication, Chapter 299, Highway Driveway and Entrances Rules ~~and noted below for entrances with standard vehicles~~. For driveways frequently accessed by large vehicles, greater sight distance will be required according to Maine DOT guidelines.

Speed Limit (mph)	Measured Distance (feet)
25	200
30	250
35	305
40	360
45	425
50	495
55	570
60	645

1.57. DRIVEWAY DESIGN

- 1.75.1. All driveways shall be designed according to the following table, unless otherwise approved by the Department of Public Works.

Requirement	<u>Minor Driveway</u> (serving < 10 residential spaces)	<u>All other driveways</u>
<u>A) Number of Driveways</u>	<u>No more than one (1) driveway shall be permitted.</u>	<u>No more than two (2) driveways shall be permitted. Adjacent sites under common ownership shall have no more than two (2) driveways combined.</u>
<u>B) Minimum/ maximum driveway width</u>	<u>10 feet minimum, 20 feet maximum, measured at the property line.</u>	<u>For two-way driveways (preferred):</u> <u>20 feet minimum, 24 feet maximum for residential/commercial uses</u> <u>30 feet maximum for industrial uses</u> <u>Larger driveway openings may be permitted by the Department of Public Works as determined on a</u>

		<u>case-by-case basis.</u>
<u>C) Driveway spacing</u>	<u>Spacing of new or reconfigured driveways shall take the existing pattern of driveways in the surrounding context into account, and shall limit the impact to on-street parking and existing street trees. Shared driveways are encouraged. Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>	• <u>50 feet along local streets;</u> • <u>100 feet along arterial and collector streets with posted speeds of 35mph or less;</u> • <u>150 feet for roadways posted at speeds greater than 35mph</u> <u>Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>
<u>D) Driveway separation from intersections</u>	• <u>At least 35 feet along local roads</u> • <u>50 feet along collectors/arterials</u> <u>Distance shall be measured from the projection of the right-of-way line at the roadway to the centerline of the driveway. Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>	• <u>At least 35 feet along local roads</u> • <u>100 feet along collectors/arterials</u> <u>Distance shall be measured from the projection of the right-of-way line at the driveway to the centerline of the driveway. Driveway locations may be rejected based on documented or anticipated safety or operational issues.</u>
<u>E) Curbing</u>	<u>2-foot granite corner radius “bugs” (also known as a “bullnose”) shall be used where possible. Tipdowns may be used if the driveway crosses a narrow sidewalk</u>	<u>Granite radii (where sufficient esplanade is available) or tipdowns shall be used. Granite radii shall not cross the pedestrian access route.</u>
<u>F) Driveway intersection angle</u>	<u>Perpendicular to the street, where possible. Where necessary, the driveway shall intersect the street between 75 and 105 degrees unless otherwise approved by the Department of Public Works.</u>	
<u>G) Design vehicle</u>	<u>Driveways shall be designed to accommodate site-specific design vehicles, and shall not be designed larger than necessary, as determined by turning movement diagrams and engineering judgment.</u>	
<u>H) Loading</u>	<u>All necessary functions for loading, circulation, and parking maneuvers shall occur within the site and outside of the right-of-way to the extent practicable, given the site context.</u>	
<u>I) Circulation</u>	<u>Vehicle circulation shall be completely contained within the site to the</u>	

	<u>extent practicable, given the site context.</u>	
<u>J) Backing maneuvers</u>	<u>Backing maneuvers may be permitted to enter the site. Backing maneuvers from a site may be permitted based on upon site context including functional class of the adjacent street, traffic volumes, and speeds.</u>	<u>Backing maneuvers into and out of the site are prohibited. All vehicles must enter and exit the site facing forward.</u>
<u>L) Parking area size</u>	<u>All driveways shall serve a parking area of at least 8'x16', clear of any encroachment, plus any setbacks required by zoning. Parking areas and parked cars shall not encroach upon the public right-of-way.</u>	

~~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 major 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.~~

~~1.7.2. Multi-Family Residential with 10 (ten) parking spaces or more, Commercial and Industrial shall meet the following standards:~~

~~1.7.2.1. All driveways shall be designed to connect perpendicular to the street, where feasible. In no case shall the angle of intersection be less than 75 degrees or greater than 105 degrees.~~

~~1.7.2.2. Minimum driveway width (one-way): Any site with driveway access to a street shall have a minimum 12 foot wide driveway (at the property line) for one-way ingress or egress. Driveways shall permit traffic to enter and leave the site simultaneously without conflict in aisles, parking or maneuvering areas. If parking is adjacent to the property line, then the appropriate aisle width shall apply. Both the entrance and exit drives shall be identified with appropriate signage.~~

~~1.7.2.3. Minimum driveway width (two-way): Any site with driveway access to a street~~

~~shall have a minimum width of 20 feet for two-way ingress and egress, with a preferred width of 24 feet.~~

~~1.7.2.4. Maximum driveway width (two-way): The maximum width of a driveway will be based upon site conditions or vehicle characteristics that warrant a wider access (e.g., dedicated turn lanes at exits) and will require approval of the reviewing authority. Maximum widths shall not exceed the following, although confirmation of exact capacity requirements will be necessary:~~

- ~~— Commercial — 24 feet~~
- ~~— Industrial — 30 feet~~

~~1.7.2.5. Curbing of driveways: Where driveways enter on an existing street, the full radius of the driveway shall be designed and constructed of granite curb. The radius size shall be based upon information in the following tables. The radii listed below are recommended standards. A vehicle template analysis may be submitted for review as an alternative to the use of the following table:~~

		Departure Lane			
	Passenger-Car	12-foot or less	12 to 14-foot	14 to 16-foot	16 to 18-foot
Receiving Lane	12-foot or less	15 ft.	15 ft.	15 ft.	15 ft.
	12 to 14 foot	15 ft.	15 ft.	15 ft.	15 ft.
	14 to 16 foot	15 ft.	15 ft.	15 ft.	15 ft.
	SU-30 Truck				
	12-foot or less	35 ft.	30 ft.	30 ft.	30 ft.
	12 to 14 foot	30 ft.	30 ft.	30 ft.	30 ft.
	14 to 16 foot	30 ft.	30 ft.	30 ft.	30 ft.
	WB-50 Truck				
	12-foot or less	45 ft.	45 ft.	45 ft.	45 ft.
	12 to 14 foot	35 ft.	35 ft.	35 ft.	35 ft.
	14 to 16 foot	25 ft.	25 ft.	25 ft.	25 ft.
	WB-62 Truck				
	12-foot or less	85 ft.	85 ft.	85 ft.	85 ft.
	12 to 14 foot	85 ft.	85 ft.	85 ft.	85 ft.
	14 to 16 foot	65 ft.	65 ft.	65 ft.	65 ft.

~~1.7.2.6. Maneuvering: The area within the site to which a driveway provides access shall be of sufficient size to allow all necessary functions for loading, unloading and parking maneuvers to be carried out on the site and completely~~

~~off the street right-of-way. Backing out of vehicles from the driveway is prohibited. The design vehicle used in the analysis shall be the predominant vehicle type and shall be approved by the reviewing authority.~~

~~1.7.2.7. Location and spacing of driveways: The location and spacing of driveways shall be determined as follows:~~

- ~~• The angle of intersection between an access driveway and the right of way shall be 90 degrees where feasible and shall in no case be less than 75 degrees or greater than 105 degrees.~~
- ~~• Along local streets, access driveways to corner lots shall be located a minimum of thirty five (35) feet from the intersection of the projection of right-of-way lines to the center line of the driveway, except as provided hereinafter.~~
- ~~• Along arterial and collector streets, access driveways to corner lots shall be located a minimum of one hundred fifty (150) feet from the intersection of the projection of right-of-way lines to the center line of the driveway except as provided for hereinafter.~~
- ~~• Along arterial, collector and local streets, minimum acceptable spacing between double or multiple driveways for driveways on adjacent lots or on the same parcel shall meet the criteria below:~~

Speed Limit (mph)	Minimum Separation* (feet)
25 or less	100
30	125
35	150
40	185
45	230

~~*Spacing of driveways shall be measured from center of driveway to center of driveway and shall include driveways on both sides of the street.~~

~~1.7.2.8. Number of driveways: No more than two (2) driveways shall be permitted for ingress and egress purposes to any commercial, industrial or residential (with 10 or more parking spaces) site. A joint access driveway shall be considered as adequate access for any adjacent sites and shall be encouraged. An easement for joint access shall be required.~~

~~1.7.2.9. Off street vehicular circulation: An off street facility shall have full internal vehicular circulation and storage. Vehicle circulation shall be completely contained within the facility, and vehicles located within one portion of the facility shall have access to all other portions without using the adjacent street system.~~

1. ~~5.27.3.~~ Auxiliary Lanes Serving Driveways: A left-turn lane and/or right-turn lane with appropriate storage and transition may be considered where engineering analysis indicates a need. The need for auxiliary lanes shall be considered within the context of the impacts to sidewalks, bikeways, transit stops, on-street parking, and traffic safety. All new auxiliary lanes are subject to the approval of the Department of Public Works.

~~Ingress left turn lanes requirements: A left turn lane with appropriate storage and transition shall be provided where a submitted engineering analysis indicates a need.~~

~~Ingress right turn lanes: For any site, a right turn lane with appropriate storage and transition shall be provided where a submitted engineering analysis indicates a need.~~

1.68. SIDEWALKS AND ~~DRIVEWAY APRONS~~ CURB RAMPS

- 1.8.1. Driveway Aprons: Any driveway, or section thereof, located within any public street right-of-way shall be designed and built with a permanent, erosion resistant, surface, such as hot mix asphalt pavement, concrete, or brick, as illustrated in Figures I-10 through I-12. At a minimum, all driveway aprons shall be constructed of the designated sidewalk material within the pedestrian access route.

Commented [ND2]: MOVED TO 1.7

1. ~~6.18.2.~~ Sidewalk Construction and Materials: Sidewalks shall be brick, concrete or hot mix asphalt. The City Sidewalk Materials Policy (Appendix ~~-1 of this manual~~) shall be consulted to determine the appropriate type of sidewalk and driveway construction to use on various streets and in different areas of the City. Within the city's historic districts, only brick shall be used. Sidewalk and driveway construction details are illustrated in Figures I-10 and I-11 through I-15. All new concrete sidewalks ~~and driveway aprons~~ which abut existing concrete sidewalks must be doweled in prior to pouring. All new brick sidewalks shall be constructed with bricks running perpendicular to the path of pedestrian travel, including through driveway crossings.
1. ~~68.32.~~ Sidewalk ~~Design for~~ Accessibility: All sidewalks shall meet any minimum standards set forth by current Americans with ~~for~~ Disabilities Act (ADA) and Public Right-of-Way Accessibility Guidelines (PROWAG) guidance. There are no exceptions unless technical infeasibilities are identified, documented, and approved by the Department of Public Works. In case of conflict, these standards shall supersede this manual.

1.6.2.1 Sidewalk width: The minimum sidewalk clear width shall be five (5) feet, ~~including the pedestrian access route through driveway aprons.~~ Where obstructions, such as utility poles, are located in sidewalks, a minimum clear and direct pedestrian access route path width of five (5) feet shall be provided between the obstruction and one edge of the sidewalk. ~~Wider sidewalks may be required in locations where heavy pedestrian traffic is expected, based on the site context. New sidewalks shall be at least as wide within the right-of-way as the sidewalk(s) along the adjacent properties, required between the obstruction and one edge of the sidewalk.~~

1.6.2.2 Level changes: The maximum allowable vertical level change at any point is ¼-inch. A level change of ¼-inch to ½-inch shall be formed with a beveled slope no steeper than 26.6 degrees (2:1). Level changes greater than ½-inch shall be designed as ramps.

1.6.2.3 Running slope: Sidewalks shall be designed with a running slope no greater than the adjacent street slope.

1.6.2.4 Cross-slope: ~~Sidewalks, including pedestrian access routes across driveways, shall be constructed designed~~ with a minimum cross slope of 1% and a maximum cross-slope of 2% post-construction. ~~including the pedestrian access route through driveway aprons.~~ Finished cross-slopes of greater than 2% shall not be acceptable. Designed cross-slopes of 1.5% are encouraged. Cross-slopes shall be consistent across the width of the sidewalk.

~~Accessible sidewalk ramps shall be required on all projects involving construction of new streets or new sidewalks and all projects involving major alteration, including repaving, of existing streets and sidewalks.~~

- 1.6.38-4. Sidewalk Ramp Design Curb ramps: ADA-compliant curb ramps are required on all projects involving construction of new streets or new sidewalks, and on all projects involving alterations to the abutting street, including repaving of existing streets and sidewalks.

Curb ramps shall be designed to prevent ponding of water at the base of the ramp. Ramp designs and details will indicate how positive drainage away from the landing in the vicinity of curb ramps will be achieved.

1.6.3.1. Applicability: ADA-compliant curb ramps are required at all marked and unmarked crossing locations. -Ramps shall not be provided only where there is no crossing present due to safety concerns or a lack of pedestrian facilities on the opposite corner.

1.6.3.2 Orientation: Curb ramps shall be designed with the direction of travel on the ramp perpendicular to the curb line and parallel to the crosswalk, where feasible. Where existing conditions, such as narrow right-of-way width or utility constraints, preclude such layouts, parallel ramps, where the entire sidewalk ramps down, are acceptable. Diagonal ramps are not desirable, but may be approved by DPW on a case-by-case basis. Ramp design standards are provided in Figure I-6.

1.6.3.3. ~~Detectable~~ Detectable warning panels: All pedestrian ~~curb ramp~~ crosswalks shall include truncated dome warning panels as shown in Figure I-7. Any curb ramp that is not intended to be used by pedestrians (e.g., ramps serving bikeways) shall not include warning panels. Warning panels shall also be provided where a crossing is present without a curb ramp (for example, where pedestrian facilities are at the same grade as the street, within a median refuge, etc.). All warning panels shall be uncoated cast iron, as detailed in Figure I-7. DPW reserves the right to require the installation of warning panels at driveway locations in such situations where volume or configuration of traffic may necessitate their placement.

1.6.4 Shared use paths: Shared use paths and other pedestrian access routes in the right-of-way shall conform to the same ADA requirements as sidewalks discussed herein. The appropriate material for shared use paths may differ from the material prescribed in the Sidewalk Material Policy. The appropriate material shall be determined by the ~~review authority~~ Department of Public Works if not already documented in a transportation plan or master plan. Shared use paths shall be 10 feet in width or greater to allow for two-way traffic and passing.

1.6.5 Curb extensions: Curb extensions (also known as bump-outs, bulb-outs, or neckdowns) describe any localized narrowing of the roadway, typically at pedestrian crosswalk locations. The installation of any curb extension is subject to the approval of the Department of Public Works.

1.6.5.1. Applicability: Curb extensions may be considered where one or more of the following conditions are met:

- There is a documented speeding issue confirmed by a speed study;
- Curb extensions are necessary to construct one or more ADA-compliant curb ramps at an existing or proposed crosswalk;
- As determined necessary at uncontrolled midblock crossings;
- At signalized intersections, where reducing the pedestrian crossing time

improves signal timing;

- At High-Crash Locations, At particularly where locations where there is a history of crashes involving pedestrians and/or crashes involving right-turning vehicles; or
- Where they are prescribed in a master plan or transportation plan.

1.6.5.2. Curb extension design: Curb extensions, where permitted, shall be constructed to achieve the applicable goal(s) without disrupting the functionality of the roadway or intersection. Curb extensions:

- Shall not impede necessary turning movements for trucks or emergency vehicles or winter operations;
- Shall not negatively impact drainage without adequate mitigation;
- Shall not impede upon, or narrow to an unacceptable degree, the adjacent travel or bicycle lanes; and
- Shall be constructed with radial curb (typically 10-foot radius or greater) at transition points to assist with drainage and maintenance, as shown in Figure I-CE.
- Curb extensions that encompass on-street parallel parking lanes should generally not exceed six (6) feet in width, as shown in Figure I-CE.

1.6.6. Non-compliance: ADA-compliance is required both within and outside of the public right-of-way. Any construction within the public right-of-way that is not built to ADA-compliance shall be reconstructed at the Applicant's expense.

Where strict compliance with ADA is technically infeasible in an alteration of an existing condition, the alteration must be made to the maximum extent technically feasible. The extent to which compliance is technically infeasible shall be documented, and an acceptable design shall be approved by the Department of Public Works. This process should occur during the design phase.
Ramps, flares, landings and approaches shall be designed as follows:

1. Maximum ramp running slope shall be 8.33% for new construction. In retrofit situations, ramp slope may be between 8.33% to 10% for a rise of up to six (6) inches and 10% to 12.5% for a rise of up to three (3) inches. Ramp cross slope shall be 2% or less.
2. Minimum ramp width shall be four (4) feet in new construction and three (3)

~~feet for retrofits.~~

- ~~3. Sidewalk ramps adjacent to all public streets shall be constructed with truncated dome detectable warning surface panels. The detectable warning panel shall be located so that the edge nearest the curb line is 6 inches minimum or 8 inches maximum from the curb line. The panel shall be oriented to the direction of travel as identified by the point of egress. The panel shall extend 24 inches minimum up the ramp in the direction of travel. The panel shall extend the full width of the ramp.~~
- ~~4. Detectable warning panels shall be uncoated cast iron, following manufacturer's instruction for installation and meeting Portland's specifications for Sidewalk Ramp Detectable Warning Panel, Figure 1-7.~~
- ~~5. Reserved~~
- ~~6. Flares shall be designed with a maximum slope of 10% provided that a landing area at least 48 inches x 48 inches is provided at the top of the ramp. If the landing area is less than 48 inches x 48 inches, the maximum slope of the flares shall be 8.33%.~~
- ~~7. Landings shall be at least 48 inches by 48 inches for new construction and at least 36 inches x 36 inches for retrofits. Landings shall be designed with slopes in both directions that are no greater than 2%.~~
- ~~8. Approaches shall be designed with a cross slope no greater than 2% and a running slope that does not exceed the slope requirements for sidewalk ramps.~~

~~1.8.5. Sidewalk Ramp Location and Orientation:~~

~~Sidewalk ramps shall be designed as perpendicular ramps with the direction of travel on the ramp perpendicular to the curb line and parallel to the crosswalk. Where existing conditions (such as narrow right of way width) preclude such layouts, parallel ramps or diagonal ramps may be approved.~~

~~Diagonal ramps are located in the middle of a section of circular curb at a corner, where the ramp is at an angle of about 45 degrees to one or two marked crosswalks. In such cases, the crosswalks shall be laid out to encompass a 48 inch by 48 inch landing and wheelchair maneuvering area at the base of the ramp in the street.~~

1.7 DRIVEWAY APRONS

Any driveway, or section thereof, located within any public street right-of-way shall be designed and built according to the following specifications. ~~with a permanent, erosion-resistant surface, such as hot mix asphalt pavement, concrete, or brick, as illustrated in Figures I-10 through I-12. At a minimum, all driveway aprons shall be constructed of the designated sidewalk material within the pedestrian access route.~~

1.7.1. Construction and materials: The portion of the driveway within the public right-of-way within the pedestrian access route shall be comprised of the same material as the abutting sidewalk as identified in the Sidewalk Material Policy (Appendix 1) and constructed according to Figures I-10 through I-12.

1.7.2. Pedestrian access route: Where a driveway crosses a sidewalk, shared use path, or other pedestrian access route, a pedestrian access route shall be constructed across the driveway apron with a maximum cross-slope of 2% (1.5% preferred). The pedestrian access route shall be designed and constructed to meet the elevation of the adjacent sidewalk or shared use pathway to the extent feasible.

The pedestrian access route shall be constructed at the same width as the adjacent sidewalk or shared use path to the extent feasible. For pedestrian access routes connecting to adjacent sidewalks, the minimum width is four (4) feet, with five (5) feet preferred.

1.7.3. Driveway apron slope: The driveway apron shall ramp up to the grade of the sidewalk, where feasible. The portion of the driveway between the roadway and the pedestrian access route shall be designed to a maximum slope of 15%, unless otherwise approved by the Department of Public Works. This slope should be minimized to the extent possible while maintaining ADA-compliance and continuity of travel along the pedestrian access route.

1.7.4 Driveway design: Where feasible, driveways shall be designed to keep the pedestrian access route at a consistent elevation for continuity of travel. The portion of the driveway between the roadway and pedestrian access route shall be sloped to provide the full transition between the roadway and sidewalk elevations where feasible. Along roadways where the sidewalk width plus esplanade width is less than seven (7) feet, the sidewalk may be transitioned using ADA-compliant ramps in order to create a suitable driveway crossing.

~~1.9. Reserved~~

~~1.8~~1.0. ROADWAY CONSTRUCTION, SURFACE, AND AGGREGATES

1.810.1. All roadways shall be constructed in accordance with Chapter 25 of the City of

Portland Code of Ordinances and the most current edition of the MaineDOT Standard Specifications unless otherwise indicated herein or otherwise directed in writing by the Department of Public Works.

- 1.8.2 Aggregates used in concrete mixes and in the construction of streets, sidewalks and aprons shall meet the requirements in SECTION 703 - AGGREGATES of the most current edition of the State of Maine Department of Transportation Standard Specifications with the following clarifications, additions and modifications: Revision of December 2002 with the following additions and modifications:

703.02 Coarse Aggregate for Concrete: Designated Aggregate Size

Sieve Size	Percent Passing Sieve				
	2 in.	1½ in.	1 in.	¾ in.	½ in.
2 in.	95-100	100	-	-	-
1 1/2 in.	-	95-100	100	-	-
1 in.	50-70	-	90-100	100	-
¾ in.	-	50-70	-	90-100	100
1/2 in.	15-30	-	25-60	-	90-100
3/8 in.	-	10-30	-	20-55	-
No. 4	0-5	0-5	0-10	0-10	0-15
F.M. (+0.20)	7-45	7-20	6-95	6-70	6-10

1.8.310.2. Aggregate used in concrete shall not exceed the following maximum designated sizes:

- 2 inches for mass concrete
- 1 1/2 inch for piles, pile caps, footings, foundation mats, and walls 8 inches or more thick
- 3/4 inch for slabs, beams, and girders.
- 1/2 inch for fireproofing on steel columns and beams
- 1 inch for all other concrete

- 1.8.3410.3. ~~703.06 (a)~~ 703.06 (a) Aggregate Base Gravels: shall adhere to Maine DOT standard specifications listed in sections 304 and 703 for type "A" material.

~~Aggregate base – crushed, type "B" shall not contain particles of rock which will not pass a two inch (2") square mesh sieve, and shall conform to the type "B" aggregate, as listed in the subsection of the Standard Specifications.~~

~~"Crushed" shall be defined as consisting of rock particles with at least 50 percent of the portion retained on a 1/4 inch square mesh sieve, having a minimum of 2 fracture faces.~~

1. ~~8.45~~10.4. ~~703.06 (b)~~ 703.06 (c) Aggregate Subbase Gravels: shall adhere to Maine DOT standard specifications listed in sections 304 and 703 for type "D" material.

~~Sand subbase shall not contain particles of rock which will not pass a one inch (1") square mesh sieve, and shall conform to the type "F" Aggregate, as listed in this subsection of the Standard Specifications.~~

~~Gravel subbase shall not contain particles of rock which will not pass a three inch (3") square mesh sieve, and shall conform to type "D" Aggregate, as listed in this subsection of the Standard Specifications.~~

1. ~~8.56~~10.5. 703.18 Common Borrow:

Common borrow shall not contain any particle of bituminous material.

1. ~~8.67~~10.6. 703.19 Granular Borrow: shall adhere to Maine DOT standard specification 703.19 for Granular Borrow material.

~~Granular borrow shall contain no particles which will not pass a three inch (3") square mesh sieve.~~

1. ~~8.79~~10.7. 703.20 Gravel Borrow: shall adhere to Maine DOT standard specification 703.20 for Gravel Borrow material.

~~Gravel borrow shall not contain particles of rock which will not pass a three inch (3") square mesh sieve.~~

- ~~1.10.8. 703.31 Crushed Stone for Pipe Bedding and Underdrain:~~

~~"Crushed Stone" shall be defined as rock of uniform quality and shall consist of clean, angular fragments of quarried rock, free from soft disintegrated pieces, vegetable matter, lumps or balls of clay, and other unsuitable substances.~~

~~Crushed stone used as a bedding material for pipe and underdrain shall be uniformly graded and shall meet the gradations listed in the tables below. The stone shall be free from vegetable matter, lumps or balls of clay, and other unsuitable substances.~~

Sieve Designation	Percentage by Weight Passing
3/4 — inch	100

3/8-inch	20-55
No. 4	0-10

For pipe sizes 42 inches and larger

Sieve Designation (square mesh sieve)	Percentage by Weight Passing
1 1/4-inch	100
3/8-inch	20-55
No. 4	0-10

Minimum thicknesses for pavement structure materials

Street Classification	Minimum Materials Thicknesses (Inches)			
	Wearing Course Pavement	Base Course Pavement	Agg. Base Course	Agg. Subbase Course
Minor Residential	1 ½	2	3	15
Residential	1 ½	2	3	15
Collector	1 ½	2 ½	3	18
Commercial/Industrial	2	3	3	18

Minimum placement temperatures for hot mix asphalt pavement

Base Temp. ° f	Mat Thickness, Inches					
	½	¾	1	1 ½	2	3+
40 - 50*	--	--	--	--	285	275
50 - 60	--	310	300	295	280	270
60 - 70	310	300	290	285	275	265
70 - 80	300	290	285	280	270	265
80 - 90	290	280	275	270	265	260
90+	280	275	270	265	260	255

* Surface course pavement shall not be placed when the air or road base temperature is less than 50 degrees F.

1.911. STREETS ON ISLANDS IN CASCO BAY

Reserved.

1.12. PARKING STUDY

Parking studies shall be produced by a licensed transportation professional engineer.

Where a parking study is required, data shall be determined by values contained in the most up to date version of the Institute of Transportation Engineers (ITE) publication titled Parking Generation, or through local, regional or other pertinent national data. If local or regional data is to be used, the scope and methodology of the parking study shall be coordinated with the City Transportation Engineer.

Where a parking study is required, the applicant's engineer shall have a scoping meeting with the City Transportation Engineer or their designee to determine the need for and required scope of the study. The requirements for the study shall be based on standard transportation engineering practices.

Commented [ND3]: Moved to Section 17.

1.13. TRANSPORTATION DEMAND MANAGEMENT (TDM)

All TDM Plans shall include specific provisions for the following:

1.13.1. Transportation Narrative:

Every TDM plan shall describe how the project fits within the multimodal transportation system serving the district in which the development is located. The narrative should address the specifics of the use, occupants, visitors, and location of the development and how it is anticipated to relate to its transportation context.

1.13.2. Identify a TDM Coordinator to administer the TDM plan:

Every TDM Plan needs to identify the plan administrator and establish the roles and responsibilities of the administrator.

1.13.3. Employee and Customer Survey:

The TDM plan shall develop and use an employee and/or customer survey format that:

- Is specifically designed to reflect the use mix within the development.
- Is electronically tabulated.

- Produces comparable data from year to year
- Allows for compilation of data from multiple employers by third party.
- Allows for data use by employees to foster car pooling and ride sharing.
- Identifies barriers to or best practices in public transit, bicycle, and pedestrian transportation.
- Can be conducted periodically (typically annually) and can be used to monitor program effectiveness and provide the basis for periodic plan adjustment (see monitoring section below).

1.13.4. Set Parking and Trip Reduction Target:

The TDM plan shall use ITE trip generation and parking demand projections as the basis to establish a projected transportation demand and/or impact of the development. Alternatively, project-specific parking and trip generation projections may be used in place of ITE standards, if estimated by a licensed professional engineer and approved by the City. A project specific demand analysis may be advantageous to projects that can demonstrate reduced parking demand and trip generation based on approved assumptions in their TDM and Site Plan.

The TDM plan must use the specific use, location, local alternative transportation opportunities, and initial survey results to establish an achievable percentage reduction in transportation demand for the project. The TDM plan will utilize the stated parking and trip reduction targets as the basis for reduced infrastructure and contribution requirements for the Planning Board's evaluation.

1.13.5. Customize Parking and Trip Reduction Strategies:

Every TDM plan must be customized to reflect the specific mix of use proposed for the development. For example, A residential development will utilize a very different approach to reducing project generated parking and trips than an office building. Likewise, the administration of the TDM plan and the role of the TDM Coordinator must adequately respond to the scale of the development, the uses in the development, as well as the ownership framework and management of the facility.

1.13.6. Education:

The TDM plan shall, at a minimum include provisions for the following. All

educational information and programs shall be readily accessible to all project occupants.

- Transit maps and schedules. These shall be posted and updated by the TDM Coordinator, as necessary.
- Access to Information concerning transportation providers and guaranteed ride home services such as: carpooling list serves and/or van pool providers.
- Internal information sharing such as posting a "Ride Board" or employee email list-serve to facilitate carpooling and to share the results of employee and customer surveys.
- Educational and promotional materials that describe and identify the advantages and cost saving opportunities of using alternative transportation, including specific incentives offered by the employer.
- Recognition of employees who reduce the traffic impact of the development through newsletter, email, bulletin board, or other announcements.
- Information on bicycling routes, parking infrastructure and locations and other amenities or incentives that may be available.

1.13.7. Monitoring:

All TDM plans must include provisions for monitoring program effectiveness over time to establish whether trip reduction targets are being met.

Responsibility: TDM Coordinators and/or plan administrators are responsible for monitoring the efficacy of the TDM plan periodically over time and making adjustments to the plan needed to achieve trip reduction targets.

Methods: The methods and scheduling of monitoring shall be outlined in the TDM plan and shall follow accepted transportation engineering. Monitoring methods will typically involve use of the periodic survey combined with direct observation.

Reporting: TDM plan monitoring shall be compiled into a report that compares the results to trip reduction targets and parking demand projections. The monitoring results shall be provided to the Reviewing Authority according to the monitoring schedule established in the TDM plan.

1.13.8. Project Specific Standards:

Individual TDM Plans shall assess the following topics on a site- specific basis

tailored to the transportation needs of the development.

1. **Infrastructure:**

On-site and off-site infrastructure improvements may be incorporated to achieve trip reduction targets and may include the following:

- **Public Transit Access:** The TDM plan shall identify how occupants and/or visitors will access public transit. Pedestrian links to bus routes and other transit links shall be identified and their usability assessed for sidewalk condition, ADA accessibility, street lighting, cross walk facilities, wayfinding, and general safety and attractiveness. The nearest sheltered public transit facility shall be identified. Deficiencies in the links to public transit that constitute barriers to its use shall be addressed in the TDM plan and in the site plan.
 - **Bicycle Parking:** Minimum bicycle parking is a site plan requirement according to Article 14 of the Land Use Code. The TDM plan may incorporate additional bicycle parking, bicycle wayfinding, and/or covered parking to further encourage bicycle use.
 - **On-site Shower and Locker Facilities:** Access to showers and locker facilities may be incorporated into the TDM Plan in order to encourage human powered transportation alternatives.
 - **TDM Bulletin Board or Kiosk:** TDM plans shall identify to occupants where information and educational material will be provided within the development a visible and convenient facility such as a transportation bulletin board and/or kiosk. In multi-tenanted facilities, transportation information shall be provided in the lobby of the structure or other such location that is accessible and frequented by a significant majority of occupants and visitors to the facility. The TDM coordinator shall be responsible for keeping all material current and available, as needed.
2. **Incentives:** Incentives available to users and/or occupants of the development may be incorporated to achieve trip reduction targets and may include the following:
- **Parking “Cash Out”:** TDM plans may include “parking cash out” incentives where employees have the choice of receiving monetary payments in lieu of provided parking. The efficacy of these programs will need to be carefully assessed and the method of monitoring must be described in the TDM plan.
 - **Public Transit Passes/Van Pool vouchers:** Free or reduced price bus passes or van pool vouchers may be used as an incentive in the TDM plan. The use of

transit options should be incorporated into the employee/customer survey and incorporated into the plan monitoring program. Transit payment options may be combined with parking cash out incentives, where appropriate.

- Preferred parking for car pool: Car pooling employees may be provided with more convenient and attractive parking, if available. If this option is incorporated into the TDM plan, the location of preferred parking shall be identified on the site plan and signed accordingly.
- Car sharing: Residential developments may incorporate shared car services or jointly owned vehicles into the TDM plan. Commercial development TDM plans may identify use of a shared vehicle for use by employees for either commercial or personal trips through the work day as a means to encourage alternative commuting to work.
- Telecommuting, flex time, and other flexible work scheduling mechanisms that promote fewer employee trips to work or promote alternative transportation travel.

*Other incentives infrastructure improvements and/or methods ~~as~~ may also be appropriate to the development.

Commented [ND4]: Moved to Section 17

1.1014. PARKING LOT AND PARKING SPACE DESIGN

~~Refer to Article 19 of the City Land Use Code for zoning ordinance requirements concerning the number of parking spaces required for off-street parking.~~

1.104.1. Parking lots, except for temporary lots to be used for less than one year, shall be constructed of a permanent and durable hard surface that is not subject to ponding or erosion, both onsite and within the right-of-way, and shall meet accessibility standards. Any proposed permanent parking lot surface must allow for delineation of parking spaces and circulation aisles.

1.104.2. Parking spaces shall meet the following dimensional requirements:

- Standard parking space: 9 feet wide by 18 feet long, except that low turnover parking spaces, such as those used by residents or employees, may be designed with a width of 8'-6" and considered a standard parking space.
- Compact parking space: 8 feet wide by 15 feet long.
- Motorcycle/motorized scooter parking space: 4 feet wide by 8 feet long.

Obstructions within parking areas, including columns and other permanent

fixtures, shall not be located within the dimensions of a parking space. Where these obstructions are present, parking shall be striped and dimensioned to omit these obstructions. Such obstructions should not significantly impact vehicle maneuverability, visibility, ability to open doors, etc.

All spaces provided shall be safely accessible. Substandard and specialty spaces that are open to the general public shall be labeled as such using signage or pavement markings to inform users.

1.10.2.1. Compact spaces: Any parking lot with 10 or fewer spaces shall contain standard sized parking spaces five or more spaces may contain a mix of standard and compact spaces. Up to 20% of parking spaces in a parking area may be compact. Compact parking spaces should be limited in high-turnover parking areas or locations where the typical vehicle is likely to be larger than a typical passenger vehicle. Vehicle turning analysis may be required for review by the Department of Public Works to ensure that spaces function as designed.

1.10.2.2. Accessible Parking: All parking areas shall provide accessible parking per ADA and the Maine Fair Housing Act. ADA standards for number of spaces, dimensions, buffers, cross-slopes, materials, pedestrian accessibility, and other requirements shall apply with no exceptions. Accessible spaces shall be considered "standard" parking spaces for the purposes of calculating the allowable number of compact spaces.

1.14.3. Parking lot layout shall conform to Figures I-28 thru I-32.

1.14.4. Where off-street parking for more than six vehicles is required or provided, the following construction requirements shall apply:

- Appropriate driveways from streets or alleys, as well as maneuvering areas, shall be provided. Location and width of approaches over public sidewalks shall be approved by the traffic engineer.
- The surface of driveways, maneuvering areas and parking areas shall be uniformly graded with a subgrade consisting of gravel or equivalent materials at least six inches in depth, well compacted, and with a wearing surface equivalent in quantities of compaction and durability to fine gravel.
- A system of surface drainage shall be provided in such a way that the waste run-off shall not run over or across any public sidewalk or street.
- Where artificial lighting is provided, it shall be shaded or screened so that no light source shall be visible from outside the area and its access driveways.

~~1.104.35.~~ Vehicular access shall be provided by one or more aisles. The minimum two-way drive aisle width is 24 feet for standard, right-angle parking, and is otherwise dependent on parking space orientation, as illustrated in Figures I-16 A. Minimum widths of aisles are illustrated in Figures I-28 thru I-31. Accessible parking spaces shall be served by at least one aisle of standard width or greater.

1.118. MOTORCYCLE/MOTORIZED SCOOTER/-MOPED PARKING (ON-STREET):

To distinguish motorcycle/motorized scooter/moped parking spaces from standard parking spaces the spaces shall be painted and delineated with signage. These painted spaces shall be angled and shall be four (4) feet wide by eight (8) feet long. The dimensions for on-street motorcycle/motorized scooter/moped parking are outlined in Figure I-~~31~~16B. On-street motorcycle/motorized scooter/~~and~~ moped parking may also be located where standard vehicle parking would be prohibited because of sight restrictions, such as, adjacent to a crosswalk or an approach to a traffic control device. Motorcycles/motorized scooter/mopeds do not ~~have create~~ the same sight impediment as a standard vehicle.

1.152. BICYCLE PARKING

~~Refer to Article 19 of the City Land Use Code for zoning ordinance requirements concerning the number of bicycle parking spaces required.~~

1.12.1 Bicycle parking shall:

- Provide secure, durable racks that maintain bicycles in an upright position and to which bicycles can be affixed with customary lock and cable mechanisms. Fence-type ("wheel bender") racks designed to secure the front wheel only and wave racks are prohibited from counting toward bicycle parking requirements.
- Be installed on a hard surface that is suitably sized and provides sufficient clearance from obstacles.
- Be separated from car parking by a physical barrier such as curbing, wheel stops, parking bollards or similar features.
- Be adequately illuminated where nighttime use is anticipated.
- Be provided under covered areas and/or in secure storage lockers or rooms, if intended for long-term use.
- Be provided within the public right-of-way or be publicly accessible ~~for if~~

intended for uses that expect visitation, customers, or short-term usage.

~~1.12.5.1. Bicycle parking intended for long-term use (residential or full-time employee parking) shall be provided under covered areas and/or in secure storage lockers.~~

1.12.5.2. Placement of off-street bicycle parking racks shall conform to the bicycle parking rack placement criteria (*drawn from the Bicycle Facility Design Guide of the District Department of Transportation, 2006*) as illustrated in Figure I-33.

1.12.5.3. ~~For commercial or industrial~~ uses ~~that~~ requiring more than ten (10) bicycle parking spaces):

- A minimum of ten percent (10%) of required bicycle parking shall be provided within fifty (50) feet of the main ~~egress-entry~~ point of the structure, or shall be no further from such entry than the nearest five (5) non-handicapped parking spaces.
- Where there is more than one structure on a site, or where a structure has more than one main entrance, the parking shall be distributed to adequately serve all structures or main entrances.

1.12.5.4. Directional Signage: If bicycle parking is not directly visible from the public right-of-way, directional signage shall be provided indicating the availability and location of bicycle parking facilities.

1.12.5.5. Approved Bicycle Racks:

1.12.5.1. Design: Bicycle racks that are required to meet site plan requirements shall:

- Provide multiple points of contact between the rack and the bicycle;
- Allow bicycles to be locked without the need to lift the bicycle into the rack; and
- Be placed in such a way as to allow the intended number of bikes to be securely locked.

1.12.5.2 Approved Racks by Location:

- Private property: A variety of commercially available racks are acceptable for installation on private property, including but not limited to those catalogue listings identified herein (Figures I-343 and I-354).
- In the Public Right-of-Way: ~~Where site conditions cannot reasonably~~

~~accommodate bicycle parking on private property, it~~ Bicycle parking may be located within a public ~~right-of-way~~ sidewalk area ~~where site conditions cannot reasonably accommodate bicycle parking on private property or in the case of sites that expect high-turnover or short-term bike parking usage.~~ Bike parking may be placed either adjacent to or within reasonable walking distance of the site, if such areas are available that meet the bicycle parking rack placement criteria ~~of this chapter~~ (drawn from the *Bicycle Facility Design Guide* of the District Department of Transportation, 2006) ~~as illustrated in—see~~ Figure I-323. Bicycle racks within the public right-of-way shall be placed to allow for the safe storage of bicycles while limiting encroachment onto adjacent sidewalks. If no ~~such~~ location ~~within the right-of-way~~ is available, a financial contribution commensurate with the cost for purchase and installation of the required number of bicycle racks shall be made to ~~the Sustainable Transportation Fund~~ a City infrastructure account.

The following approved brands, installed according to company specifications, shall be permitted in the public right-of-way. Equivalent bicycle racks by other manufacturers are acceptable upon prior approval by the reviewing authority.

- DERO 'Downtown Rack' Inverted U-Rack (Figure I-354)
- DERO 'Bike Hitch' (Figure I-343)
- Old Port District, including Commercial Street: DERO Bike Hitch only (Figure I-343)

Bicycle racks in the public right-of-way shall become the property of the City of Portland.

Bicycle racks in the public right-of-way shall match the designated street furniture color for that location as described in the Municipal Street Lighting Standards in this manual. Where there is no designated street furniture color, bicycle racks in the public right-of-way shall be black (manufacturer's specification).

1.163. BICYCLE ROUTES AND LANES

The City has developed a ~~Bike Route Network plans Map (Figure I-35)~~ to show present and proposed bikeways, including neighborhood byways, routes on City streets. These routes are typically accomplished by providing ~~either~~ dedicated bicycle lanes, and shared use pathways "Share the Road" methodology. Positive identification of the ~~lane bikeways~~ shall be provided by pavement markings, bike lane symbols, and or signage. The following standards shall be applied to the installation of bike ~~facilities~~ lanes on City streets:

1.13.1. Design: The design of any new or modified bicycle facility shall be reviewed and approved by the Department of Public Works prior to application and shall be consistent with the following design standards:

- Vehicular travel lanes and bicycle lanes shall be separated by a minimum six (6) inch solid white painted edge line adjacent to the travel lane. At intersections the white edge line shall be a ~~dotted-dashed~~ line (two (2) foot painted length by four (4) foot opening) across the intersection and for 50 feet to 100 feet in advance of the intersection, as appropriate. Where there is the potential for right-turning vehicle conflicts with through bicycle movements at intersections, green paint within the bicycle lane is recommended and may be required.
- Bike lanes shall have a minimum width of five (5) feet. Six (6) feet is preferred for bicycle lanes adjacent to curbed street sections. Where sufficient ~~shoulder-street width is provided exists~~, a ~~second edge line shall be painted off the face of the curb at a painted buffer of one (1) foot or more may be provided between the bicycle lane and vehicle travel lanes, or two (2) feet. This edge line shall not extend across intersections.~~ Where a bicycle lane is adjacent to on-street parking with moderate to high utilization and/or turnover rates, this buffer may be should be considered to be placed between the bicycle lane and parking lane. The location of the buffer shall be determined in consultation with the Department of Public Works. Where a buffer of one foot or greater is provided, the width of the bicycle lane may be reduced to four (4) feet, if necessary, with approval from the Department of Public Works. ~~Design shall take into account the location of potential obstructions, such as catch basins. See Figure 1-36~~
- Where the minimum or recommended width for bicycle lanes is not immediately available, reallocation of general travel lane widths or the number and configuration of general travel lanes should shall be considered, as appropriate, in consultation with the Department of Public Works.
- On-street bicycle lanes and associated buffers shall not exceed eight (8) feet in total width unless vertical delineation is provided in the buffer area. Applicability and materials of vertical delineation shall be determined by the Department of Public Works.
- Shared use paths shall be designed to facilitate two-way traffic by users of multiple, nonmotorized modes. In general, shared use paths shall be ten (10) feet or greater in width, and free of any obstructions, including a 2 foot clear zone on each side of the pathway. Refer to the AASHTO Guide for the Development of Bicycle Facilities for shared use path design considerations.

- ~~When bike lanes are provided on streets with on-street parking, the bike lane shall be a minimum of six (6) feet wide delineated by edge lines on either side of the bike lane. See Figure I-37.~~
- On bicycle routes, or other roads with considerable bicycle traffic and insufficient roadway width to provide a bicycle lane, shared lane markings ("sharrows") may be used. Where used, sharrows shall be placed in the center of the travel lane(s) serving the bike route(s) or where bicyclists are expected.
- On two-way roadways with excess roadway width for one bicycle lane, but not two, installation of a single bicycle lane should be considered. The single bicycle lane should be placed in the uphill direction, if located on a hill. Otherwise, if parking is provided on only one side of the roadway, bicycle lane placement should be prioritized on the side of the street with no parking. Where possible, streets with bicycle lanes in only one direction should be paired with another lane on an adjacent parallel street to achieve bicycle mobility in both directions, if possible.
- Standard bike lanes and all other on-street bicycle facilities such as separated bike lanes shall be designed in accordance with the most recent version of nationally-recognized design guides, such as the NACTO Urban Bikeway Design Guide, the NACTO Urban Street Design Guide, the FHWA Separated Bike Lane Planning and Design Guide, [the Massachusetts DOT's Separated Bike Lane Planning & Design Guide](#), or other best practice as it becomes available.

1.13.2. Bike Network Considerations: Bicycle facilities shall be designed within the context of the city-wide bicycle network.

1.13.3. Pavement Markings and Signage:

- Bicycle lanes shall be marked with appropriate pavement markings such as longitudinal lines and stenciled symbols, ~~as illustrated in-~~ see Figure I-182138 for two examples.
- Bike routes shall be identified by appropriate signage as found in the FHWA 'Manual of Uniform Traffic Control Devices,' as illustrated in- ~~See Figure I-182138 for examples.~~

1.174. ELECTRIC VEHICLE INFRASTRUCTURE

New structured and surface parking lots of five or more spaces shall include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher

to 20% of parking spaces (rounded down to the nearest whole number). An additional 50% of Remaining spaces must be made EV-ready, meaning that they are served by sufficient conduit, wiring, and electrical service to allow for future installation of electric vehicle supply equipment at every space.

An applicant may request a reduction in the number of required EV-installed or EV-ready parking spaces if Level 3 EV charging is proposed. In this case, spaces served by Level 3 charging may be substituted for Level 2 at a ratio to be determined in consultation with the Department of Public Works.

In the case of new structured and surface parking of greater than 100 spaces, the review authority may establish the EV parking requirements on the basis of an EV parking demand study. Such study shall be prepared by a qualified professional using industry best practice, and account for future growth in EV demand.

1.18. MOTORCYCLE / MOPED PARKING (ON-STREET):

To distinguish motorcycle/moped parking spaces from standard parking spaces the spaces shall be painted and delineated with signage. These painted spaces shall be angled and shall be four (4) feet wide by eight (8) feet long. The dimensions for on-street motorcycle/moped parking are outlined in Figure I-31. On-street motorcycle and moped parking may also be located where standard vehicle parking would be prohibited because of sight restrictions, such as, adjacent to a crosswalk or an approach to a traffic control device. Motorcycles/mopeds do not have the same sight impediment as a standard vehicle.

Commented [ND5]: Moved to 1.11

1.195. TRAFFIC CONTROL DEVICES SIGNALS

All intersections of two or more roadways shall be controlled by one of the traffic control methods listed herein. All traffic control shall be selected and installed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

1.15.1. Traffic signals. All new traffic signals are subject to the approval of the Department of Public Works. Proposed traffic signals are required to meet at least one traffic signal warrant set by the MUTCD. Signals justified using Warrant 3 (Peak Hour Volume), Warrant 7 (Crash Experience), or Warrant 8 (Roadway Network) without meeting at least one other warrant may require additional study. Development projects that trigger, or further exceed, one or more signal warrants at one or more existing or proposed intersections or driveways may be required to install a traffic signal at those locations.

New or modified traffic signals also require the submission of a traffic signal plan, including locations of all equipment, underground utilities, ~~a~~ phasing and timing plans, and a specific list of all traffic signal hardware. ~~For new or~~

~~modified traffic signal installations, a new plans shall be submitted to the Department of Public Works for review and approval prior to installation. reviewing authority for review and approval before installation can proceed.~~

New traffic signal proposals are subject to review by MaineDOT, as appropriate. All city, state, and federal guidelines with regard to installation, activation, and monitoring shall apply.

Existing traffic signals that do not meet MUTCD signal warrants may be removed if they present operational or safety issues. All removals of existing traffic signals are subject to coordination with and the approval of the Department of Public Works and MaineDOT.

The City of Portland's traffic signal specifications can be found in the City of Portland Traffic Signal Policy and Guidance Manual.

1.15.2 Stop Control. Stop signs shall be installed in accordance with MUTCD. Stop signs shall be accompanied by a stop line 12" in width.

Stop control shall not be used for speed control. Stop control should generally not be used on intersection approaches with multiple travel lanes. Stop control shall not be used for intersections with five (5) or more approaches. Such intersections shall be signalized (if warranted), equipped with a roundabout, or otherwise realigned or regulated so that the number of approaches is reduced to four (4) or fewer.

1.15.3. Roundabouts: Where sufficient right-of-way is available, circular intersections (i.e. roundabouts or traffic circles) should be considered. Such intersections may provide operational and safety benefits compared to signalized or stop-controlled intersections. Where selected as the appropriate traffic control measure, roundabouts shall be designed in accordance with the MUTCD Chapter 3C, with signage according to MUTCD Section 2B.07. Neighborhood traffic circles may be considered at stop-controlled intersections as a traffic calming measure. All such treatments are subject to the approval of the Department of Public Works.

1.15.4. Yield Control: Yield control should generally only be implemented in the following scenarios:

- At certain channelized turning lanes separated from adjacent travel lanes by an island (even if the adjacent lanes are controlled by a stop sign or signal);
- At the entering roadway for a merging movement, including at a roundabout;
- or
- Where engineering judgment determines that yield control is appropriate.

subject to the approval of the Department of Public Works.

Listed below are the traffic signal items required for traffic signal installations. These items or an approved equivalent shall be provided.

1.19.1. Controller Equipment:

- ~~Controllers shall be compatible with existing Naztec Street Wise ATMS Software~~
- ~~Traffic control cabinets shall be Naztec Model M34 or P44 TS2 Type 1 Series only~~
- ~~Secondary traffic controllers shall be Naztec Model 980 TS2 Type 1 Series only~~
- ~~Master controllers shall be Naztec Model 981 Series only~~
- ~~Malfunction management units shall be Naztec Model MMU-516E only~~

1.19.2. Video Detection Equipment:

- ~~Video detection units shall be Traficon Model VIP3.1 & VIP3.2 Series only~~
- ~~Video detection cameras shall be Traficon approved models only~~

1.19.3. Signal Equipment:

- ~~Signal housings shall be McCain Model MTSTA or MTSTP Series only~~
- ~~LED modules for vehicle indications shall be GELcore Model DR6 Series only~~
- ~~LED modules for pedestrian indications shall be GELcore Model PS7 Series only~~
- ~~Accessible Pedestrian Signals shall be Campbell Advisor Series only~~

1.19.4. Traffic Structures:

- ~~Mast arms shall be Valmont SM16 or CB16 Series only~~
- ~~Strain poles shall be Valmont SW56 Series only.~~

1.1620. PUBLIC CROSSWALKS

1.16.1. Public crosswalks shall meet the requirements of The Manual on Uniform Traffic Control Devices (MUTCD), unless City standards specify a stricter measure. Public improvements may include but shall not be limited to any one or combination of the following:

- Crosswalks;
- Curb Bump Outs or Curb Extensions, where warranted;
- Pedestrian Crossing Signs (curbside, overhead or in the street);

- Rectangular Rapid Flashing Beacons (RRFBs)~~Pedestrian Activated Yellow-Flashing Warning Lights;~~
- Pedestrian Hybrid Beacons;
- Pedestrian Activated Traffic Control Signal (Red, yellow, green); and
- Medians or raised islands

1. ~~1620.12.~~ Crossing locations shall be designed to the following standards unless otherwise directed by the Department of Public Works:

- Street markings: Crosswalks on public streets shall consist of 24-inch block style white lines, placed 48 inches apart on center, for an overall width of 8 feet (or wider; at least as wide as the sidewalks served by the crosswalk).
- Street lighting: Crosswalk locations shall be adequately illuminated for visibility at nighttime.
- Signage: Select crosswalk locations may need to be accentuated through the use of signage mounted curbside, overhead, or on the roadway centerline, as described hereinafter. Crosswalk signs shall be placed directly adjacent to crosswalks, and advance warning signs shall be placed in accordance with MUTCD. Standard signs shall be black legend on a fluorescent background.

Critical Physical Factors:

Walking Speed:

- ~~This factor is applicable at signalized intersections and affects the length of the pedestrian clearance (flashing “don’t walk”) interval.~~
- ~~Average walking speed is generally measured as three and a half (3.5) feet per second. In areas with elderly or young children pedestrians, a rate of three (3) feet per second is appropriate.~~

Vehicular Sight Distance:

- ~~Sight distance shall be based on the posted speed plus 5 miles per hour or the 85th percentile travel speed as tabulated below.~~

Stopping Sight Distances (1)

Speed (mph)	Stopping Sight Distance (feet) *
25	155
30	200
35	250
40	305
45	360

50	425
----	-----

**Assumes level grade*

Source: AASHTO Policy reference 1, Exhibit 3-1 of that publication.

- ~~Sight distance shall be based on a driver eye height of 3.5 feet and a pedestrian height of 2.0 feet.~~
- ~~Parking shall be prohibited within twenty (20) feet from the centerline of a crosswalk and within thirty (30) feet at signalized and STOP sign locations.~~

~~1.20.2. General Standards for Crosswalk Installation:~~

- ~~1. The Manual on Uniform Traffic Control Devices (MUTCD) provides guidance for placement of crosswalks. In addition, crosswalks should:~~
 - ~~Occur where substantial pedestrian/vehicle conflicts exist. (See the Federal Highway Administration notebook titled "Traffic Conflict Techniques for Safety and Operations" which provides methods for conflict evaluation.)~~
 - ~~Occur at points of pedestrian concentration that can meet applicable standards or where pedestrians may not recognize the appropriate place to cross (e.g., loading islands, mid-block pedestrian crossings).~~
 - ~~Maintain suitable separation (approximately 300 feet) between non-intersection or mid-block crosswalks.~~
 - ~~Be installed based on an engineering study if located other than at a STOP sign or traffic signal. For mid-block locations, a study shall evaluate factors of need including but not limited to school crossings, age of pedestrians, and nearest alternative crosswalk location as well as safety issues such as traffic speed, volume, and sight lines.~~
 - ~~Consider advance warning signage if installed at uncontrolled locations and allow for restriction of parking for adequate visibility of the advance signage.~~
 - ~~No crosswalk spacing requirements are to be imposed at intersection locations. Other engineering factors are to be reviewed in the determination of suitability of the location.~~
- ~~2. The Crosswalk Installation Guidelines (Figure I-24) provide criteria for guiding evaluations of when crosswalks may be desirable at uncontrolled locations based on pedestrian and vehicular volumes. Crosswalks at uncontrolled locations shall be placed where these criteria are met; or where special requirements and/or plans exist that support the installation of a crosswalk.~~
- ~~3. Crosswalks proposed at signalized intersections shall include~~

~~pedestrian signal indications for substantial pedestrian crossings.¹ Each proposed location shall be evaluated based on through traffic volumes, turning vehicle volumes and signal phasing to determine which legs of the intersection are most appropriate for pedestrian crossings.~~

~~The default assumption is that crosswalks shall be provided on all intersection approaches and supplemental analysis must be provided that identifies specific engineering conclusions on why this cannot be accomplished.~~

¹Design and Safety of Pedestrian Facilities, 1998, ITE Technical Committee 5A-5

- ~~4. Marked crosswalks across stop controlled intersection approaches shall be considered where vehicular traffic may block pedestrian traffic². This will be assessed based on a visual observation of vehicular and pedestrian traffic flow at the intersection to determine if there is sufficient vehicular traffic to block the pedestrian crossing path for a significant period of time.~~

1.20.3. Design Criteria:

~~Street Markings: Crosswalks on public streets shall use a minimum of eight (8) inch wide solid white lines, which should be spaced to provide a minimum overall width of eight (8) feet. Wider line width is required for locations with higher posted speeds as shown below. Paint, wherever used, shall meet Maine Department of Transportation (Maine DOT) specifications. Additional designs may consist of longitudinal lines. Figure I-21 illustrates these typical crosswalk markings and the table below provides dimensions utilized in the City of Portland for various applications.~~

Crosswalk Dimensions

Type	Overall Width	Line Width	Spacing
Standard Crosswalk Marking (two lines) Posted Speed ≤ 35 mph Posted Speed > 35 mph	8' 8'	8" 12"	N.A.
Crosswalk with Longitudinal Lines (block style) (See Pedestrian Crossing Distances table)	8'	24"	Spacing 4' o.c.

~~The longitudinal or block style striping of crosswalks should be reserved for use at the following locations (see Pedestrian Crossing Distances table):~~

- ~~Uncontrolled locations of special significance, such as school walking routes, trail/shared use paths and mid-block crossings;~~
- ~~High volume pedestrian locations with at least 25 pedestrian crossings for each 4 hours or 40 crossings during the peak hour; and~~
- ~~High vehicle speed (> 35 mph posted speed) crossings.~~

1. ~~Street Lighting: Crosswalk locations shall be adequately illuminated for night-time use.~~

* Pedestrian Facilities Users Guide, March 2002, USDOT – FHWA

2. ~~Signage: Select crosswalk locations may need to be accentuated through the use of signage mounted curbside, overhead, or on the road centerline, as described below:~~
3. ~~Curbside Signs: There are three standard curbside signs consisting of a crosswalk warning sign, a school crossing warning sign, and an advance warning pedestrian crossing sign. The City of Portland also installs “yield for pedestrians” signs at crosswalks, as shown in Figures I-22 and I-23. Crosswalk signs shall be placed directly adjacent to crosswalks and advance warning signs shall be placed in accordance with the MUTCD guidelines as shown below.~~

Advance Warning Sign Placement (2)

85th Percentile Speed* (mph)	Advance Placement (feet)
25	125**
30	125**
35	125**
40	125
45	175

* ~~or the posted speed when a speed study is not available.~~

** ~~recommended minimum for the City of Portland~~

~~Source: Table 2C-4 of the MUTCD.~~

- 1.20.4. ~~Standard signs shall be black legend on a yellow background. The MUTCD also allows the use of a yellow-green fluorescent high grade reflective background for increased visibility. These higher grade signs shall be used where locations meet at least one of the following criteria:~~

- ~~Vehicle 85th percentile speeds or the posted speed is greater than or equal to 35 mph;~~
- ~~Pedestrian crossing volume of at least 25 per hour for four hours or~~

- ◆ ~~40 during the peak hour; or~~
- ◆ ~~School crossing.~~

1. ~~Overhead Signs and Flashing Warning Lights: Overhead signs supplemented with pedestrian activated flashers may be placed at high volume pedestrian crossing locations or where specific pedestrian safety issues have been identified.~~
2. ~~Centerline Signs: Centerline signs shall be able to withstand vehicle impact without damage to the vehicle and with minimal damage to the device and shall be anchored in place. Note that these devices must be removed without damaging the pavement prior to the start of winter season. The City recommends a device with a base anchored to the pavement with epoxy and a flexible upright paddle that is replaceable. The following criteria should be considered for these devices to be utilized:~~

- ◆ ~~Presence of a high crash location (HCL) as defined by Maine DOT:~~
Both of the following criteria must be met in order to be classified as an HCL:
 - ~~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; and~~
 - ~~A minimum of eight (8) accidents over a three (3) year period.~~
- ◆ ~~Principal or minor arterial, as identified in Figure 24.~~
- ◆ ~~At least 25 pedestrian crossings per hour for four (4) hours or 40 pedestrian crossings for the peak hour.~~

~~1.20.5. Traffic Control Signals: The following provides general guidance concerning installation of a pedestrian activated red-yellow-green traffic control signal. The MUTCD should be consulted for specific details:~~

- ◆ ~~The location is a school crossing and a traffic engineering study reveals that there are not adequate gaps in the traffic stream; or~~
- ◆ ~~There are 107 pedestrian crossings for each of four (4) hours or 133 crossings during any one hour and under both conditions for high volume roadways. Higher rates of pedestrian crossings are necessary for lower volume streets. The number of pedestrians may be reduced by 50% where they are predominantly elderly or young children to include crossing locations along school walking routes for elementary and middle school students.~~

~~1.20.6. Specific Guidelines for Crosswalk Use: The City of Portland has established~~

the following guidelines for pedestrian street crossing devices:

Pedestrian Crossing Devices

Device	Use*
Crosswalk	
8" lines, 8' total width	Where volume criteria of Figure 1-25 are met and speeds are less than 35 mph and at signalized intersections.
12" lines, 8' total width	At all unsignalized locations where volume criteria of Figure 1-25 are met and speeds are between 35 and 45 mph.
24" block style lines, 8' width	At mid-block locations where volume criteria of Figure 1-25 are met and speeds are between 35 and 45 mph, at all school and trail/shared-use path crossings and as noted in 1.20.3 (Design Criteria) above or at uncontrolled locations as determined by the Traffic Engineer.
Curbside signs	
Advance Crossing Signs	For all mid-block crosswalks and other uncontrolled locations as determined by Traffic Engineer.
Standard Grade Crossing Sign	At all locations where crosswalk lines alone are not sufficient to define the crossing location to motorists at the discretion of the Crosswalk Committee.
High Grade Crossing Sign	Speed greater than or equal to 35 mph; or 25 pedestrians crossing per hour for four hours or 40 pedestrians crossing for the peak hour
School Crossing Sign	In accordance with MUTCD
Other	
Overhead Signs/Flashers	On arterial roadways or roadways with at least two lanes of traffic in at
Centerline Signs	As noted in 1.20.4 above.
Traffic Control Signal	Consider at locations meeting MUTCD warrants for school crossings or

*All speeds are 85th percentile speeds for off-peak daytime periods or the posted speed.

1.1724. PUBLIC TRANSIT FACILITIES

Where required, public transit facilities shall meet the following standards:

1.1724.1. Transit Pullout Bays:

- Transit pullout bays shall be located in the City right-of-way along the property frontage; or
- Where space constraints prevent locating a transit pullout bay along the property frontage, transit pullout bays may be located within reasonable walking distance of the site.
- Where possible, transit pullout bays shall be located at intersections. At signalized intersections, far-side bus stops are preferred. Mid-block

bays are not preferred due to impacts to parking and traffic.

- The design of the pullout bay shall provide adequate space for vehicles to maneuver through facilities without causing damage to either the vehicles or facilities, as detailed ~~in Section I of the Technical Manual~~ herein.

~~1.1724~~.2. Transit Shelters:

1. Transit shelters shall be located within the site, directly adjacent to the right-of-way on which the public transportation route is established; or
2. Where site constraints prevent locating a transit shelter on the site, it shall be located within a public sidewalk area along the property frontage. If a transit shelter is to be located within a public sidewalk area, City sidewalk clearance requirements shall apply.
3. Where space constraints prevent locating a transit shelter within a public sidewalk area along the property frontage, it may be located within reasonable walking distance of the site.
4. Installation and ongoing maintenance of transit shelters on private property shall be the responsibility of the property owner. Ongoing maintenance of transit shelters located within the City right-of-way or within an easement held by the City shall be the responsibility of the City or of the local or regional transit authority serving the facility.

- ~~1.1724~~.3. Where necessary, developments shall provide easements to the City, sufficient in size to accommodate public transit infrastructure and access to the transit stop.

1.22. CONSTRUCTION PERMITTING AND TRAFFIC CONTROL PLANS

- 1.22.1. Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & charges are all outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Services.
- 1.22.2. Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Services. Rules and Regulations for these utility systems are available through the City Engineer's office of the

Department of Public Services. See also Section II of the Technical Manual for lateral abandonment requirements associated with demolition permits.

1.22.3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along arterial and/or collector streets are required to submit a satisfactory 'maintenance of traffic' (MOT) plan prior to any site plan, subdivision, or street opening permit approval.

Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

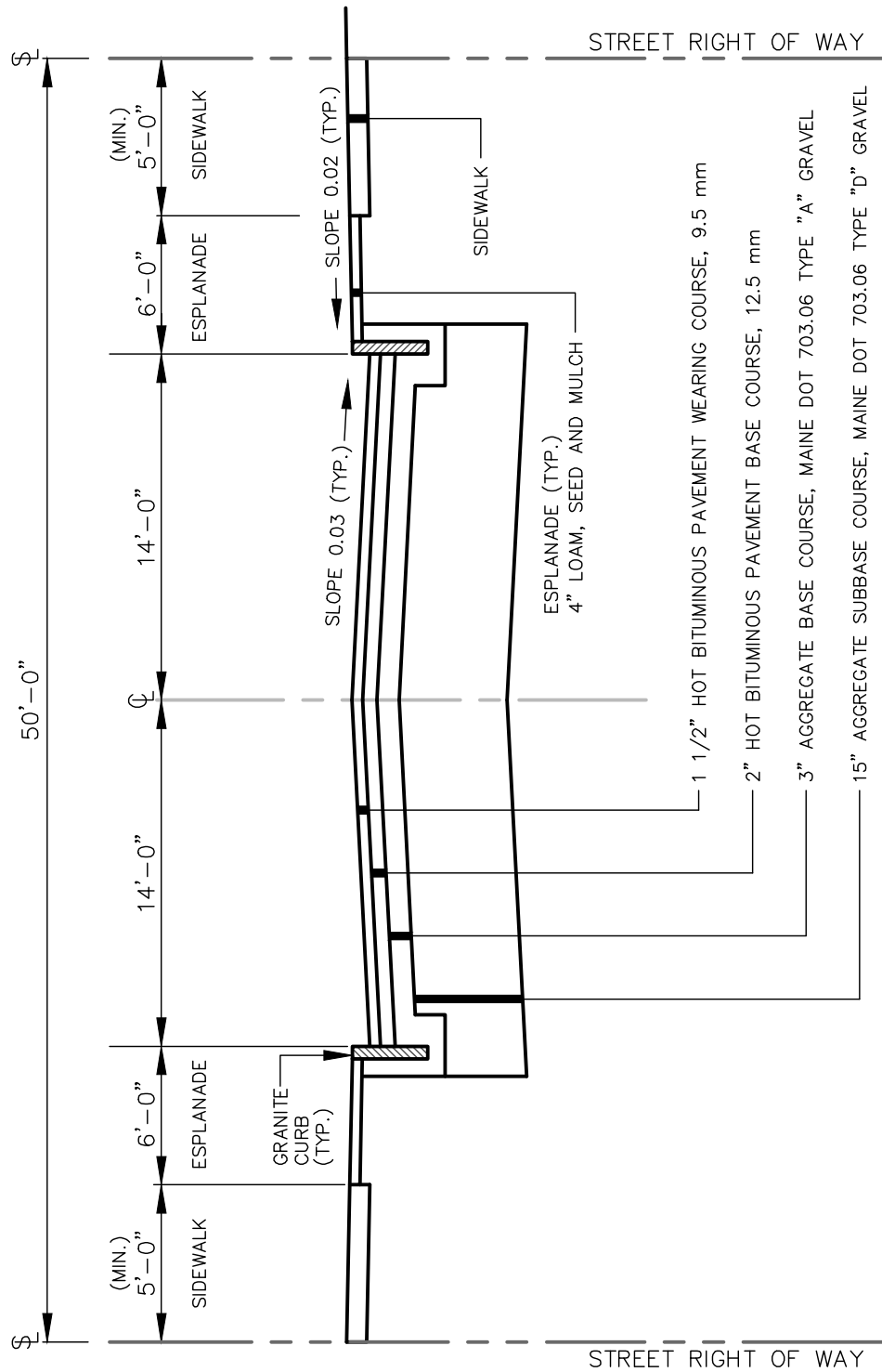
- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
- In extreme situations, flaggers may be required to allow for safe pedestrian and bicycle movement

1.22.4. All existing modes of travel in the work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Services.

- Traffic control for bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycles and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and/or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.

1.22.5. Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Services.

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LOCAL STREET CROSS SECTION

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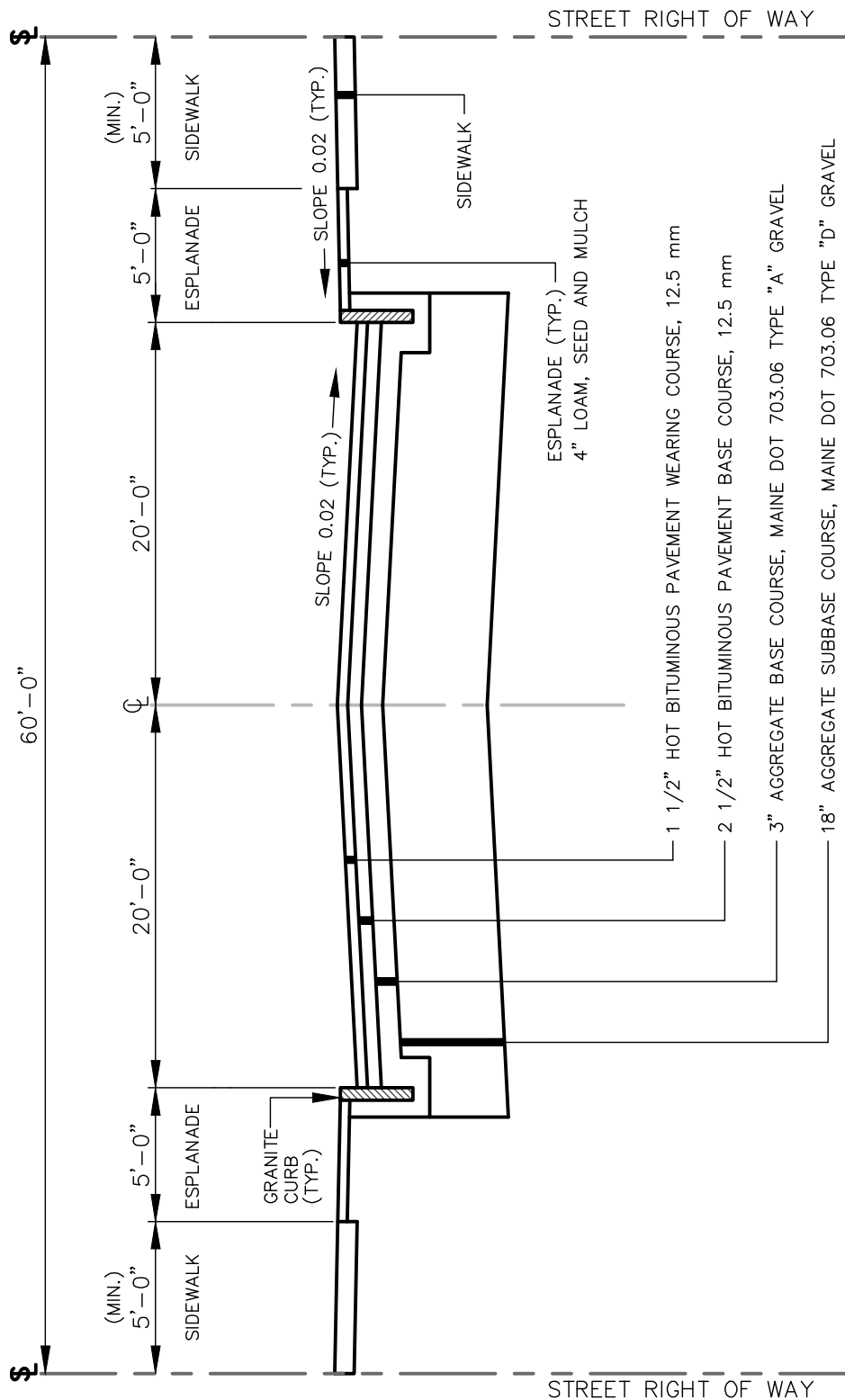
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SECTION I

FIGURE:

LOCAL STREET CROSS SECTION

I-1



DATE:
NOV. 2022
REVISED:

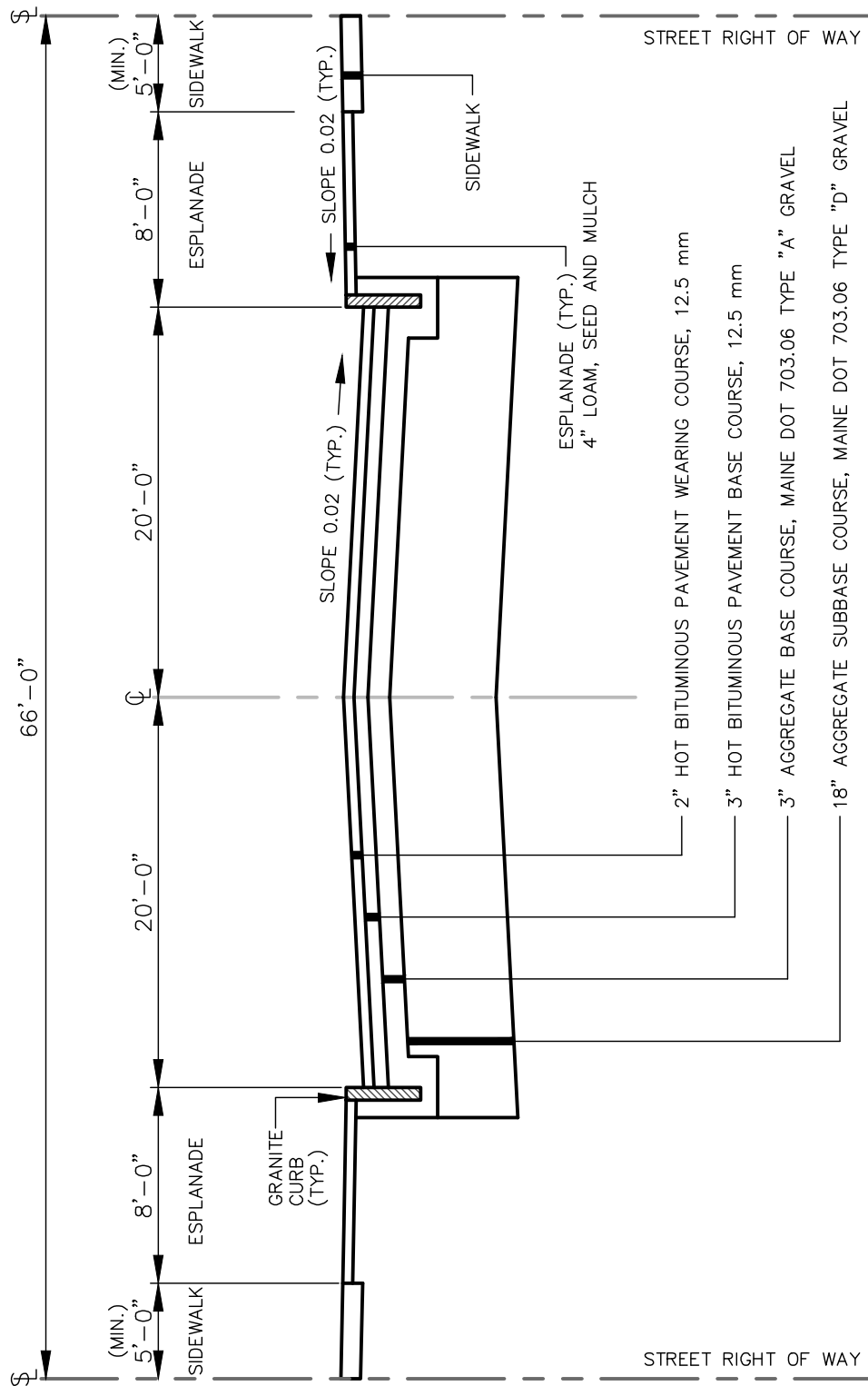
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FIGURE:

COLLECTOR STREET CROSS SECTION

I-2



ARTERIAL STREET CROSS SECTION

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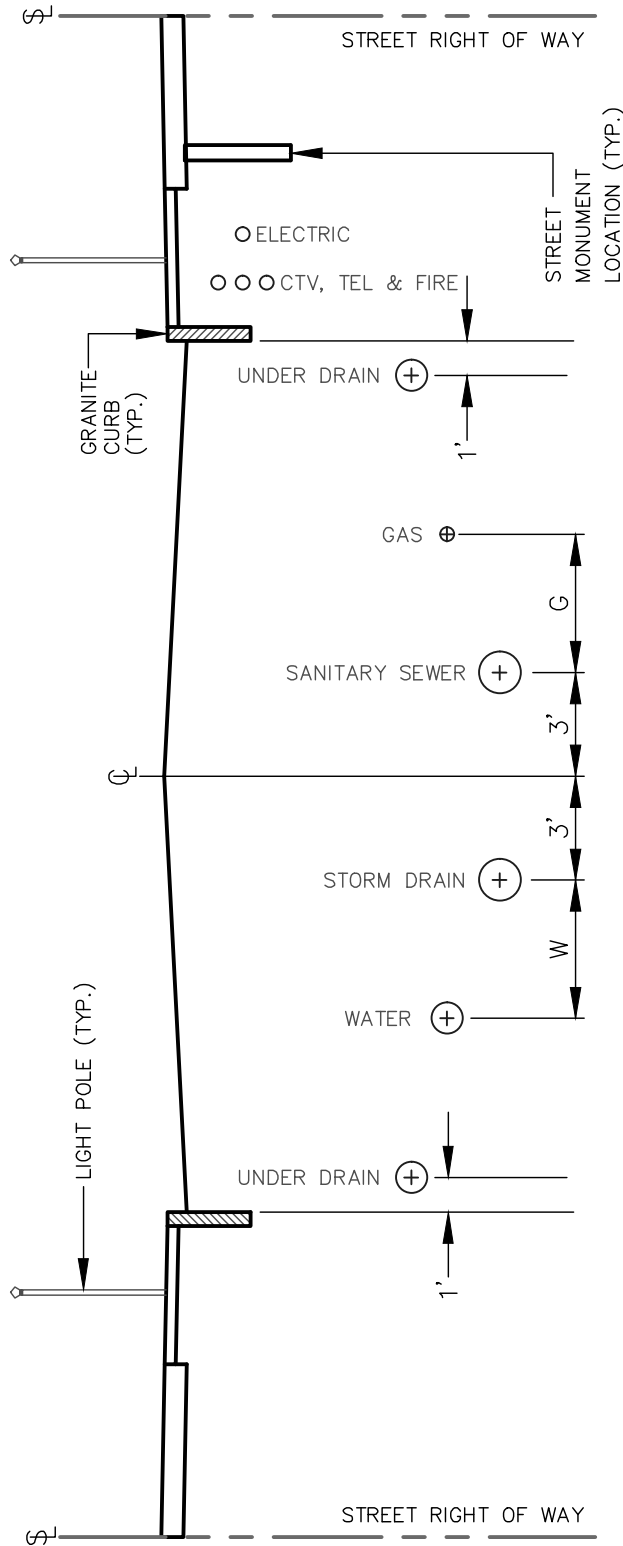
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FIGURE:

ARTERIAL STREET CROSS SECTION

I-3



NOTES:

1. DEPTH OF SANITARY SEWER AND STORM DRAIN PER CITY ENGINEER.
2. DEPTH OF UNDER DRAIN SHALL BE 3'-6" FROM GUTTER LINE TO PIPE INVERT.
3. DEPTHS OF ELECTRIC, TELEPHONE, CABLE TELEVISION AND FIRE TO BE AT LEAST 36 INCHES BELOW FINISH GRADE. DEPTHS OF OTHER UTILITIES PER REQUIREMENTS OF APPLICABLE UTILITY COMPANY. WHEN TREES ARE PROPOSED FOR THE ESPLANADE, THE UTILITIES DESIGNATED FOR THAT LOCATION SHALL MAKE NECESSARY PROVISIONS.
4. APPLICABLE WARNING TAPE SHALL BE PLACED OVER EACH UTILITY.
5. RIGID PVC CONDUIT IS REQUIRED FOR STREET AND DRIVEWAY CROSSINGS AND OTHER PAVEMENT CROSSINGS MORE THAN 12 FEET IN LENGTH. CONDUITS CROSSING STREETS SHALL BE ENCASED IN CONCRETE. CONCRETE SHALL BE DESIGNED TO HAVE MINIMUM 3,000 PSI COMP. STRENGTH AND SHALL HAVE A MINIMUM 4" THICK ENCASEMENT ON ALL SIDES OF CONDUIT.
6. UTILITY MANHOLES SHALL NOT BE LOCATED WITHIN TRAVEL LANE VEHICLE TRACKING TO THE EXTENT POSSIBLE.

STREET CLASSIFICATION	R.O.W. WIDTH (ft.)	UTILITY LOCATION DIMENSIONS	
		W (ft.)	G (ft.)
LOCAL	50	5	5
COLLECTOR	60	7	7
ARTERIAL	66	8	8

UTILITY LOCATIONS IN STREETS

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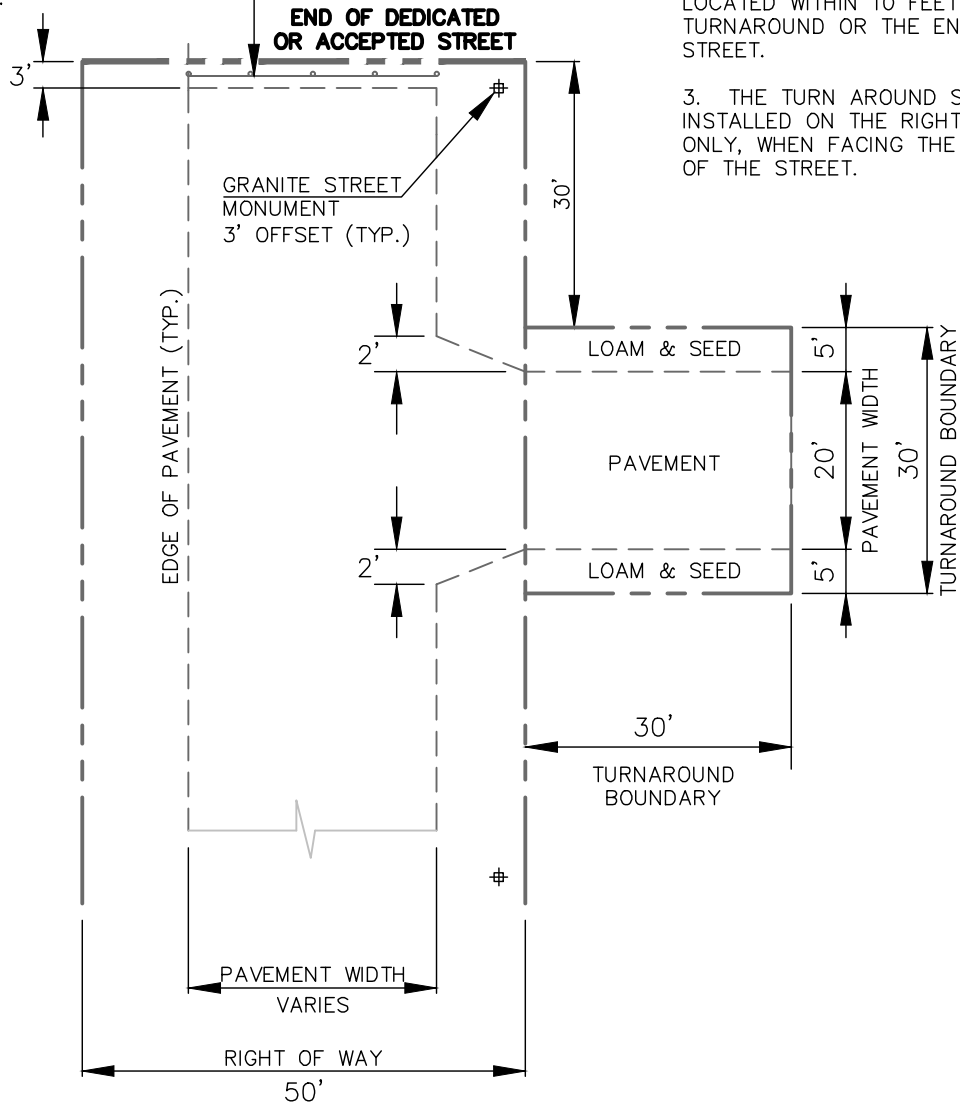
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FIGURE:

I-4

UTILITY LOCATIONS IN STREETS

GALVANIZED STEEL OR PRESSURE
TREATED WOOD GUARDRAIL WITH OM4-2
END OF ROADWAY MARKER SIGN OR
APPROVED EQUAL. DPW RESERVES THE
RIGHT TO WAIVE THE REQUIREMENT OF A
GUARD RAIL BASED ON SITE SPECIFIC
SNOW STORAGE AND TURNAROUND
CONSIDERATIONS.



NOTES

1. A TURNAROUND EASEMENT SHALL BE CONVEYED TO THE CITY.
2. NO DRIVEWAYS SHALL BE LOCATED WITHIN 10 FEET OF THE TURNAROUND OR THE END OF THE STREET.
3. THE TURN AROUND SHALL BE INSTALLED ON THE RIGHT SIDE ONLY, WHEN FACING THE DEAD END OF THE STREET.

TURNAROUND ON DEAD END STREET

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FIGURE:

TURNAROUND ON DEAD END STREET

I-5

GENERAL NOTES

1. DESIGN OF ACCESSIBLE RAMPS AND ASSOCIATED FACILITIES ARE GOVERNED BY THE 2010 AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN, WHICH IS DETAILED IN DOJ SECTION 28 CFR 35.151. ADDITIONAL GUIDANCE AND INFORMATION CAN BE FOUND IN THE PROPOSED PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES PUBLISHED BY THE U.S. ACCESS BOARD. IN ANY CASE WHERE THE DESIGN REQUIREMENTS ARE MORE STRINGENT BETWEEN ADA STANDARDS AND CITY REQUIREMENTS, THE ADA STANDARDS SHALL GOVERN.
2. SIDEWALKS SHALL BE CONSTRUCTED IN BRICK, CONCRETE, OR BITUMINOUS, ACCORDING TO THE SIDEWALK & DRIVEWAY APRON MATERIALS POLICY, UNLESS DIRECTED OTHERWISE BY THE CITY ENGINEER.
3. SIDEWALKS AND RAMPS SHALL BE BUILT ACCORDING TO THE FOLLOWING DIMENSIONS AND GRADES:
SIDEWALK RUNNING SLOPE: MATCH ADJACENT STREET GRADE
SIDEWALK CROSS SLOPE: 1.0% MINIMUM, 2.0% MAXIMUM
SIDEWALK WIDTH: 5'-0" MINIMUM, WIDER PREFERRED
ESPLANADE (WHERE PROVIDED) 2'-0" MINIMUM, 4'-0" OR GREATER PREFERRED IF LANDSCAPED.
4. TWO CURB RAMPS ARE REQUIRED AT EACH SIDEWALK CORNER. EACH CURB RAMP SHALL CONNECT THE PEDESTRIAN ACCESS ROUTE AT EACH PEDESTRIAN STREET CROSSING. IN ALTERATIONS WHERE PHYSICAL CONSTRAINTS PREVENT TWO CURB RAMPS FROM BEING INSTALLED AT A STREET CORNER, A SINGLE PEDESTRIAN CURB RAMP MAY BE PERMITTED.
5. OPPOSING CURB RAMPS AT A SINGLE CROSSING SHALL ALIGN TO PROVIDE A STRAIGHT PATH OF TRAVEL FROM THE TOP OF THE RAMP TO THE CURB RAMP ON THE OPPOSITE SIDE OF THE ROADWAY TO THE MAXIMUM EXTENT FEASIBLE.
6. ALL SIDEWALKS AND RAMPS SHALL DRAIN TOWARD THE STREET, DRIVEWAY, OR PARKING AREA, WITH A MAXIMUM CROSS SLOPE OF 2.0%.
7. LEVEL LANDINGS (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) AT THE BOTTOM OF PERPENDICULAR RAMPS SHALL BE WHOLLY CONTAINED WITHIN MARKED CROSSWALKS.
8. PONDING SHALL NOT BE PERMITTED WITHIN THE CURB RAMP LIMITS. RAMPS SHALL NOT ALTER ROADWAY DRAINAGE PATTERNS.
9. TRANSITION FROM RAMPS TO WALKS OR STREET SURFACE SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. PAVEMENT AT THE STREET SURFACE SHALL BE MILLED AND REPAVED TO ACHIEVE FLUSH CONDITION.
10. CURB RAMP AND FORM WORK SLOPES SHALL BE CHECKED WITH A DIGITAL LEVEL OF AN APPROPRIATE LENGTH. NO PORTION OF A RAMP RUN SHALL EXCEED THE MAXIMUM SLOPE REQUIREMENT.
11. THE COUNTER SLOPE WITHIN 2' OF THE CURB RAMP SHALL BE 5% MAXIMUM. IN ALTERATIONS, IF THE COUNTER SLOPE OF 5% MAXIMUM CANNOT BE ACHIEVED, THE SLOPE ELEVATION MAY BE ADJUSTED SO THAT THE COMBINED COUNTER SLOPE AND RAMP SLOPE DO NOT EXCEED 13.3%.
12. VERTICAL DROP-OFF EDGES TO RAMPS SHALL NOT BE BUILT UNLESS THE RAMP ABUTS AN ESPLANADE OR OTHER AREA NOT TO BE USED BY PEDESTRIANS.
13. AT MARKED CROSSWALKS, THE FULL WIDTH OF THE RAMP OR LANDING SHALL BE CONTAINED WITHIN THE PAVEMENT MARKINGS.
14. DETECTABLE WARNING PANELS SHALL BE PROVIDED ON ALL RAMPS AS PER FIGURE I-7 OF THESE STANDARD DETAILS.
15. RAMP FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
16. SIGNS, POLES, PLANTERS, MAILBOXES, ETC. SHALL NOT BE LOCATED WHERE THEY WILL INTERFERE WITH THE USE OF SIDEWALK RAMPS.
17. SIDEWALK RAMPS SHALL NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS, OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED, THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
18. THE PUBLIC SIDEWALK CURB RAMP STANDARDS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS. RAMP DESIGNS THAT ARE COMPLIANT WITH ADA BUT NOT LISTED IN THESE DETAILS MAY BE APPROVED BY THE CITY ENGINEER.
19. DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF THESE DETAILS AND TO ADA GUIDELINES TO THE MAXIMUM EXTENT FEASIBLE ON ALTERATION PROJECTS, AND WHEN STRUCTURALLY PRACTICABLE ON NEW CONSTRUCTION PROJECTS AS REQUIRED BY THE ADA ACCESSIBILITY GUIDELINES.
20. MAXIMUMS AND MINIMUMS DO NOT HAVE TOLERANCES AND ARE NOT TO BE EXCEEDED OR UNMET.
21. THE STANDARD TURNING SPACE (LEVEL LANDING) IS 4'-0" X 4'-0" SLOPING NO MORE THAN 2.0%. WHERE THE TURNING SPACE SHALL BE 4'-0" MINIMUM BY 5'-0" MINIMUM. THE 5'-0" DIMENSION SHALL BE PROVIDED IN THE DIRECTION OF THE RAMP RUN.
22. DETECTABLE WARNINGS SHALL BE INSTALLED AT ALL SIGNED OR SIGNALIZED INTERSECTIONS. THEY SHALL HAVE A TRUNCATED DOME SURFACE. THE DOMES SHALL BE IN A SQUARE PATTERN AND ALIGNED WITH PEDESTRIAN TRAFFIC WHERE POSSIBLE.
23. DETECTABLE WARNINGS SHALL SPAN THE WIDTH OF THE PEDESTRIAN RAMP. SEE STANDARD DETAIL FIGURE I-7.
24. ALL DETECTABLE WARNING FIELDS PLACED AT THE SAME INTERSECTION SHALL BE MADE UP OF THE SAME UNIFORM MATERIAL TYPE. DETECTABLE WARNINGS SHALL BE CONTRASTING IN COLOR TO THE ADJACENT WALKWAY.
25. A RAMP WITH A RUNNING SLOPE LESS THAN 5.0% IS DEFINED AS A "BLENDED TRANSITION". BLENDED TRANSITIONS DO NOT REQUIRE A LEVEL LANDING AT THE TOP OF THE RAMP.
26. THE RAMP LENGTH SHALL NOT EXCEED 15 FEET. ADJUST RAMP LENGTH OR SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT FEASIBLE.
27. ALL CURB RAMP JOINTS AND GRADE BREAKS SHALL BE FLUSH.
28. RAMP GRADE BREAKS SHALL BE PERPENDICULAR TO THE RUNNING SLOPE.
29. THERE SHALL BE A MINIMUM OF 12" AGGREGATE SUBBASE COURSE - GRAVEL UNDER THE SIDEWALK SURFACE ON PEDESTRIAN RAMPS.
30. DRAINAGE STRUCTURES, UTILITY POLES, TRAFFIC SIGNAL EQUIPMENT OR OTHER OBSTRUCTIONS SHALL NOT BE INSTALLED IN THE CURB RAMP OR TURNING SPACE AREAS.
31. BEFORE RETROFITTING RAMPS, THE CONTRACTOR SHALL VERIFY REMOVAL LIMITS ARE SUFFICIENT TO PROVIDE POSITIVE DRAINAGE, MAINTAIN EXISTING DRAINAGE PATTERNS AND AVOID PONDING IN THE FINAL CONFIGURATION.
32. A TEMPORARY PEDESTRIAN ACCESS ROUTE SHALL BE PROVIDED WHENEVER THE EXISTING PEDESTRIAN ACCESS ROUTE IN THE PUBLIC RIGHT OF WAY IS BLOCKED BY CONSTRUCTION, ALTERATION, MAINTENANCE OR OTHER TEMPORARY CONDITIONS. REFER TO MUTCD FOR GUIDANCE.

DATE:
AUGUST 2022

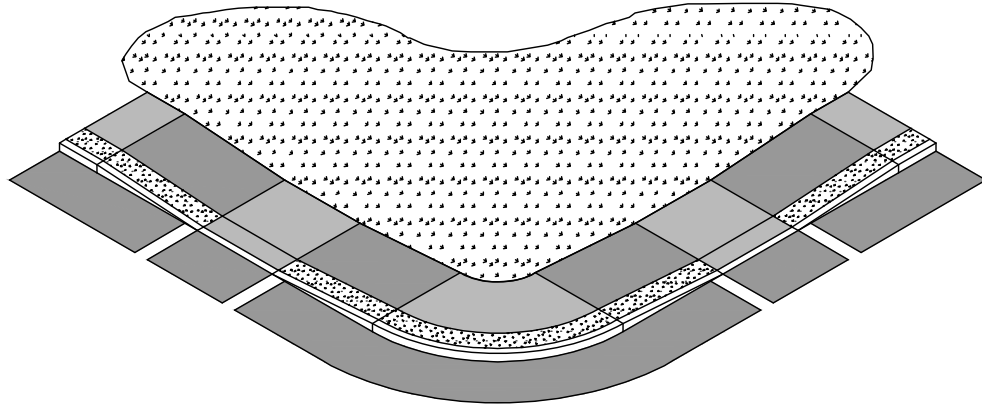
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SECTION I

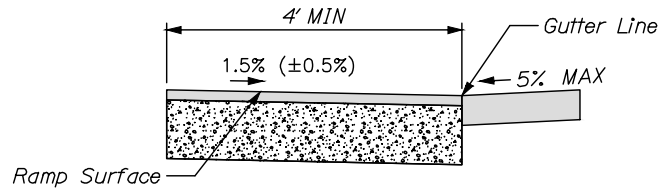
FIGURE:

**ACCESSIBLE RAMP
GENERAL NOTES**

I-6

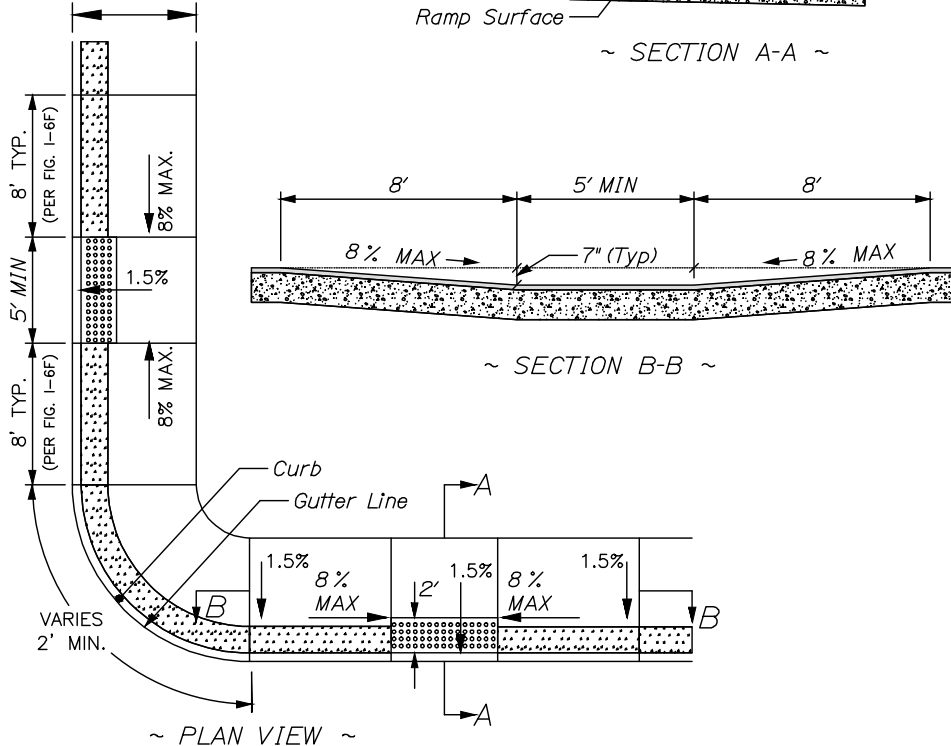


~ ISOMETRIC VIEW ~
(NOT TO SCALE)



~ SECTION A-A ~

LESS THAN 6.5'
(INCLUDING CURB)



~ SECTION B-B ~

~ PLAN VIEW ~

NOTES:

1. THIS DESIGN IS THE PREFERRED OPTION WHEN THE SIDEWALK & ESPLANADE WIDTH IS LESS THAN 6.5'. USE OTHER OPTIONS ONLY WHEN REQUIRED BY DESIGN CONSTRAINTS.
2. A MINIMUM CURB REVEAL OF 4" IS REQUIRED AT THE APEX OF THE CURB RADIUS.
3. MINIMUM TERMINAL CURB LENGTH SHALL BE 4 FEET.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

PARALLEL ADA RAMP – SIDEWALK LESS THAN 6.5' WIDE
WITH OR WITHOUT ESPLANADE

NOT TO SCALE

DATE:
AUGUST 2022
REVISED:

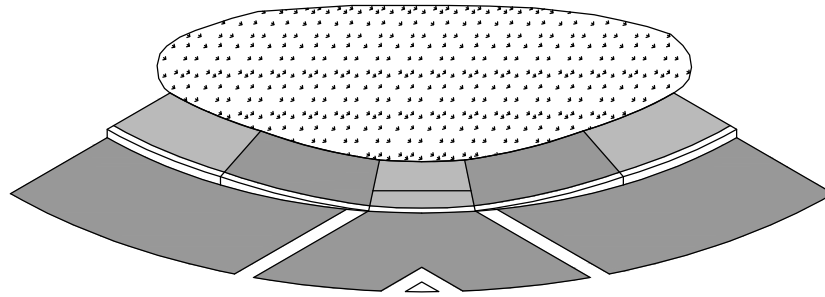
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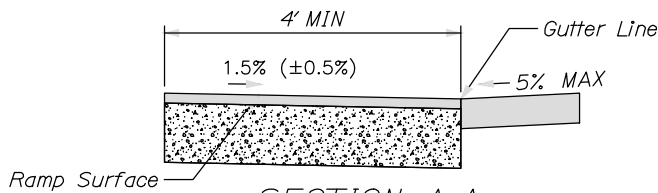
FIGURE:

PARALLEL ADA RAMP FOR SIDEWALK
LESS THAN 6.5' WIDE

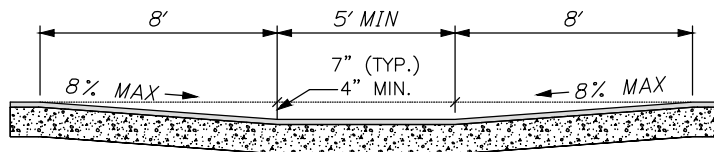
I-6A



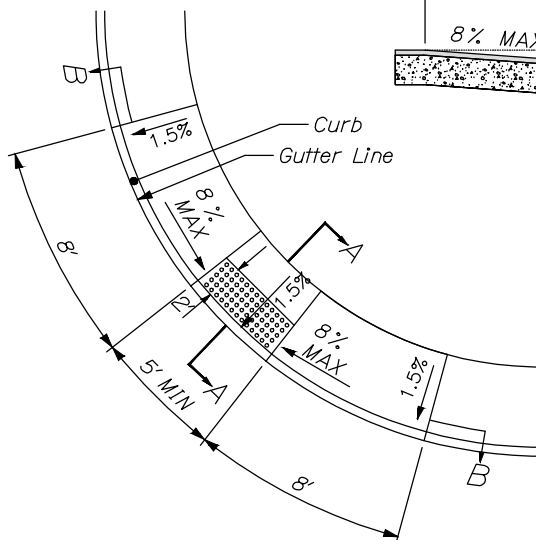
~ ISOMETRIC VIEW ~
(NOT TO SCALE)



~ SECTION A-A ~



~ SECTION B-B ~



~ PLAN VIEW ~

NOTES:

1. THIS LESS DESIRABLE DESIGN SHOULD NOT BE USED UNLESS REQUIRED BY DESIGN CONSTRAINTS. IT DOES NOT PROVIDE DIRECTIONAL CUES.
2. A MINIMUM CURB REVEAL OF 4" IS REQUIRED AT THE APEX OF THE CURB RADIUS.
3. MINIMUM TERMINAL CURB LENGTH SHALL BE 4 FEET.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

APEX RAMP – SIDEWALKS **LESS THAN 6.5'** WIDE
WITH NO ESPLANADE

NOT TO SCALE

DATE:
JUNE 2022

REVISED:

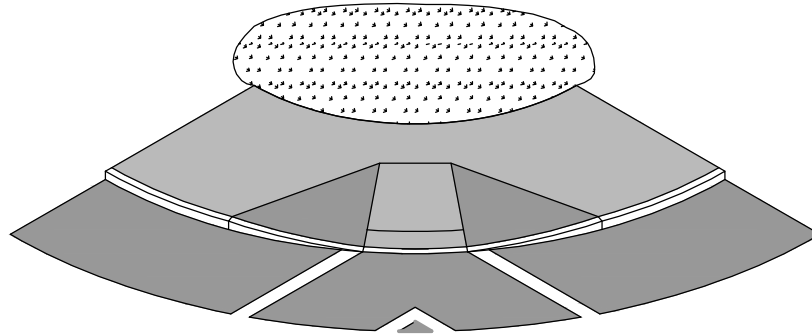
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DESIGN STANDARDS
SECTION I

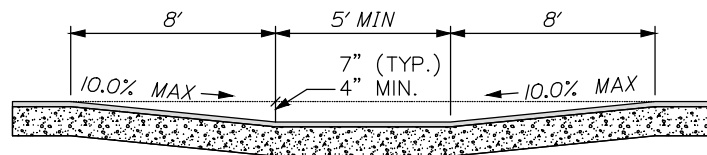
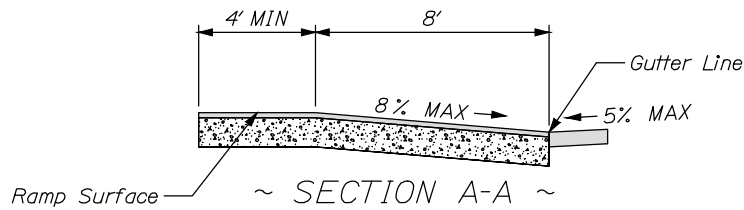
FIGURE:

**APEX RAMP FOR SIDEWALK
LESS THAN 6.5' WIDE**

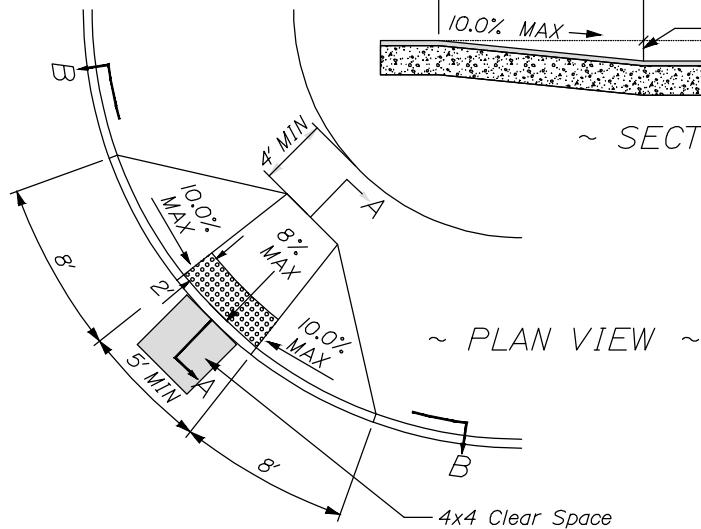
I-6C



~ ISOMETRIC VIEW ~
(NOT TO SCALE)



~ SECTION B-B ~



NOTES:

1. THIS LESS DESIRABLE DESIGN SHOULD NOT BE USED UNLESS REQUIRED BY DESIGN CONSTRAINTS. IT DOES NOT PROVIDE DIRECTIONAL CUES.
2. A MINIMUM CURB REVEAL OF 4" IS REQUIRED AT THE APEX OF THE CURB RADIUS.
3. MINIMUM TERMINAL CURB LENGTH SHALL BE 4 FEET.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

APEX RAMP – SIDEWALK GREATER THAN 6.5' WIDE
WITH OR WITHOUT ESPLANADE

NOT TO SCALE

DATE:
JUNE 2022

REVISED:

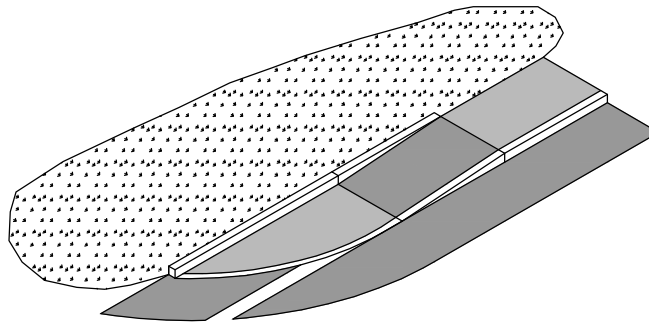
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

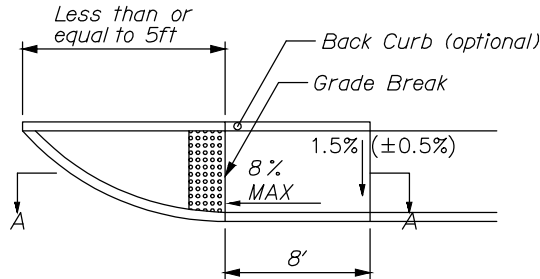
FIGURE:

**APEX RAMP FOR SIDEWALK
6.5' WIDE AND GREATER**

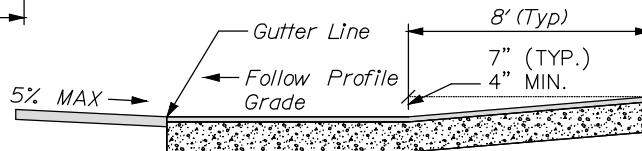
I-6D



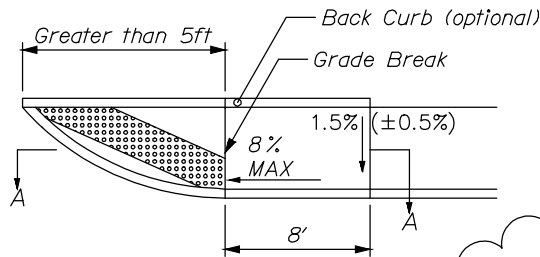
~ PERSPECTIVE VIEW ~
(NOT TO SCALE)



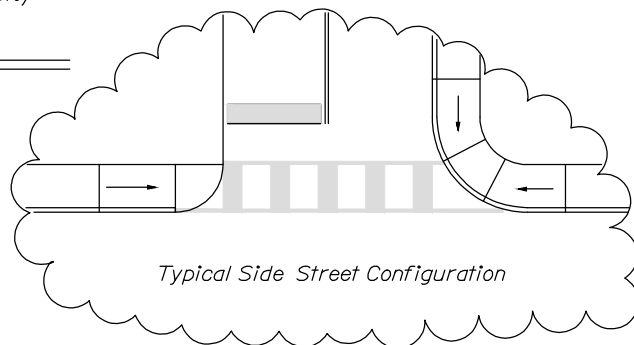
~ *PLAN VIEW* ~



~ SECTION A-A ~



~ **PLAN VIEW** ~



Typical Side Street Configuration

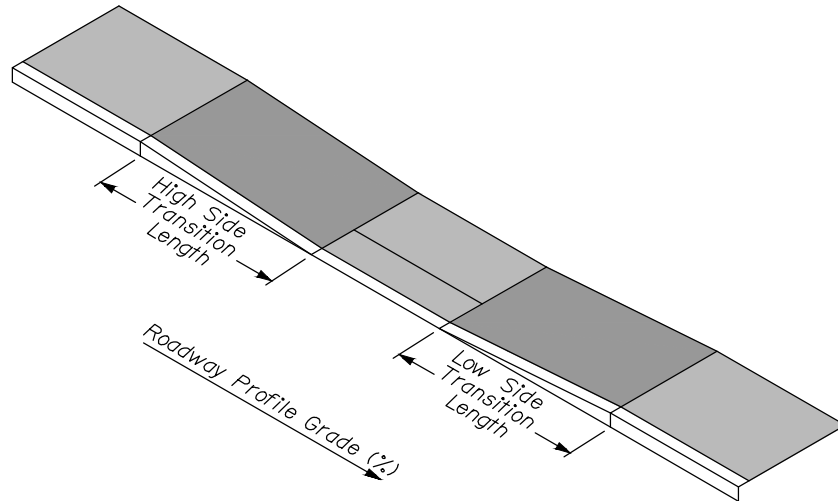
NOTES:

1. FOR USE ONLY WHEN NO SIDEWALK IS PRESENT ON THE SIDE ROAD.
2. USE *THIS* DETECTABLE WARNING PLACEMENT IF THE DISTANCE FROM THE GRADE BREAK TO THE GUTTERLINE IS LESS THAN OR EQUAL TO 5 FEET.
2. USE **THIS** DETECTABLE WARNING PLACEMENT IF THE DISTANCE FROM THE GRADE BREAK TO THE GUTTERLINE IS GREATER THAN 5 FEET.
3. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

SIDE STREET RAMP
WITH OR WITHOUT ESPLANADE

NOT TO SCALE

DATE: JUNE 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
REVISED:	SIDE STREET RAMP WHEN NO INTERSECTING SIDEWALK IS PRESENT		I-6E



Pedestrian Ramp Length Table						
Curb Reveal (Inches)		7	6	5	4	3
	Roadway Profile Grade	Minimum Transition Length Required (Feet)				
Low Side Transition Length	-7% and Lower	4.0	4.0	4.0	4.0	4.0
	-6%	8.0	4.0	4.0	4.0	4.0
	-5%	8.0	4.0	4.0	4.0	4.0
	-4%	8.0	8.0	4.0	4.0	4.0
	-3%	8.0	8.0	4.0	4.0	4.0
	-2%	8.0	8.0	8.0	4.0	4.0
	-1%	8.0	8.0	8.0	4.0	4.0
	0%	8.0	8.0	8.0	8.0	4.0
High Side Transition Length	1%	8.0	8.0	8.0	8.0	4.0
	2%	10.0	8.0	8.0	8.0	4.0
	3%	12.0	10.0	8.0	8.0	8.0
	4%	14.0	12.0	10.0	8.0	8.0
	5%	15.0	15.0	14.0	10.0	8.0
	6%	15.0	15.0	15.0	15.0	12.0
	7% and Higher	15.0	15.0	15.0	15.0	15.0

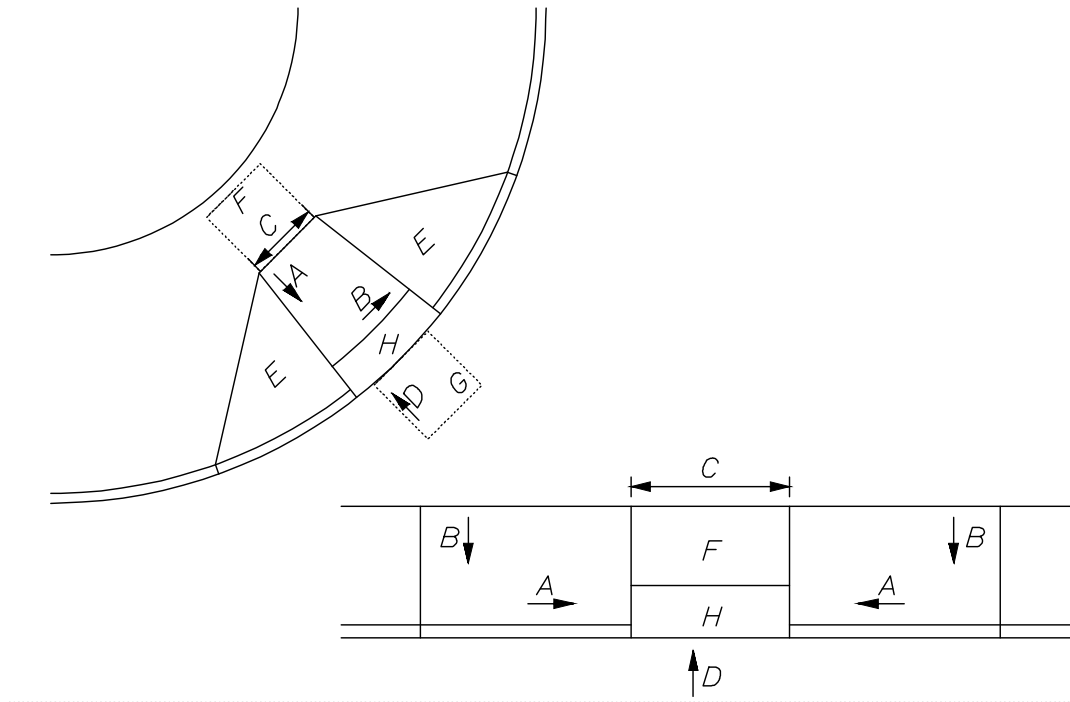
Choose roadway profile grade by rounding up for positive grades and down for negative grades. Round to the nearest whole integer. If constraints prevent placement of the ramp length required by the table, place the maximum length possible and check the slope. If above the maximum allowable slope, consider design modifications before considering technical infeasibility.

RAMP LENGTH TABLE FOR SIDEWALK RAMPS

NOT TO SCALE

DATE: JUNE 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE: I-6F
REVISED:			
PEDESTRIAN RAMP LENGTH TABLE FOR SIDEWALK RAMPS			

CURB RAMP REQUIREMENTS		
Running Slope	A	Max. 8.33% (1:12)
Cross Slope	B	Max. 2% (1:50) MIN. 1% <i>Ramp cross slope at street crossings without stop or signal control may match roadway profile.</i>
Clear Width	C	Min. 5 feet <i>For existing ramps only, ramp width may remain 4 feet.</i>
Counter Slope	D	Max. 5% (1:20) <i>Adjacent surface must be flush with the ramp.</i>
Flared Sides	E	Max. 10% (1:10)
Turning Space	F	4 feet by 4 feet <i>Maximum slope of 2% in any direction. May include Detectable Warnings</i>
Clear Space	G	4 feet by 4 feet <i>Located at the bottom of the ramp outside active travel lanes.</i>
Detectable Warnings	H	<i>Required at traffic controlled intersections and mid-block crossings, full ramp width.</i>



PEDESTRIAN RAMP REQUIREMENTS FOR SIDEWALK RAMPS

NOT TO SCALE

DATE:
AUGUST 2022
REVISED:

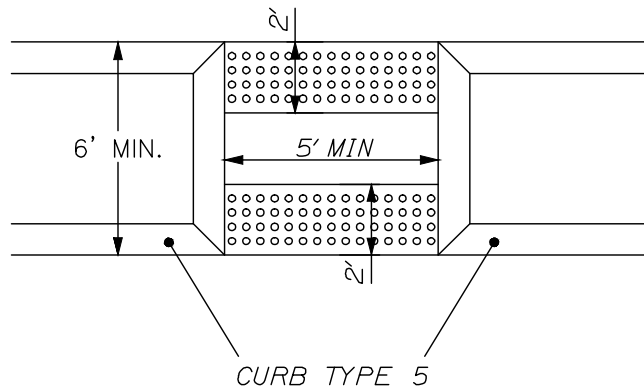
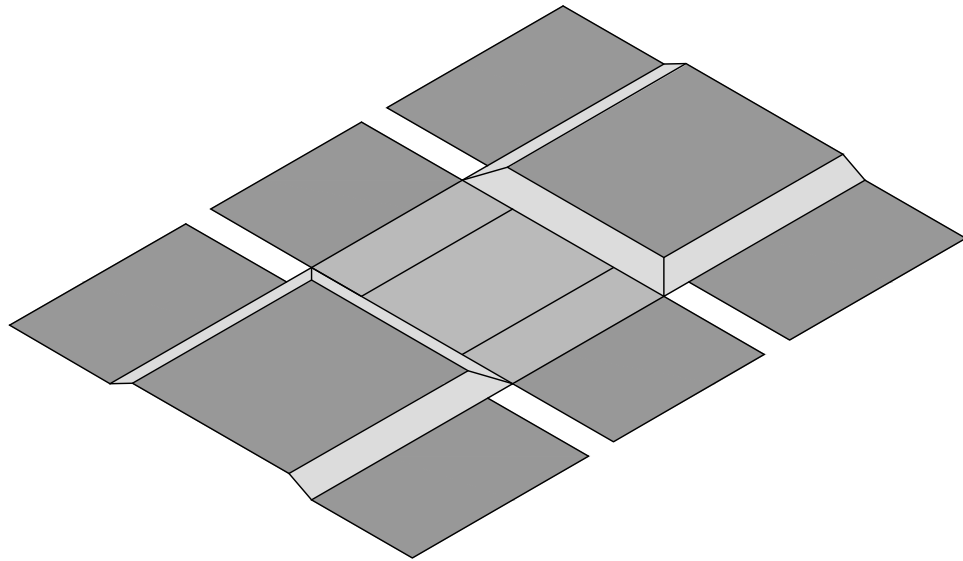
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

**PEDESTRIAN RAMP REQUIREMENTS
FOR SIDEWALK RAMPS**

I-6G



NOTES:

1. INSURE POSITIVE DRAINAGE (2% MAXIMUM CROSS SLOPE).

ISLAND PEDESTRIAN CROSSINGS

NOT TO SCALE

DATE:
AUGUST 2022
REVISED:

CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**TRANSPORTATION
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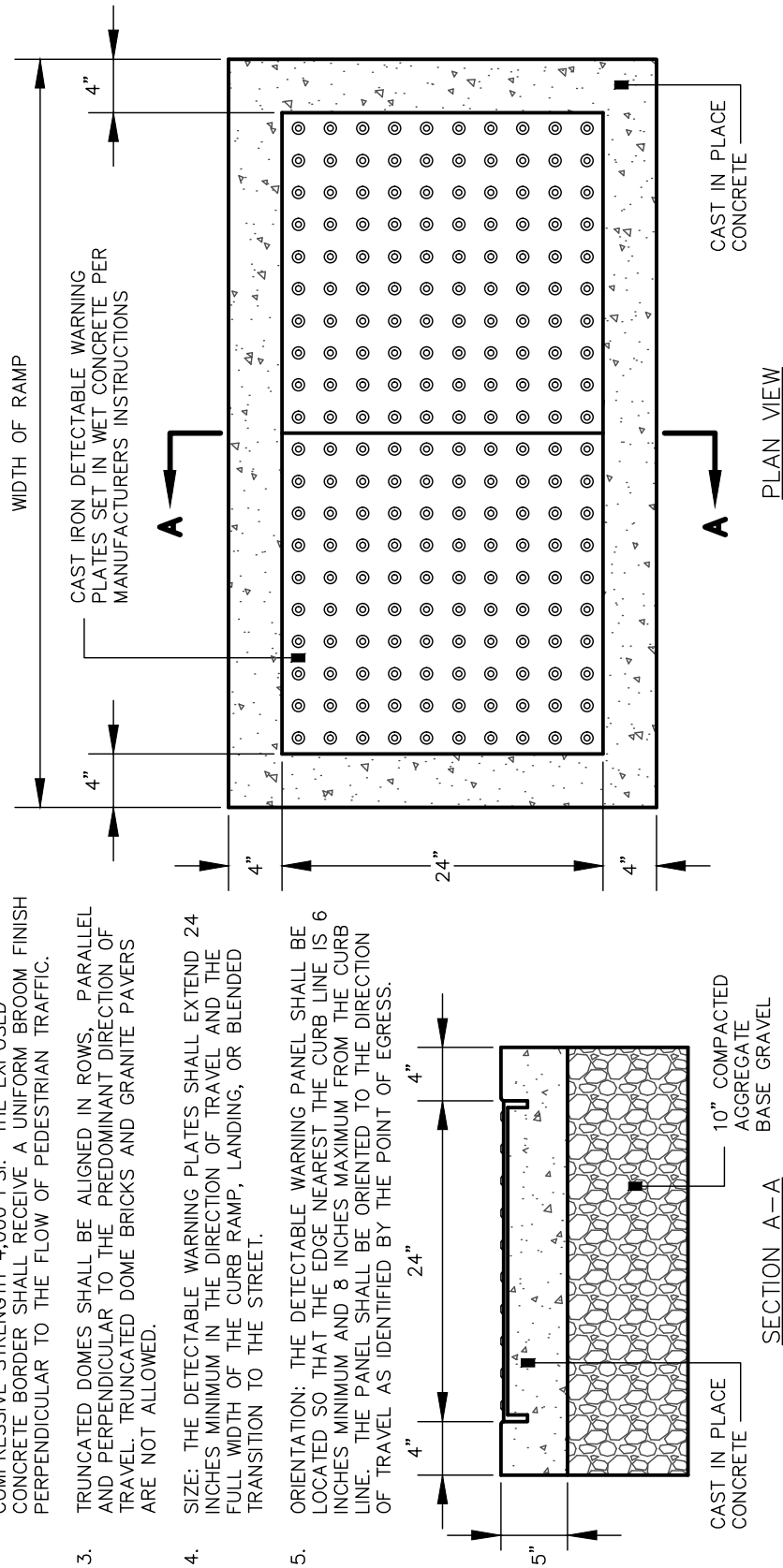
FIGURE:

ISLAND PEDESTRIAN CROSSINGS

I-6H

NOTES:

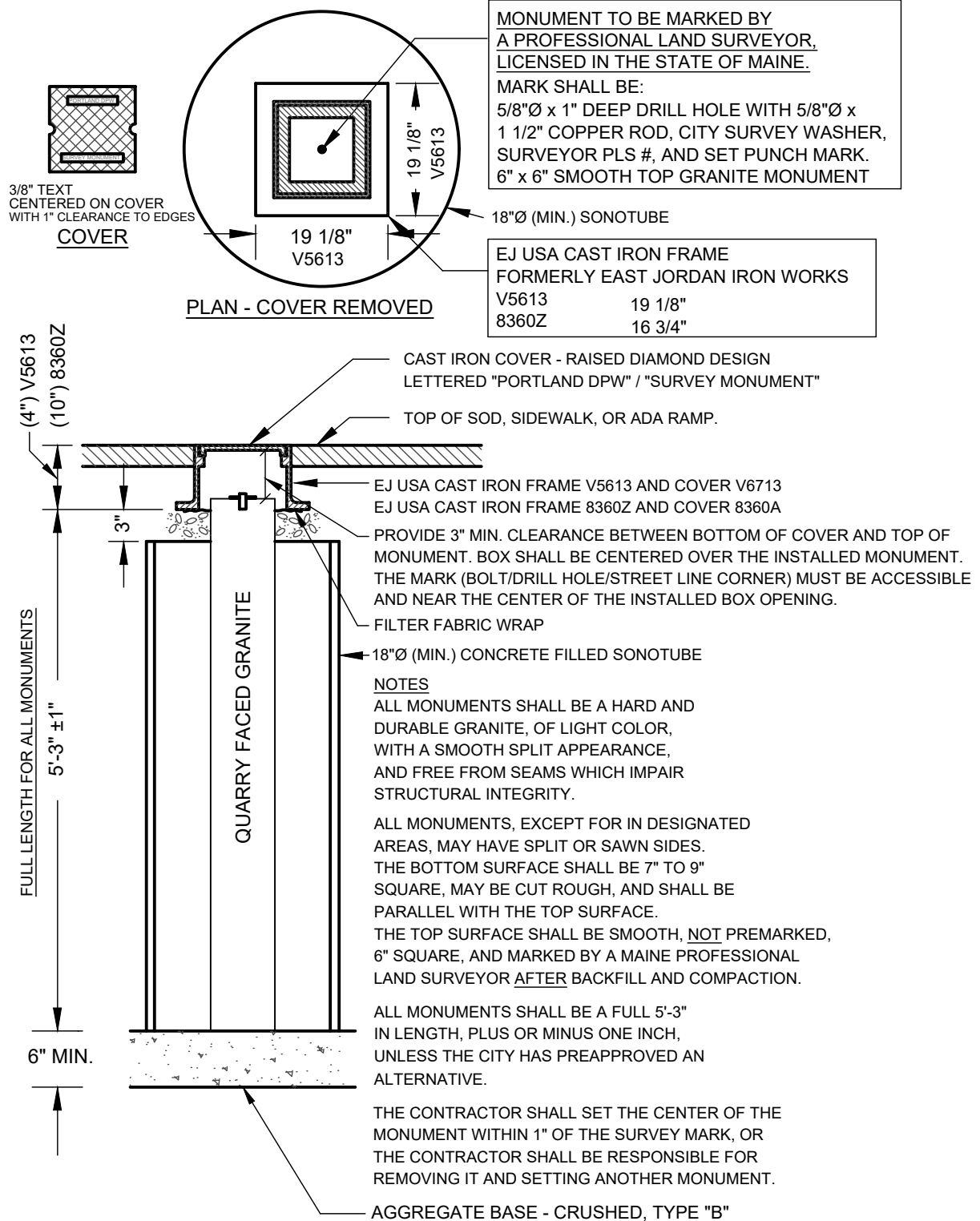
1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MDOT CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.



SIDEWALK RAMP DETECTABLE WARNING PANEL

NOT TO SCALE

DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
	SIDEWALK RAMP DETECTABLE WARNING PANEL		I-7



GRANITE STREET MONUMENTS - NEW OR REPLACEMENT

NOT TO SCALE

DATE:
AUGUST 2022

REVISED:

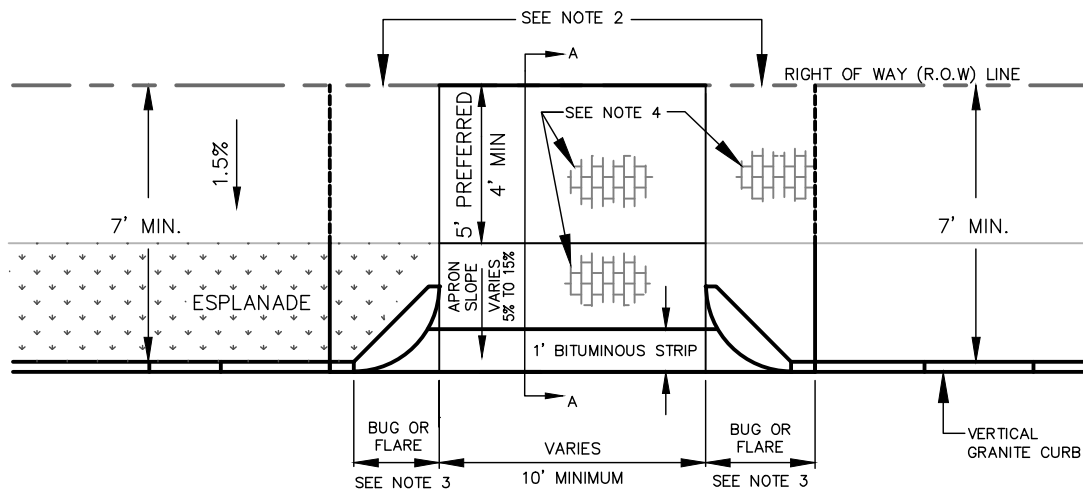
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
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SECTION I

FIGURE:

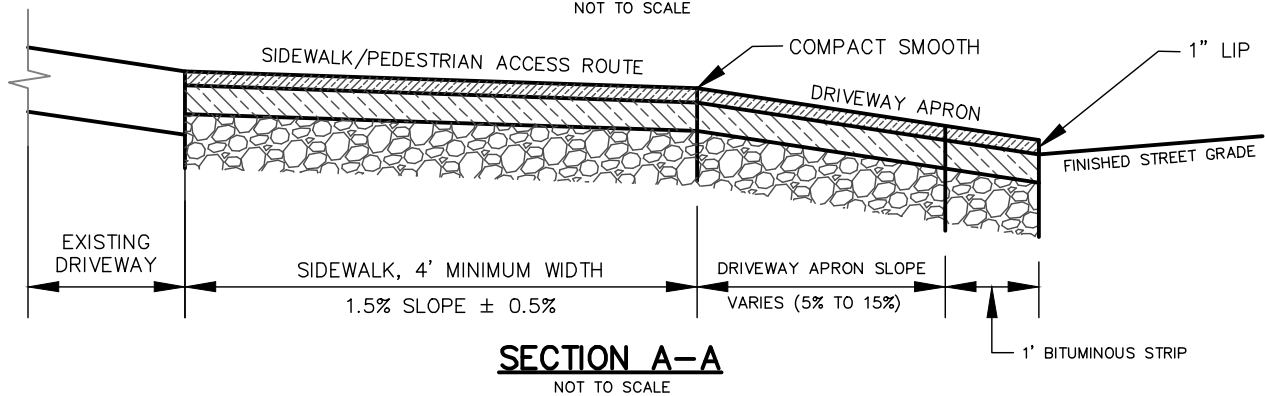
GRANITE STREET MONUMENT - NEW OR REPLACEMENT

I-8



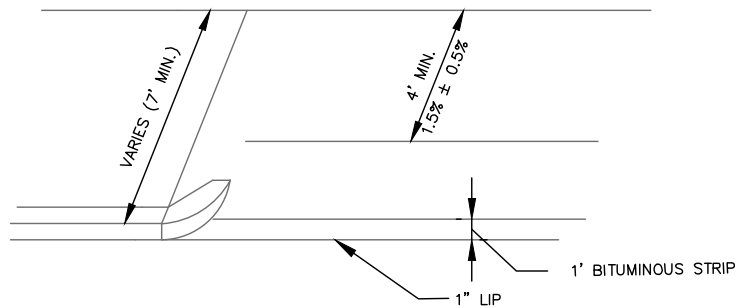
STANDARD RESIDENTIAL DRIVEWAY APRON LAYOUT

NOT TO SCALE



SECTION A-A

NOT TO SCALE



NOTES:

1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
3. TWO-FOOT RADIUS CORNER GRANITE PIECES ("BUGS") ARE REQUIRED AT LOW-VOLUME DRIVEWAYS UNLESS OTHERWISE DIRECTED BY DPW. AT OTHER DRIVEWAYS, STANDARD FLARE/TIPDOWN TREATMENTS SHALL BE USED.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK.
5. THIS LAYOUT MAY BE REQUIRED AT MINOR DRIVEWAYS SERVING COMMERCIAL OR INDUSTRIAL USES.

DATE:
AUGUST 2022

REVISED:

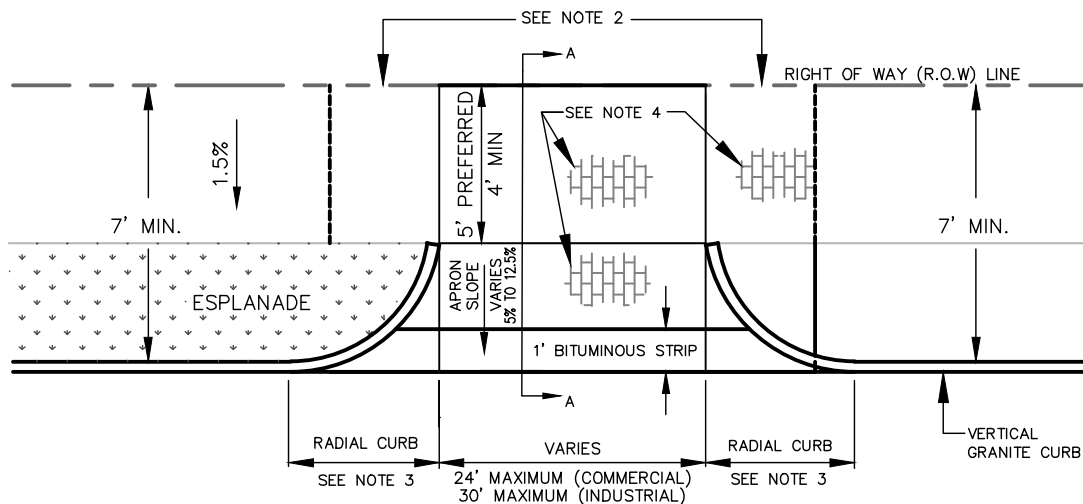
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

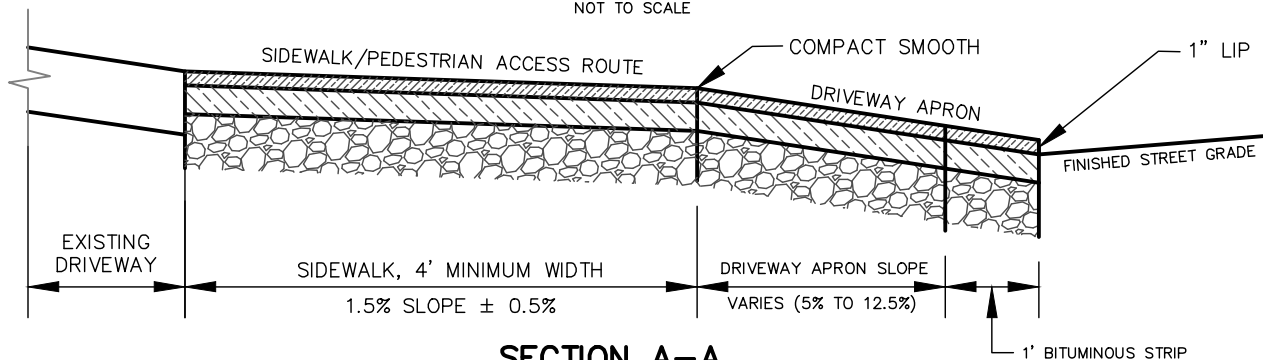
RESIDENTIAL DRIVEWAY APRON

I-9A



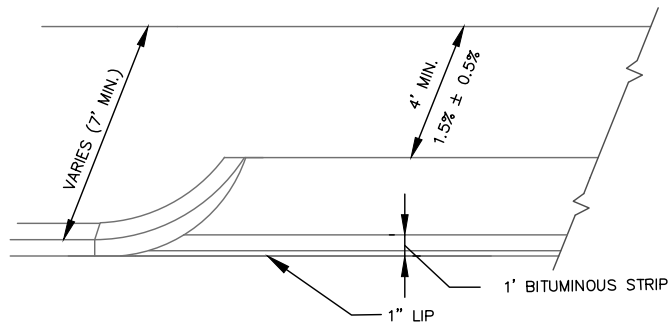
STANDARD COMMERCIAL DRIVEWAY APRON LAYOUT

NOT TO SCALE



SECTION A-A

NOT TO SCALE



NOTES:

1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
3. DRIVEWAY CURB RADIUS SHALL NOT BE LARGER THAN REQUIRED BY THE SITE'S DESIGN VEHICLE.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK..

DATE:
AUGUST 2022

REVISED:

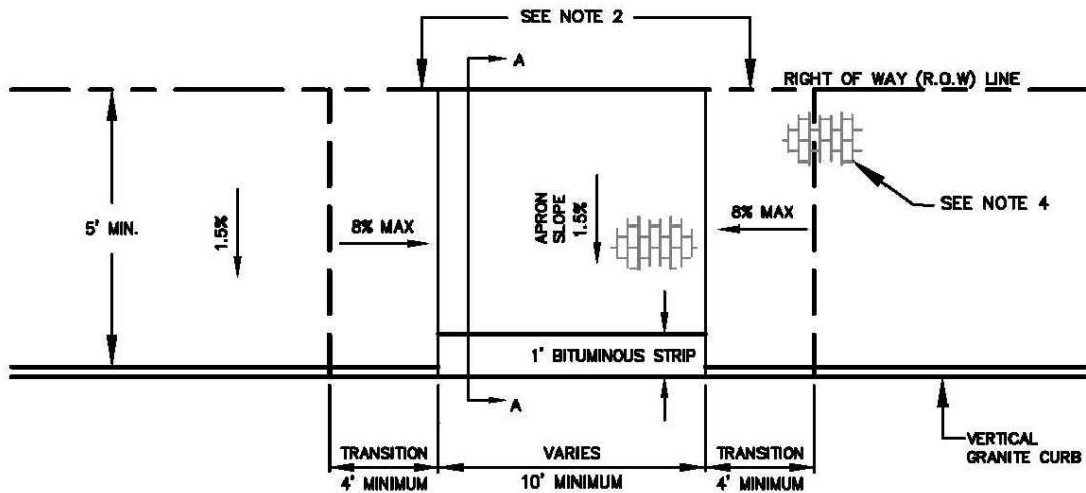
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

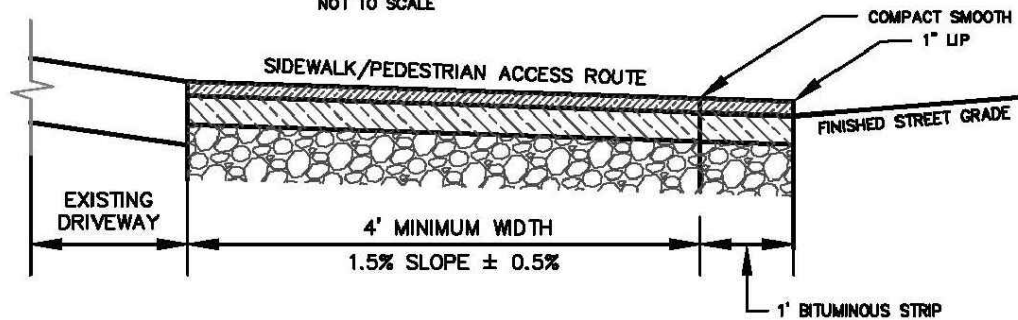
COMMERCIAL/INDUSTRIAL DRIVEWAY APRON

I-9B



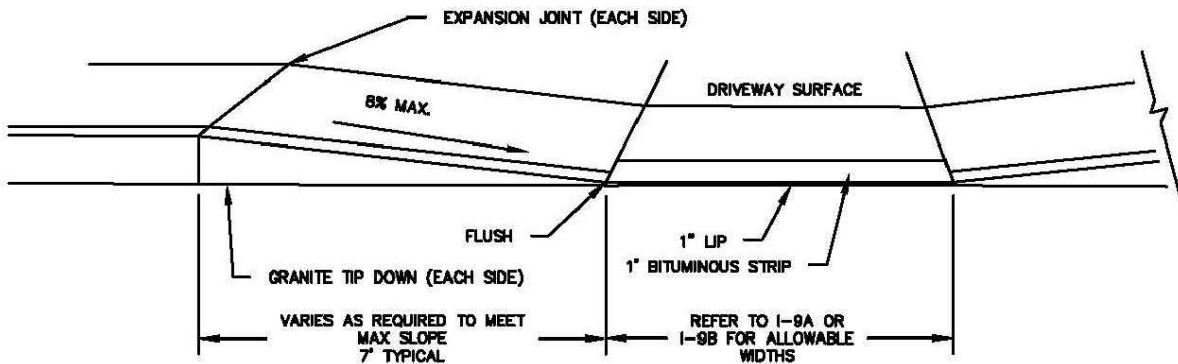
DRIVEWAY APRON AT CONSTRAINED SIDEWALK LAYOUT

NOT TO SCALE



SECTION A-A

NOT TO SCALE



NOTES:

1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. SIDEWALK TRANSITION SLOPE SHALL NOT EXCEED 8.33%. RAMP LENGTH SHALL ACCOMMODATE THIS CONSTRAINT UP TO 15 FOOT RAMP LENGTH OR AS OTHERWISE REQUIRED BY ADA STANDARDS.
3. MOUNTABLE CURB (SEE DETAIL I-15) OR INCREASE IF BITUMINOUS LIP IS PREFERRED TO MAINTAIN SIDEWALK GRADE THROUGH APRON.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK.

DATE:
AUGUST 2022

REVISED:

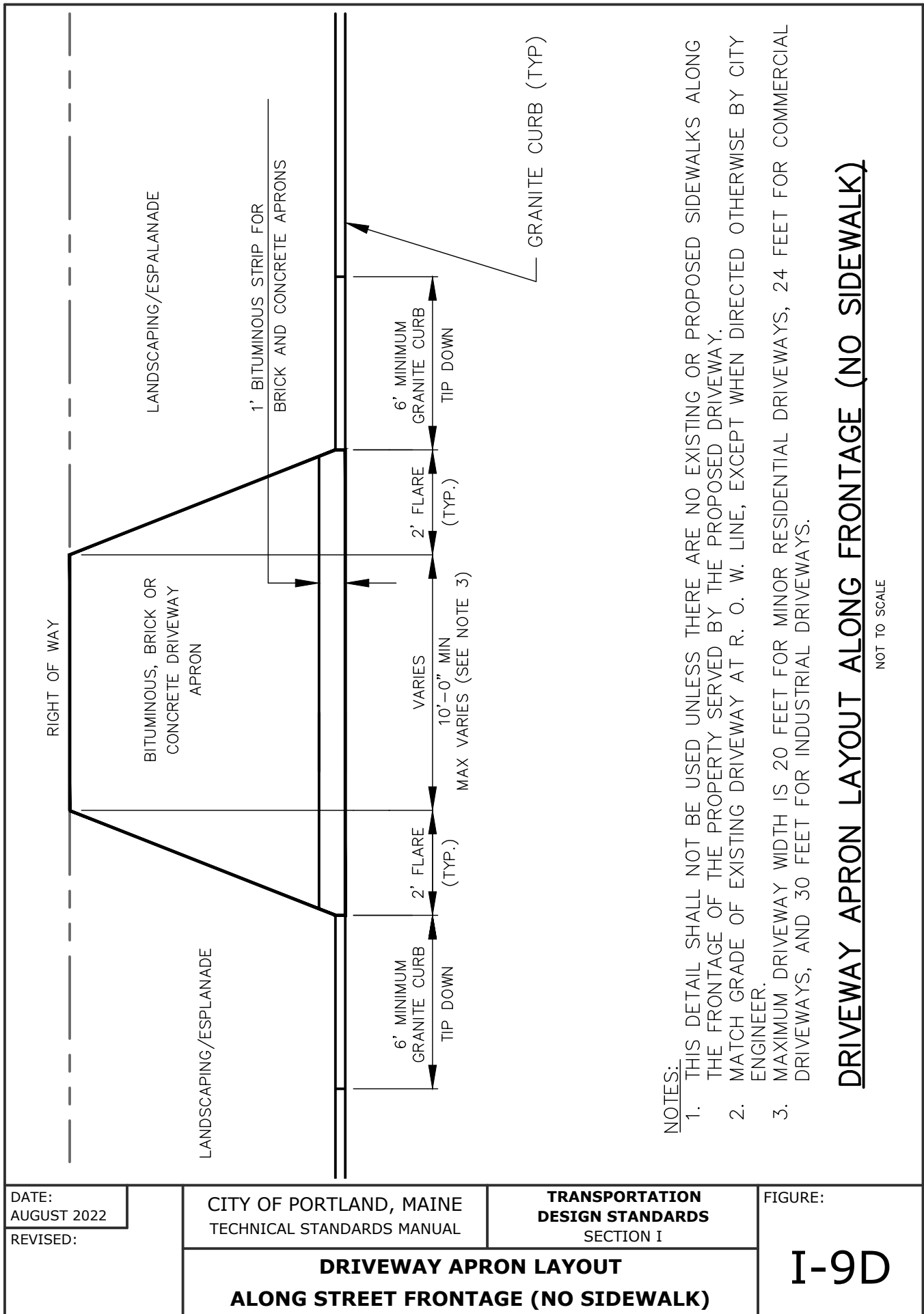
CITY OF PORTLAND, MAINE
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TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

DRIVEWAY APRON AT CONSTRAINED SIDEWALKS

I-9C



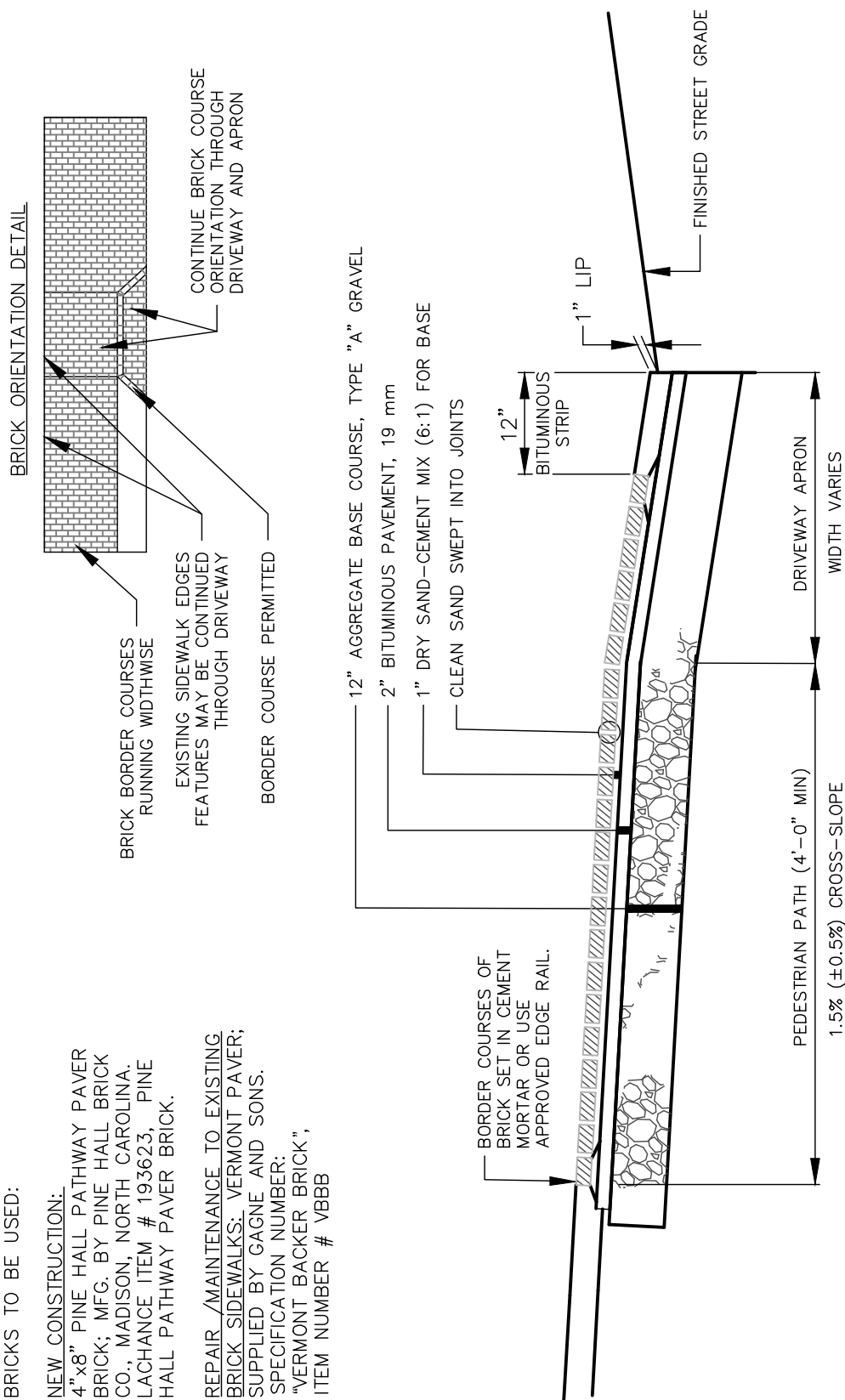
BRICKS TO BE USED:

NEW CONSTRUCTION:

4"x8" PINE HALL PATHWAY PAVEMENT
BRICK; MFG. BY PINE HALL BRICK
CO., MADISON, NORTH CAROLINA.
LACHANCE ITEM # 193623, PINE
HALL PATHWAY PAVEMENT BRICK.

REPAIR / MAINTENANCE TO EXISTING

BRICK SIDEWALKS: VERMONT PAVEMENT;
SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER:
"VERMONT BACKER BRICK",
ITEM NUMBER # VB88



BRICK DRIVEWAY APRON WITH BITUMINOUS BASE

NOT TO SCALE

DATE:
NOV. 2022
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CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

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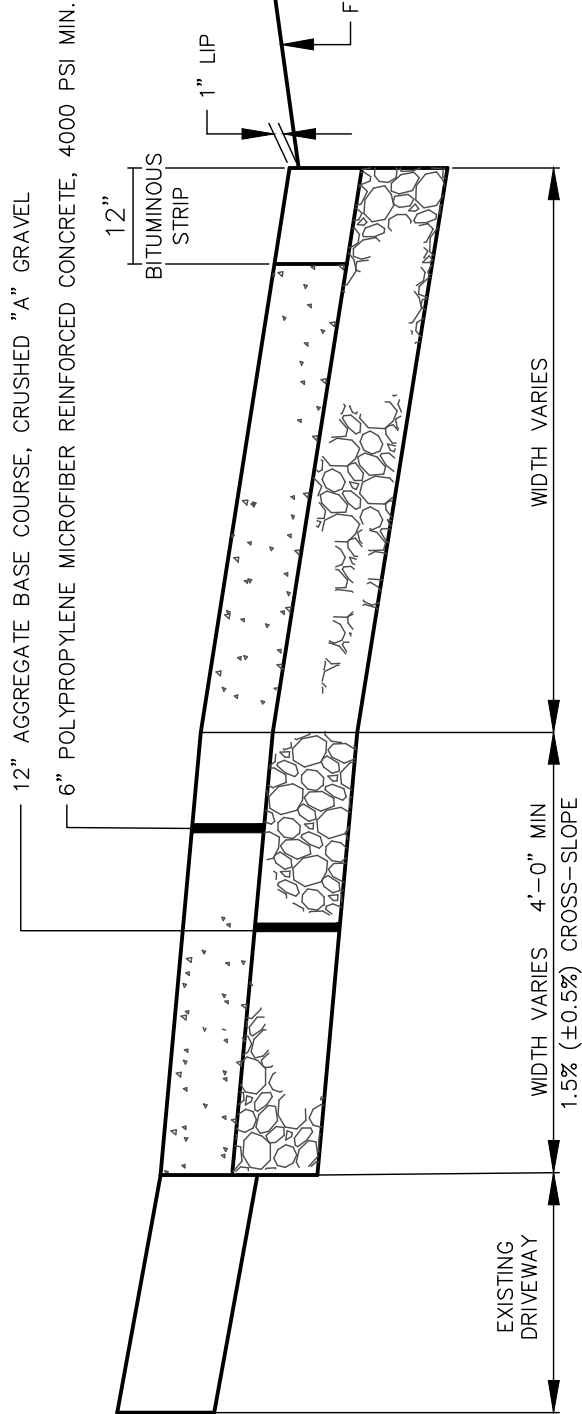
FIGURE:

**BRICK DRIVEWAY APRON
WITH BITUMINOUS BASE**

I-10A

NOTE

CONCRETE SIDEWALKS TO BE TREATED WITH CONSOLIDECK
SALTGUARD WB OR APPROVED EQUAL. FOLLOW MANUFACTURER'S
RECOMMENDATIONS FOR APPLICATION.



REINFORCED CONCRETE DRIVEWAY APRON

NOT TO SCALE

DATE:
AUGUST 2022

REVISED:

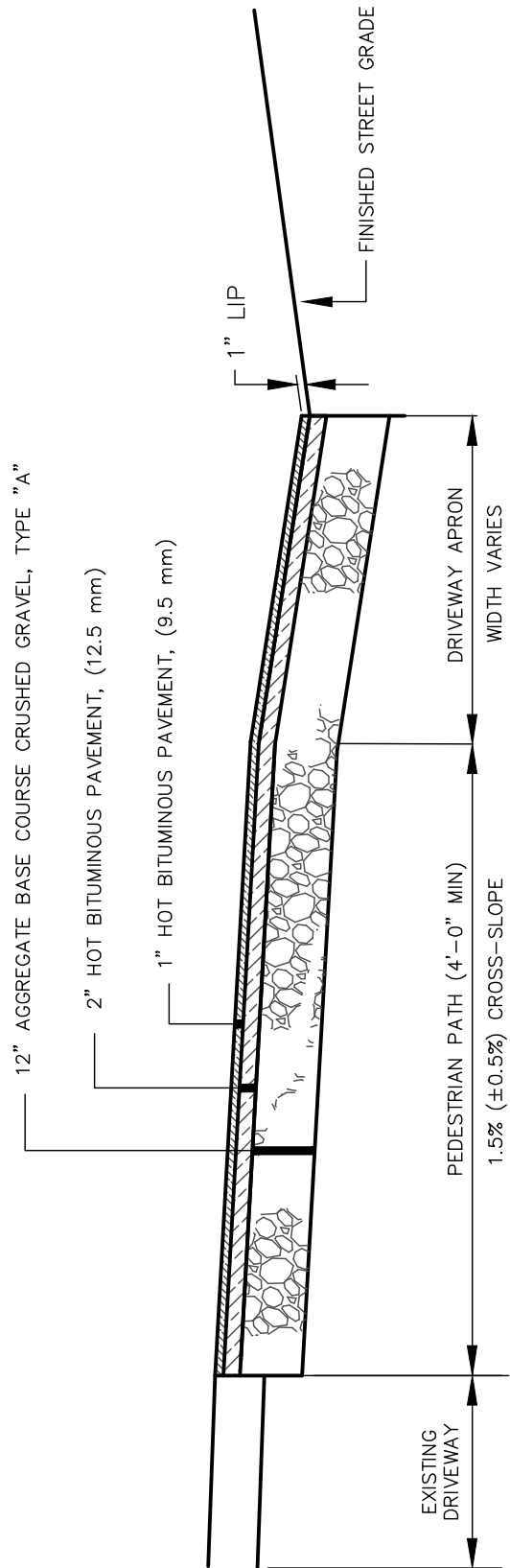
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**TRANSPORTATION
DESIGN STANDARDS**
SECTION I

REINFORCED CONCRETE DRIVEWAY APRON

FIGURE:

I-10B



BITUMINOUS DRIVEWAY APRON

NOT TO SCALE

DATE:
AUGUST 2022
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CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**TRANSPORTATION
DESIGN STANDARDS**
SECTION I

FIGURE:

BITUMINOUS DRIVEWAY APRON

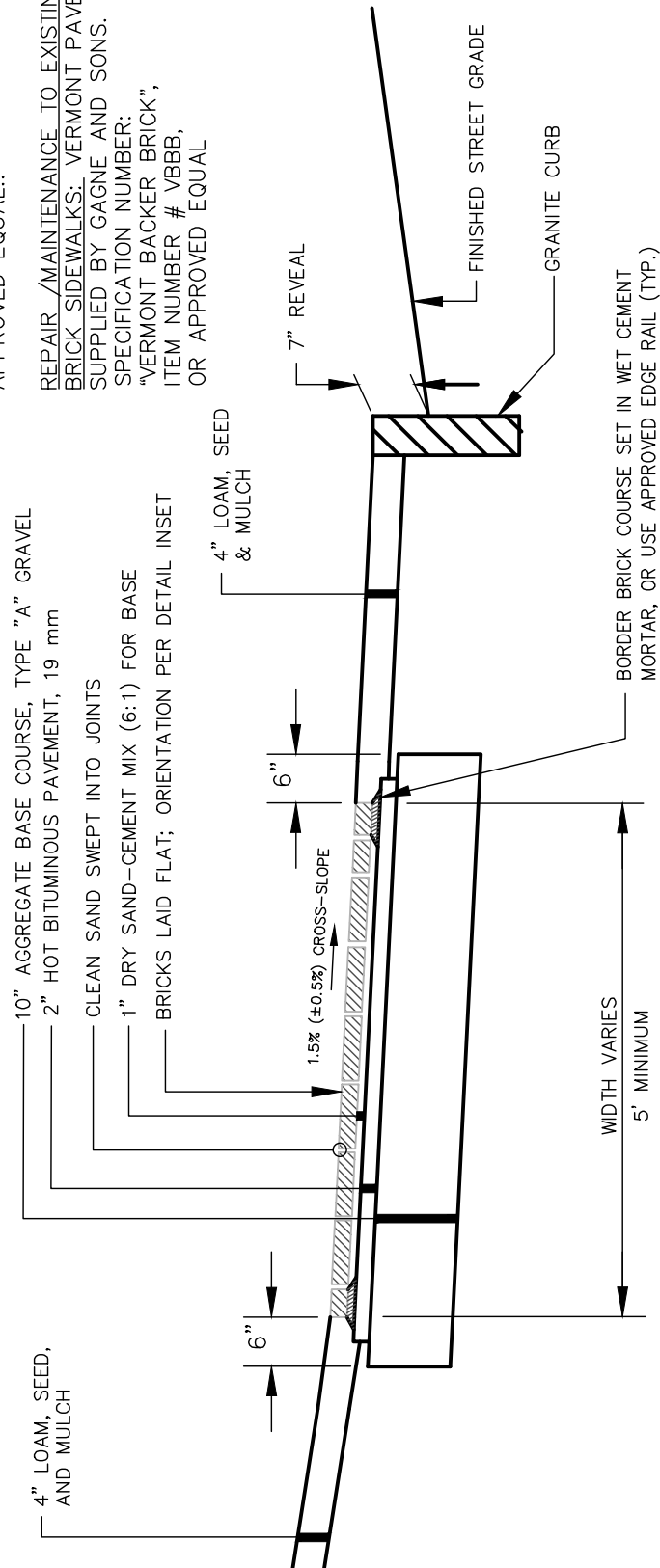
I-10C

BRICKS TO BE USED:

NEW CONSTRUCTION:

4"x8" PINE HALL PATHWAY PAVER
BRICK; MFG. BY PINE HALL BRICK
CO., MADISON, NORTH CAROLINA, OR
APPROVED EQUAL..
LACHANCE ITEM # 193623, PINE
HALL PATHWAY PAVER BRICK, OR
APPROVED EQUAL..

REPAIR /MAINTENANCE TO EXISTING
BRICK SIDEWALKS: VERMONT PAVER;
SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER:
"VERMONT BACKER BRICK",
ITEM NUMBER # VBBB,
OR APPROVED EQUAL



BRICK SIDEWALK WITH BITUMINOUS BASE

NOT TO SCALE

DATE:
AUGUST 2022
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CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

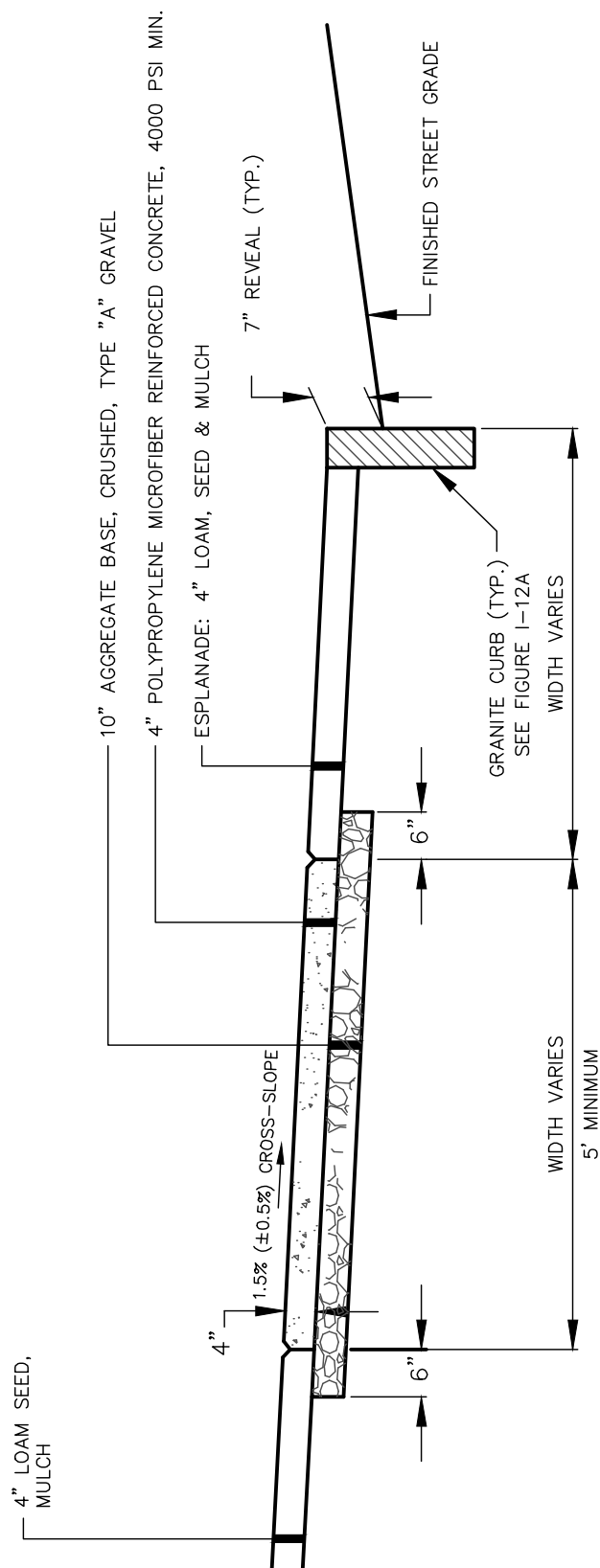
TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

BRICK SIDEWALK WITH BITUMINOUS BASE

I-11A

NOTE
 CONCRETE SIDEWALKS TO BE TREATED WITH CONSOLIDECK
 SALTGUARD WB OR APPROVED EQUAL. FOLLOW MANUFACTURER'S
 RECOMMENDATIONS FOR APPLICATION.



REINFORCED CONCRETE SIDEWALK

NOT TO SCALE

DATE:
AUGUST 2022

REVISED:

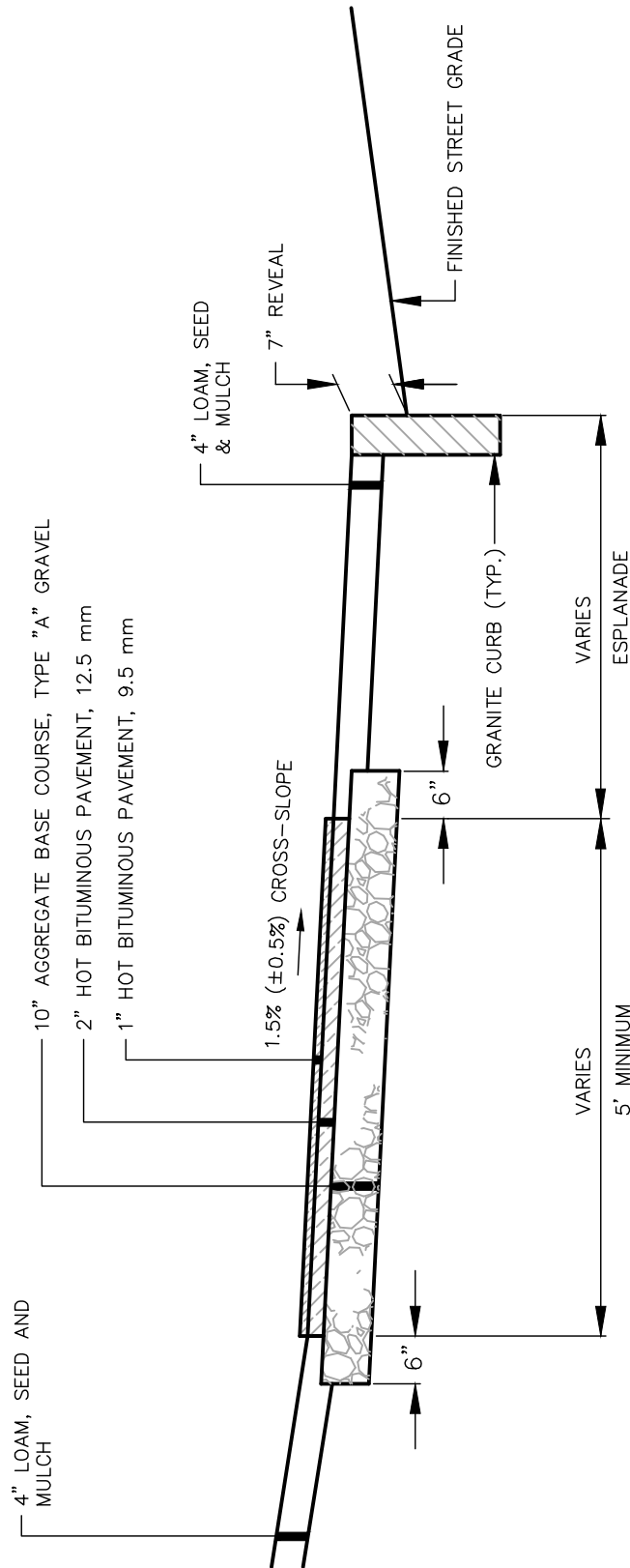
CITY OF PORTLAND, MAINE
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**TRANSPORTATION
 DESIGN STANDARDS**
 SECTION I

FIGURE:

REINFORCED CONCRETE SIDEWALK

I-11B



BITUMINOUS SIDEWALK

NOT TO SCALE

DATE:
AUGUST 2022

REVISED:

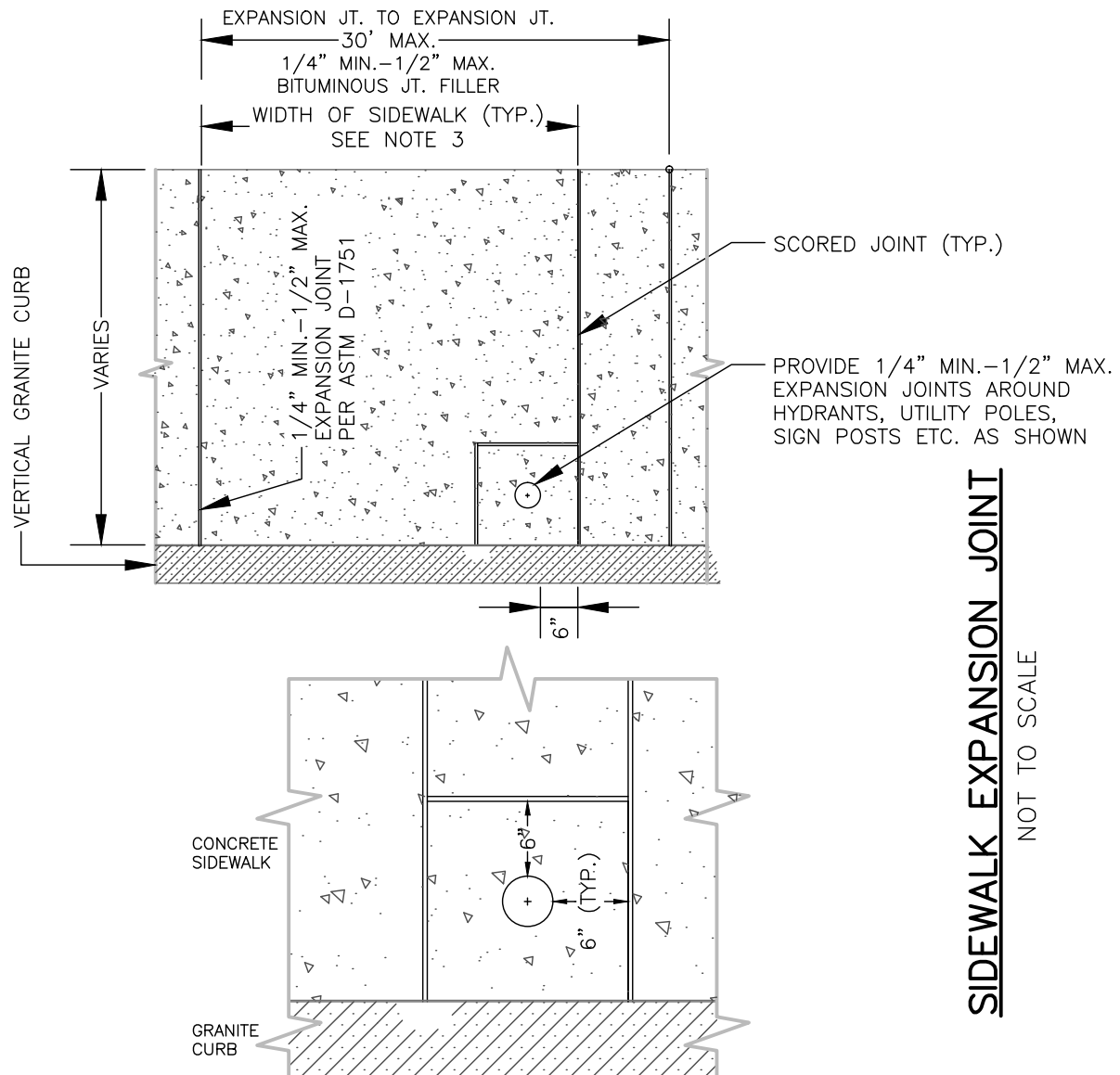
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION
DESIGN STANDARDS
SECTION I

FIGURE:

BITUMINOUS SIDEWALK

I-11C

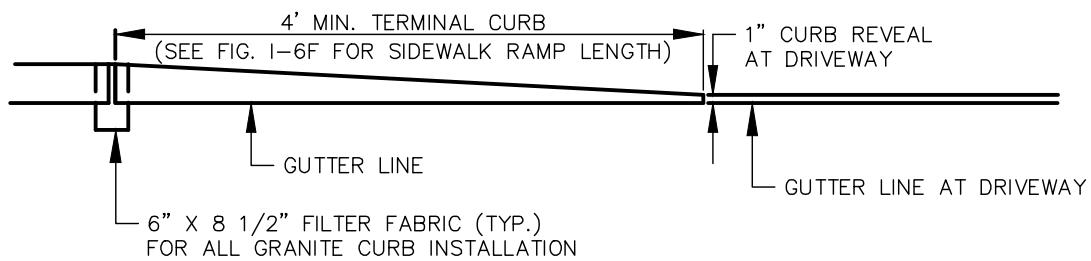


SIDEWALK EXPANSION JOINT
NOT TO SCALE

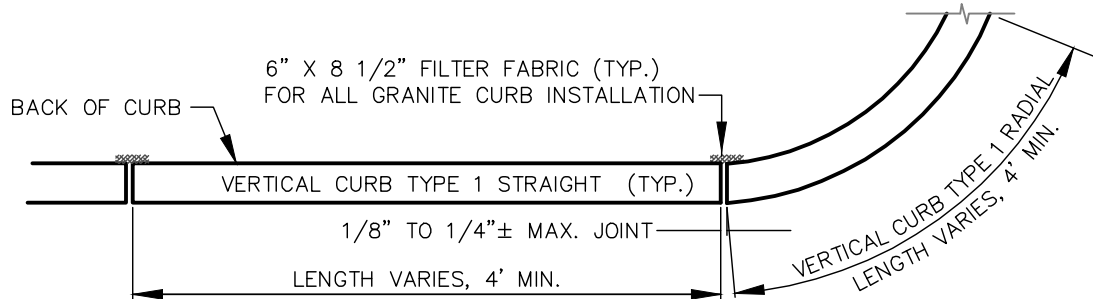
CONCRETE SIDEWALK JOINT NOTES:

- EXPANSION JOINTS SHALL BE LOCATED WHERE SIDEWALK ABUTS DRIVEWAYS, CURB OR OTHER ADJACENT STRUCTURES.
- SLABS SHALL BE PLACED ALTERNATELY IN LENGTHS, NOT TO EXCEED 30 LINEAR FEET OR AS DIRECTED AND SHALL BE SEPARATED BY AN EXPANSION JOINT OF PREFORMED EXPANSION FILLER 1/4" MIN.-1/2" MAX. IN THICKNESS AND SHALL EXTEND THE FULL LENGTH/DEPTH OF THE CONCRETE.
- THE SIDEWALK SURFACE SHALL BE SCORED INTO BLOCK UNITS. THE DEPTH OF SCORING SHALL BE AT LEAST ONE QUARTER OF THICKNESS OF THE SLABS (1" TYP.). SCORED JOINTS MUST BE COMPLETED AS PART OF THE FINISHING PROCESS. SAW CUTTING OF JOINTS IS NOT ALLOWED. SCORED JOINTS SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
 - IN LOCATIONS TO ENSURE BLOCK UNITS DO NOT EXCEED 36 SQUARE FEET.
 - AT THE SPACING THAT MATCHES ADJACENT TIP DOWN CURB
 - EXTENSION OF EXPANSION JOINTS LOCATED AT HYDRANTS & UTILITY POLES.
- ALL OUTSIDE EDGES OF THE SLAB AND ALL JOINTS SHALL BE ROUNDED WITH A 1/4" RADIUS EDGING TOOL.
- CONCRETE SHALL BE FINISHED BY MEANS OF A FLOAT, STEEL TROWELED AND BROOMED WITH A FINE BRUSH IN A TRANSVERSE DIRECTION.

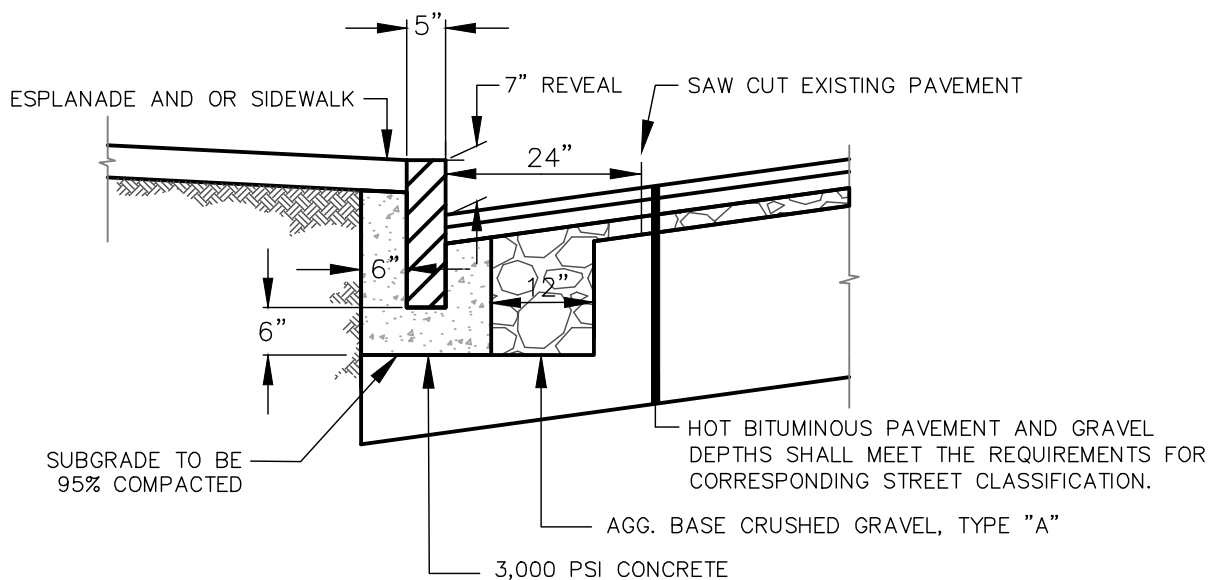
DATE: AUGUST 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
REVISED:	SIDEWALK EXPANSION JOINT		I-11D



TERMINAL CURB PROFILE



VERTICAL GRANITE CURB PLAN VIEW



VERTICAL GRANITE CURB CROSS SECTION

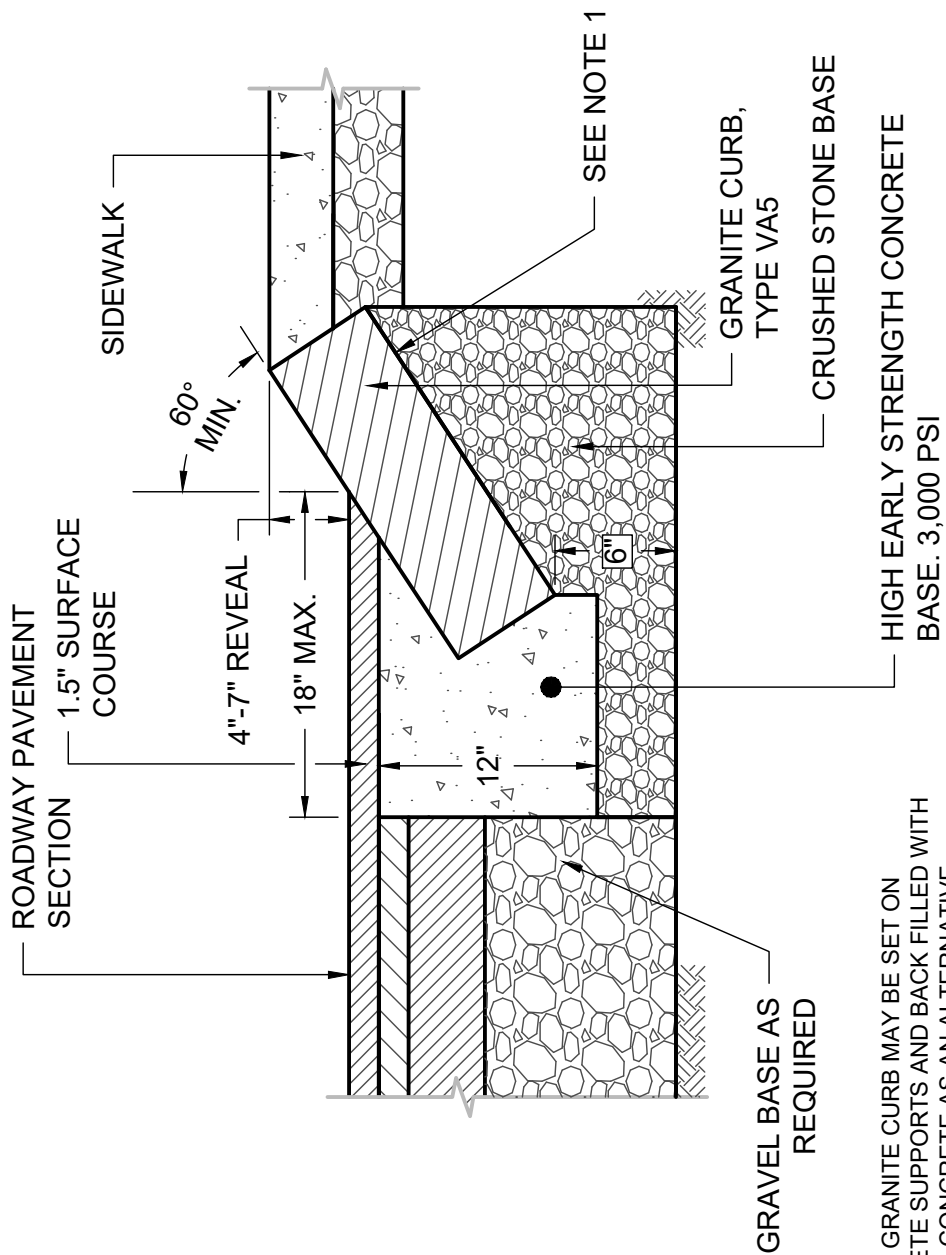
NOTES:

1. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
2. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
3. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
4. WOODEN SHIMS MAY BE USED TO SET CURB.

VERTICAL GRANITE CURB

NOT TO SCALE

DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
	VERTICAL GRANITE CURB		I-12



NOTE 1:
SLOPED GRANITE CURB MAY BE SET ON
CONCRETE SUPPORTS AND BACK FILLED WITH
3000 PSI CONCRETE AS AN ALTERNATIVE
INSTALLATION METHOD.

SLOPED GRANITE CURB

NOT TO SCALE

DATE:
AUGUST 2022
REVISED:

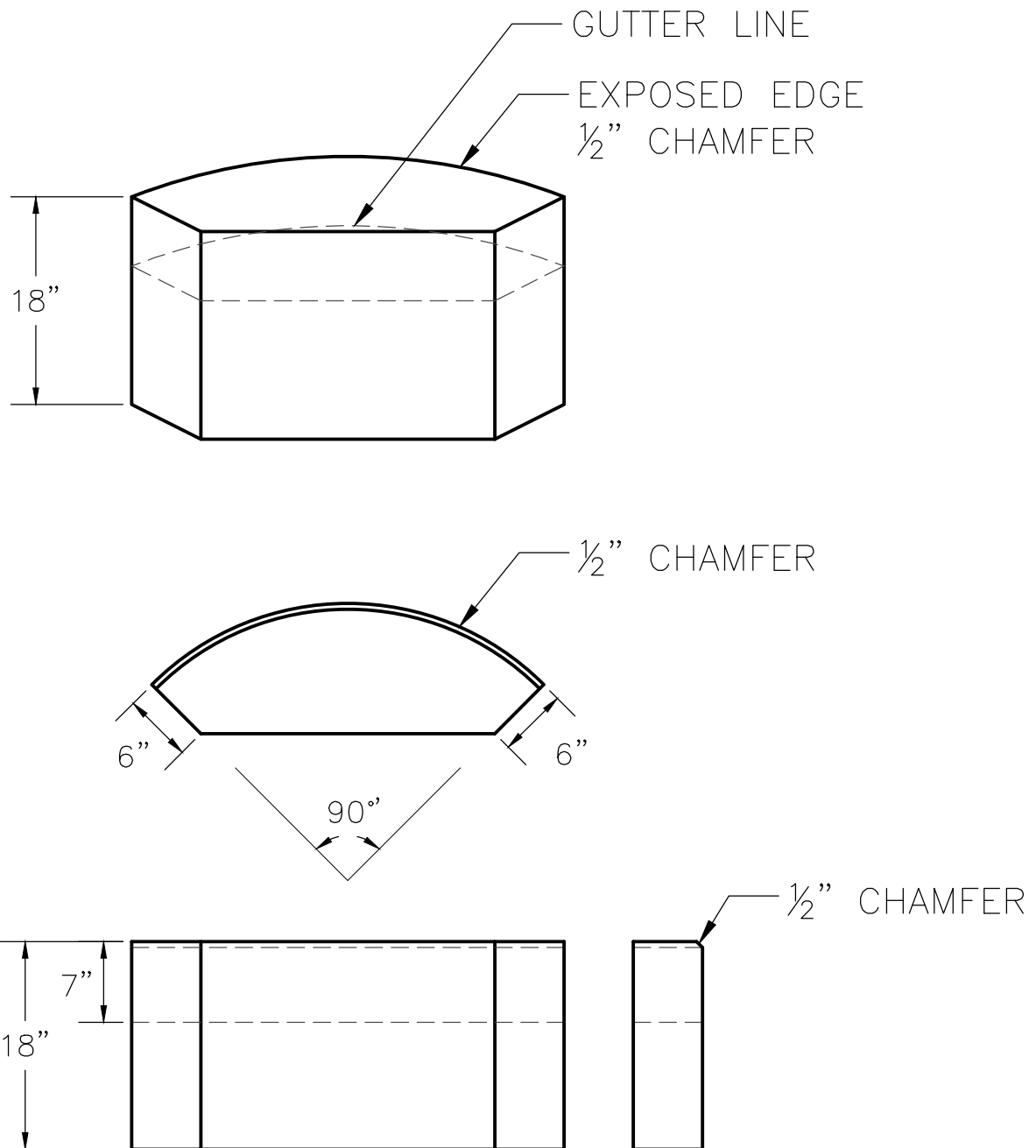
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

TRANSPORTATION SYSTEMS
AND STREET DESIGN
SECTION I

FIGURE:

SLOPED GRANITE CURB

I-13



GRANITE RADIUS CORNER "BUG"

NOT TO SCALE

DATE:
JUNE 2022

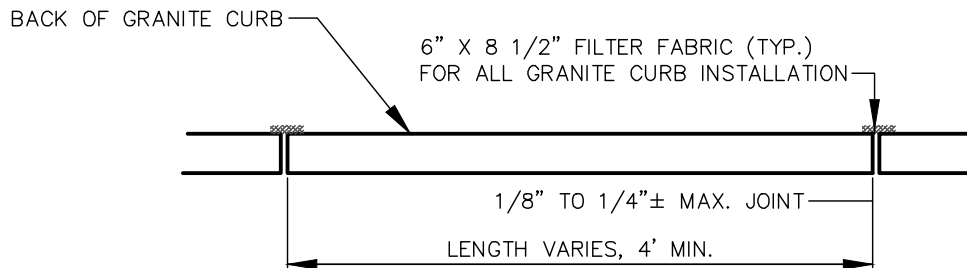
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**TRANSPORTATION
DESIGN STANDARDS**
SECTION I

FIGURE:

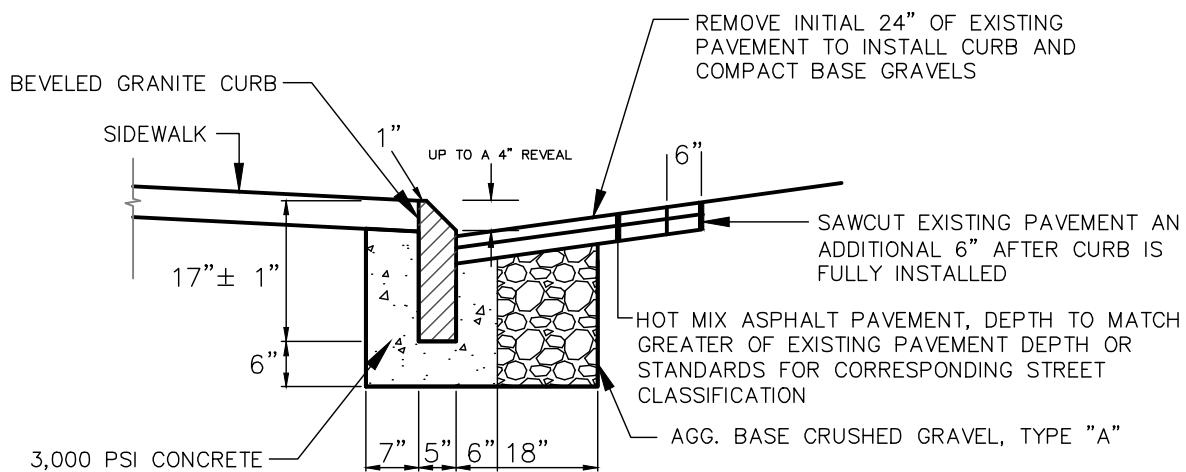
**GRANITE RADIUS CORNER
"BUG"**

I-14



VERTICAL GRANITE CURB PLAN VIEW

NOT TO SCALE



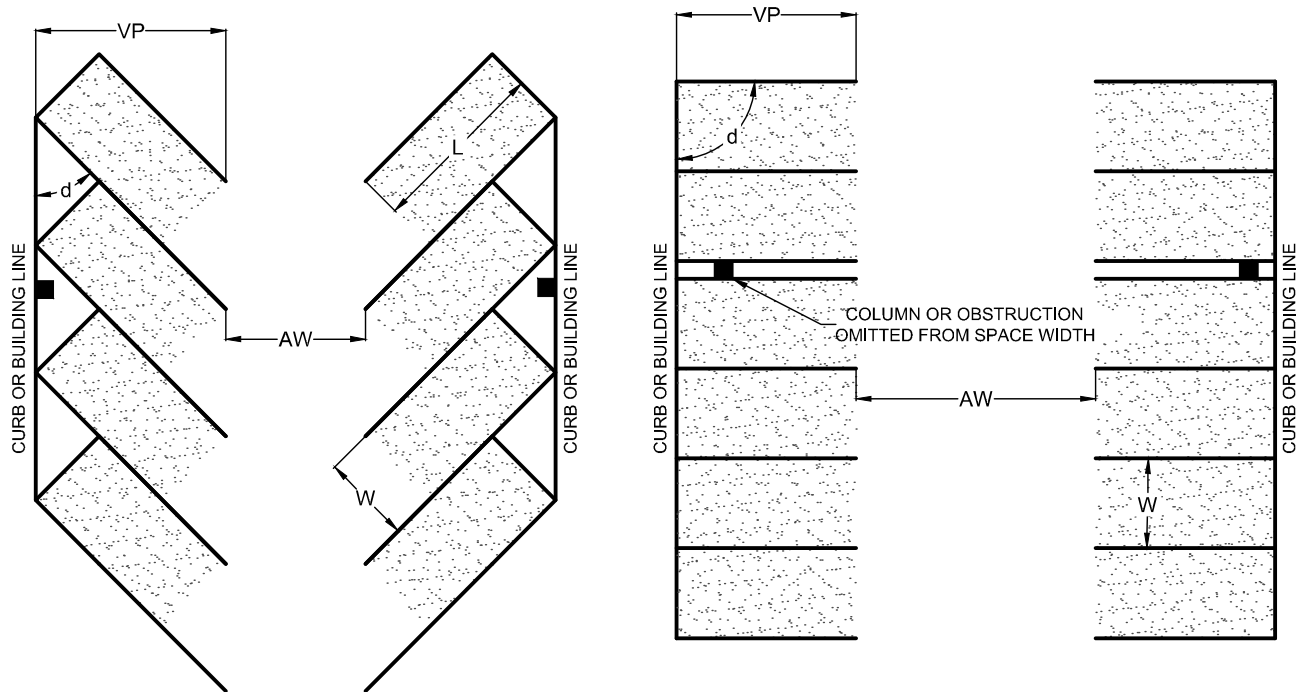
NOTES:

1. INSTALL PER MANUFACTURER'S SPEC'S
2. PROVIDE CUSTOM TRANSITION CURB THAT TIPS DOWN 3" IN BETWEEN MOUNTABLE AND VERTICAL CURBS. SAWCUT TRANSITION STONE IN THE FIELD FOR FLUSH JOINT WITH ADJACENT VERTICAL CURB
3. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
4. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
5. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
6. WOODEN SHIMS MAY BE USED TO SET CURB.

MOUNTABLE BEVELED GRANITE CURB CROSS SECTION

NOT TO SCALE

DATE: AUGUST 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
	MOUNTABLE BEVELED GRANITE CURB		I-15



Standard Parking Dimensions

Parking Angle (d)	Space Length (L)	Space Width (W)	Aisle Width (AW)	Vehicle Projection (VP)
90°	18	9	24	18.0
75°	18	9	22	19.7
60°	18	9	19	20.1
45°	18	9	14	19.0
30°	18	9	12	16.7
0° (parallel)	20	8	12	8.0

Compact Parking Dimensions

Parking Angle (d)	Space Length (L)	Space Width (W)	Aisle Width (AW)	Vehicle Projection (VP)
90°	15	8	24	15.0
75°	15	8	22	16.8
60°	15	8	19	17.5
45°	15	8	14	16.9
30°	15	8	12	15.2
0° (parallel)	15	7	10	7.0

NOTES:

All dimensions in feet

- STANDARD SPACE WIDTH MAY BE REDUCED TO 8.5 FEET IN LOW-TURNOVER LOTS.
- COMPACT SPACES SHOULD BE DESIGNED AS CLOSE TO STANDARD AS POSSIBLE WITHIN SITE CONSTRAINTS.
- ACCESSIBLE PARKING SPACES SHALL BE PROVIDED IN ACCORDANCE WITH ADA, AND SHALL BE CONSIDERED A STANDARD PARKING SPACE WHEN CALCULATING THE PERMISSIBLE NUMBER OF COMPACT SPACES.
- DIMENSIONS REPRESENT CLEAR WIDTH AND DO NOT INCLUDE OBSTRUCTIONS SUCH AS STRUCTURAL COLUMNS.

DATE:
AUGUST 2022

REVISED:

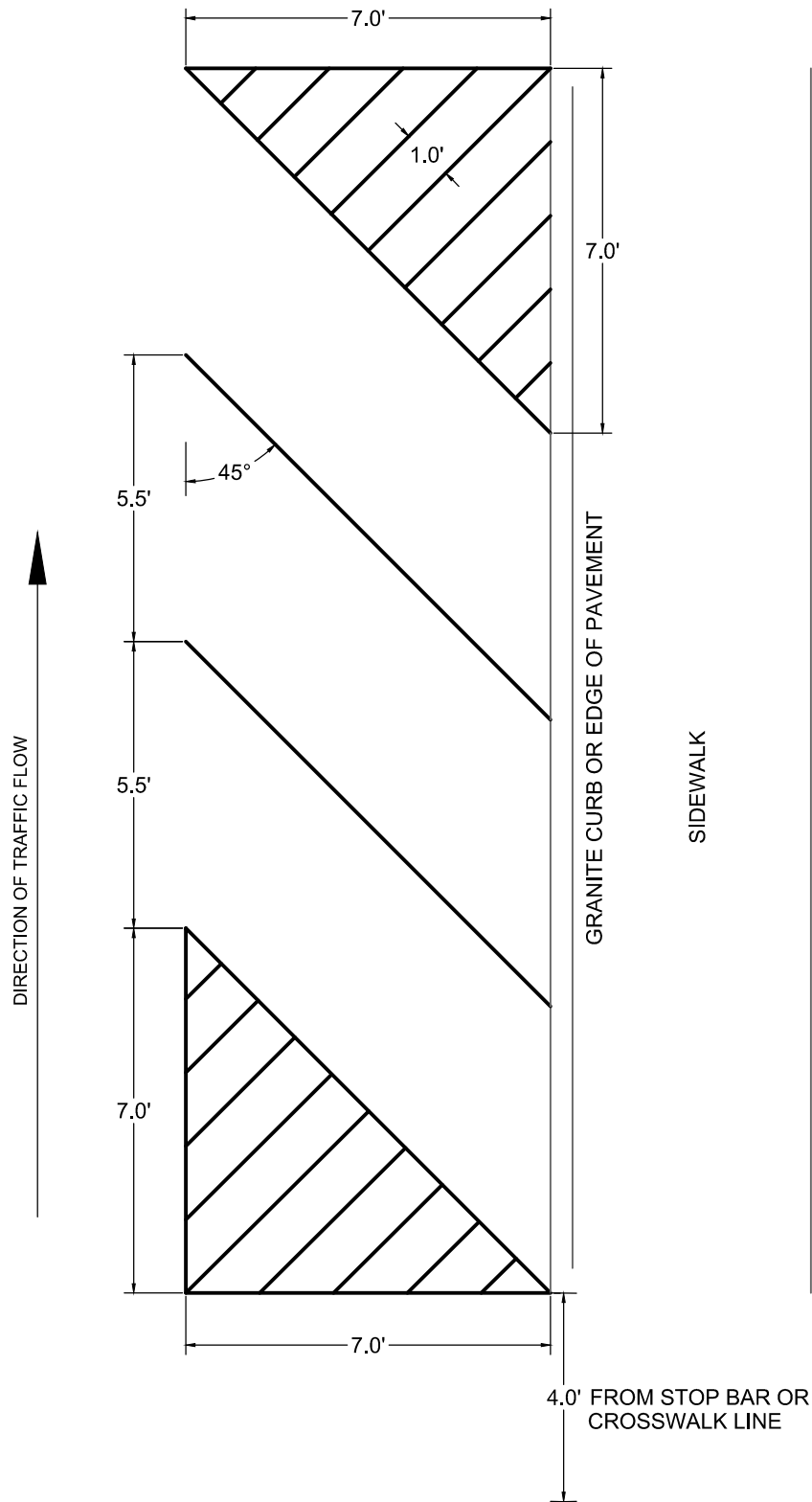
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FIGURE:

VEHICLE PARKING DIMENSIONS

I-16A



MOTORCYCLE PARKING

*ALL PAVEMENT MARKINGS SHALL BE 4 INCH WIDE WHITE LINES.

DATE:
JUNE 2022

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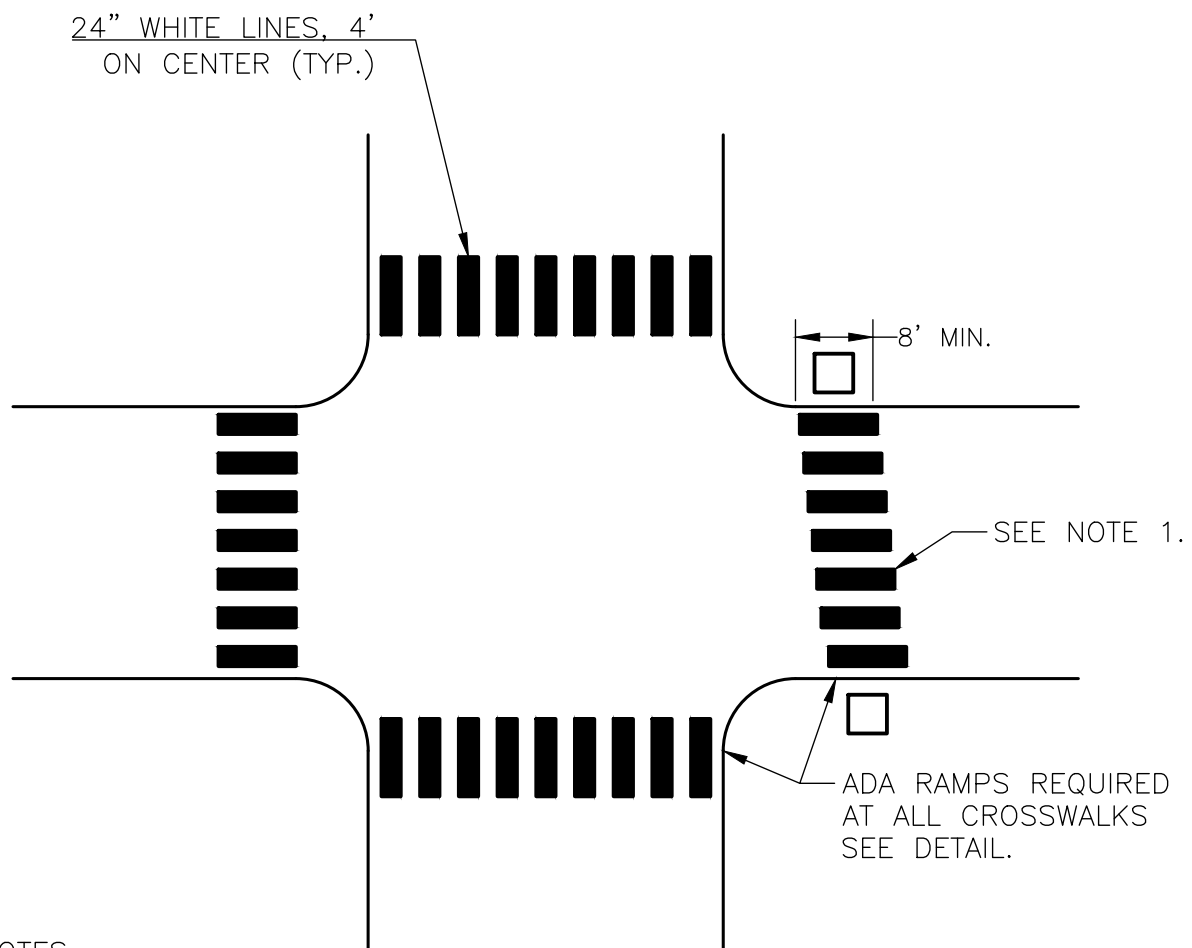
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SECTION I

FIGURE:

MOTORCYCLE PARKING DIMENSIONS

I-16B



NOTES:

- 1.) CROSSWALK BLOCKS SHALL BE STAGGERED AND REMAIN PARALLEL TO THE ROADWAY CENTERLINE AT SKEWED CROSSING LOCATIONS.
- 2.) CROSSWALK MARKINGS LOCATED ON ARTERIAL STREETS SHALL BE APPLIED WITH A THERMOPLASTIC MATERIAL (OR APPROVED EQUAL) MEETING ALL MANUFACTURER AND MUTCD REQUIREMENTS.
- 3.) THE ESTABLISHMENT PERIOD FOR CROSSWALK MARKINGS SHALL BE BASED ON MANUFACTURER'S SPECIFICATIONS AND SHALL AT A MINIMUM MEET MAINE DOT STANDARD SPECIFICATION 627.07 ESTABLISHMENT PERIOD REQUIREMENTS.

CROSSWALK MARKINGS

NOT TO SCALE

DATE: SEPT 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE: I-17
TYPICAL CROSSWALK MARKINGS			

TYPICAL BIKEWAY PAVEMENT MARKINGS



SHARED USE LANE
SYMBOL



BICYCLE LANE
SYMBOL

TYPICAL BIKEWAY ROUTE SIGNAGE



R3-17
30"x24"



R3-17
30"x24"



R3-17B
30"x12"



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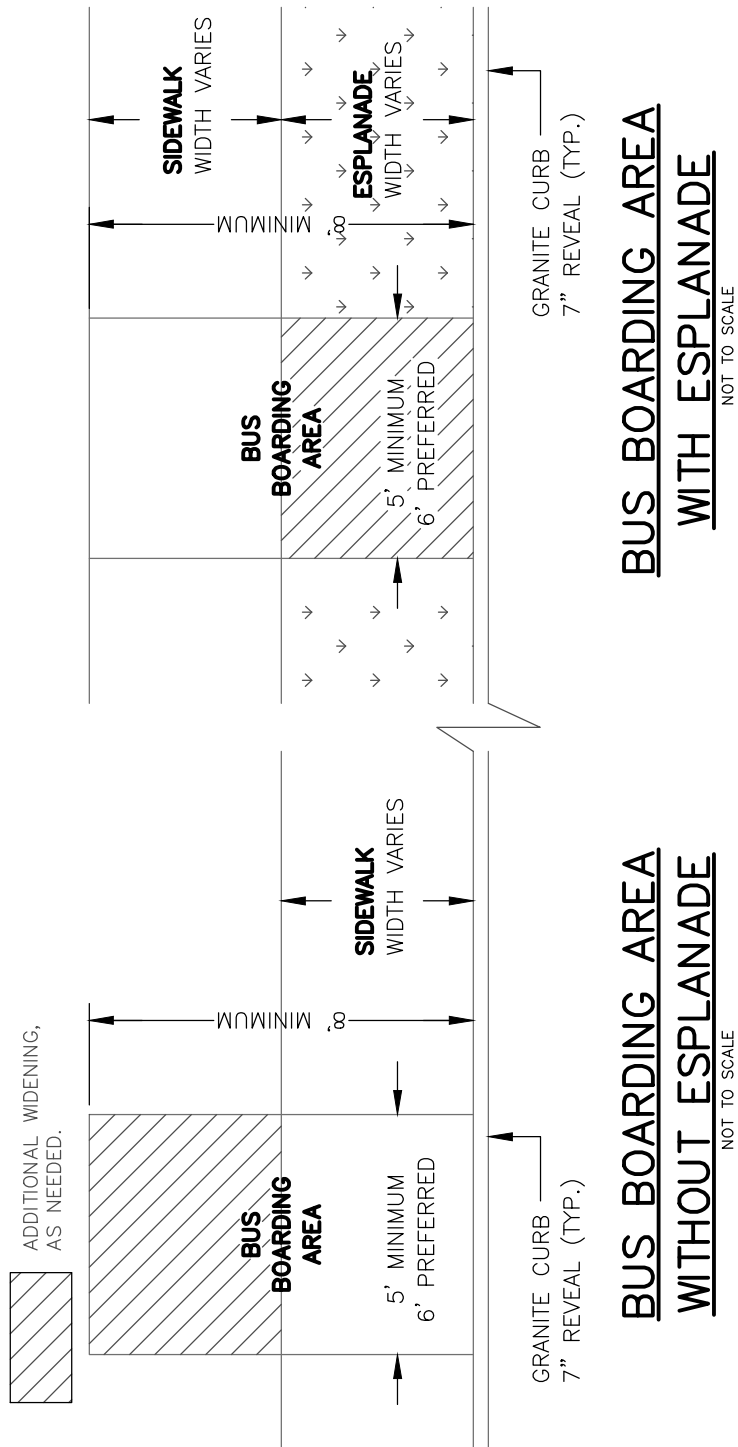
FIGURE:

**TYPICAL BIKEWAY PAVEMENT MARKINGS
AND BICYCLE ROUTE SIGNAGE**

I-18

NOTES:

1. **SURFACE.** BUS STOP BOARDING AREAS SHALL HAVE A FIRM, STABLE SURFACE.
2. **DIMENSIONS.** BUS STOP BOARDING AREAS SHALL PROVIDE A CLEAR LENGTH OF 8' MINIMUM, MEASURED PERPENDICULAR TO THE CURB OR VEHICLE ROADWAY EDGE, AND A CLEAR WIDTH OF 5' MINIMUM, MEASURED PARALLEL TO THE VEHICLE ROADWAY. THIS AREA SHALL BE CLEAR OF ANY OBSTRUCTIONS, INCLUDING BUT NOT LIMITED TO: BICYCLE RACKS, LIGHT POLES, UTILITY POLES, FIRE HYDRANTS, STREET SIGNS, STREET FURNITURE, NEWSPAPER BOXES OR SIMILAR OBSTACLES.
3. **CONNECTION.** BUS STOP BOARDING AREAS SHALL BE CONNECTED TO STREETS, SIDEWALKS OR PEDESTRIAN PATHS BY AN ADA ACCESSIBLE ROUTE.
4. **SLOPE.** PARALLEL TO THE ROADWAY, THE SLOPE OF THE BUS STOP BOARDING AREA SHALL BE THE SAME AS THE ROADWAY, TO THE MAXIMUM EXTENT PRACTICABLE. PERPENDICULAR TO THE ROADWAY, THE SLOPE OF THE BUS STOP BOARDING AREA SHALL NOT EXCEED 2%.



**BUS BOARDING AREA
WITH ESPLANADE**
NOT TO SCALE

**BUS BOARDING AREA
WITHOUT ESPLANADE**
NOT TO SCALE

DATE:
JUNE 2022

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**TRANSPORTATION
DESIGN STANDARDS
SECTION I**

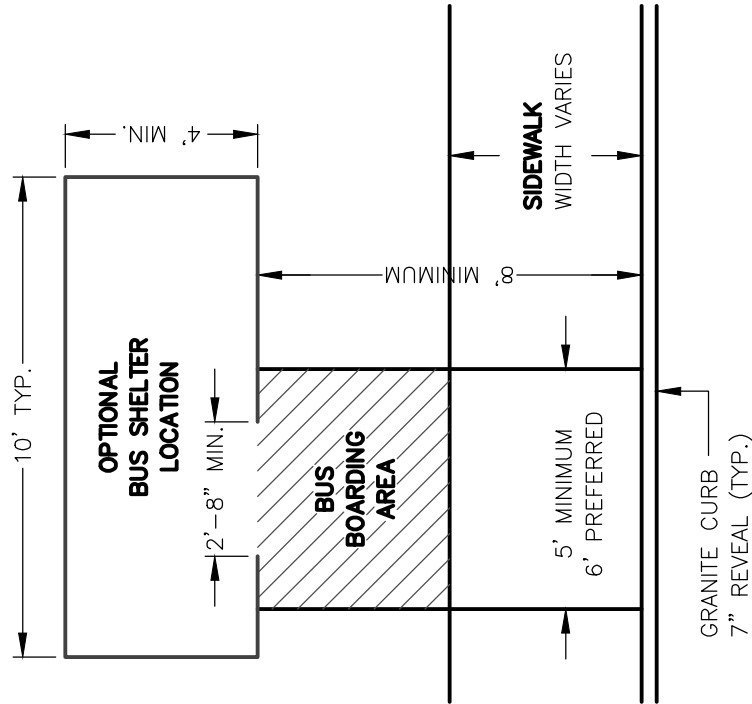
FIGURE:

**BUS STOP BOARDING AREA LAYOUT FOR
SIDEWALK WITH OR WITHOUT ESPLANADE**

I-39

NOTES:

1. **DIMENSIONS.** MINIMUM CLEAR FLOOR INTERIOR AREA ENTIRELY WITHIN THE PERIMETER OF THE SHELTER IS 2'-6" WIDE BY 4' DEEP TO PERMIT WHEELCHAIR OR MOBILITY AID USER ACCESS. THE MINIMUM SHELTER OPENING FOR WHEELCHAIR ACCESS IS 2'-8".
2. **CONNECTION.** BUS SHELTER OPENINGS WILL BE CONNECTED TO THE BUS BOARDING AREA BY AN ADA ACCESSIBLE ROUTE.
3. **SLOPE.** PARALLEL TO THE ROADWAY, THE SLOPE OF THE BUS BOARDING AREA SHALL BE THE SAME AS THE ROADWAY, TO THE MAXIMUM EXTENT PRACTICABLE. PERPENDICULAR TO THE ROADWAY, THE SLOPE OF THE BUS BOARDING AREA SHALL NOT EXCEED 2%.



**BUS SHELTER AND SHELTER SITING
WITHOUT ESPLANADE**

NOT TO SCALE

DATE:
JUNE 2022

REVISED:

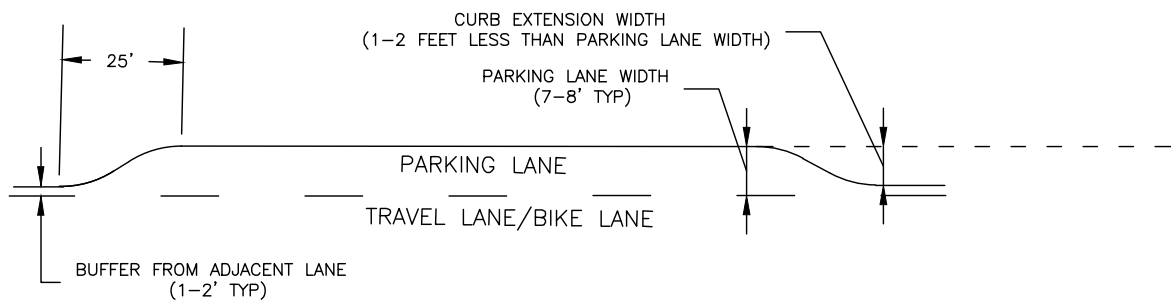
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**BUS SHELTER AND SHELTER SITING LAYOUT
FOR SIDEWALK WITHOUT ESPLANADE**

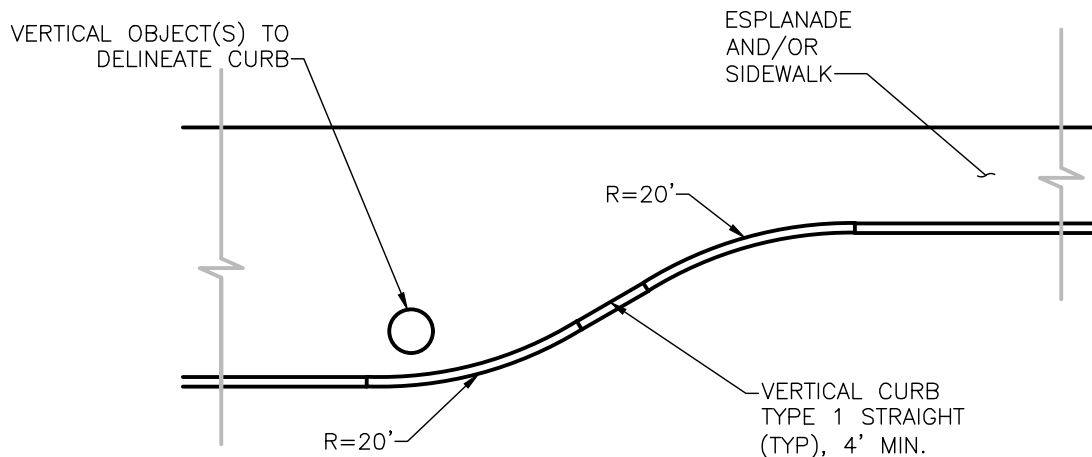
FIGURE:

I-40



NOTES:

1. CURB EXTENSIONS SHOULD NOT IMPEDE THE WIDTH OF THE ADJACENT VEHICLE TRAVEL LANE OR BICYCLE LANE.
2. PROPOSED MATERIALS SHALL BE CONSISTENT WITH THE CITY SIDEWALK MATERIAL POLICY.
3. DRAINAGE MODIFICATIONS SHALL BE MADE SO THAT CURB EXTENSIONS DO NOT IMPEDE STORMWATER FLOW.
4. CURB EXTENSIONS SHALL BE DESIGNED TO FACILITATE SNOW REMOVAL OPERATIONS WHILE MINIMIZING IMPACTS TO DRAINAGE AND ON-STREET PARKING.
5. ALL CURB EXTENSIONS SHALL BE REVIEWED AND APPROVED BY THE CITY ENGINEER.
6. THE POTENTIAL IMPLEMENTATION OF GREEN INFRASTRUCTURE FOR STORMWATER MANAGEMENT SHALL BE CONSIDERED AT EACH CURB EXTENSION LOCATION AND IMPLEMENTED IF FEASIBLE. THE WATER RESOURCES DIVISION OF PUBLIC WORKS MUST REVIEW AND APPROVE GREEN INFRASTRUCTURE SYSTEMS BEFORE BEING INSTALLED WITHIN CITY STREETS.



TYPICAL CURB EXTENSION

NOT TO SCALE

DATE: NOV. 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
REVISED:	TYPICAL CURB EXTENSIONS		I-CE

2. SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS

2.1. TECHNICAL REFERENCE

- 2.1.1. The following technical publications are recognized by the City of Portland for use in the design, construction and testing of sanitary and storm water systems:
- 2.1.2. Technical Report #16 (TR-16): Guides for the Design of Wastewater Treatment Works, Prepared by the New England Interstate Water Pollution Control Commission available for review at the Department of Public Works or online at www.neiwpcc.org/tr16guides.asp
- 2.1.3. Maine Department of Transportation (MDOT) Standard Specifications for Highways and Bridges, Current Edition.

2.2. SANITARY STANDARDS AND SPECIFICATIONS

- 2.2.1. Sewer and Storm drain systems shall be planned and constructed in accordance with the regulations contained in Chapter 24 of the City Code of Ordinances.
- 2.2.2. The information presented below are City of Portland exceptions to the TR-16 or additional required standards.
- 2.2.3. The introduction of non-contaminated water such as rain water, non-contact cooling water, groundwater from foundation drains, sump pumps, surface drains or any other sources of inflow shall not be ~~allow~~allowed to discharge into ~~a~~ sewer which conveys sanitary waste unless approved by the Public Works Director~~City Engineer~~. ~~When no other practical alternatives exist, this condition may be waived by the City Engineer. All~~
- 2.2.4. Appeals will be considered by the Director of Public Works~~Services~~. (Refer to: Sec. 24-44 of the City Code - Public sewer connection limitations).
- 2.2.5. It is not permissible to backfill any excavation with frozen materials, organic materials, clay or blasted ledge. The maximum size of backfill material shall not exceed six inch (6"). (Please refer to Division 2, Street Opening Permits in the City Code).
- 2.2.6. The Department of Public Works~~Services~~ shall be responsible for televising all new sewer construction for acceptability as soon as backfilling has been completed and access is available. The permittee will be invoiced for these services. Information on current rates is available in Chapter 24 Sewer Ordinancethrough the City of Portland Wastewater Maintenance Division.
- 2.2.7. Permits to connect to the municipal stormwater and sanitary sewer system are required and may be obtained from the Department of Public Works~~Services~~.
- 2.2.8. Covered or Enclosed parking areas, mechanical rooms, garages (parking areas

not exposed to rain and snow) shall direct surface drainage to a sanitary sewer.
Storm water from outside of these areas shall be directed away from this covered area so that additional storm water is not directed to the sewer.
Drainage from these areas shall be collected by an Oil/ Grit Separator as shown in Figure II-20 or an approved equal.

2.3. **SANITARY MANHOLES**

- 2.3.1. All manholes shall be designed in conformance with City of Portland standards as illustrated in Figure II-~~01~~02.
- 2.3.2. When constructing sanitary manhole channels, if the ~~mathematical~~Vertical difference between the invert elevation of the manhole channel and the invert elevation of the sewer pipe connecting to such manhole is two vertical feet (2') or greater, a standard City of Portland internal drop manhole shall be provided. Such drop manholes shall conform to the engineering specifications illustrated in Figure II-03. A minimum of two stainless steel pipe anchors shall be used and the manhole diameter shall be five feet (5') minimum. ~~Drop manholes on stormwater collection systems are permitted.~~
- ~~2.3.3. Internal drop connections are prohibited unless site specific constraints warrant an exception. Where exceptional circumstances necessitate a waiver to allow for construction of an internal drop connection, a minimum of two stainless steel pipe anchors shall be use and the manhole diameter shall be five (5) feet minimum. Waiver requests will be evaluated on a case by case basis.~~
- 2.3.3. Sanitary Service service laterals that are four inch (4") or six inch (6") shall not be connected to either stormwater or sanitary manhole into a sanitary manhole and only into a sanitary sewer main.
- 2.3.4. ~~Stormwater and~~ Sanitary manholes shall include frames and covers as shown in Figure II-05 or an approved equivalent. Both the frame and riser shall be machined to assure a proper fit.
- 2.3.5. Manhole covers shall be marked "SEWER" ~~or "Drain" accordingly.~~
- 2.3.6. Manhole frames shall be raised to grade using only brick and mortar as shown in Figure II-02 or approved equal.
- 2.3.7. Riser Rings without tabs as shown in Figure II-06 may ~~shall~~ be used to adjust manholes to grade with approval of the Department of Public Works.
~~Wastewater Maintenance Division.~~
- ~~2.3.6.~~2.3.8. All new sanitary manholes shall be vacuum tested before backfilling. Refer to TR-16 for testing standards.
- 2.3.9. All manholes shall have copolymer polypropylene plastic steps with 3/8" grade 60 rebar continuous throughout, spaced at one foot (1') intervals. ~~Steps are not required in sewer manholes.~~ Any structures delivered to the site with step

“holes” shall be filled with mortar.

2.4. SANITARY GRAVITY PIPES

2.4.1. The types of allowable pipe shall be used for purposes of sanitary sewers, ~~storm sewers, catch basin drains, or underdrains shall be:~~

- ~~• Reinforced Concrete Pipe (RCP) with a minimum strength of Class III;~~
- PVC Ring Type Sewer Pipe (SDR 35 or equivalent, minimum PS-46 rating)
- PVC Ring Type Sewer Pipe meeting ASTM F 789 or equal to SDR
- Ductile iron Pipe (DIP)
- ~~• ADS N 12 HP triple wall pipe meeting a minimum PS 46~~
- ~~• ADS SaniTite HP meeting a minimum PS 46~~
- High Performance Polypropylene Dual Wall Sewer Pipe (ADS SaniTite HP or equal) meeting ASTM F2736 and have a minimum pipe stiffness of 46 psi with pipe sizes twelve inch (12”) through thirty inch (30”).
- High Performance Polypropylene Triple Wall Sewer Pipe (ADS SaniTite HP or equal) meeting ASTM F2764 and have a minimum pipe stiffness of 46 psi with pipe sizes thirty inch (30”) through sixty inch (60”).

2.4.2. Minimum velocities ~~of surface water drains~~ for sanitary pipes shall not be less than ~~three (3.0) feet per second~~ two feet per second (2 ft/s).

2.4.3. All PVC connections shall be made with Solid PVC Couplings.

2.4.4. The classes of pipe indicated shall be minimums, however the actual class of pipe used shall be determined by soil weight and compaction loads applied to such pipe in accordance with standard engineering design criteria and subject to the approval of the ~~City Engineer~~ Department of Public Works.

2.5. FORCE MAINS

2.5.1. Force mains four inches (4”) or greater shall terminate at a transition manhole and flow by gravity within a minimum sized eight inch (8”) pipe to a City manhole.

2.5.2. Force mains less than four inches (4”) may terminate to the nearest precast concrete manhole as directed by the City.

2.5.3. Cores into existing manholes shall be made with coring machines and have link seal or equivalent wall penetration seals.

2.5.4. Termination of force mains three inches (3”) or less may be permitted into existing City-owned manholes if reconstruction or replacement is performed.

depending on the material and condition of the existing manhole as determined by the Department of Public Works. Existing brick manholes shall be allowed for less than four inch (4") termination of force mains if full manhole reconstruction or replacement is performed as determined by the Department of Public Works.

2.5.5. All force mains shall be at a minimum HDPE SDR-21 made with fully restrained connections or equal. Piping pressure ratings shall be at least two (2) times the operating pressure of the system.

2.5.6. Force main discharge shall be directed into the channel in the direction of gravity flow.

2.5.2.6. BUILDING SEWER LATERALS

2.5.1.2.6.1. Construction of building sewers and drains shall conform to Chapter 24 (Sewers) of the City Code of Ordinance.

2.5.2.2.6.2. All building sewer laterals shall have a minimum diameter of four inch (4") and a minimum slope of one eighth inch per foot (1/8 in/ft) installed, as shown in Figure II-12.

2.5.3.2.6.3. Typical Pipe Installation: Where a building sewer lateral is to be installed from the sewer main in the street to a property or building to be served, the lateral shall either extend to the building or to the street line of each lot to be served and the pipe shall be capped air-tight.

2.5.4.2.6.4. An accurate record of each building sewer, its location and its depth at the street line shall be kept by the developer's engineer and a copy of the same shall be provided to the City Engineer Department of Public Works.

2.5.5.2.6.5. For new construction, tThe location of the building sewer at the street line shall be physically marked by the placement of a two inch by four inch (2" x 4") wooden stake placed at the end of the lateral end-cap and extending one foot above finished grade.

2.5.6.2.6.6. Each stake shall be painted with a fluorescent paint and marked as storm or sanitary sewer with the depth indicated from grade to end-cap. A one quarter inch (¼") thick by six inch (6") square ferrous metal plate or equivalent shall be placed horizontally one foot below grade over the end of the storm drain.

2.5.7.2.6.7. Building sewers and drains shall be connected to the main sanitary sewer line by the use of wyes, tee/gyes, Inserta-Tees or similar approved methods as determined by the Department of Public ~~Services~~ Works. A manhole shall be installed at the sewer main to connect building laterals when the building lateral is eight inches (8") or larger in diameter. The lateral connections shall be installed from the main toward the lot where possible. Inserta-Tees can be

installed on pipes when the main receiving pipe is at least twelve inches (12") in size and the lateral is not more than half the size of the main receiving pipe in order to use a coring tee-type connection.

2.6.8. Before connecting new pipes into an existing sewer line, the contractor shall obtain a sewer connection permit from the Department of Public ~~Services~~Works.

2.6.9. Accessory Dwelling Units (ADU) -sewer laterals

2.6.9.1. Per Chapter 24 of the City Code of Ordinance "A separate and independent building sewer shall be provided for every new building, and a separate connection shall be made for each building sewer." The Department of Public Works recognizes the following scenarios for the successful connection of the proposed ADU to the public sewer system. See Figure II-21 for additional information.

- The proposed ADU is connected to the primary residence. In this scenario, the ADU may be connected to the primary residence sewer lateral internal to the primary residence.
- The proposed ADU is a separate standalone building: In this scenario, a separate and independent sewer lateral will be provided from both buildings with independent connections to the sewer.
- The proposed ADU is a separate standalone building: In this scenario, a separate and independent sewer lateral will be provided from both buildings with a connection of the two laterals into a sewer manhole at the property line. The sewer manhole will be a minimum two-foot (2') size providing access to each sewer lateral. The sewer manhole may be placed on the existing sewer lateral from the primary residence with the ADU sewer lateral being fed into it.

~~2.5.8.2.6.10.~~ Backflow Protection: Fixtures installed on a floor level that is lower than the next upstream manhole cover of the public, or private sewer shall be protected from backflow of sewage by installing an approved type of backwater valve. Fixtures on such floor level that are not below the next upstream manhole cover shall not be required to be protected by a backwater valve. Fixtures on floor levels above such elevation shall not discharge through the backwater valve. Cleanouts for drains that pass through a backwater valve shall be clearly identified with a permanent label stating "backwater valve downstream." All new laterals connecting to a combined sewer system shall have a Backflow Prevention Valve. The valve shall be installed to assure easy access and maintenance. When a Backflow Valve is installed, it is imperative that introduction of rain water, non-contact cooling water, groundwater from foundation drains, sump pumps, surface drains or any other sources of inflow

~~not be allowed on the building side of the valve.~~

~~2.5.9.2.6.11.~~ All building floor drains shall discharge to the sanitary sewer system.

~~2.5.10.2.6.12.~~ Plugging of Abandoned Sewer Laterals: Prior to abandoning any storm water or sanitary sewer lateral, the applicant shall acquire a permit from the Department of Public Works. The applicant shall provide a 48 hour notice to the Public Works Dispatch stating the date and time the applicant wished to complete the work. The ~~Water Resources Sewer Maintenance Division will mobilize to the site and allow one hour to assist the applicant to plug the lateral in the following manner. The location of the lateral to be plugged shall be televised by the applicant and witnessed by Water Resources staff~~ City staff will televise the sewer main in the street on site to determine the location of the lateral to be plugged. The applicant shall excavate or other means plug the lateral at the main where the lateral connects to the street sewer, as determined by City staff. The lateral must be filled with pumped grout starting at the plug and filling out to the points of excavation.

2.7. STORM WATER MANHOLES

~~2.5.11.2.7.1.~~ Storm water manholes shall include frames and covers as shown in Figure II-05 or an approved equivalent. Both the frame and riser shall be machined to assure a proper fit.

~~2.7.2.~~ Manhole frames shall be raised to grade using only brick and mortar as shown in Figure II-042.

~~2.5.12.2.7.3.~~ Riser Rings without tabs as shown in Figure II-06 may ~~shall~~ be used to adjust manholes to grade with approval of the Department of Public Works. ~~Wastewater Maintenance Division.~~

~~2.5.13.2.7.4.~~ Manhole covers shall be marked "DRAIN".

~~2.5.14.2.7.5.~~ Steps are not required in storm manholes. Any structures delivered to the site with step "holes" shall be filled with mortar.

2.8. STORM DRAINS

2.8.1. The types of allowable pipe and fittings shall be used for purposes of storm drains:

- All pipes listed for sanitary sewers
- Reinforced Concrete Pipe (RCP) with a minimum strength of Class III;
- Smooth Bore High Performance Polypropylene Dual Wall Storm Drain Pipe. (ADS HP Storm or equal) meeting a minimum PS- 46.

2.8.2. Storm drain lateral may be connected into storm drain mains without the use

of a manhole when the lateral is less than half the diameter of the receiving pipe.

~~2.5.15.~~2.8.3. Minimum velocities of surface water drains shall not be less than three feet per second (3 ft/s).

~~2.5.16.~~2.8.4. Ribbed corrugated polyethylene pipe material, smooth wall interior, is not permitted except for underdrain installation. Underdrain diameter shall be no larger than six inches (6").

~~2.5.17.~~2.8.5. The classes of pipe indicated shall be minimums, however the actual class of pipe used shall be determined by soil weight and compaction loads applied to such pipe in accordance with standard engineering design criteria and subject to the approval of the Department of Public Works~~City Engineer~~.

2.8.6. Pre-fabricated tees are allowable on storm drains. A pre-fabricated tee connection shall be used and installed in accordance with manufacturer specifications.

2.8.7. Connection of catch basin/storm drain lateral leads to storm drain larger than eighteen inch (18") diameter may be performed with the use of a coring machine and suitable connection device. The connecting pipe shall not be more than half the size of the main receiving pipe in order to use a coring tee-type connection.

~~2.5.18.~~2.8.8. Underdrains shall be six inch (6") diameter perforated pipe SDR 35 PVC or corrugated ADPE with smooth interior wall (AASHTO M252 Type S). They shall have a minimum of two rows of perforations.

~~2.5.19. eighteen (18") not more than half the size of the main~~

2.6.2.9. CATCH BASINS

~~2.6.1.~~2.9.1. All catch basins and catch basin inlets shall be designed and constructed in accordance with Figures II-~~072~~ and THROUGH II-811.

~~2.6.2.~~2.9.2. Catch basin drain pipes of less than ten inches (10") in diameter are not permitted.

~~2.6.3. All catch basin drains shall be supplied, laid and bedded in a minimum of six inches (6") of crushed stone.~~

~~2.6.4.~~2.9.3. All catch basins shall have a four-foot (4') granite headstone of catch basin inlets conforming to City standards as shown in Figure II-11.

~~2.6.5.~~2.9.4. No radius catch basin stones shall be permitted.

~~2.6.6.~~2.9.5. All catch basins shall be constructed with a minimum sump of three feet (3').

~~2.6.7.~~2.9.6. Catch basins shall not be located in driveway openings.

~~2.6.8.2.9.7.~~ No storm drains or storm drain laterals ~~lines~~, with the exception of street field inlets and underdrains, shall be connected into a catch basin structure.

~~2.6.9.2.9.8.~~ Catch basin drains and catch basin inlet drain pipe slopes shall be such that minimum flow velocities shall not be less than three feet per second (3 ft/s).

2.9.9. Bee hive casting shall be used on drainage structures located at low points in grassed off road locations.

2.9.10. Field inlets or Type-F catch basins may be used when- outside of city street right of ways within lawn areas, with Department of Public Works approval. They must have a minimum of a twelve-inch (12") sump and can be plastic or concrete.

2.9.11. All catch basins are required to have a hood on the outlet pipe as shown in Figure II-09.

2.10. SUBSURFACE WASTEWATER DISPOSAL

~~2.6.10.2.10.1.~~ To ensure that adequate provisions have been made for subsurface wastewater disposal, developers are required to locate, design, and install all septic systems in accordance with the latest version of the Maine Subsurface Wastewater Disposal Rules, 144 CMR minimum 241, as described in Chapter 6, Section 6-18(A) of the City Code.

~~2.6.11.2.10.2.~~ Developers are required to obtain a permit through the City of Portland Inspections Division prior to the installation of any subsurface wastewater disposal system identified on an approved site plan.

2.11. GREASE INTERCEPTORS

2.11.1. Grease Control Equipment is required for all food establishments based on the City of Portland's Fats, Oils, and Grease Program found in the Rules and Regulations for Use of the Sewer System.

2.11.2. Concrete grease interceptors must have two chambers. Chamber A, where influent enters, must be two thirds (2/3)s of the tank volume.

2.11.3. Concrete grease interceptors must have three twenty-four-inch (24") access points.

2.11.4. Tank must be designed for H-20 traffic wheel load and a concrete strength of 5000 PSI at 28 days.

2.11.5. Joints must be sealed with butyl rubber joint sealant such as CS-102 Butyl Rubber Sealant.

2.11.6. Tees inside grease interceptors must be supported. Galvanized riser clamps on drops must be rodded to tank wall with galvanized fasteners six inch (6") below

service weight tee. Tees must be accessible via an unobstructed view for cleaning through top of grease interceptor.

2.6.12.2.11.7. High density polyethylene grease interceptors are accepted as an equivalent to concrete grease interceptors. Polyethylene units shall be properly anchored to prevent floatation.

2.6.13.2.11.8. A control manhole must be installed downstream of the interceptor before it enters the city sewer system. ~~Alternatively, a manhole must be installed at the connection to the sanitary sewer.~~

2.7.2.12. AGGREGATE SPECIFICATIONS

2.7.1.2.12.1. The provisions of Section 703 of the State of Maine Department of Transportation (MDOT) *Standard Specifications for Highways and Bridges* shall apply with the following additions and modifications:

2.7.2.2.12.2. 703.02 Coarse Aggregate for Concrete: Aggregates associated with roads and streets are specified in Section 1.8.

Designated Aggregate Size

	Percent Passing Sieve				
Sieve Size	2 in.	1½ in.	1 in.	¾ in.	½ in.
2 in.	95-100	100	-	-	-
1-1/2 in.	-	95-100	100	-	-
1 in.	50-70	-	90-100	100	-
3/4 in.	-	50-70	-	90-100	100
1/2 in.	15-30	-	25-60	-	90-100
3/8 in.	-	10-30	-	20-55	-
No. 4	0-5	0-5	0-10	0-10	0-15
F.M. (+0.20)	7.45	7.20	6.95	6.70	6.10

2.7.3.2.12.3. Aggregate used in concrete shall not exceed the following maximum designated sizes:

- Two inches (2") for mass concrete.
- One and half inch (1 ½") for piles, pile caps, footings, foundation mats, and walls eight inches (8") or more thick.
- Three quarters of an inch (¾") for slabs, beams, and girders.
- Half inch (1/2") for fireproofing on steel columns and beams.
- One inch (1") for all other concrete.

2.7.4.2.12.4. 703.06 (a) Aggregate Base: Aggregate base—crushed, type "B" shall not

~~contain particles of rock which will not pass the two inch (2") square mesh sieve, and shall conform to the type "B" aggregate, as listed in the subsection of the Standard Specifications. "Crushed" shall be defined as consisting of rock particles with at least fifty per cent (50%) of the portion retained on the one quarter inch (1/4") square mesh sieve, having a minimum of two (2) fracture faces.~~

~~2.7.5.2.12.5. 703.06 (b) Aggregate Subbase: Gravel subbase shall not contain particles of rock which will not pass the three inch (3") square mesh sieve, and shall conform to type "D" Aggregate, as listed in this subsection of the Standard Specifications.~~

<u>Gravel Aggregate Table</u>			
<u>Sieve Size</u>	<u>Type B</u>	<u>Type D</u>	<u>Type F</u>
<u>3 in.</u>	=	<u>100</u>	=
<u>2 in.</u>	<u>100</u>	=	=
<u>1 in.</u>	=	=	<u>100</u>
<u>1/2 in.</u>	<u>35-75</u>	=	=
<u>1/4 in.</u>	<u>25-60</u>	<u>25-70</u>	<u>60-100</u>
<u>No. 40</u>	<u>0-25</u>	<u>0-30</u>	<u>0-50</u>
<u>No. 200</u>	<u>0-5</u>	<u>0-7</u>	<u>0-7</u>

~~2.7.6.2.12.6. 703.18 Common Borrow:~~ Common borrow shall not contain any particle of bituminous material.

~~2.7.7.2.12.7. 703.19 Granular Borrow:~~ Granular borrow shall contain no particles which will not pass a three inch (3") square mesh sieve.

~~2.7.8.2.12.8. 703.20 Gravel Borrow:~~ Gravel borrow shall not contain particles of rock which will not pass three inch (3") square mesh sieve.

~~2.7.9.2.12.9. 703.313~~ Crushed Stone $\frac{3}{4}$ " for Pipe Bedding and Underdrain: "Crushed Stone" shall be defined as rock of uniform quality and shall consist of clean, angular fragments of quarried rock, free from soft disintegrated pieces or other objectionable matter. Crushed stone used as a bedding material for pipe and underdrain shall be uniformly graded and shall meet the follow gradations. The stone shall be free from vegetable matter, lumps or balls of clay, and other inappropriate substances.

Sieve Designation	<u>City of Portland</u> Percentage by Weight Passing Square Mesh Sieve
<u>1 inch</u>	<u>100</u>
$\frac{3}{4}$ inch	<u>90-100</u> 100
$\frac{3}{8}$ $\frac{1}{2}$ inch	<u>20-55</u>
$\frac{3}{8}$ inch	<u>0-15</u>
No. 4	<u>0-50</u> 10

For pipe sizes ~~42 inches and larger:~~

Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
1 $\frac{1}{4}$ inch	100
$\frac{3}{8}$ inch	20-55
No. 4	0-10

FIGURE II-01 = LIST OF DETAILS

FIGURE II-02 = PRECAST CONCRETE MANHOLE

FIGURE II-03 = TYPICAL INSIDE DROP MANHOLE

FIGURE II-04 = GENERAL NOTES FOR MANHOLES AND CATCH BASINS

FIGURE II-05 = CAST IRON MANHOLE COVER AND FRAME

FIGURE II-06 = MANHOLE RISER RING

FIGURE II-07 = PRECAST CONCRETE CATCH BASIN

FIGURE II-08 = CATCH BASIN FRAME AND GRATE

FIGURE II-09 = CATCH BASIN HOOD

FIGURE II-10 = TYPICAL PAVEMENT GRADING FOR CATCH BASIN INLETS

FIGURE II-11 = 4' GRANITE HEADSTONE FOR CATCH BASIN INLET

FIGURE II-12 = TYPICAL PIPE TRENCH INSTALLATION AND NOTES

FIGURE II-13 = PLASTIC PIPE CONNECTION METHODS 1 & 2

FIGURE II-14 = PLASTIC PIPE CONNECTION METHODS 3 & 4

FIGURE II-15 = MASONRY PLUG

FIGURE II-16 = TYPICAL EXISTING LATERAL CONNECTION

FIGURE II-17 = TYPICAL HOUSE LATERAL TEE/WYE CONNECTION

FIGURE II-18 = FORCE MAIN CONCRETE THRUST BLOCK PLACEMENT

FIGURE II-19 = EXTERNAL GREASE TRAP DESIGN

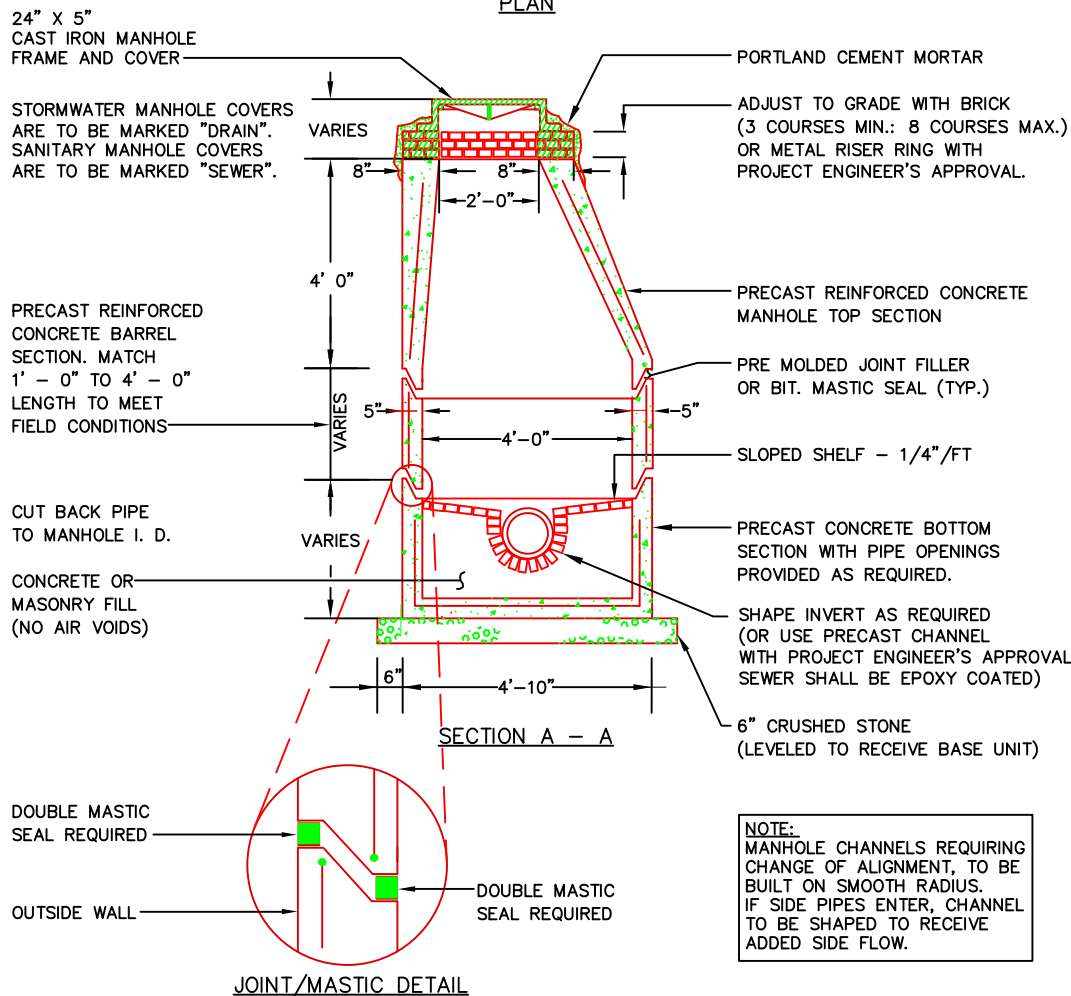
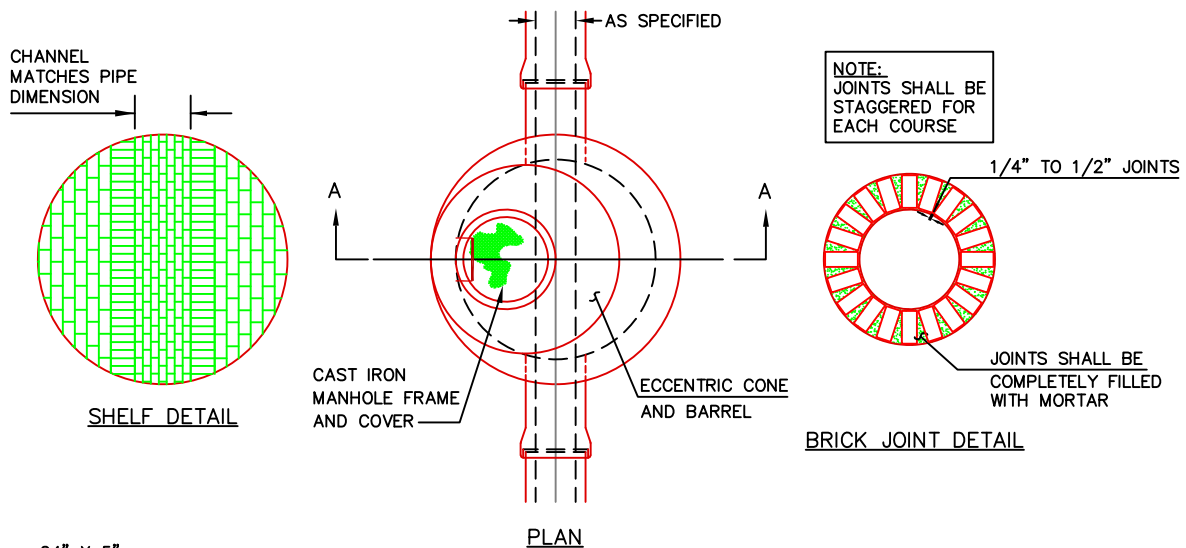
FIGURE II-20 = OIL / GRIT SEPARATOR

FIGURE II-21 = SEWER LINE CONFIGURATIONS FOR PRIMARY RESIDENCES
WITH AN ACCESSORY DWELLING UNIT

FIGURE II-22 = TYPE "B" UNDERDRAIN INSTALLATION ALTERNATIVE A

FIGURE II-23 = TYPE "B" UNDERDRAIN INSTALLATION ALTERNATIVE B

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REVISED:			II-1
LIST OF DETAILS			



PRECAST CONCRETE MANHOLE

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DATE:
DEC. 2009

REVISED:
DEC. 2021

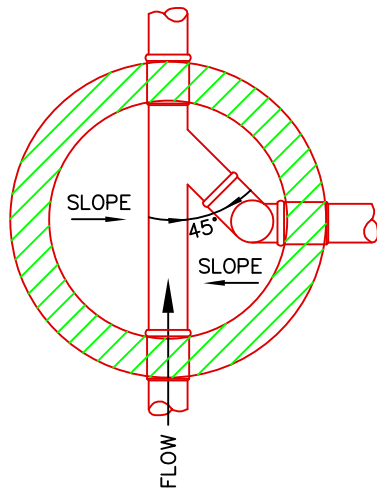
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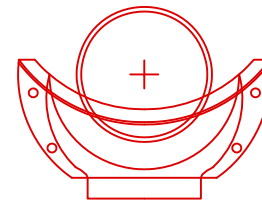
FIGURE:

II-2

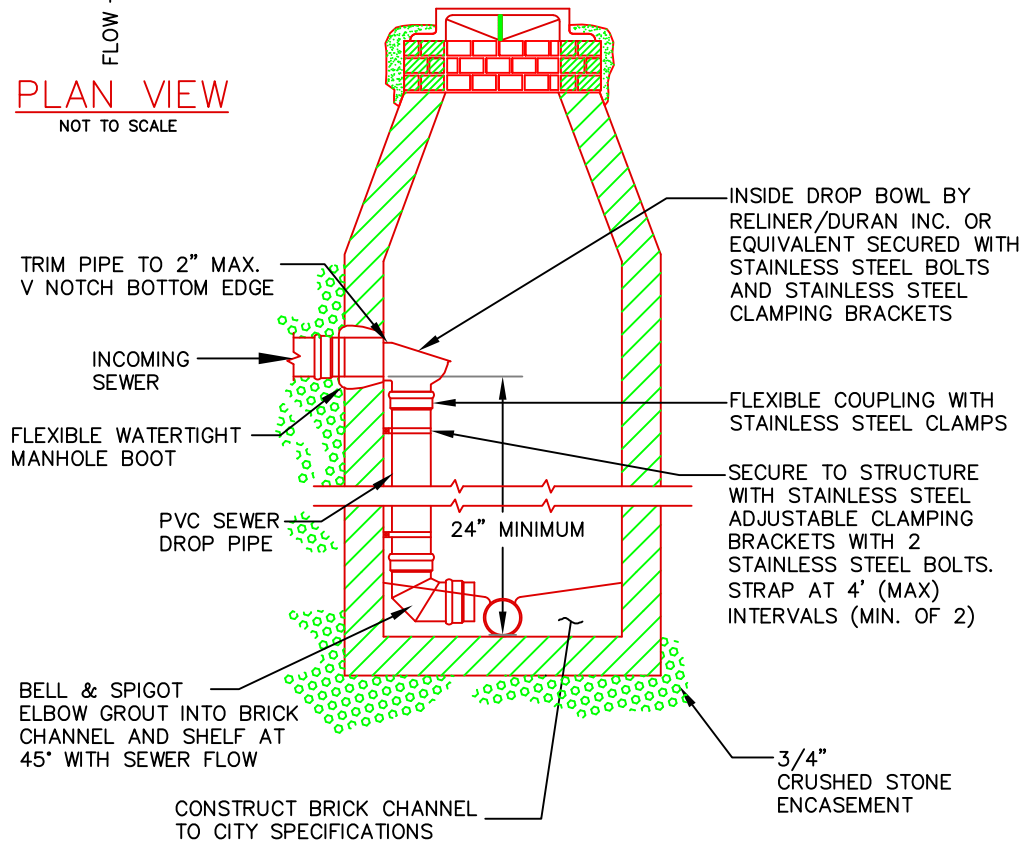
PRECAST CONCRETE MANHOLE



PLAN VIEW
NOT TO SCALE



**DROP BOWL
MOUNTING POSITION**
NOT TO SCALE



NOTES:

- 1) DROP MANHOLES ARE NOT REQUIRED FOR STORMWATER SYSTEMS.
- 2) MANHOLE MUST HAVE A MINIMUM DIAMETER OF 5' TO USE AN INSIDE DROP
- 3) ALL INSIDE DROP CONNECTIONS FOR SERVICES AND COLLECTOR SEWERS SHALL USE THE DROP BOWL AS SHOWN.

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**SANITARY SEWER AND STORM
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SECTION II

FIGURE:

II-3

TYPICAL INSIDE DROP MANHOLE

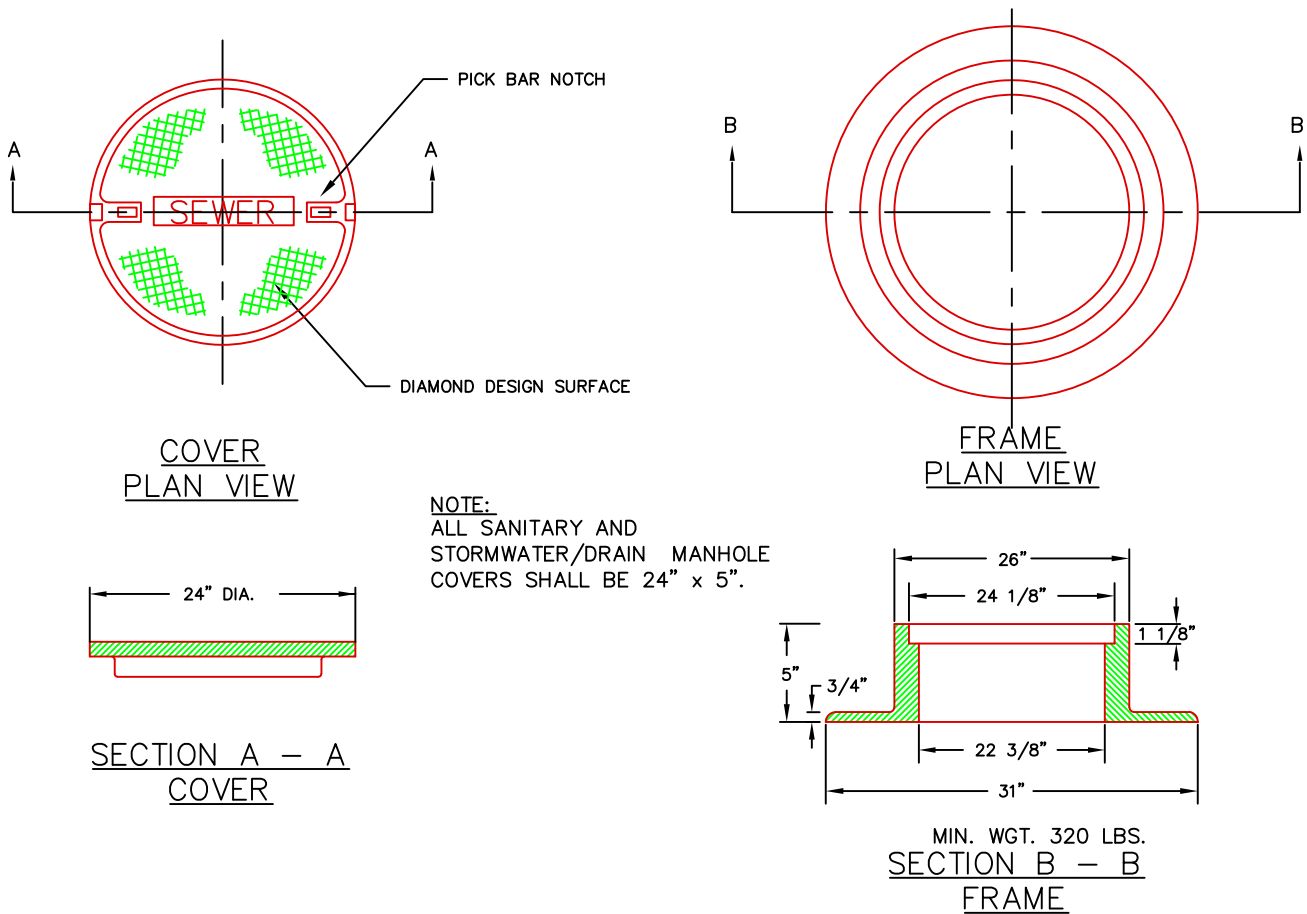
1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL PIPES ENTERING MANHOLES AND CATCH BASINS SHALL HAVE FLEXIBLE PIPE CONNECTIONS WITH STAINLESS STEEL BANDS. FILL ANY ANNUAL SPACE WITH NON SHRINK GROUT.
5. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID
6. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
8. INVERTS SHALL BE BUILT TO THE HEIGHT OF THE FOLLOWING AS DETERMINED BY THE LARGEST PIPE SIZE.
 - 8.1. FOR PIPE SIZES 4"-12" INVERTS SHALL GO TO THE TOP OF THE PIPE.
 - 8.2. FOR PIPE SIZES 15"-36" INVERTS SHALL GO TO THE SPRING LINE.
 - 8.3. FOR PIPE SIZES 42"-60" INVERTS SHALL GO TO THE 1/3 OF PIPE SIZE
9. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
12. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A HOOD / CASCO TRAP. SEE FIGURE II-09.
13. ALL MANHOLES AND CATCH BASINS REQUIRE BUOYANCY CALCULATIONS AND THE STRUCTURES SHALL BE MODIFIED AS NECESSARY BASED ON THOSE CALCULATIONS.

GENERAL NOTES FOR MANHOLES AND CATCH BASINS

DATE: MARCH 2019	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE:
REVISED: AUG 2022	GENERAL NOTES FOR MANHOLES AND CATCH BASINS		II-4

NOTES:

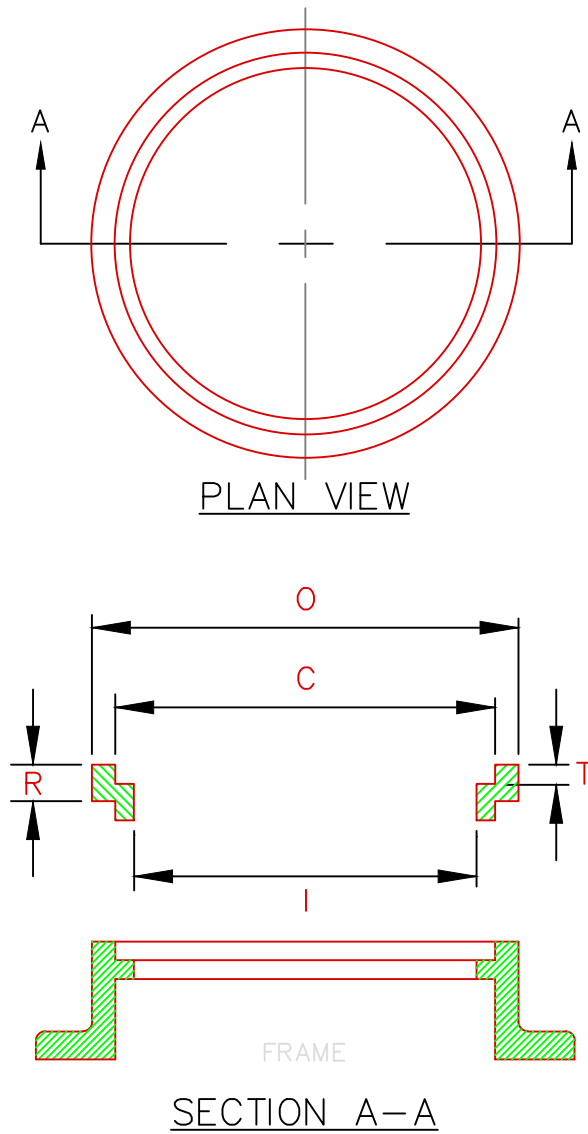
1. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
2. APPROVED MANHOLE FRAMES:
 - 2.1. EAST JORDAN = 1690Z
 - 2.2. NEENAH = R-1496
 - 2.3. OR APPROVED EQUAL
3. APPROVED MANHOLE COVERS
 - 3.1. EAST JORDAN = 2160A
 - 3.2. NEENAH = R-1496
 - 3.3. OR APPROVED EQUAL



CAST IRON MANHOLE COVER AND FRAME

NOT TO SCALE

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REVISED: DEC 2021	CAST IRON MANHOLE COVER AND FRAME		II-5



SIZE	C	R	T	O	I	Wt.
R241 1/2	24	1 1/2	1 1/8	26 1/4	22 1/2	60
R242	24	2	1 1/8	26 1/4	22 1/2	80
R242 1/2	24	2 1/2	1 1/8	26 1/4	22	100
R243	24	3	1 1/8	26 1/4	22	120

MANHOLE RISER RING

NOT TO SCALE

DATE:
DEC 2009
REVISED:

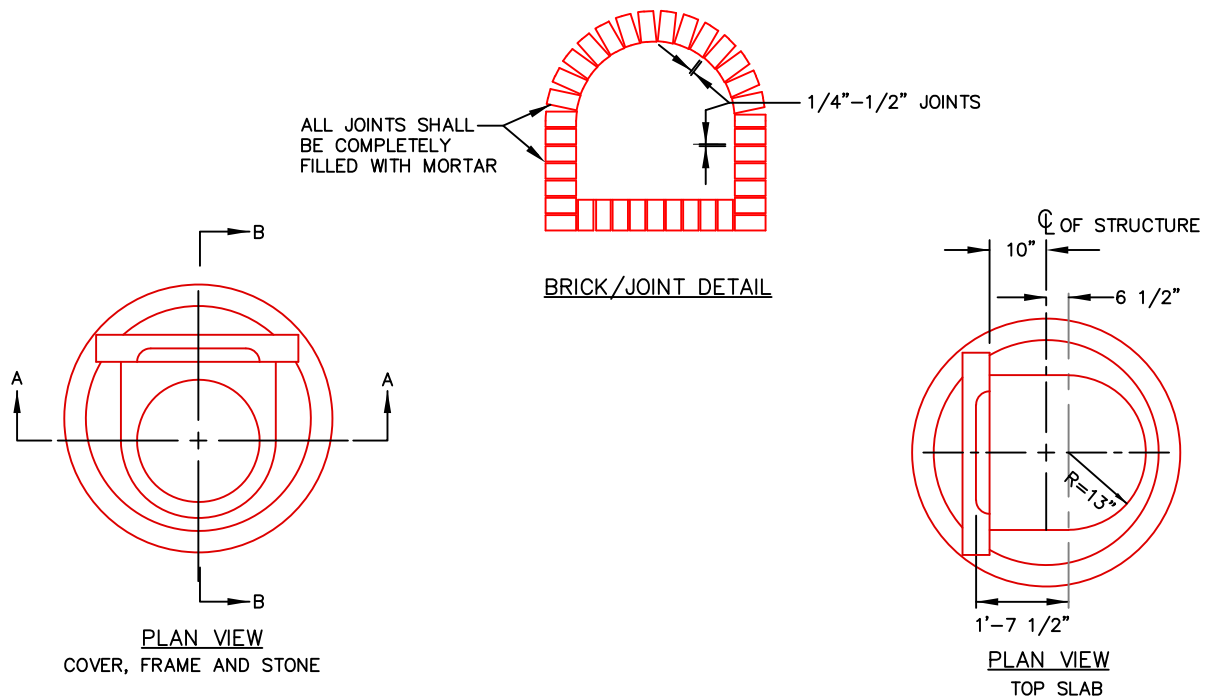
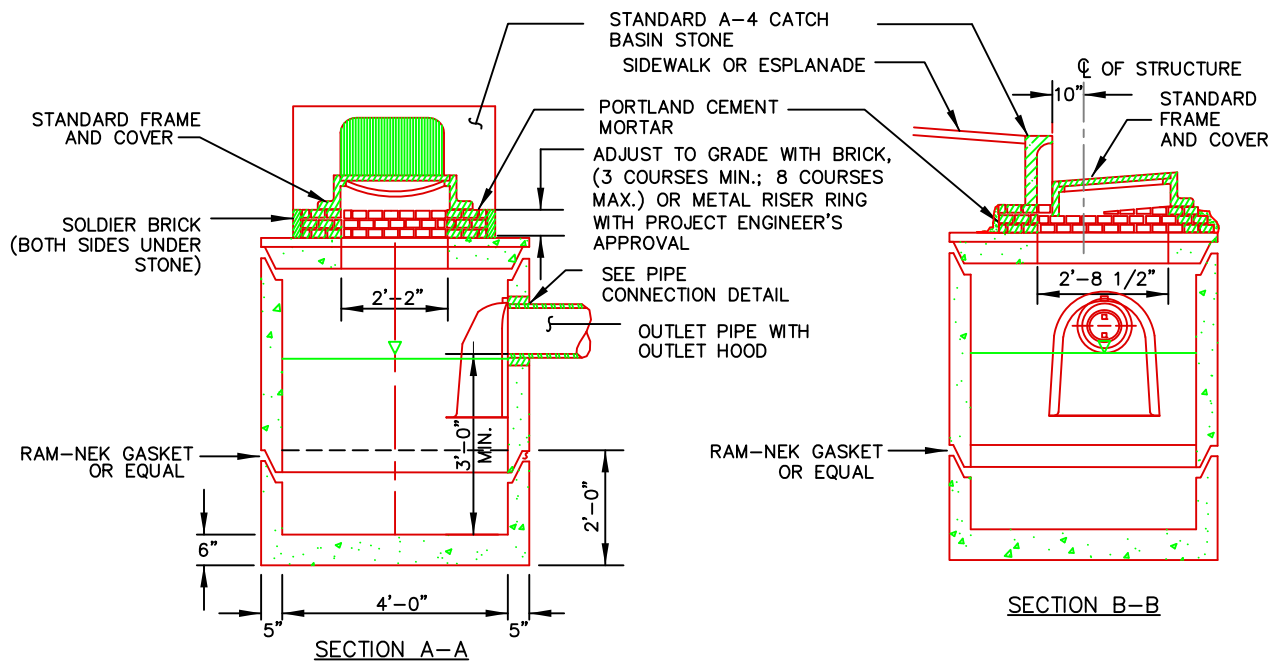
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SECTION II

MANHOLE RISER RING

FIGURE:

II-6



PRECAST CONCRETE CATCH BASIN – TYPE "E"
NOT TO SCALE

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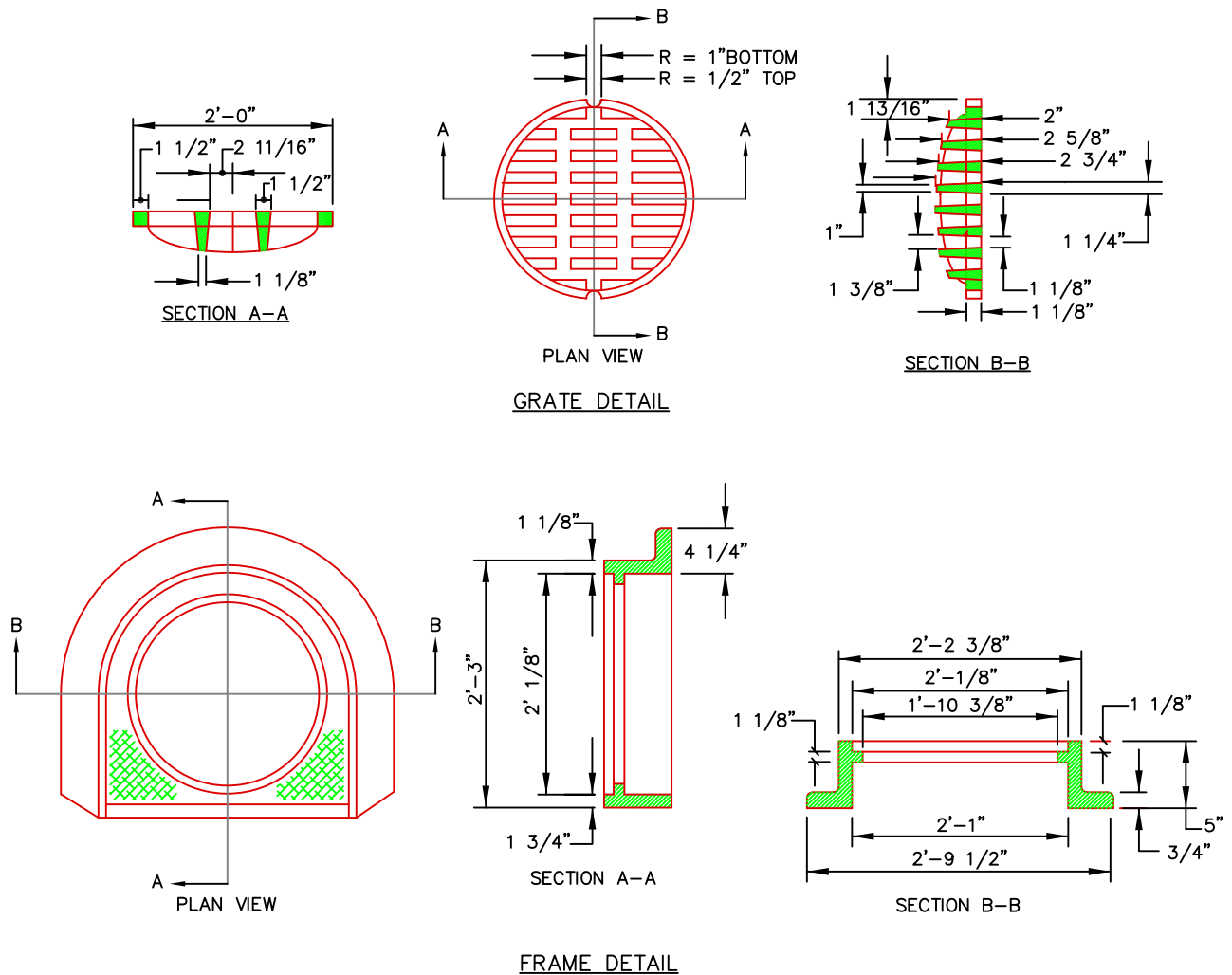
**SANITARY SEWER AND STORM
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PRECAST CONCRETE CATCH BASIN

FIGURE:

II-7

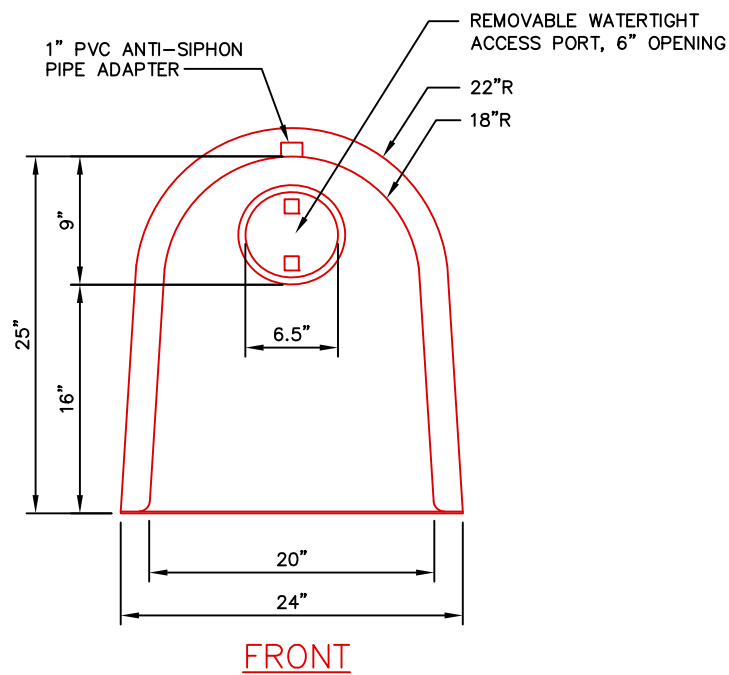
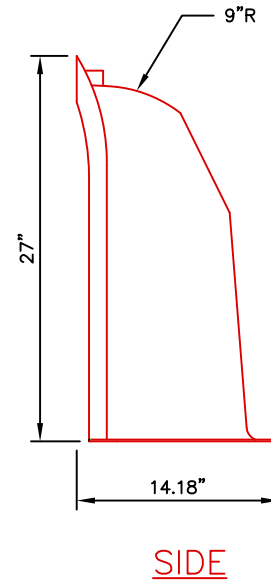
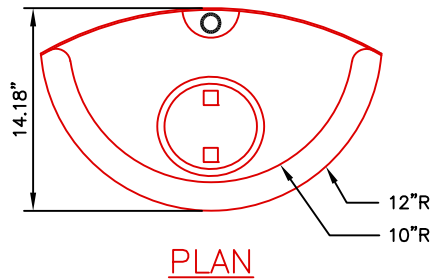
1. APPROVED CATCH BASIN FRAMES:
 - 1.1. EAST JORDAN = 7375Z
 - 1.2. NEENAH = R-3248
 - 1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
 - 2.1. EAST JORDAN = 2440M
 - 2.2. NEENAH = R-3248
 - 2.3. OR APPROVED EQUAL



CATCH BASIN FRAME & GRATE

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REVISED: DEC. 2021	CATCH BASIN FRAME AND GRATE		II-8

NOTE:
FOR USE ON CATCH BASIN OUTLET
18" IN DIAMETER AND LESS



CATCH BASIN HOOD
NOT TO SCALE

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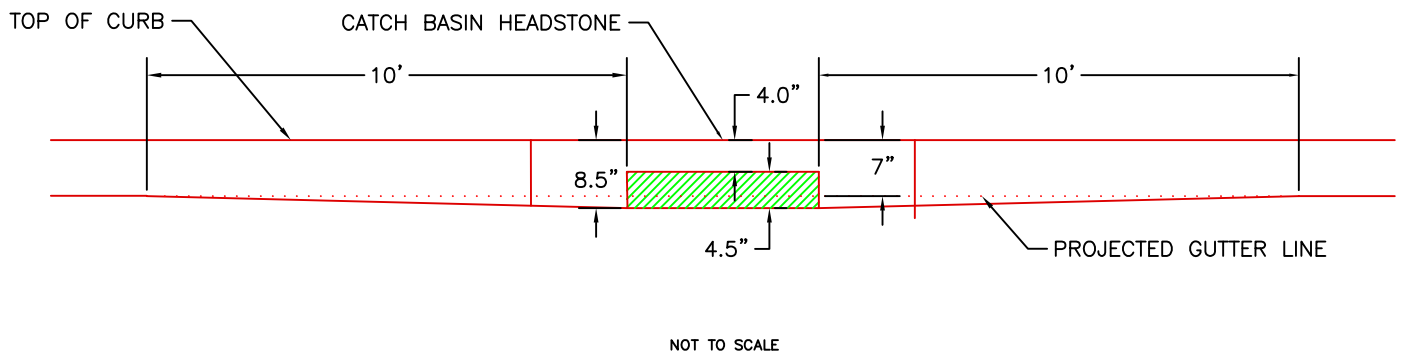
**SANITARY SEWER AND STORM
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FIGURE:

II-9

CATCH BASIN HOOD

NOTE:
DISH 10' EITHER SIDE OF HEADSTONE FOR
CATCH BASIN AT LOW POINT



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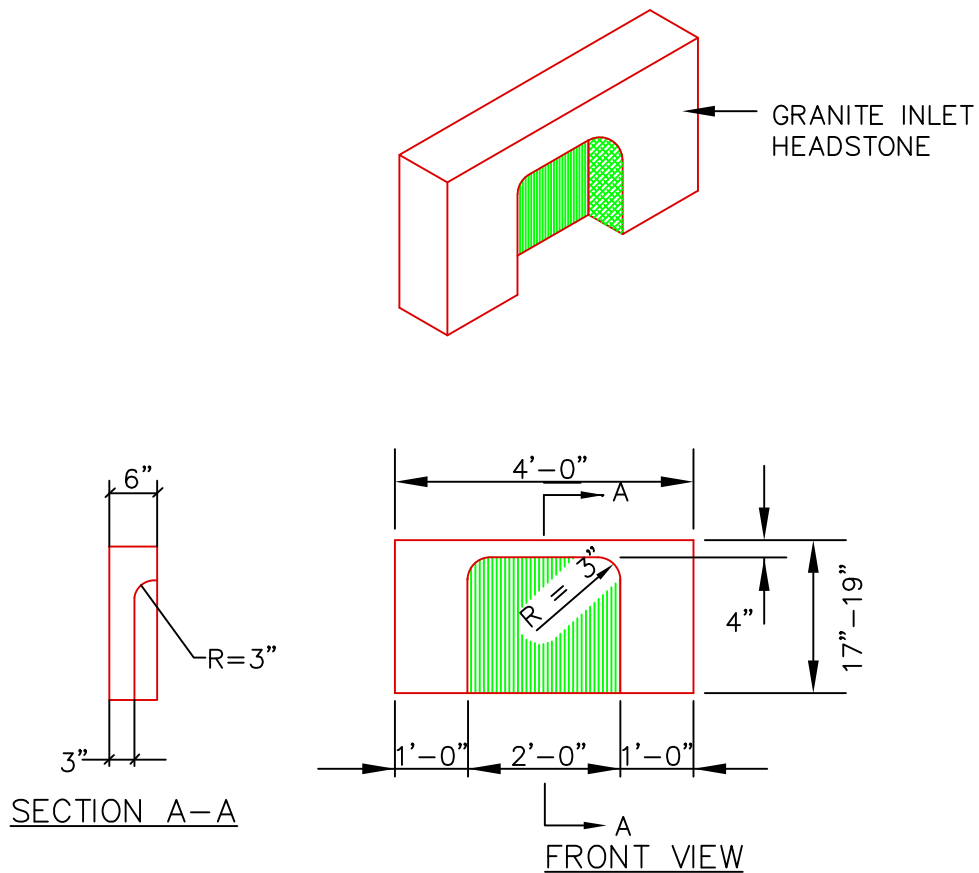
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**SANITARY SEWER AND STORM
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SECTION II

**TYPICAL PAVEMENT GRADING
FOR CATCH BASIN INLETS**

FIGURE:

II-10



4' GRANITE HEADSTONE FOR CATCH BASIN INLET

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4' GRANITE HEADSTONE FOR CATCH BASIN INLET

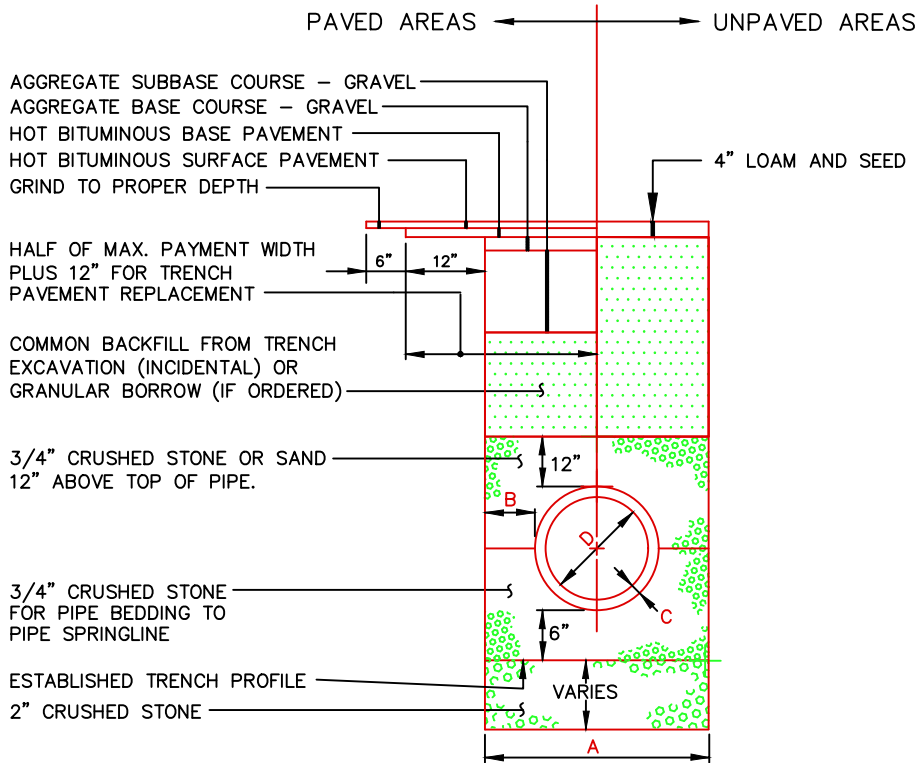
FIGURE:

II-11

NOTES:

DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES..



NOTES

1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. 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 DIMENSION **B** SHALL BE AT LEAST 9".
4. 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.

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36	6.0
42	7.0
48	7.0

TYPICAL PIPE TRENCH INSTALLATION

NOT TO SCALE

DATE:
AUGUST 2009

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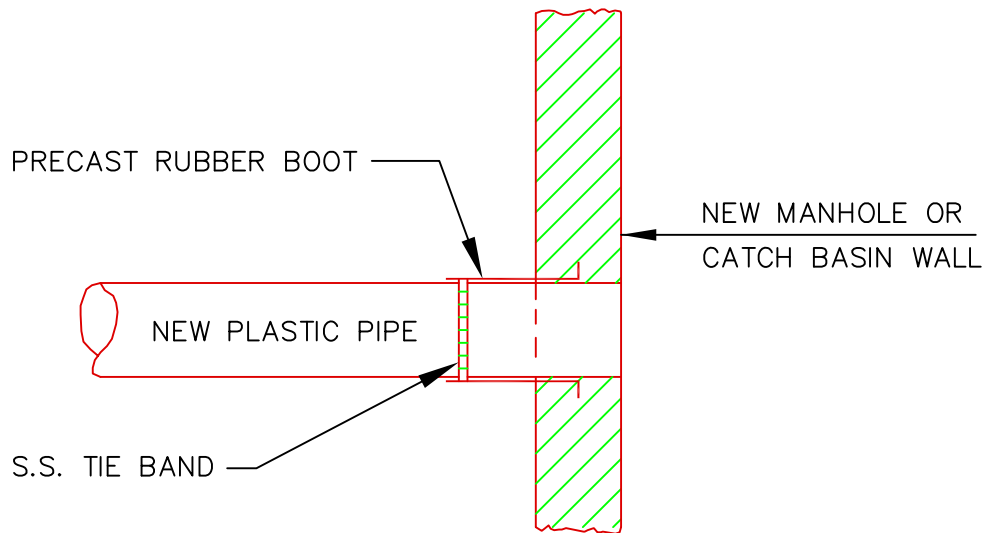
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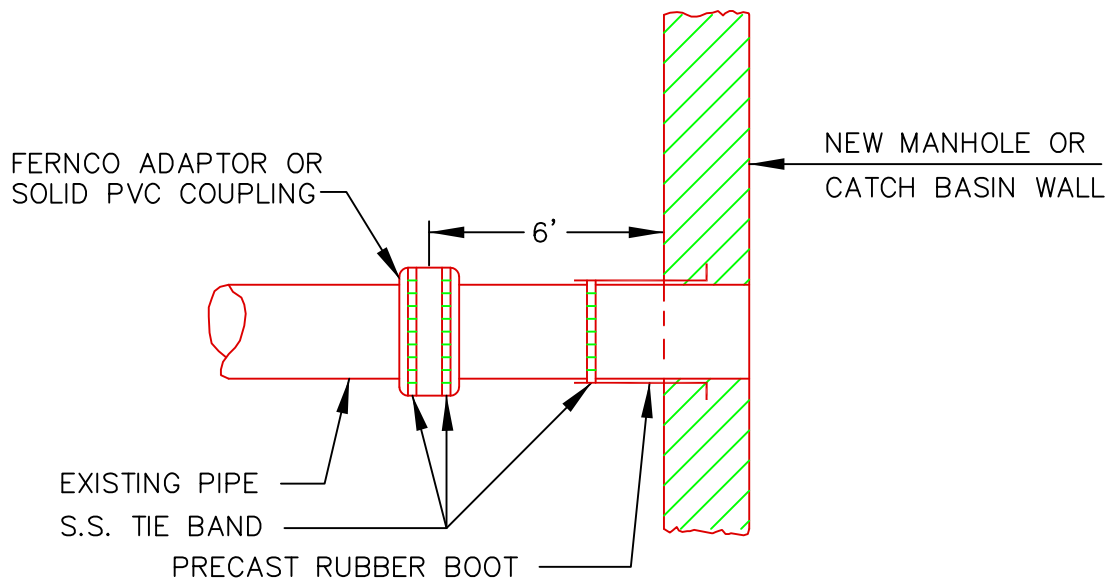
TYPICAL PIPE TRENCH INSTALLATION AND NOTES

FIGURE:

II-12



METHOD 2 – NEW CONSTRUCTION



METHOD 1 – EXISTING PIPE INTO NEW STRUCTURE

PLASTIC PIPE CONNECTIONS

NOT TO SCALE

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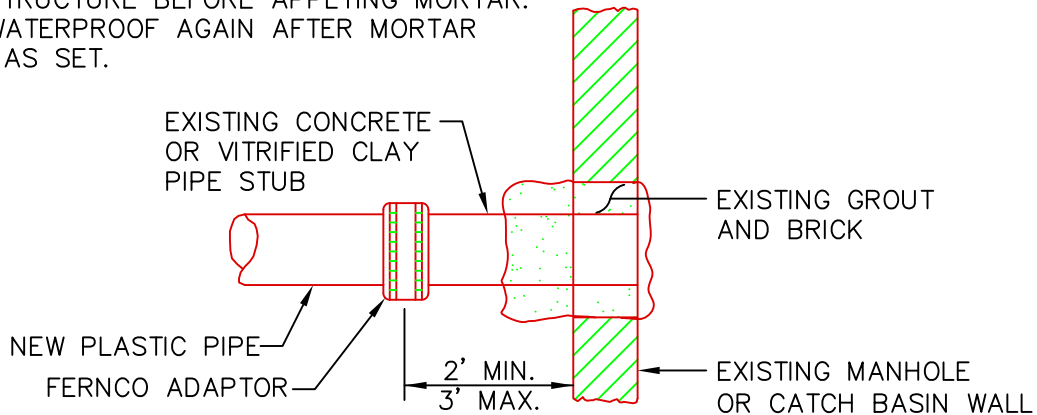
**SANITARY SEWER AND STORM
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FIGURE:

II-13

PLASTIC PIPE CONNECTION METHODS 1 & 2

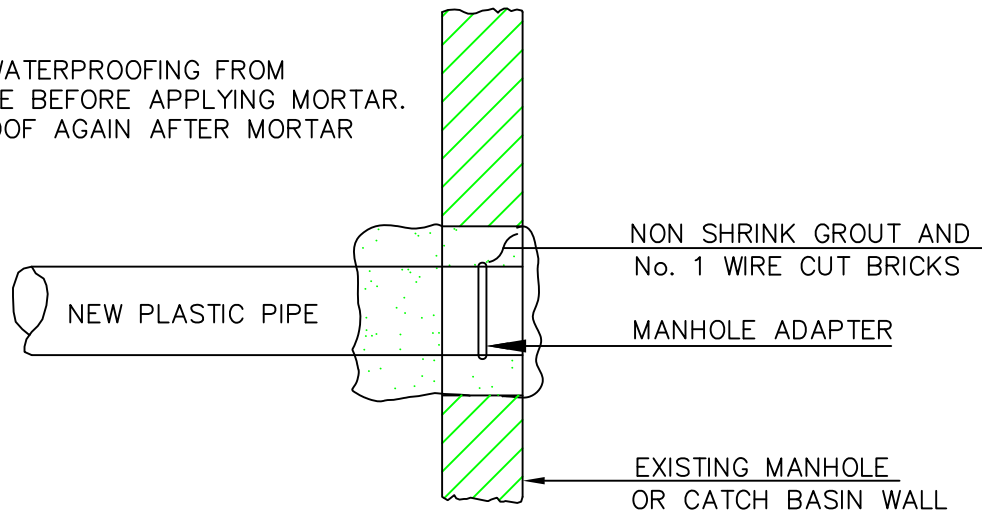
NOTE:
REMOVE WATERPROOFING FROM
STRUCTURE BEFORE APPLYING MORTAR.
WATERPROOF AGAIN AFTER MORTAR
HAS SET.



METHOD 4 – NEW PIPE TO EXISTING STRUCTURE STUB

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 SAW CUT THE STRUCTURE TO CREATE PIPE OPENING. THE NEW OPENING MUST THEN BE SEALED AND WATERTIGHT BOTH INSIDE AND OUTSIDE THE STRUCTURE.

NOTE:
REMOVE WATERPROOFING FROM
STRUCTURE BEFORE APPLYING MORTAR.
WATERPROOF AGAIN AFTER MORTAR
HAS SET.

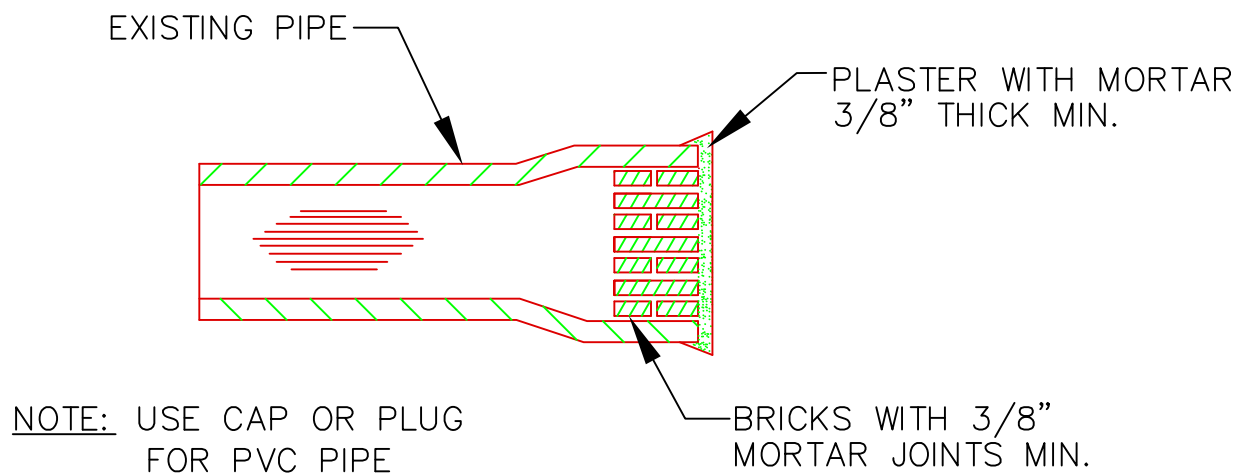


METHOD 3 – NEW PIPE INTO EXISTING STRUCTURE

PLASTIC PIPE CONNECTIONS

NOT TO SCALE

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REVISED:	PLASTIC PIPE CONNECTION METHODS 3 & 4		II-14



MASONRY PLUG

NOT TO SCALE

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FIGURE:

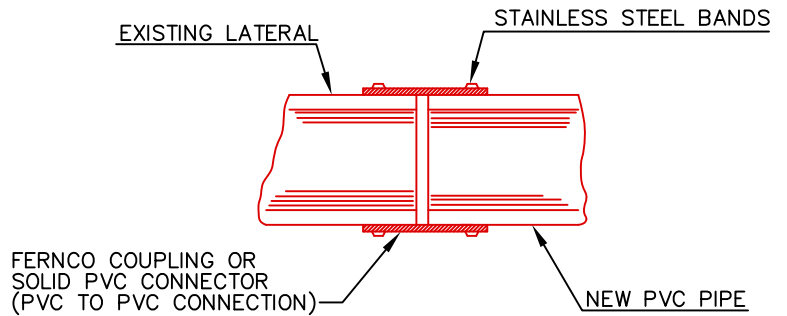
II-15

MASONRY PLUG

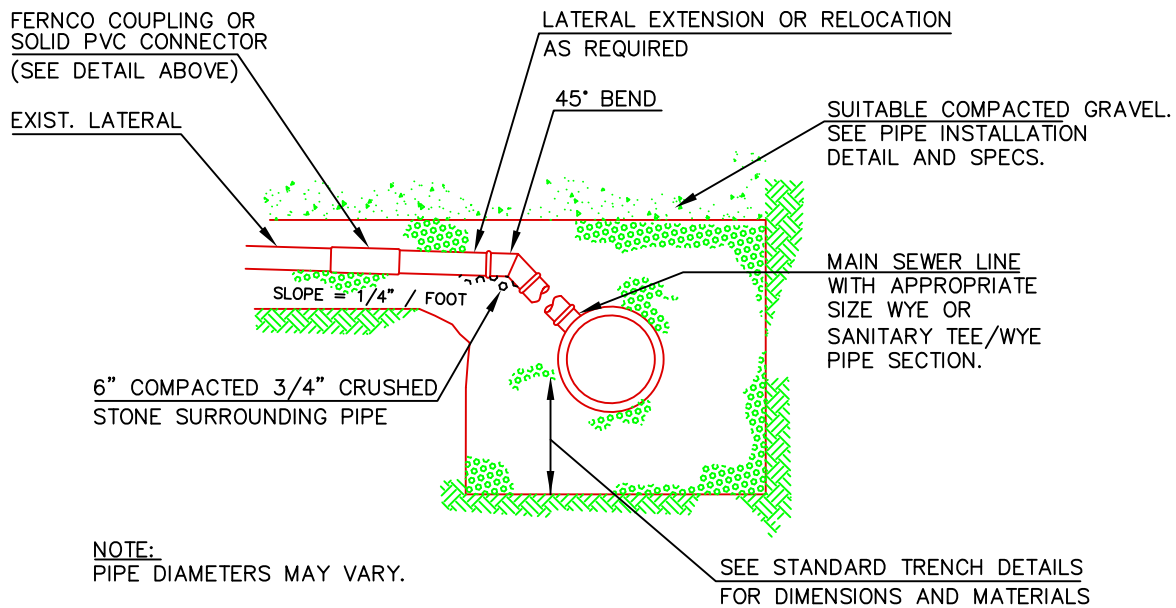
NOTE:

LOCATIONS AND ELEVATIONS OF STUBS SHOWN ON THE PLANS ARE TO BE CONSIDERED AS APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED TO SUIT FIELD CONDITIONS.

HOUSE CONNECTIONS AND CATCH BASINS CONNECTIONS TO THE MAIN LINE OF THE SEWER, SHALL CONSIST OF AN APPROPRIATE WYE BRANCH CONNECTION AS SHOWN ON THE PLANS, OR AS DIRECTED. ACTUAL WYE LOCATIONS FOR HOUSE CONNECTIONS AND CATCH BASIN CONNECTIONS SHALL BE DETERMINED DURING CONSTRUCTION. THE CONTRACTOR SHALL KEEP A COMPLETE RECORD OF WYE LOCATIONS WHICH SHALL BE GIVEN TO THE CITY OF PORTLAND UPON COMPLETION OF THE CONTRACT. ALL PVC TO PVC COUPLING SHALL BE "SOLID PVC COUPLINGS".



FERNCO COUPLING FOR REPAIR OR REPLACEMENT



SECTION

TYPICAL EXISTING LATERAL CONNECTION

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DRAIN DESIGN STANDARDS**
SECTION II

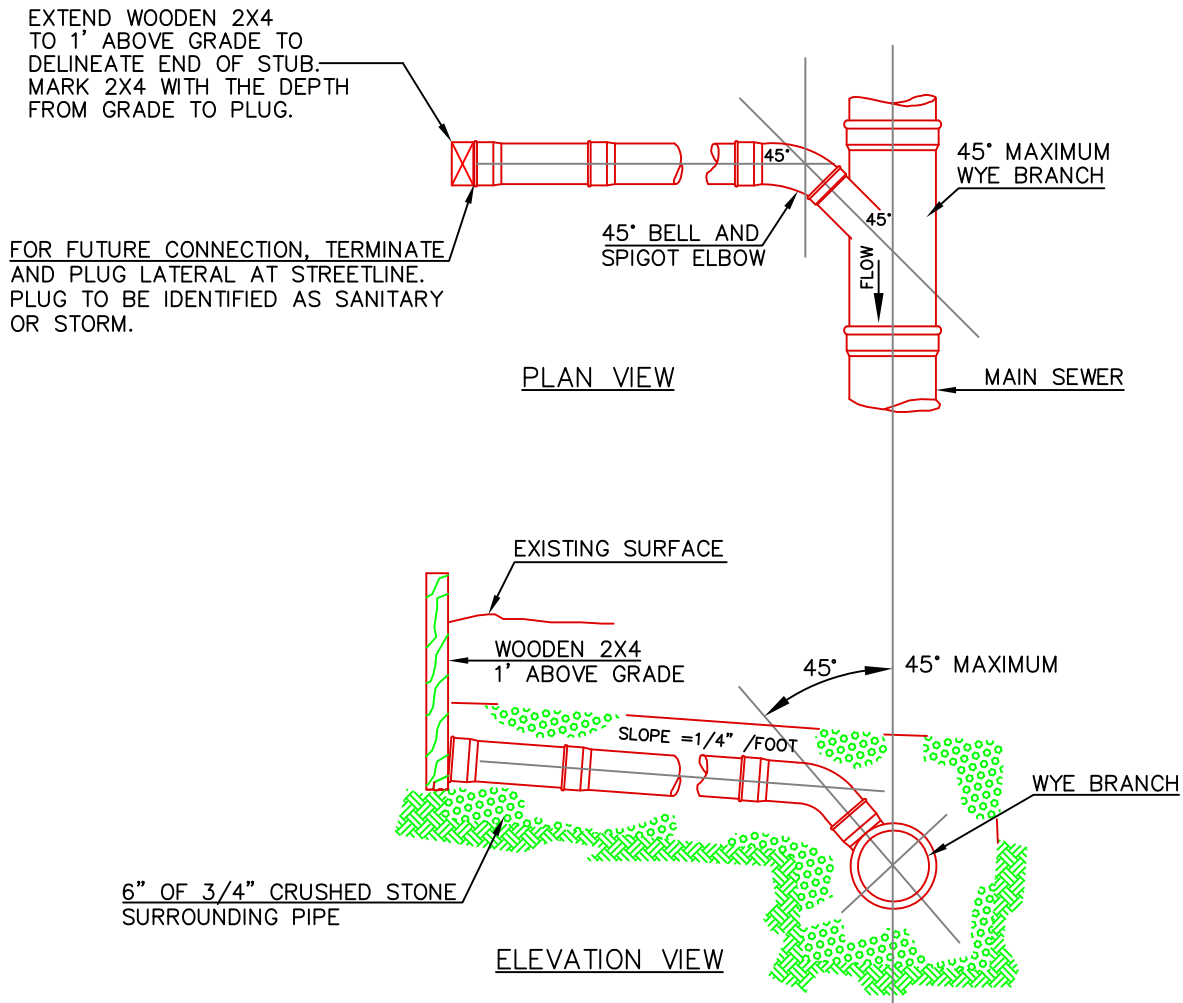
FIGURE:

II-16

TYPICAL EXISTING LATERAL CONNECTION

NOTE:

LOCATION / WARNING TAPE SHALL BE
INSTALLED OVER CENTERLINE OF PIPE AT A
MAXIMUM OF 24 INCHES BELOW FINISH GRADE.



TYPICAL HOUSE LATERAL TEE/WYE CONNECTION

NOT TO SCALE

DATE:
AUGUST 2009
REVISED:

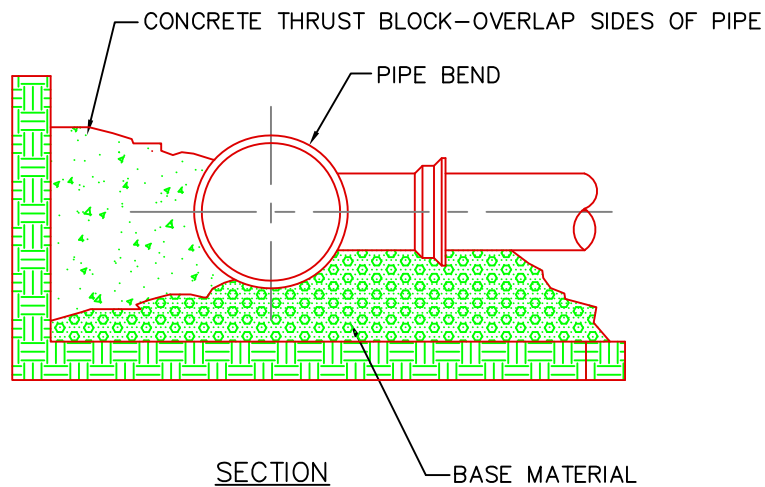
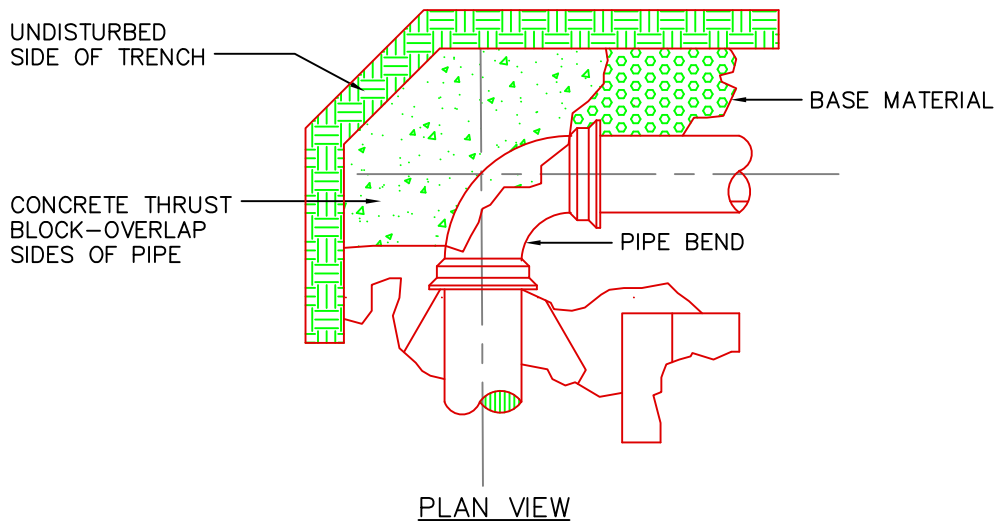
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-17

TYPICAL HOUSE LATERAL TEE/WYE CONNECTION



THRUST/RETAINER SCHEDULE		
1/4 BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK w/RETAINERS
1/8 BEND	(45°)	THRUST BLOCK w/RETAINERS
1/16 BEND	(22 1/2°)	THRUST BLOCK
1/32 BEND	(11 1/4°)	THRUST BLOCK

NOTE: KEEP CONCRETE LEAR OF PIPE JOINT, NUTS AND BOLTS

FORCE MAIN — CONCRETE THRUST BLOCK PLACEMENT ON VERTICAL & HORIZONTAL BENDS

NOT TO SCALE

DATE:
AUGUST 2009

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CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

II-18

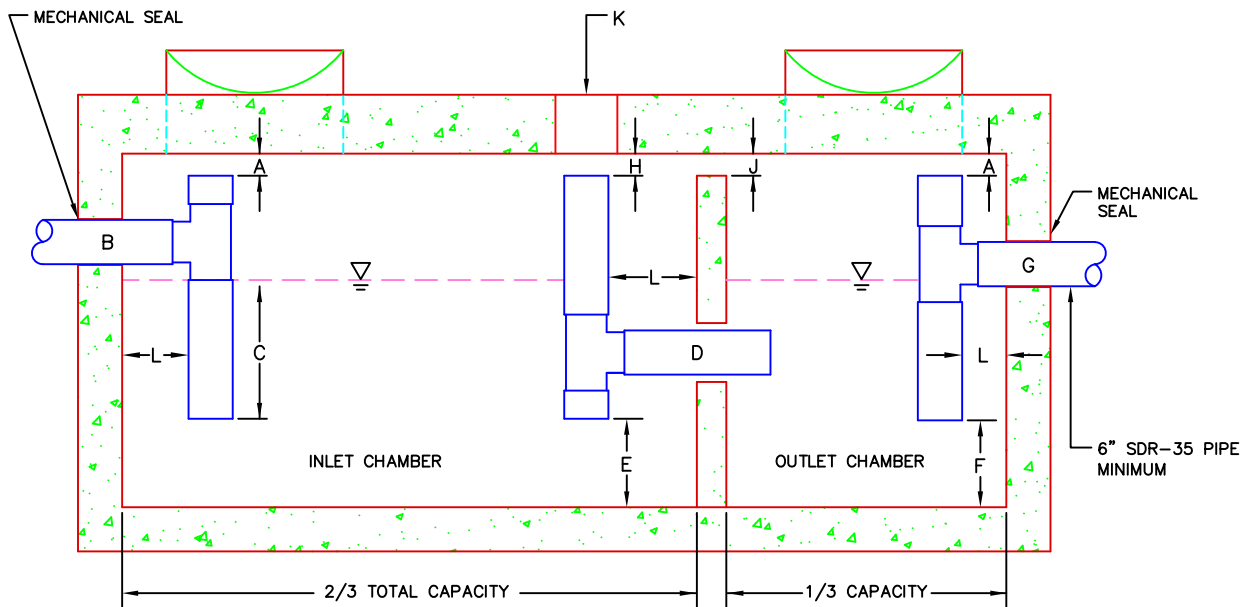
FORCE MAIN CONCRETE THRUST BLOCK PLACEMENT

1000 GALLON GREASE INTERCEPTOR:

- A) MINIMUM 6", BUT NOT LESS THAN PIPE DIAMETER.
- B) INLET PIPE INVERT TO BE 2 1/2" ABOVE LIQUID SURFACE.
- C) INLET PIPE TO TERMINATE 2/3 DEPTH OF WATER LEVEL.
- D) BAFFLE T
- E) 6" FROM FLOOR TO END OF BAFFLE PIPE.
- F) 6" FROM FLOOR TO END OF OUTLET PIPE.
- G) OUTLET PIPE NO SMALLER THAN INLET PIPE.
- H) TOP OF BAFFLE PIPE TERMINATES NO LOWER THAN BAFFLE HEIGHT.
- I) INLET CHAMBER IS $\frac{2}{3}$ TOTAL CAPACITY; OUTLET CHAMBER IS $\frac{1}{3}$ TOTAL CAPACITY.
- J) 6" MINIMUM DISTANCE FROM CEILING.
- K) MINIMUM 6" CLEANOUT.
- L) INLET AND OUTLET PIPES MUST BE SPACED SO THAT CLEAR ACCESS CAN BE MADE FROM MANHOLES.

THIS STRUCTURE MUST DISCHARGE TO A CITY OF PORTLAND STANDARD MANHOLE WITH CHANNEL AND MUST BE RATED.

DAILY PROCESS FLOW FROM THE FACILITY WITH NO SANITARY OR OTHER EXTRANEIOUS WASTES FLOWING THROUGH IT.

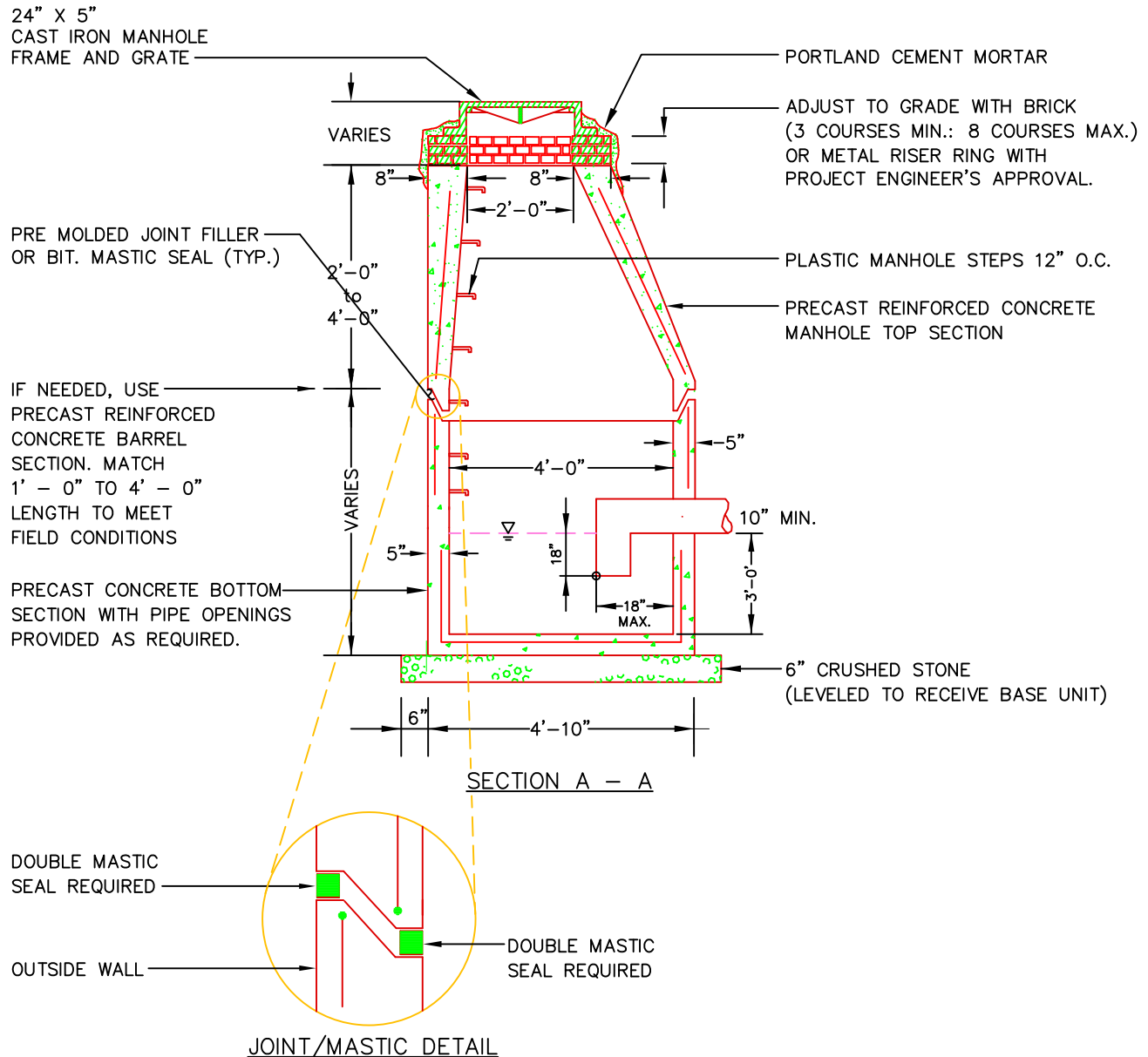


1000 GALLON GREASE INTERCEPTOR

DATE: APRIL 2014 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE: II-19
EXTERNAL GREASE TRAP DESIGN			

NOTES:

- FOR USE IN PARTIALLY OR TOTALLY ENCLOSED PARKING GARAGES, AUTOMOTIVE REPAIR FACILITIES OR ANY OTHER PROPOSED STRUCTURE WHERE DEEMED APPROPRIATE BY THE CITY ENGINEER.
- DISCHARGE SHALL BE TO SANITARY SEWER.
- A VENT PIPE MAY BE REQUIRED THAT HAS A VERTICAL OUTLET OFF TO THE SIDE OF THE STRUCTURE.



OIL / GRIT SEPARATOR

NOT TO SCALE

DATE:
FEB 2015

REVISED:
AUG 2022

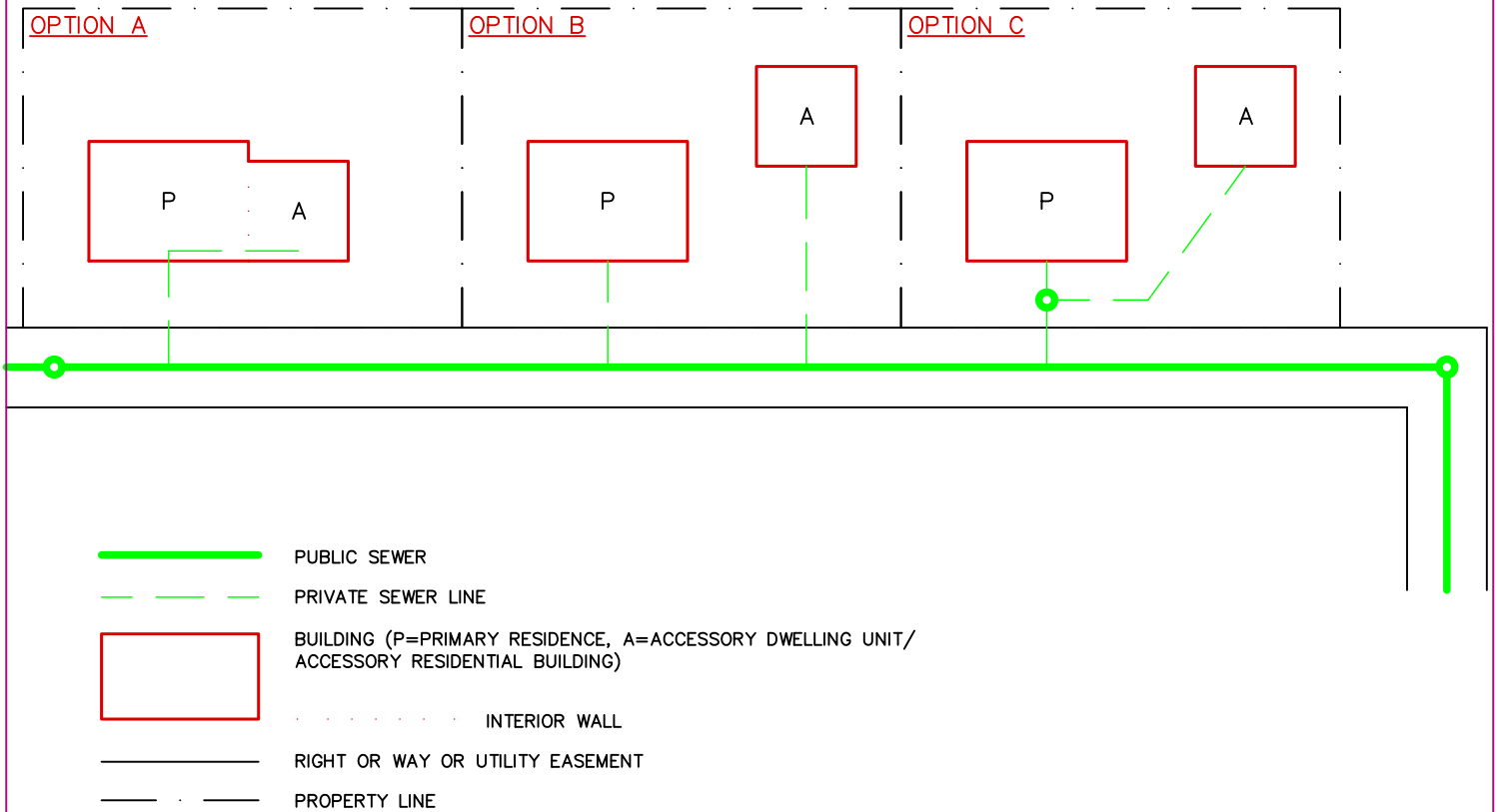
CITY OF PORTLAND, MAINE
TECHNICAL STANDARDS MANUAL

**SANITARY SEWER AND STORM
DRAIN DESIGN STANDARDS**
SECTION II

FIGURE:

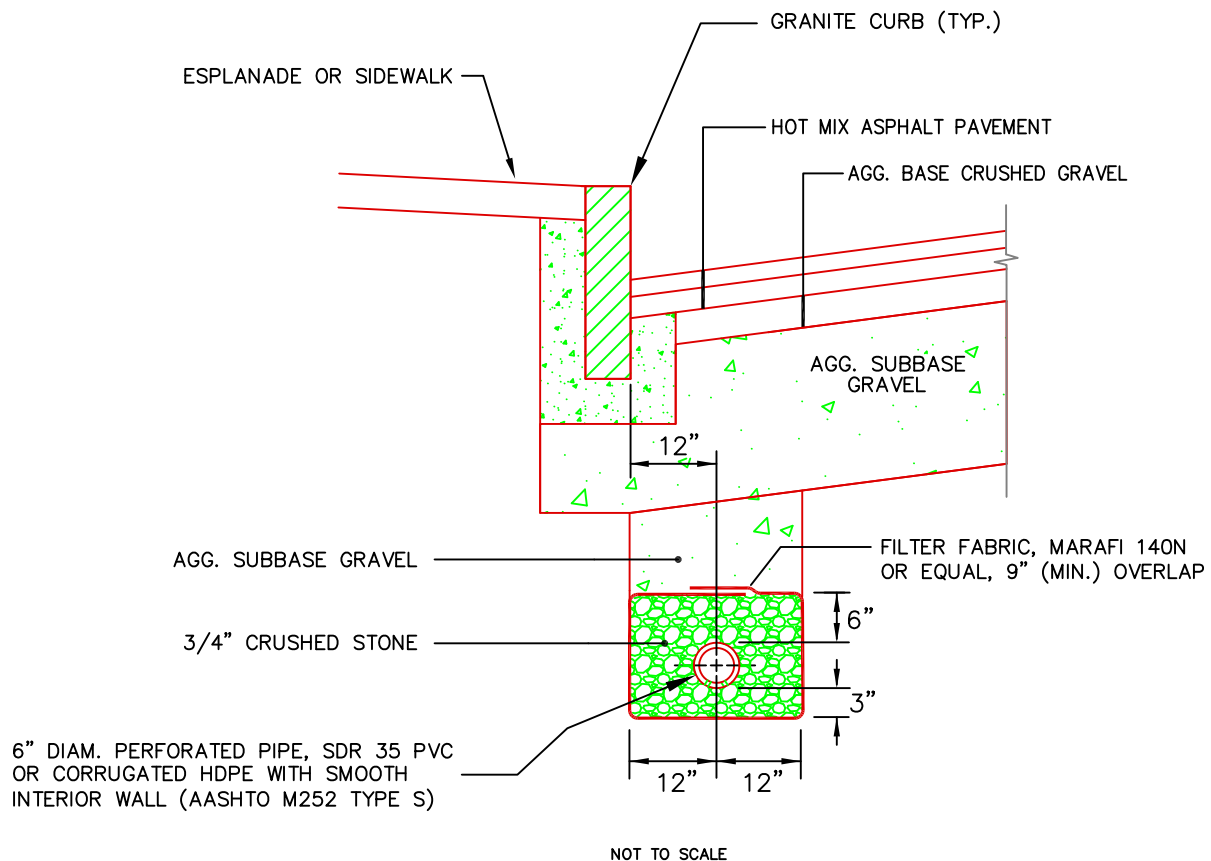
II-20

OIL / GRIT SEPARATOR



POTENTIAL SEWER LINE CONFIGURATION FOR PRIMARY RESIDENCES WITH AN ACCESSORY DWELLING UNIT
NOT TO SCALE

DATE: APRIL 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS SECTION II	FIGURE: II-21
	SEWER LINE CONFIGURATIONS FOR PRIMARY RESIDENCES WITH AN ACCESSORY DWELLING UNIT		



NOTES

1. UNDERDRAIN PIPE INVERT ELEVATIONS SHALL BE AT LEAST 42 INCHES BELOW GUTTER GRADES.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.

DATE:
AUGUST 2009

REVISED:
AUG 2022

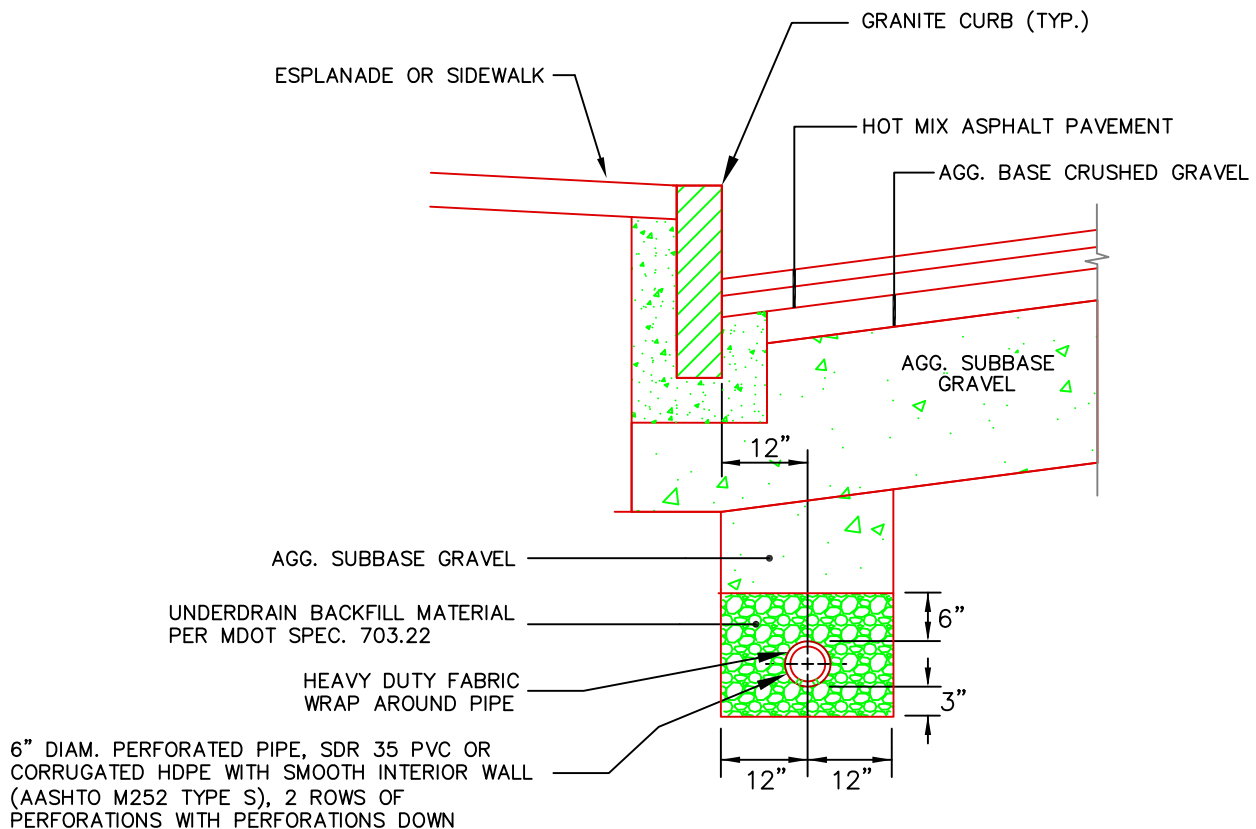
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**SANITARY SEWER AND STORM
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SECTION II

FIGURE:

II-22

**TYPE "B" UNDERDRAIN INSTALLATION
ALTERNATIVE A**



NOTES

1. UNDERDRAIN PIPE INVERT ELEVATIONS SHALL BE AT LEAST 42 INCHES BELOW GUTTER GRADES.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN. THE PIPE SHALL BE FURNISHED WITH A HEAVY DUTY FABRIC WRAP, SUCH AS "FILTER SOCK" BY ADS.

DATE:
AUGUST 2009

REVISED:
AUG 2022

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**SANITARY SEWER AND STORM
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SECTION II

**TYPE "B" UNDERDRAIN INSTALLATION
ALTERNATIVE B**

FIGURE:

II-23

4. LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS

4.1. DEFINITIONS

Feature mature tree: A tree located on privately owned property that meets at least one of the following criteria:

- 1.) Any tree that is on the Register of Big Trees promulgated by the Maine Department of Agriculture, Conservation & Forestry (the "Big Tree List")
- 2.) Certain trees 24" in diameter or greater (diameter at breast height or DBH) as identified by the City Arborist
- 3.) Ornamental trees 12" in diameter or greater (diameter at breast height or DBH) as identified by the City Arborist
- 4.) Rare tree specimen to include either a tree species classified as rare or endangered at either the state or federal level, and/or included in the most current version of the Maine Register of Big Trees, published by the Maine Department of Conservation, and/or stands of native trees that are rare or threatened as identified by the City Arborist.

Rare tree specimen: A tree that is (1) of a species classified as rare or endangered at either the state or federal level and/or (2) included in the most current version of the Maine Register of Big Trees, published by the Maine Department of Conservation.

4.2. PRESERVATION OF SIGNIFICANT SITE FEATURES

The applicant shall clearly identify all significant natural features on the site, as defined in Article 14 of the Land Use Code, on the submitted boundary survey and site plan, and shall clarify the proposed measures for the preservation and protection of all such features both during and after construction.

4.3. PRESERVATION OF EXISTING VEGETATION

- 4.3.1. The applicant shall provide a tree survey performed by a licensed land surveyor, arborist, forester, or landscape architect. The tree survey shall clearly indicate forest type and the location, size and species of all existing trees 10" diameter at breast height (DBH) or greater on the site and in the right-of-way, and all feature mature trees on the site and in the right-of-way. For sites with a high density of existing trees, the survey shall identify all existing shade and ornamental trees that may have been part of a prior landscape scheme for the site and the location, average size and species of groves of trees, and individual trees greater than 16" DBH.

- 4.3.2. Trees or groups of trees to be preserved shall be inspected and approved by

the City Arborist or their designee and shall be clearly identified on the Site Plan, Subdivision Plat, Landscape Plan and Grading Plan. Where required by the reviewing authority, property deeds shall include language and plans to help ensure that current and future landowners are aware of all preservation requirements tied to the property. ~~The grading plan shall clearly indicate any proposed grade changes within the drip line of trees designated for preservation.~~

4.3.3. Tree Preservation efforts shall include post~~ed signs clearly identifying theing of~~ 'Tree Protection Zones' or 'Limit of Work Zones' ~~in the form of obvious signage.~~

4.3.4. Fencing or other protective barriers and signage shall be erected outside the drip line of individual, groupings of or perimeter trees to be preserved.

- No storage of construction equipment, digging, trenching or other soil disturbance shall be permitted within the drip-line of trees to be preserved.
- Areas of trees or other vegetation to be preserved shall not be used for temporary stormwater runoff storage during construction.
- Protective barriers and signage shall remain in place until completion of the project.

During the pre-construction meeting and prior to the onset of any construction including site work, the Department of Public WorksServices or their designee shall inspect all installed protective barriers.

4.3.5. Tree preservation locations and measures to protect preserved vegetation shall be identified or noted in detail on the Landscape Plan and cross-referenced on the Site Plan, Subdivision Plat and Grading Plan.

4.3.6. Upon completion of the project, plant material that has been designated for preservation shall be subject to the maintenance and inspection requirements outlined in this section. Preserved vegetation ~~and new plantings~~ that show signs of construction damage within a one year period following construction, including but not limited to bark damage or excessive root damage, grade changes other than those originally indicated in the approved grading plan, soil compaction due to heavy equipment traversing closely, or general decline due to mechanical or natural conditions shall be rejected and must be replaced prior to the release of any defect guarantee. Any rejected tree will be subject to the following replacement requirements:

- For every existing tree rejected that is between 10" and 156" in caliper DBH, one (1) replacement tree listed on the City of Portland approved native species list (Figure IV-1) shall be planted on the site.

- For every existing tree rejected that is 16" or more in caliper DBH, two (2) replacement trees listed on the City of Portland approved ~~native species~~ list ([Figure IV-1](#)) shall be planted on the site.
- ~~For every existing tree rejected that is between 10" and 15" in caliper DBH, one (1) replacement tree listed on the City of Portland approved native species list shall be planted on the site.~~

4.3.7. The developer shall be responsible for making all contractors aware of preservation requirements prior to any construction activities. See ~~specification~~[Figure](#) IV-2 for typical tree preservation detail.

[4.3.8 Where a waiver is requested under the landscape preservation standards of the land use code and planting of replacement trees is not feasible, financial contributions proportionate to the cost of required replacement trees shall be as indicated below.](#)

Contribution per required replacement tree	\$400.00
Contribution per existing feature mature tree removed*	\$100.00 per inch diameter
Contribution where applicant plants a tree to replace feature mature tree*	\$100.00 per inch diameter of removed existing feature mature tree less \$400.00

[*In cases of removal of a feature mature tree, these contribution amounts supersede the base replacement tree fee of \\$400.](#)

4.4. Reserved.

4.5. SITE LANDSCAPING

4.5.1. All Landscape Design

Site landscaping should ~~establish result in~~ attractive, low-maintenance outdoor spaces that incorporate site definition and screening and ~~be selected to achieve one or more of the following outcomes; promote a healthy and biodiverse urban ecosystem, further City goals around climate resiliency and mitigation, create or enhance areas of native habitat, improve stormwater treatment, and/or increase local food production, support biodiversity.~~

4.5.2. Screening and Buffers

Where required, buffer areas shall be comprised of existing trees and vegetation, new landscaping or a combination thereof to create a dense, mixed buffer incorporating both understory and tree canopy layers. While primarily of benefit from a ground level pedestrian viewpoint, such screening should also effectively provide screening when viewed from upper floors of surrounding properties, where applicable. New shrubs shall be approximately three (3) feet in mature height and shall be spaced six (6) to eight (8)~~6-8~~ feet apart. ~~Specification~~Figure IV-3 provides an example of buffering between compatible uses.

Buffers between land uses: Buffers between contrasting land uses may incorporate earthen berms not exceeding 4:1 slope, opaque fencing of high architectural quality, masonry wall or a combination thereof, in addition to landscape plantings. Where fencing or masonry wall is proposed as part of a buffer, less landscaping density is acceptable; however, buffers shall still include trees, shrubs and other vegetation. Figure IV-7 provides an example of screening between different land uses.

Buffers between site components: Landscaped buffers within the site shall complement and enhance ~~and~~ structures and site amenities, provide screening between structures, and buffer undesirable views from general public areas, from existing structures and from residents of proposed units. Accessory site elements such as parking and loading areas, utility structures, dumpsters, storage areas and other hardscaped or unvegetated areas, shall be located and screened from view from public areas and adjacent properties. Screening shall be accomplished with opaque fencing of high architectural quality, masonry wall and/or dense evergreen landscaping. Where fencing or masonry wall is proposed as part of a buffer, less landscaping density is acceptable; however, buffers shall still include trees, shrubs and other vegetation. ~~Specification~~Figures IV-6 and IV-7 provides an example of screening of accessory site elements.

4.5.3. Industrial and Commercial Development

In addition to other requirements of the City Code and of this section, industrial and commercial developments shall incorporate landscaping that:

- Enhances proposed buildings with foundation plantings in the vicinity of public entrances to all buildings and in areas with uninterrupted or predominantly blank facades (~~Illustration~~Figure ~~IV~~VI-5 provides an example of interior site landscaping for commercial and industrial sites).
- Defines roadways and driveway entrances.

4.5.4. Planned Residential Unit Development (PRUDs)

Required trees to be planted and/or preserved shall separate and screen proposed buildings and separate and screen proposed recreational uses. Where cul de sacs are provided, landscaping consisting of native or adapted low maintenance vegetation shall be provided. See ~~Illustration~~Figure IV-4 for typical cul de sac landscaping.

4.5.5. Parking Areas

Landscaping shall be incorporated into the development of surface parking to reduce adverse environmental and aesthetic impacts, to shade pavement to reduce heat island effect and to screen parking areas from public view. Plant materials shall be selected for appearance, durability, and tolerance to salt. ~~Illustration~~Figures IV-6a and IV-6b provide examples of parking lot screening.

Landscaping that abuts areas of vehicular use shall be adequately protected and separated from vehicles. Protection should take the form of physical or visual separation, such as ~~be in the form of~~ curb stops, bollards, or continuous curbing ~~or guardrails~~. ~~Protection~~Curbing and guardrails shall be designed with adequate visibility and durability in order to withstand normal snow plowing operations.

Landscaped islands shall be curbed and a minimum of eight (8) feet in width, not including curbing. The incorporation of bioretention into landscaped islands is strongly encouraged.

4.5.6. Snow Storage

Snow storage areas ~~shall not encroach on areas designated to meet minimum parking requirements but~~ may be located in landscaped areas provided that appropriate landscape materials are selected which can withstand such snow storage. Snow storage shall not be located where it would adversely impact the functionality of bioretention or other stormwater management systems.

4.5.7. Walls and Fences

Fences and walls within public view must be of high architectural quality. Chain link and wire mesh fences shall be vinyl coated, dark in color, out of direct public view and shall be complemented with landscaping.

- For residential development, chain link fence shall be a minimum of 6-gauge fence fabric.

- For commercial or industrial development chain link fence shall be 9-gauge fence fabric mounted on schedule 40 pipe posts.

~~Electrified or barbed fencing is not permitted.~~ Masonry walls shall be constructed of stone, brick or other durable and attractive materials.

~~Concrete block walls are not permitted except where variety in color, design and detailing of the materials are of high architectural quality.~~ Electrified or barbed fencing is not permitted.

4.5.8. Slope Stabilization

Stabilization of slopes between 5% and 50% shall incorporate installation of a mixture of vegetation, organic mulch and/or erosion control seed mix.

Stabilization of slopes greater than 50% must incorporate biotechnical and/or structural methods including but not limited to terracing rip rap or retaining walls in addition to vegetation. Retaining walls, if four (4) feet in height or greater from the ~~proposed finished grade~~ bottom of the footing to the top of the wall and/or if supporting a surcharge, must be designed by a licensed ~~structural~~ engineer and require a City of Portland Building Permit.

4.5.9. Low Impact Development (LID) Practices

It is the City's policy to encourage Low Impact Design (LID) strategies and practices to capture and infiltrate stormwater runoff. LID is the process of developing land to mimic the natural hydrologic regime. It incorporates land planning and design practices and technologies to achieve this goal. LID is also discussed in Section V of this Technical Manual.

LID strategies and practices relating to site landscaping requirements include but are not limited to bioretention, grassed filter strips, green roofs, rain gardens and vegetated swales.

4.5.10. Climate Positive Planting

Site landscaping should be selected in part to further the City's goals around mitigating the effects of a locally changing climate, with consideration given to the viability of species in a warming environment, the equitable extension of tree canopy to address the urban heat island effect, and the use of landscaping elements to reduce energy consumption.

4.6. STREET TREES

Arrangement and spacing of trees proposed in the City right of way and/or private roadway, shall be coordinated with the Portland City Arborist or their designee. ~~If it is determined by the City Arborist that there is not adequate space or conditions for street trees in the public right of way and/or private roadway or if there is a conflict between the location of proposed street trees and the location of existing or proposed underground utilities, the required number of street trees shall be provided on private property within twenty (2010) feet of the property line along the street frontage.~~ Tree species shall be selected according to the City of Portland recommended tree list (Figure IV-1). Trees proposed in the sidewalk shall be planted in with approved tree wells/grates, as shown in Figures IV-4a, 4b, and 4c and as required by the City Arborist based upon site context and prospects for tree survival. Adequate soil volume to ensure tree survival shall also be required, as determined by the City Arborist.

4.6.1. Residential Development

Single-family residential: Single-family residential developments shall provide a minimum of two (2) street trees per unit, planted in the City right of way and/or along private roadways unless otherwise approved and spaced twenty-five (25) to thirty-five (35) feet on center.

Multi-family residential: Multi-family residential developments shall provide a minimum of one tree per unit, planted in the City right of way and/or along private roadways unless otherwise approved and spaced twenty-five (25) to thirty-five (35) feet ~~thirty (30) to forty-five (45)~~ on center.

Single-family residential subdivisions: Single-family residential subdivisions shall provide a minimum of two (2) trees per lot, planted in the City right of way and/or along private roadways unless otherwise approved and spaced twenty-five (25) to thirty-five (35) feet ~~thirty (30) to forty-five (45) feet~~ on center.

4.6.2. Planned Residential Unit Developments (PRUDs)

Where a manufactured housing park or subdivision is also a planned residential unit development (PRUD), the development shall provide a minimum of two (2) street trees per unit, planted within eight (8) to ten (10) 8-10 ft feet of the City right of way and/or private roadway proposed as part of the development.

4.6.3. Commercial, Industrial and Institutional Development

Commercial, industrial and institutional developments shall provide street trees twenty-five (25) – thirty-five (35) feet ~~thirty (30) to forty-five (45) feet apart~~ on center in the City right of way along all street frontages unless otherwise

approved.

4.6.4. Street Tree Alternatives

Section 14.6.2 of the Land Use Code states that where the applicant can demonstrate that site constraints prevent the planting of required street trees in the City right-of-way and/or along private roadways, the review authority may permit the following to be counted towards the street tree requirement. The alternatives to a street tree in the ROWright-of-way should help achieve the objectives of a street tree and contribute to the street environment. The following specifications are provided to guide the applicant; the acceptability of the alternative to a street tree shall be at the discretion of the City Arborist.

- Existing healthy street trees located in the ROWright-of-way along the frontage of the site may be counted as street trees. Plans for protection and preservation of these trees during construction shall be included as part of the development review.
- Existing healthy trees that are six (6) inches or more in caliper, visible from the right of way and on the site within 20(twenty (20)) feet of the property line may be counted as street trees. Plans for the protection and preservation of these trees during construction shall be included as part of the development review.
- New street trees may be planted where visible from the right-of-way within 20(twenty (20)) feet of the property line, subject to the species being appropriate to the location and from the Recommended Tree List (Figure IV-1). Applicants should note that trees planted within the site would be subject to the Performance Guarantee ~~d~~Defect period provisions and should be documented on deed plans for future preservation.
- The preferable location for new street trees that cannot be located in the ROWright-of-way along the frontage of the site is on public land ~~or facilities~~ elsewhere in the neighborhood or in areas of the City with minimal tree coverage. Locations may include esplanades, ~~and~~ sidewalks and existing empty street tree wells or planting strips, in the neighborhood, and also places such as parks, playgrounds, and other areas where ~~the~~ public benefit would be derived from the addition of new trees. Evidence that the planting site was unlikely to be redeveloped in the near future and that the trees would be protected and maintained ~~looked after would also be are~~ required.
- ~~The requirement for street trees may be met by incorporating measures to enhance tree survival (such as raised planters, irrigation and structural soils) where these have been recommended and agreed by the City Arborist. The objective is to improve the likelihood of the new tree~~

~~becoming established and to reduce the need for costly maintenance in the future. The cost of the agree measure(s) would be the basis for the calculation, as follows:~~

~~$$\frac{\text{Cost of measure(s)}}{\text{Contribution currently assessed for a new street tree}} = (\# \text{ of street tree equivalent})$$~~

- ~~• Where the option to install other planted features is being considered, applicants will need to submit comprehensive information and document that the proposal would fully meet the ordinance requirements.~~
- Where the other alternatives are demonstrated to be ~~not in~~ feasible, a contribution for each required street tree may be made into the City of Portland's Tree Fund in accordance with the table below. The contribution ~~shall~~would be used by the City to provide street trees in the right of way or in the neighborhood of the proposals site or in other areas of the City with minimal tree coverage. The contribution would be considered a "one-time" ~~i~~nfrastructure ~~C~~ontribution which is payable prior to the issuance of a building permit. ~~It should be noted that at least 85% of the Tree Fund would be allocated towards new trees and 15% towards maintenance to ensure trees get established or to replace failing trees.~~
- Where the proposed development involves the removal of an existing street tree determined by the City Arborist to be a feature mature tree, the applicant shall be required to contribute to the tree fund as indicated below.

Contribution for new street tree	\$400.00
Contribution for tree to replace "heritage" or feature mature tree	\$100.00 per inch diameter of the removed existing "heritage" or feature mature tree
Contribution where applicant plants a tree to replace "heritage" or feature mature tree	\$100.00 per inch diameter of removed existing "heritage" or feature mature tree less \$400.00

4.7. PLANT SELECTION

- 4.7.1. All trees and shrubs shall comply with the standards set forth by the American Standard for Nursery Stock (ANSI Z60.1 - 2004). These standards are available through the Department of Public ~~Works Services and at~~ <http://anla.org/index.cfm?area=&page=Content&categoryID=260>

- 4.7.2. All trees and shrubs shall be nursery grown, healthy, free of disease and insect pests, and shall have a well-developed and compact root system. Plant material showing signs of a lack of proper nursery care or a lack of pruning or cultivation, or which is not true to name will be classified as collected stock regardless of its source and shall be rejected.
- 4.7.3. Proposed trees and shrubs installed as part of the landscaping plan shall be comprised of at least 50% native species.
- 4.7.4. The developer shall be responsible for preventing the spread of existing or the introduction of new invasive species on the site, as identified below. If, within one (1) year following construction, invasive species are identified on the site or if such species are pre-existing on the site but are determined to have spread by the City Arborist, the applicant shall be required to implement appropriate control measures prior to the release of the defect guarantee. Accepted mechanical and chemical control methods are provided by the Maine Natural Areas Program (MNAP) of the Maine Department of Conservation in their Invasive Plant Fact Sheets (available through the Department of Public Services and through the MNAP program website:
<http://www.maine.gov/doc/nrimc/mnap/features/invasives.htm>).

The following plant species are recognized as invasive species that are characteristically adaptable, aggressive, and have a high reproductive capacity.

- (1) Asiatic Bittersweet (*Celastrus orbiculata*);
- (2) Autumn and Russian Olive (*Elaeagnus umbellata* and *Elaeagnus angustifolia*);
- ~~(3) Black Swallowwort (*Cynanchum louiseae*);~~
- (4) Brazilian Waterweed (*Egeria densa*);
- (5) Common and Glossy Buckthorn (*Rhamnus cathartica* and *Frangula alnus*);
- (6) Common Reed (*Phragmites australis*);
- (7) Eurasian Milfoil (*Myriophyllum spicatum*);
- (8) Fanwort (*Cabomba caroliniana*);
- (9) Garlic Mustard (*Alliaria petiolata*);
- (10) Hydrilla
(*Hydrilla verticillata*);
- (11) Japanese Barberry (*Berberis thunbergii*);
- (12) Japanese Honeysuckle (*Lonicera japonica*);
- (13) Japanese Knotweed (*Fallopia japonica*);
- (14) Japanese Stilt Grass (*Microstegium vimineum*);
- (15) Lesser Celandine (*Ranunculus ficaria*);
- (16) Mile-a-Minute Weed (*Polygonum perfoliatum*);
- (17) Morrow and Tartarian Honeysuckle (*Lonicera morrowii* and *Lonicera tartarica*);
- (18) Multiflora/Rambler Rose (*Rosa multiflora*);

- (19) Porcelainberry (*Ampelopsis*
- ~~(20)~~ Milfoil (*Myriophyllum heterophyllum*);
- ~~(21)~~ Water Chestnut (*Trapa natans*);
- ~~-(22)~~ Norway Maple (*Acer platanoides*)
- (23) Yellow-flag Iris (*Iris pseudacorus*).

- 4.7.5. Trees selected from the Recommended Tree List ([Figure IV-1](#)) ~~of this Section~~ shall conform, at a minimum, to the sizes specified on the list.
- 4.7.6. All upright deciduous and evergreen shrubs shall be a minimum of 3 feet tall at mature height. All spreading evergreen and deciduous shrubs shall be a minimum of 2-2.5 feet in width at maturity.
- 4.7.7. Ground covers planted in lieu of grass shall be planted at a level of coverage equivalent to one complete growing season. Grass areas shall be planted with Kentucky Bluegrass (*Poa pratensis*), Red Fescue (*Festuca rubra*), Tall Fescue (*Festuca arundinacea*) or Perennial Ryegrass (*Lolium perenne* L.). Rolled turf, erosion reducing net or suitable vegetation ~~mulch~~ along with landscaping shall be used in swales or other areas subject to erosion. ~~Mulching material shall be a minimum of three (3) inch deep wood chip or bark mulch.~~
- 4.7.8. Mulching material shall be a minimum of three (3) inch deep wood chip or bark mulch. Inorganic mulches are not permitted.
- 4.7.9. No plantings used to satisfy City landscaping requirements shall be comprised of inorganic materials.

4.8 INSTALLATION AND MAINTENANCE OF PLANTINGS

- 4.~~8.17-10~~. Landscaping, earth moving and grading activities shall be performed according to standards accepted good planting and grading procedures and in accordance with the approved Site Plan, Subdivision Plat, Grading Plan and Landscape Plan.
- 4.~~8.27-11~~. No plant shall be moved after the bud break unless so authorized by the City Arborist or their designee. Planting periods are between April 1st and to July 1st and/or September 1st and November 1st. ~~Landscaping which cannot be installed prior to issuance of a Certificate of Occupancy shall be subject to a performance guarantee according to Article 14 of the City Land Use Code.~~
- 4.~~8.37-12~~. Tree planting and other landscaping for subdivisions that cannot be installed prior to release of the performance guarantee must be insured by a defect bond as described in Section Article 15 of the City Land Use Code.

4.~~8.47.13~~. All bare soil areas shall be vegetated and/or mulched prior to the issuance of a Certificate of Occupancy.

4.8.5. New vegetation that shows signs of construction damage within a one year period following construction, including but not limited to bark damage or excessive root damage, grade changes other than those originally indicated in the approved grading plan, soil compaction due to heavy equipment traversing closely, or general decline due to mechanical or natural conditions shall be rejected and must be replaced prior to the release of any defect guarantee.

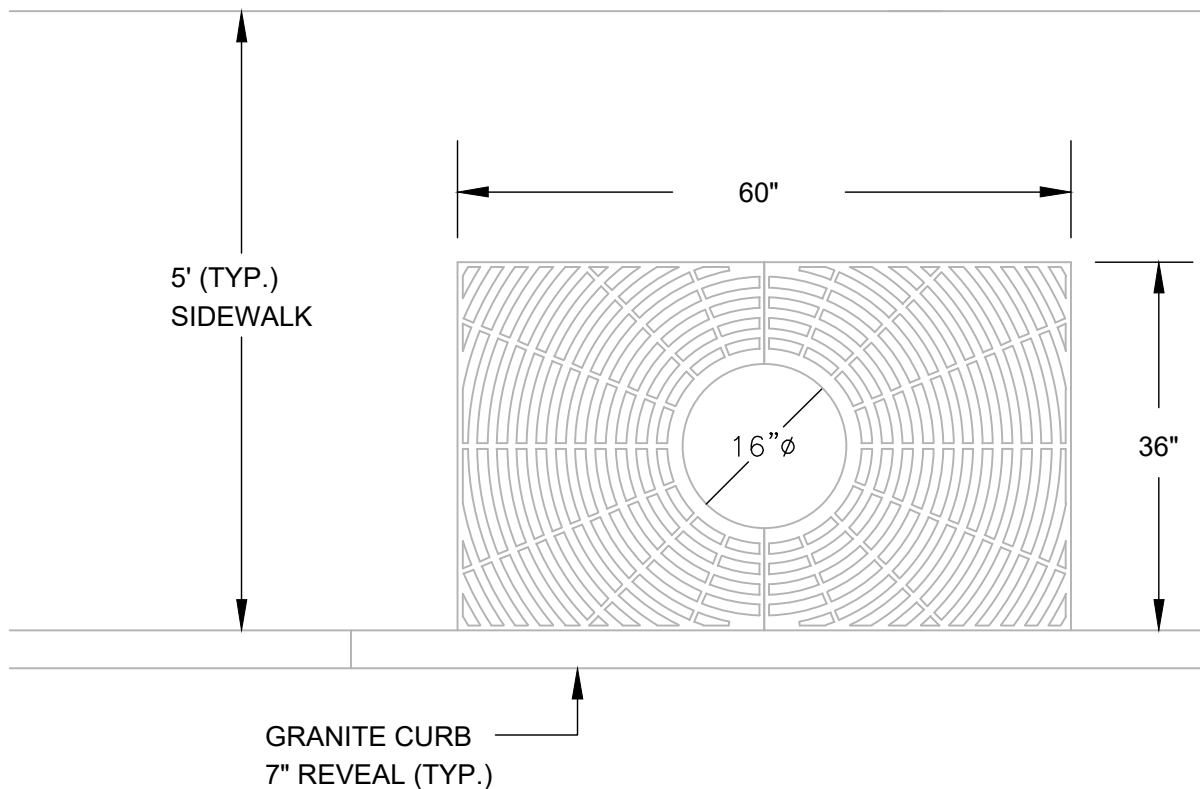
Figure IV-1: City of Portland Recommended Tree List

Small Trees - (Mature Height < 25')					
Common Name	Botanical Name	Cultivars	Uses	Native	Notes
Amelanchier or Shadbush	<i>Amelanchier</i>	"Autumn Brilliance", "Cumulus", "Robin Hill Pink"	Street tree/ Naturalize	X	Single stem tree forms
European Hornbeam	<i>Carpinus betulus</i>	Upright forms available	Street tree		
American Hornbeam	<i>Carpinus caroliniana</i>		Lawn/Landscape	X	
Hawthorn	<i>Crataegus crusgalli</i>	"Cusgali", "Winter King"	Street tree		Thornless
Flowering Crabapple	<i>Malus x</i>	"Adirondack", "Springsnow"	Street tree		
Sargent Cherry	<i>Prunus sargentii</i>	"Accolade", "Pink Flair"	Street tree & Ornamental		
Striped Maple	<i>Acer pennsylvanicum</i>		Naturalize	X	Naturalizing in shaded areas
Magnolia	<i>Magnolia spp.</i>	Many cultivars	Ornamental		
Hop-Hornbeam	<i>Ostrya virginiana</i>		Naturalize	X	Tolerates shade / understory
Sourwood	<i>Oxydendrum</i>		Ornamental	X	Interesting lat summer flower
"Arnold's Promise" Witchhazel	<i>Hamamelis</i>				
Medium Trees to Large trees 25' > 45'					
Common Name	Botanical Name	Cultivars	Uses	Native	Notes
Red Maple	<i>Acer rubrum</i>	"Armstrong", "Bowhall", "Karpick", "Red Pointe"	Street tree/ Landscape	X	Cultivars from upright to oval shape
Sugar Maple	<i>Acer saccharum</i>	"Green Mountain"	Naturalize Landscape use	X	
White Birch	<i>Betula papyrifera 'Renci'</i>	"Renaissance Reflection"	Naturalize	X	
River Birch	<i>Betula nigra</i>	"Heritage"	Naturalize	X	
Yellow Birch	<i>Betula lenta</i>		Naturalize	X	
Hackberry	<i>Celtis laevigata</i>		Street tree		
Ginkgo	<i>Ginkgo biloba</i>	"Mygar", "Autumn Gold"	Street tree		
Thornless Honeylocust	<i>Gleditsia inermis</i>	"Streetkeeper" (Upright form)	Street tree		
Tuliptree	<i>Liriodendron</i>		Street tree		
Tupelo	<i>Nyssa sylvatica</i>		Naturalize		
Swamp White Oak	<i>Quercus bicolor</i>		Street tree/Naturalize		
Red Oak	<i>Quercus rubra</i>		Street tree/Naturalize		
Upright-Growing Oaks	"Beacon" Oak "Urban Pinnacle" Oak "Kindred Spirit" Oak "Regal Prince"		Street tree/Naturalize Street tree/Naturalize Street tree/Naturalize Street tree/Naturalize		
American Elm	<i>Ulmus americana</i>	"Accolade", "Princeton"	Street tree	X	
Lacebark Elm	<i>Ulmus parvifolia</i>		Street tree		Interesting bark
Zelkova	<i>Zelkova serrata</i>	Musashino Zelkova	Street tree		
Conifers					
Common Name	Botanical Name	Cultivars	Uses	Native	Notes
Alaska Cedar	<i>Callitropsis nootkatensis</i>	Alaska Weeping Cedar	Buffer planting		Fast growing
Red Cedar	<i>Juniperus virginiana</i>		Naturalize/ Ornamental	X	
Eastern Larch or Tamarack	<i>Larix laricina</i>		Naturalize/ Ornamental	X	Deciduous
Dawn Redwood	<i>Metasequoia</i>		Ornamental		Deciduous
White Spruce	<i>Picea glauca</i>		Naturalize	X	
Serbian Spruce	<i>Picea omorika</i>		Ornamental		Upright / good for narrow locations
Pitch Pine	<i>Pinus rigida</i>	Small sizes available	Naturalize	X	Full sun, sandy soils
White Cedar	<i>Tuja occidentalis</i>	"Dark American", "Techny"	Naturalize	X	Can be pruned into hedge

Notes:
In the case of street trees, small trees (<25') are preferred in locations with overhead utilities, and fruiting varieties should generally be avoided.

NOTES:

1. 16"Ø EXPANDABLE TREE OPENING. 0.25" SLOT OPENINGS.
2. ALL TREE GRATES SHALL COMPLY WITH CITY TECHNICAL STANDARDS AND MUST BE APPROVED BY THE CITY ARBORIST.
3. FINAL PLACEMENT LOCATION OF TREE GRATES SHALL BE APPROVED BY DPW AND SHALL CONSIDER SIDEWALK WIDTH AND ADA COMPLIANCE, ON-STREET PARKING CONFIGURATIONS, ABOVE AND BELOW GROUND UTILITIES AND OTHER OBSTRUCTIONS.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY. SEE SIDEWALK CONSTRUCTION DETAILS IN SECTION 1 OF THE TECHNICAL MANUAL.
5. WHEN THE TREE GRATE IS INSTALLED IN A CONCRETE SIDEWALK, A NOTCH MUST BE INSTALLED ALONG THE EDGE TO HOLD THE GRATE, WHEN INSTALLED IN A BRICK SIDEWALK IT REQUIRES A FRAME TO BE INSTALLED TO HOLD THE GRATE IN PLACE.



PLAN VIEW

EXPANDABLE TREE GRATE WITH FRAME NEENAH MODEL R-8810

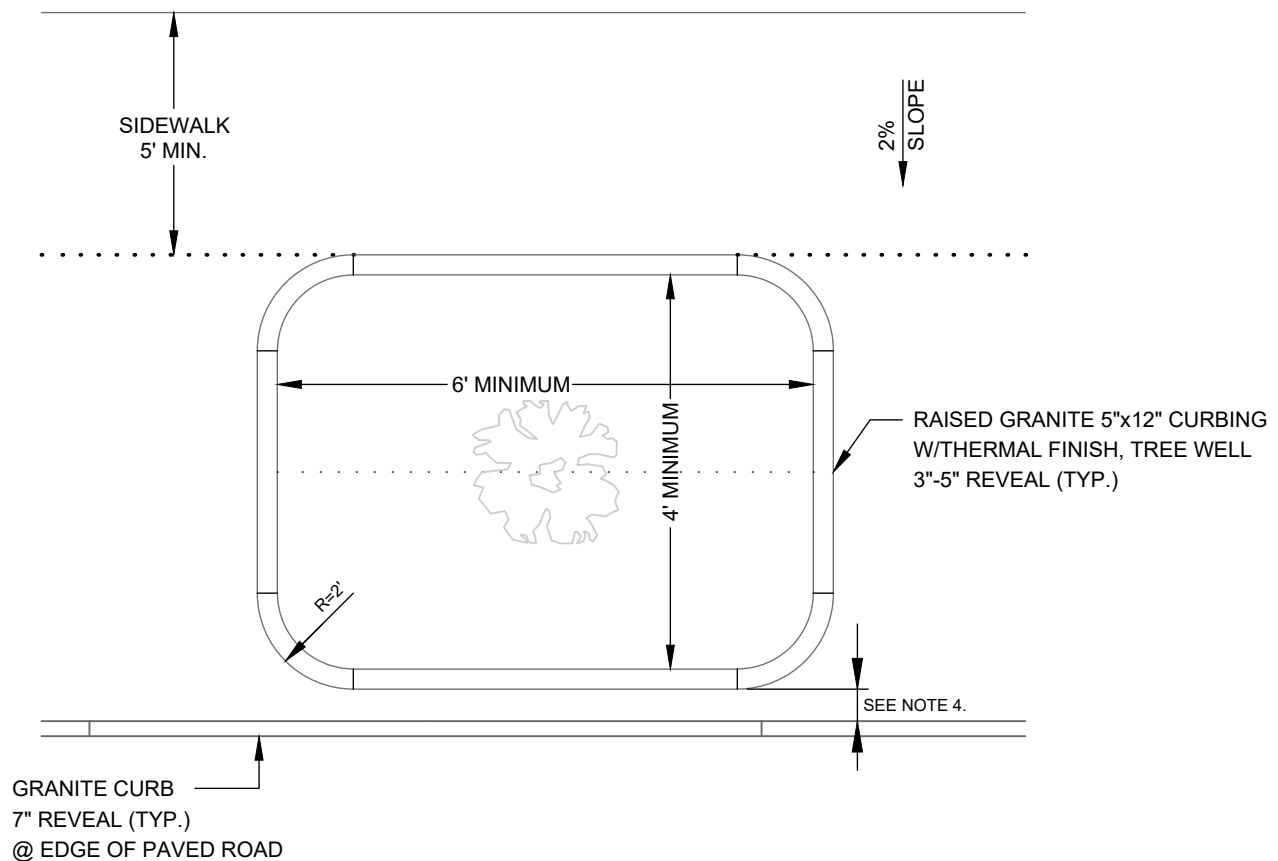
NOT TO SCALE

<http://www.nfco.com/literature/TreeGrateCatalog22/Avenue.pdf>

DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	LANDSCAPE AND LANDSCAPING PRESERVATION EXISTING VEGETATION STANDARDS - SECTION IV	FIGURE:
	EXPANDABLE TREE GRATE WITH FRAME FOR NARROW RESIDENTIAL URBAN STREETS		IV-4A

NOTES:

1. ALL TREE WELLS SHALL COMPLY WITH CITY TECHNICAL STANDARDS AND MUST BE APPROVED BY THE CITY ARBORIST.
2. FINAL PLACEMENT LOCATION OF THE GRANITE CURB TREE WELL SHALL BE APPROVED BY DPW AND SHALL CONSIDER SIDEWALK WIDTH, STREET PARKING STATUS, ABOVE AND BELOW GROUND UTILITIES AND OTHER OBSTRUCTIONS.
3. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY. SEE SIDEWALK CONSTRUCTION DETAILS IN SECTION 1 OF THE TECHNICAL MANUAL.
4. RAISED CURB TREE WELL OFFSETS FROM THE CURB LINE SHALL TAKE THE LOCATION OF ON-STREET PARKING INTO ACCOUNT. WHERE ADJACENT TO ON-STREET PARKING AND SIDEWALK WIDTH ALLOWS, A MINIMUM OFFSET OF 2 FEET IS PREFERRED, UNLESS IT CAN BE DEMONSTRATED THAT THE PLACEMENT OF THE TREE WELLS WILL NOT INTERFERE WITH THE OPENING OF VEHICLE DOORS.



PLAN VIEW

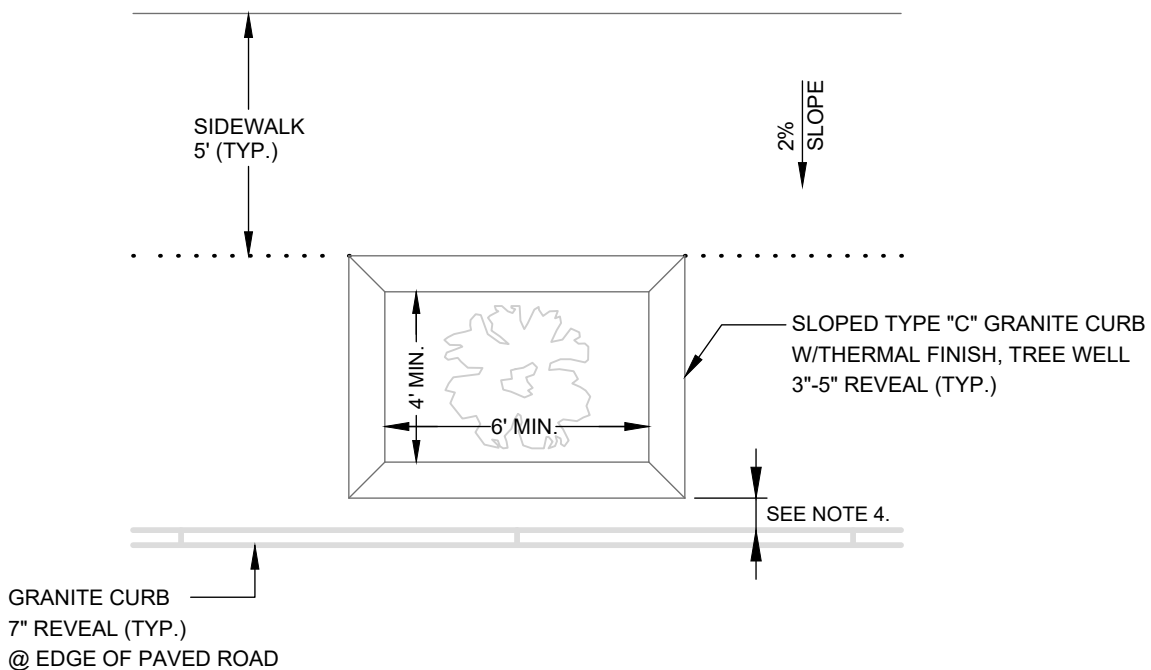
GRANITE BORDER TREEWELL IN SIDEWALK WITH NO ESPLANADE

NOT TO SCALE

DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS - SECTION IV	FIGURE:
	GRANITE BORDER TREE WELL IN SIDEWALK WITH NO ESPLANADE		IV-4B

NOTES:

1. ALL TREE WELLS SHALL COMPLY WITH CITY TECHNICAL STANDARDS AND MUST BE APPROVED BY THE CITY ARBORIST.
2. FINAL PLACEMENT LOCATION OF THE GRANITE CURB TREE WELL SHALL BE APPROVED BY DPW AND SHALL CONSIDER SIDEWALK WIDTH, STREET PARKING STATUS, ABOVE AND BELOW GROUND UTILITIES AND OTHER OBSTRUCTIONS.
3. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY. SEE SIDEWALK CONSTRUCTION DETAILS IN SECTION 1 OF THE TECHNICAL MANUAL.
4. RAISED CURB TREE WELL OFFSETS FROM THE CURB LINE SHALL TAKE THE LOCATION OF ON-STREET PARKING INTO ACCOUNT. WHERE ADJACENT TO ON-STREET PARKING AND SIDEWALK WIDTH ALLOWS, A MINIMUM OFFSET OF 2 FEET IS PREFERRED, UNLESS IT CAN BE DEMONSTRATED THAT THE PLACEMENT OF THE TREE WELLS WILL NOT INTERFERE WITH THE OPENING OF VEHICLE DOORS.



PLAN VIEW

SLOPED TYPE "C" TREE WELL IN SIDEWALK WITH NO ESPLANADE

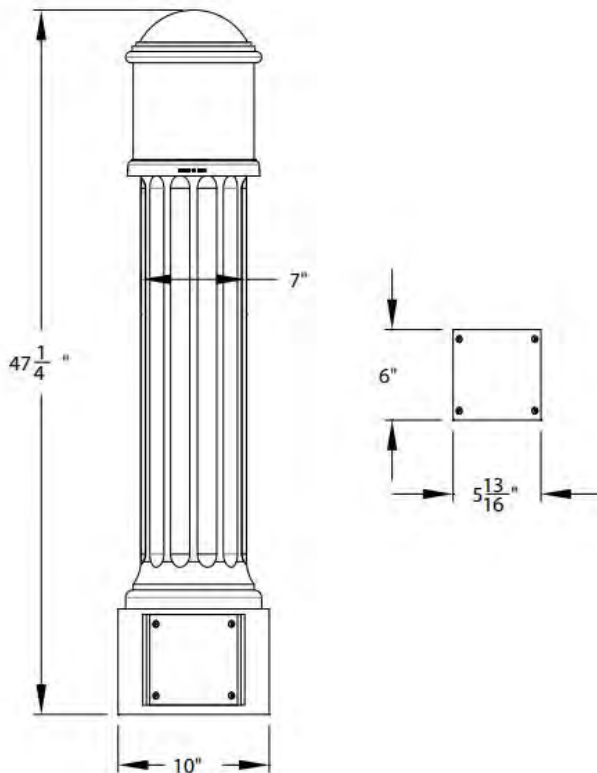
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DATE: NOV. 2022 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS - SECTION IV	FIGURE:
	SLOPED TYPE "C" GRANITE TREE WELL IN SIDEWALK WITH NO ESPLANADE		IV-4C



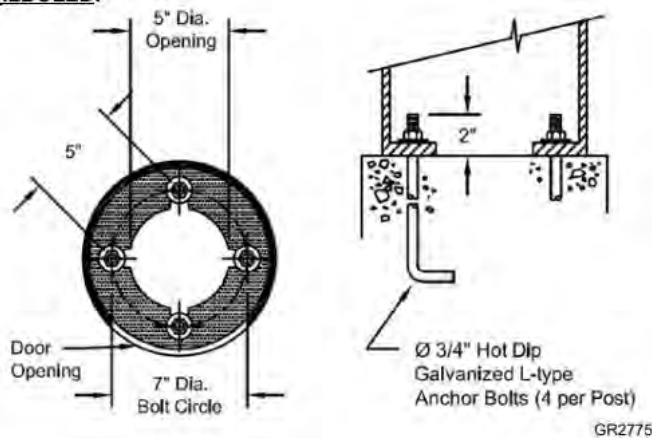
PORTLAND | me

Street & Sidewalk Lighting BOLLARD



Maximum standard weight - 58 lbs.
Maximum weight with Direct Burial Base Option - 88 lbs.

HLBOLED:



LUMINAIRE

Hamilton LED Series Cast Aluminum Bollard
Model: HLBOLED CA P40 30K MVOLT GL5 ACS BK
AO ABG

Mechanical Specifications

Be heavy grade A356.1 cast aluminum (aluminum with <1% copper)
Wet locations listed
One-piece casting with a removable top
All welders shall be certified per Section 5 of ANSI/AWS D1.2-90

Access door opening for anchor bolts and wiring access is 3" x 5" x 4.5"

The finish shall utilize a polyester powder coat paint to ensure maximum durability rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117) on standard BLACK.

Optical Specifications

IP65 light engine
Type 5 distribution with prismatic borosilicate glass and a smooth clear acrylic outer lens

Control Options

Field adjustable output to adjust output to luminaire – AO

Electrical Specifications

The driver shall meet the following requirements:

Certified by UL or CSA for wet locations
A factory programmable electronic driver with 0-10V dimming

LEDs shall have a minimum of 70 CRI and available in 3000K CCT

The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off.

FINISH

Black (standard)

APPLICATION

Sidewalk lighting where height is limited - underpasses, parks, piers

Can be used as a security bollard.

Spacing: To be determined by Department of Public Works per specific project

Date:
May, 2022

CITY OF PORTLAND, MAINE
TECHNICAL MANUAL

MUNICIPAL STREET
LIGHTING STANDARDS
SECTION 10

Figure:

X-3

Revised Date:

LIGHTED BOLLARD



LED Bollards

Pedestrian & Walkway Lighting

LED Bollards

Reliable Period Outdoor Lighting
for Pedestrian Areas
and Walkways



Holophane® decorative bollards provide an attractive pedestrian area solution to complement the full line of decorative posts by transitioning flawlessly from the street to pedestrian walkway. Our bollards offer robust cast aluminum construction, combined with a durable polyester powder coat finish. And now, our new LED bollards further enhances your space by providing an energy saving yet visually comfortable set of lighting solutions. The long life of our LED light engines is combined with robust construction to provide you an expected service life of 20 years or more.

The Holophane Difference

- + Lumen packages ranging from 520 to 3,070 lumens
- + Six period style form factors to compliment your architectural design
- + Three models with dedicated optics to further enhance performance and visual comfort
- + Five different optical distribution options
- + 2700K, 3000K and 4000K CCT
- + 20kV/10kA surge protection option available
- + Robust CSA rated mechanical design with IP66 optics
- + Polyester paint finish with 5,000 hour salt fog rating ensures system reliability
- + Utility-friendly design features including removable access door and optional three stage terminal block
- + Field-adjustable lumen output module to fine tune light levels
- + Optional external electrical receptacle
- + Eyebolts for chain linking bollards is also optional
- + Button style photocontrols with 3 voltage options

Optical LED Bollards

Each of the three optical LED bollards are available in multiple optical configurations to help control distribution and provide visual comfort. Options include prismatic glass refractors, specular louvers and opaque white lens.

Hamilton (HLBOLED)	Columbia (CLBOLED)	Plymouth (PLBOLED)
Optical Performance Options		
Two Aluminum louvered options + 520–1,330 lumens + White powder coat, Type V Symmetric + Anodized, semi specular, Type V Symmetric	Prismatic glass refractor + 1,260–3,000 lumens + Type III asymmetric + Type V symmetric	Opaque Lens + 1,000–2,500 lumens + No internal optic, Type V

Slotted LED Bollards

Slotted LED bollards all utilize a common optical configuration whereby light is emitted equally in all directions through an array of slots. This provides a symmetrical Type V distribution pattern.

North Yorkshire (NYBOLED)	Charleston (CHBOLED)	Wadsworth (WDBOLED)
Wide Slots + 920–2,260 lumens + No internal optic, Type V	Narrow Slots + 510–1,260 lumens + No internal optic, Type V	Wide Slots + 920–2,260 lumens + No internal optic, Type V



LED Bollards

Pedestrian & Walkway Lighting

Holophane Optical Engineering

Over a century of expertise in prismatic glass optics positions Holophane to provide customers with robust, reliable and highly efficient lighting solutions. The LED Bollards portfolio draws on that expertise to offer you multiple solutions for both your aesthetic and performance needs.



Acuity Brands Lighting, Inc.

Holophane Headquarters, 3825 Columbus Road, Granville, OH 43023

Acuity Brands Lighting Canada, Inc., 35B Minthorn Blvd., Markham, ON, L3T 7N5

Holophane, S.A. de C.V., Km. 31 Carretera Mexico-Cuautitlan 54900 Tultitlan Edo. De Mexico

Contact your local Holophane factory sales representative for application assistance, and computer-aided design and cost studies.

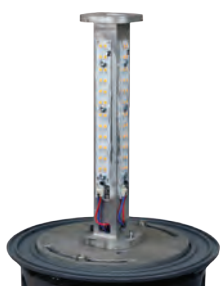
Warranty Five-year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Visit our web site at www.holophane.com

Prismatic Glass

Louver Options

Opaque White



Energy efficient LED Engine



Each of our optical configurations include an outer acrylic lens enclosure over the internal optical design

Catalog Number	HLBOLED CA P40 30K MVOLT GL5 ACS BK ABG	
Notes		Type

HLBOLED

Hamilton LED Series:
Cast Aluminum Bollard



General Description

The Hamilton is a decorative bollard which provides a fully integrated LED solution to complement the full line of decorative posts by transitioning flawlessly from the street to pedestrian walkway.

While maintaining the period style, the electronics are engineered to provide energy-efficient lighting and minimize maintenance components. Our bollards offer superior finish through the application of a polyester powder coat finish.

Intended use: Bollard for city streetscapes, public areas and parks, higher education campuses, paths and walkways.

Mechanical Specifications

The luminaire housing shall:

- Be heavy grade A356.1 cast aluminum (aluminum with <1% copper)
- Wet locations listed
- One-piece casting with a removable top
- Optical assembly is secured inside the shaft
- All welding shall be per ANSI/AWS D1.2-90
- All welders shall be certified per Section 5 of ANSI/AWS D1.2-90
- (4) 3/4" diameter by 18" long, hot dip galvanized L-type anchors bolts are provided and are to be installed on a 10.5" bolt circle
- Access door opening for anchor bolts and wiring access is 3" x 5" x 4.5"
- Optional Field or Factory installed hot-dip galvanized direct burial base for mounting without a concrete footing

The finish shall:

- Utilize a polyester powder coat paint to ensure maximum durability.
- Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117) on standard and RAL finish options.
- RAL (RALxxxxSDCR) paint colors are Super Durable Corrosion Resistant, 80% gloss.

Electrical Specifications

The driver shall meet the following requirements:

- Certified by UL or CSA for wet locations
- A factory programmable electronic driver with 0-10V dimming
- LEDs shall have a minimum of 70 CRI and available in 2700K, 3000K and 4000K CCT
- The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off, as standard with an optional 20kV/10kA surge protection, fail off with indicator light, option
- Optional GFI receptacle with wet-location cover, not CSA listed

Optical Specifications

- IP65 light engine
- Type 5 distribution with a smooth white acrylic outer lens
- Type 5 distribution with a either a white or semi-specular louver and a acrylic smooth white acrylic outer lens
- Type 3 or 5 distribution with prismatic borosilicate glass and a smooth clear acrylic outer lens

Control Options

The control options shall include, but not limited to, the following:

- Field adjustable output to adjust output to luminaire - AO
- Button style photocontrol

Certification and Standards

- UL 1598 - Wet Locations Safety Listing
- Suitable for ambient temperatures -40°C to 40°C

Warranty

5-year limited warranty. Complete warranty terms located at:

www.acuitybrands.com/support/warranty/terms-and-conditions

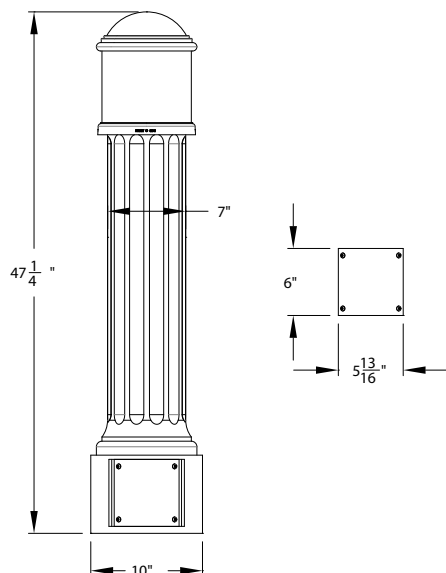
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Important Installation Notes:

- Factory-supplied templates must be used when setting anchor bolts. Acuity Brands Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- Acuity Brands Lighting is not responsible for the foundation design.

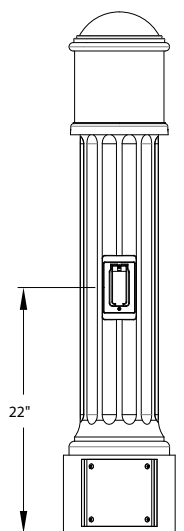


DIMENSIONAL DATA

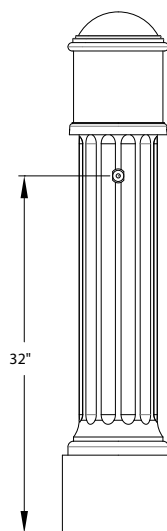


Maximum standard weight - 58 lbs.

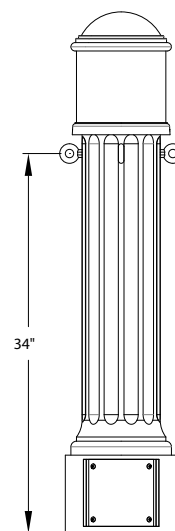
Maximum weight with Direct Burial Base Option - 88 lbs.



Receptacle Option



Photocell Option



Eyebolt Option

(more than 1 can be specified)

HLBOLED

Hamilton LED Series: Cast Aluminum Bollard



ORDERING INFORMATION

Example: HLBOLED CA P40 30K MVOLT GL5 ACS BK EB34B EB34D

Series	Material	LED Performance Package	Color Temperature	Voltage	Optics
HLBOLED	CA Cast Aluminum	P10 P10 Performance Package P20 P20 Performance Package P30 P30 Performance Package P40 P40 Performance Package	27K 2700K 30K 3000K 40K 4000K	MVOLT Auto-sensing voltage (120 thru 277) 50/60 HZ HVOLT Auto-sensing voltage (347-480) 50/60 HZ 120V 120V 50/60 HZ 277V 208-277V 50/60 HZ 347V 347V 50/60 HZ	GL3 Internal glass refractor, Type 3 GL5 Internal glass refractor, Type 5 LP5 Louver, painted white, Type 5 LS5 Louver, semi-specular, Type 5 NIO5 No internal reflector, Type 5

Lens	Color	Options / Controls
AWS Acrylic White Smooth Outer Lens ACS Acrylic Clear Smooth Outer Lens	BK Black BZ Bronze GH Graphite GN Green GR Grey PP Primer Paint WH White CMC Custom Match Color RALxxxxSDCR RAL Super Durable Corrosion Resistant, 80% Gloss Paint, replace xxxx with RAL number. XX Standard Finish, TBD	AO Field adjustable output device EB34A Eyebolt (for chain by others) at 34° and 0° counterclockwise from door EB34B Eyebolt (for chain by others) at 34° and 90° counterclockwise from door EB34C Eyebolt (for chain by others) at 34° and 180° counterclockwise from door EB34D Eyebolt (for chain by others) at 34° and 270° counterclockwise from door PEC1 Button style photocontrol (120V) PEC2 Button style photocontrol (208V-277V) PEC3 Button style photocontrol (347V) DBB Factory Installed direct burial base for mounting without a concrete footing FGE GFI receptacle externally mounted with wet-location cover (120V) PIHEX Security Screws - Pin in hex exterior fasteners TB 3 position terminal block 20kV 20kv/ 10kA surge

Accessories: Order as separate catalog number.	
AADB2 R1	Bolt on 24" long, 3.5" scheduled 40 hot-dip galvanized steel pipe with 2" x 8" wireway opening: attachment hardware included
AB-31-4	Anchor bolts
TMP-58	Template

Important Installation Notes:

- Factory-supplied templates must be used when setting anchor bolts. Acuity Brands Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- Acuity Brands Lighting is not responsible for the foundation design.

HLBOLED

Hamilton LED Series: Cast Aluminum Bollard



OPTIONS MATRIX

Mounting		Performance Package				Voltage					Optic					Lens		Options															
		P10	P20	P30	P40	MVOLT	HVOLT	120V	277V	347V	GL3	GL5	LPS	LS5	NIO5	AWS	ACS	AO	DBB	EB34A	EB34B	EB34C	EB34D	FGE	PEC1	PEC2	PEC3	PIHEX	TB	20KV			
Performance Package	P10		N	N	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	P20	N		N	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	P30	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	P40	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Voltage	MVOLT	Y	Y	Y	Y		N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		Y	Y	Y		
	HVOLT	N	N	Y	Y	N		N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		Y	Y	Y			
	120V	Y	Y	Y	Y	N	N		N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N		Y	Y	Y		
	277V	Y	Y	Y	Y	N	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N		Y	Y	Y			
	347V	N	N	Y	Y	N	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y		Y	Y	Y			
Optic	GL3	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	GL5	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	LPS	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N			N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	LS5	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N			N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	NIO5	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N			Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Lens	AWS	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N		Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	ACS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Options	AO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y		
	DBB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	EB34A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	EB34B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
	EB34C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		
	EB34D	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		
	FGE	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		
	PEC1	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		N	N		Y	Y	Y		
	PEC2	Y	Y	Y	Y	N	N	N		N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N		N		Y	Y	Y		
	PEC3	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N			Y	Y	Y		
	PIHEX	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y		
	TB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y		
	20KV	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			

LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS

Use the factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient Temp		Lumen Multiplier
°C	°F	P10 - P40
0	32	1.04
5	41	1.03
10	50	1.02
15	59	1.02
20	68	1.01
25	77	1.00
30	86	0.99
35	94	0.98
40	104	0.97

PROJECTED LED LUMEN MAINTENANCE

Data references the extrapolated performance projections for the platforms noted in 25°C ambient, based on 6,000 hours of IED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11). To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Lumen Maintenance - LLD (Same for all LED packages)									L70 Hrs
P10 - P40	Hours	0	25,000	36,000	50,000	60,000	75,000	100,000	
	Factor	1	0.97	0.96	0.95	0.94	0.93	0.91	> 60,000

PERFORMANCE DATA

Performance Package	Distribution	Input Watts	27K (2700K CCT, 70 CRI)					30K (3000K CCT, 70 CRI)					40K (4000K CCT, 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P10	GL3 ACS	12	1,181	98	1	3	2	1,197	100	1	3	2	1,260	105	1	3	2
	GL5 ACS		1,215	101	1	3	2	1,231	103	1	3	2	1,296	108	1	3	2
	LP5 ACS		499	42	0	3	1	506	42	0	3	1	532	44	0	3	1
	LS5 ACS		490	41	0	3	1	496	41	0	3	1	522	44	0	3	1
	NIO5 AWS		945	79	0	3	1	958	80	0	3	1	1,008	84	0	3	1
P20	GL3 ACS	19	1,812	95	1	3	2	1,836	97	1	3	2	1,932	102	1	3	2
	GL5 ACS		1,864	98	1	3	2	1,889	99	1	3	2	1,988	105	1	3	2
	LP5 ACS		781	41	1	3	1	791	42	1	3	1	833	44	1	3	1
	LS5 ACS		767	40	1	3	1	777	41	1	3	1	818	43	1	3	1
	NIO5 AWS		1,479	78	1	4	1	1,499	79	1	4	1	1,577	83	1	4	1
P30	GL3 ACS	25	2,322	93	1	3	2	2,352	94	1	3	2	2,475	99	1	3	2
	GL5 ACS		2,389	96	1	4	2	2,420	97	1	4	2	2,547	102	1	4	2
	LP5 ACS		1,030	41	1	3	1	1,044	42	1	3	1	1,098	44	1	3	1
	LS5 ACS		1,011	40	1	3	1	1,025	41	1	3	1	1,078	43	1	3	1
	NIO5 AWS		1,951	78	1	4	2	1,977	79	1	4	2	2,081	83	1	4	2
P40	GL3 ACS	32	2,802	88	1	4	3	2,839	89	1	4	3	2,988	93	1	4	3
	GL5 ACS		2,883	90	1	4	3	2,921	91	1	4	3	3,074	96	1	4	3
	LP5 ACS		1,246	39	1	3	1	1,263	39	1	3	1	1,329	42	1	3	1
	LS5 ACS		1,224	38	1	3	1	1,240	39	1	3	1	1,305	41	1	3	2
	NIO5 AWS		2,361	74	1	4	2	2,392	75	1	4	2	2,517	79	1	4	2

HLBOLED

Hamilton LED Series: Cast Aluminum Bollard

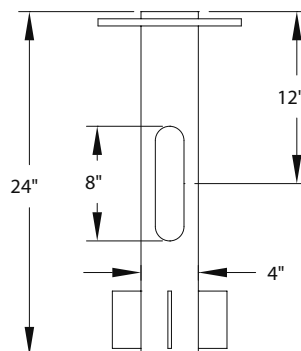
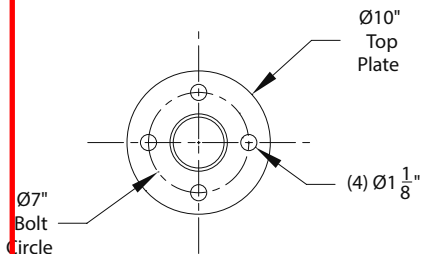
COMPONENTS & OPTIONS DATA



A0
Manual field adjustable output dimming device

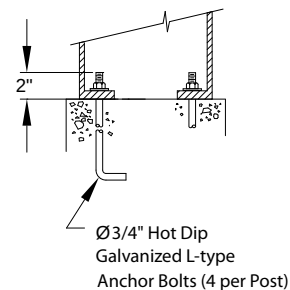
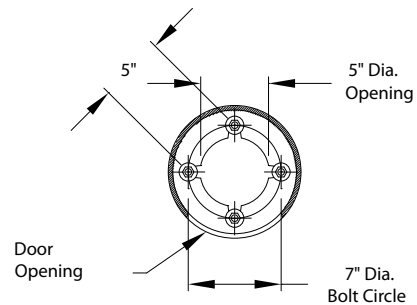


20KV
Safeguard your investment from extreme voltage spikes with our new Extreme 20kV/10kA SPD



DBB
Direct Burial Base

Weight - 30 lbs.



Base Detail

17. TRANSPORTATION STUDIES & PLANS

17.1. TRANSPORTATION STUDIES

17.1.1. Definitions. For the purposes of this section, **passenger car equivalents (PCE)** shall be defined as the number of passenger cars or, in the case of non-passenger vehicles, the number of passenger cars that would be displaced by non-passenger vehicles. One tractor trailer combination is the equivalent of two passenger cars.

17.1.2. Applicability: Developments that generate 100 PCE or more during a peak hour period, thus requiring a Traffic Movement Permit (TMP), shall meet the requirements of TMP regulations of State Law, in addition to all applicable transportation site plan standards of the City Code. The calculation of the PCE trip level for determination of TMP thresholds shall be made prior to trip reductions for other modes or shared trips.

For more information concerning state TMP requirements, please refer to <https://www.maine.gov/mdot/traffic/docs/229c305.pdf> ~~<http://www.maine.gov/mdot/traffic-counts/traffic-mvmt-app.php>~~ or contact the Maine Department of Transportation (MaineDOT). The City of Portland is the delegated reviewing authority for TMP applications.

Developments ~~that generating at least less than 100~~ 25 PCE and less than 100 PCE during a peak hour period may be required to complete a transportation study. The determination shall be made by the City Traffic Engineer, based upon the proximity of the development site to identified issues related to safety, congestion, and/or multi-modal accessibility. passenger car equivalents (PCE) but require a scoping meeting because they generate 25 PCE or more and are located

~~(1) on an arterial; and/or~~

~~(2) within ½ mile of a high crash location; and/or~~

~~(3) within ¼ mile of an intersection that has been identified in a previous traffic study as a failing intersection, with an overall level of service below level of service D,~~

~~shall meet the following standards, if a traffic study is required:~~

17.1.3. Preparation: ~~Transportation~~ studies shall be prepared, stamped, and signed by a Professional Engineer licensed in the State of Maine.

17.1.4. Scope of Study: The City ~~Transportation~~ Traffic Engineer, in consultation with the applicant's engineer, shall determine the ~~need for and~~ scope of the ~~transportation~~ study. The scope of the study may include, but is not limited to, the following elements: The requirements for the study shall be based on standard transportation engineering practice

A typical traffic study includes the following major sections:

- A description of the development proposal.
- A description of the existing multi-modal transportation conditions and context.
- Estimated trip generation by the development and design hour volume for site-affected driveway(s) and study intersections by mode. Trip generation will be based upon the latest edition of the current Institute of Transportation Engineers data, or approved alternate methodology, by mode. ~~Trip Generation publication unless suitable documented local data that meets ITE methodology is available.~~
- Trip distribution.
- Multi-modal level of service analysis pre-and post-development at study area intersections and roadway segments.
- Capacity analysis at study area intersections, including level of service (LOS), delay, volume-to-capacity ratios, and queue analysis. ~~for adjacent roadways and for any existing or proposed driveways.~~
- C~~Traffic~~ crash analysis within the study area, or expanded study area if deemed appropriate for adjacent roadways.
- Key findings ~~concerning regarding~~ multi-modal traffic and safety issues in the existing condition or as a result of project-generated trips. ~~impacts, problems, and deficiencies.~~
- Analysis of impacts to pedestrians, bicyclists, and transit service and users. ~~Proposed traffic improvements.~~
- Summary of findings and recommendations for transportation improvements and other impact mitigation measures.

17.1.5. Mitigation: Mitigation of development project impacts may be required under MaineDOT TMP regulations and/or by the City of Portland through a transportation study. In some cases, where safety or capacity improvements to vehicle operations are not feasible due to constraints, mitigation may consist of in-kind multi-modal improvements to pedestrian, bicycle, and/or transit facilities and service. Where required, mitigation measures shall be included in the applicant's traffic transportation study, and shall be approved by the Department of Public Works prior to site plan approval.

17.2. PARKING STUDY

Parking studies shall be produced by a licensed transportation ~~professional~~ engineer.

Where a parking study is required, data shall be determined by values contained in the current ~~most up-to-date~~ version of the Institute of Transportation Engineers

(ITE) publication titled Parking Generation, or through local, regional or other pertinent national data. If local or regional data is to be used, the scope and methodology of the parking study shall be coordinated with the City Transportation Traffic Engineer.

Parking studies for mixed-use developments shall reference best practices for shared parking, both in terms of calculations and studies, such as the Urban Land Institute's Shared Parking.

Where a parking study is required, the ~~applicant's engineer shall have a scoping meeting with the City Transportation Engineer or their designee to determine the need for and required scope of the study~~ scope of study shall be determined in coordination with the City Traffic Engineer. The requirements for the study shall be based on standard transportation engineering practices.

17.3. TRANSPORTATION DEMAND MANAGEMENT (TDM)

All TDM Plans shall ~~include specific provisions for the following:~~

17.3.1. Include a T~~Transportation~~ ~~n~~arrative:

Every TDM plan shall describe how the project fits within the multimodal transportation system serving the district in which the development or site is located. The narrative should address the specifics of the land uses, occupants, visitors, and location of the development and how it is anticipated to relate to its transportation context.

The narrative for the transportation context should address applicable existing conditions and TDM challenges and opportunities for the site related to vehicular access and circulation, the quality of the bicycling and pedestrian environment and facilities, transit service levels and the transit-supportive environment, and current levels of parking and parking policies. For existing developed sites, the current state of any TDM-related efforts should be described.

17.3.2. Identify a TDM Coordinator to administer the TDM plan:

Every TDM Plan ~~shall~~ ~~needs to~~ identify a TDM coordinator or coordinators ~~the plan administrator~~ and establish the roles and responsibilities of the ~~administrator~~ coordinator. The plan should demonstrate how the administration of the TDM plan and role of the TDM coordinator will reflect the scale of the site/development, proposed uses, parking and vehicle trip reduction targets, as well as the ownership and property management framework.

17.3.3. Employee and Customer Survey Document baseline TDM data:

The TDM plan shall identify baseline travel demand and supply data for the development or site in tabular format, against which future performance can be measured. Baseline data shall include:

- existing trip generation and future trip generation estimates, projections, (where applicable),
- existing or proposed parking supply and projected future demand estimates (where applicable), and
- existing or projected estimated modal split, recognizing modal split as the uniform metric to be used in TDM reporting in subsequent years.

Baseline data shall correspond to the transportation analysis required for the project, and shall represent best estimates of transportation demand and modal split at time of occupancy, given the transportation context, and shall be prepared by a qualified professional using ITE trip and parking generation data or project-specific trip and parking generation figures based on another methodology as approved by the reviewing authority. develop and use an employee and/or customer survey format that:

- Is specifically designed to reflect the use mix within the development.
- Is electronically tabulated.
- Produces comparable data from year to year
- Allows for compilation of data from multiple employers by third party.
- Allows for data use by employees to foster car pooling and ride sharing.
- Identifies barriers to or best practices in public transit, bicycle, and pedestrian transportation.
- Can be conducted periodically (typically annually) and can be used to monitor program effectiveness and provide the basis for periodic plan adjustment (see monitoring section below).

1.13.4. Set ~~Parking and Trip Reduction~~ TDM tTargets:

The TDM plan shall establish short-term (3-5 year) and long-term modal split TDM targets, based on documented baseline transportation demand data, the combination of land uses, location, transportation context, and other data for the site. TDM Modal split targets shall relate directly to the transportation infrastructure provided, TDM strategies to be employed, and site context, and

shall consider city-wide TDM goals as represented in plans such as *One Climate Future*. The metrics for TDM modal split targets shall be measurable, and shall include goals for reductions in single-occupancy vehicle trips and increases in non-single-occupancy trips, broken down by mode. The targets shall be described in both absolute values and percentage terms. The targets will be reviewed and updated based upon the annual TDM reporting. ~~intended TDM strategies to be employed use ITE trip generation and parking demand projections as the basis to establish a projected transportation demand and/or impact of the development. Alternatively, project-specific parking and trip generation projections may be used in place of ITE standards, if estimated by a licensed professional engineer and approved by the City. A project specific demand analysis may be advantageous to projects that can demonstrate reduced parking demand and trip generation based on approved assumptions in their TDM and Site Plan.~~

~~The TDM plan must use the specific use, location, local alternative transportation opportunities, and initial survey results to establish an achievable percentage reduction in transportation demand for the project. The TDM plan will utilize the stated parking and trip reduction targets as the basis for reduced infrastructure and contribution requirements for the Planning Board's evaluation.~~

17.3.5. Set cCustomized d Pparking and Ttrip Rreduction and modal split Sstrategies:

Every TDM plan shall include a set of strategies designed to achieve the TDM targets. The strategies should must be customized to reflect the specific mix of uses, the population that will access the site, the scale of development, the location, the vehicle trip and parking reduction targets, modal split targets, and the transportation opportunities available to the site. The strategies should also reflect a broad mix of TDM approaches, including approaches that:

- Provide TDM infrastructure and operations to the site (e.g. on-site lockers and shower facilities, transit capital or operation funding, programming that supports TDM, such as guaranteed ride home or ride-matching programs)
- Incentivize TDM options (e.g. through parking cash-out, preferential carpool parking, subsidized transit passes, subsidized bicycle maintenance, or bikeshare memberships), and
- Educate users of the site about TDM options (e.g. through site-level information-sharing mechanisms, provision of transit maps and schedules, etc.).

For additional information on TDM strategies, see <https://www.portlandmaine.gov/721/TDM-Parking>. ~~proposed for the development. For example, A residential development will utilize a very different approach to reducing project generated parking and trips than an office building. Likewise, the administration of the TDM plan and the role of the TDM Coordinator must adequately respond to the scale of the development, the uses~~

~~in the development, as well as the ownership framework and management of the facility.~~

~~1.13.6. Education:~~

~~The TDM plan shall, at a minimum include provisions for the following. All educational information and programs shall be readily accessible to all project occupants.~~

- ~~• Transit maps and schedules. These shall be posted and updated by the TDM Coordinator, as necessary.~~
- ~~• Access to information concerning transportation providers and guaranteed ride home services such as: carpooling list serves and/or van pool providers.~~
- ~~• Internal information sharing such as posting a "Ride Board" or employee email list serve to facilitate carpooling and to share the results of employee and customer surveys.~~
- ~~• Educational and promotional materials that describe and identify the advantages and cost saving opportunities of using alternative transportation, including specific incentives offered by the employer.~~
- ~~• Recognition of employees who reduce the traffic impact of the development through newsletter, email, bulletin board, or other announcements.~~
- ~~• Information on bicycling routes, parking infrastructure and locations and other amenities or incentives that may be available.~~

~~17.3.6.7. M~~Establish a monitoring and reporting plan:

All TDM plans must include provisions for monitoring program effectiveness over time to establish whether progress toward TDM ~~trip reduction~~ targets are being met.

Responsibility: TDM Coordinators and/or plan administrators are responsible for monitoring the efficacy of the TDM plan ~~periodically over time~~ and making adjustments to the plan as needed to achieve ~~trip reduction~~ modal split targets.

Methods: The methods ~~and scheduling~~ of monitoring shall be outlined in the TDM plan ~~and shall follow accepted transportation engineering~~. Monitoring methods will typically involve use of the periodic annual survey combined with ~~direct observation~~ other data collection, such as parking utilization counts where needed.

Reporting: The results of TDM plan monitoring shall be reported to the City of Portland on an annual basis using reporting tools(s) provided by the city.
~~compiled into a report that compares the results to trip reduction targets and parking demand projections. The monitoring results shall be provided to the Reviewing Authority according to the monitoring schedule established in the TDM plan.~~

~~1.13.8. Project Specific Standards:~~

~~Individual TDM Plans shall assess the following topics on a site-specific basis tailored to the transportation needs of the development.~~

~~1. Infrastructure:~~

~~On-site and off-site infrastructure improvements may be incorporated to achieve trip reduction targets and may include the following:~~

- ~~• Public Transit Access: The TDM plan shall identify how occupants and/or visitors will access public transit. Pedestrian links to bus routes and other transit links shall be identified and their usability assessed for sidewalk condition, ADA accessibility, street lighting, cross walk facilities, wayfinding, and general safety and attractiveness. The nearest sheltered public transit facility shall be identified. Deficiencies in the links to public transit that constitute barriers to its use shall be addressed in the TDM plan and in the site plan.~~
- ~~• Bicycle Parking: Minimum bicycle parking is a site plan requirement according to Article 14 of the Land Use Code. The TDM plan may incorporate additional bicycle parking, bicycle wayfinding, and/or covered parking to further encourage bicycle use.~~
- ~~• On-site Shower and Locker Facilities: Access to showers and locker facilities may be incorporated into the TDM Plan in order to encourage human-powered transportation alternatives.~~
- ~~• TDM Bulletin Board or Kiosk: TDM plans shall identify to occupants where information and educational material will be provided within the development a visible and convenient facility such as a transportation bulletin board and/or kiosk. In multi-tenanted facilities, transportation information shall be provided in the lobby of the structure or other such location that is accessible and frequented by a significant majority of occupants and visitors to the facility. The TDM coordinator shall be responsible for keeping all material current and available, as needed.~~

~~2. Incentives: Incentives available to users and/or occupants of the development may be incorporated to achieve trip reduction targets and may include the following:~~

- ~~• Parking “Cash Out”: TDM plans may include “parking cash out” incentives where employees have the choice of receiving monetary payments in lieu of provided parking. The efficacy of these programs will need to be carefully assessed and the method of monitoring must be described in the TDM plan.~~
- ~~• Public Transit Passes/Van Pool vouchers: Free or reduced price bus passes or van pool vouchers may be used as an incentive in the TDM plan. The use of transit options should be incorporated into the employee/customer survey and incorporated into the plan monitoring program. Transit payment options may be combined with parking cash out incentives, where appropriate.~~
- ~~• Preferred parking for car pool: Car pooling employees may be provided with more convenient and attractive parking, if available. If this option is incorporated into the TDM plan, the location of preferred parking shall be identified on the site plan and signed accordingly.~~
- ~~• Car sharing: Residential developments may incorporate shared car services or jointly owned vehicles into the TDM plan. Commercial development TDM plans may identify use of a shared vehicle for use by employees for either commercial or personal trips through the work day as a means to encourage alternative commuting to work.~~
- ~~• Telecommuting, flex time, and other flexible work scheduling mechanisms that promote fewer employee trips to work or promote alternative transportation travel.~~

~~*Other incentives infrastructure improvements and/or methods as may also be appropriate to the development.~~

1.1822. CONSTRUCTION PERMITTING AND TRAFFIC CONTROL PLANS

1.1822.1. Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & charges are all outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public [WorksServices](#).

1.1822.2. Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening

Clerk at the Department of Public ~~Works~~Services. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public ~~Works~~Services. See also Section II of the Technical Manual for lateral abandonment requirements associated with demolition permits.

- 1.~~1822~~.3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along ~~arterial and/or collector~~accepted city streets are required to submit a satisfactory 'maintenance of traffic' (MOT) plan prior to any site plan, subdivision, or street opening permit approval.

Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public by all modes of transportation through or along the construction work zone. On a case-by-case basis applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. These closures are to be limited to the shortest duration possible with durations specifically noted in the TCP documentation. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians. ADA-compliant access shall be maintained at all times and documented within Traffic Control Plans.
- In ~~extreme~~some situations, flaggers may be required to allow for safe pedestrian and bicycle movement

Additional information for temporary traffic control plans is provided in Chapter 6 of the MUTCD. (https://mutcd.fhwa.dot.gov/htm/2009/part6/part6_toc.htm)

- 1.~~1722~~.4. All existing modes of travel in the work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public ~~Works~~Services.

- Traffic control for bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycles and pedestrians.
- Where pedestrian traffic is significant, and/or where a detour would present a significant delay and/or safety issue to pedestrians, a temporary

walkway in the shoulder/parking lane/outside travel lane may be required where possible. Any temporary walkway shall be ADA-accessible, including temporary ADA ramps leading to/from the walkway where needed, and solid, detectable barriers along the edges of the walkway. Temporary walkways shall be kept clear of snow, ice and debris by the contractor at all times. Temporary walkways shall have a minimum clear width of five (5) feet.

- Pedestrian detours shall be considered as a last resort where no other practical option is available. Where pedestrian detours are allowed, pedestrians shall be directed to cross at existing crosswalk locations where practical. Temporary crosswalks and curb ramps may be required to shorten the overall detour. Any temporary crosswalk shall be ADA-compliant and shall be located where sight distance is adequate. All temporary crosswalks shall be approved by the Department of Public Works.
- Where construction requires the closure of a bicycle lane or shared use pathway alongside a high-volume and/or high-speed roadway, bicycle traffic shall be managed by the contractor in coordination with the Department of Public Works. Treatments may include a barrier-protected bicycle lane or shared use path, or bicycle detours as a last resort.
- Barrier systems utilized to separate the construction activity from the public street and/or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.

For reference, see also “How to Plan, Document, and Implement Pedestrian Mobility in and around Work Zones”
(<https://portlandmaine.gov/DocumentCenter/View/30884/Work-Zone-ADA>)

- 1.22.5. Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public WorksServices.

16. APPLICATION SUBMISSION REQUIREMENTS

16.1 SITE PLAN

The applicant shall submit for review a packet of materials and submissions in a form and content as specified by the Department of Planning and Urban Development to demonstrate compliance of the development with the site plan standards listed in Article 14 of the Land Use Code. Such submissions shall contain, at a minimum, the following elements:

A. General Submission Requirements For all Applications

1. Application form;
2. Applicable fees;
3. Project description;
4. Evidence of right, title and interest;
5. Evidence of state and/or federal approvals, if applicable;
6. Written assessment of project compliance with applicable zoning requirements;
7. Written assessment of project compliance with site plan standards;
8. Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site;
9. Written requests for waivers from the city's site plan or technical standards, if applicable;
10. Evidence of financial and technical capacity;
11. Boundary survey stamped by a professional surveyor licensed to practice in the State of Maine, drawn to scale and tied into the State Plane Coordinates, NAD 1983, Maine West Zone, as specified in Section 13 of the Technical Manual. A boundary survey of the site, may be waived by the Planning Authority for a review of Master Development Plan, where an existing conditions plan is available. The Boundary Survey requirement shall be met for each phase of development.

B. Written Materials for Site Plan Applications

1. Construction Management Plan, including a traffic control plan;
 2. A traffic study and other applicable transportation plans in accordance with Section [17](#) of the Technical Manual, where applicable;
 3. A narrative describing any significant natural features, wildlife and fisheries habitats or archaeological sites subject to the provisions of Section 14.6.2 of the land use code that are located on or near the project site and a description of the methods that will be used to protect such areas or sites during and post construction;
 4. A narrative describing site layout, on and off-site watershed hydrology, new and existing buildings and facilities, total impervious area, disturbed area and developed area created by the project;
 5. Stormwater runoff calculations as described in Section 5 of the Technical Manual;
 6. A narrative describing the development's consistency with applicable City Master Plans;
 7. Evidence of Utility Capacity to Serve;
 8. Estimated types and quantities of solid waste to be generated by the development. For new commercial and industrial development, a description of the estimated amount and type of recyclable material to be generated;
 9. A code summary referencing NFPA 1 and all Fire Department technical standards;
 10. Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14.6.4 of the land use code and/or in the City of Portland Design Manual;
 11. Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.
- C. Plans Required for Site Plan Applications – Plan based upon a standard stamped boundary survey meeting City of Portland standards, stamped by a professional engineer licensed to practice in the State of Maine, and including the following information:
1. Existing and proposed structures, as applicable, and distance from property

lines;

2. Approximate location of structures on parcels abutting the site;
3. All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;
4. Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;
5. Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;
6. Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;
7. Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;
8. Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;
9. Location of all snow storage areas and/or a snow removal plan;
10. Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14.6.2 of the land use code;
11. Location and proposed alteration to any watercourse;
12. A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
13. Proposed buffers and preservation measures for wetlands;
14. Existing soil conditions and location of test pits and test borings;
15. Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;
16. A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;

17. Grading plan;
18. Ground water protection measures;
19. Existing and proposed sewer mains and connections;
20. Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
21. Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
22. Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
23. Location and size of all on-site solid waste receptacles, including on-site storage containers for recyclable materials for any commercial or industrial property;
24. Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
25. A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
26. 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;
27. Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
28. An exterior lighting plan in accordance with Section 12 of the Technical Manual;
29. A master signage plan showing the location, dimensions, height, setback, materials, and illumination of all existing and proposed signs;
30. Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

D. Exceptions for Minor Site Plan Applications

On account of the scope and anticipated level of impact for certain types of Minor Site Plan applications, a complete submission package as detailed under

Section 16.1(B) and 16.1(C) is not required for the following types of development, which are defined for the purposes of application fee assignment and submittal requirements:

1. Minor Residential Development:
 - a. Development of a single-family or a two-family building, regardless of its size, excluding building additions, decks, or accessory structures; or
 - b. The addition of one or two dwelling units to a multifamily structure.
2. Low-Impact Site Development
 - a. Alteration of a watercourse or wetland as defined in Article 3 of the Land Use Code;
 - b. Alteration of a site where disturbance of land area is less than one (1) acre and consisting of either one or more of the following activities; stripping, grading, grubbing, filling or excavation. The Planning Authority shall exempt from review the loam and seeding of lawns and the cumulative placement of less than fifteen (15) cubic yards of fill on any lot provided such loaming or placement does not alter a drainage course, swale, wetland or redirect water onto adjoining property and does not violate any other provision of the Portland City Code or state or federal law. “Disturbed area” does not include routine maintenance, but does include re-development and new impervious areas;
 - c. The construction of any temporary or permanent parking area, paving of existing unpaved surface parking areas between 1,000 and 7,500 square feet or 5-25 spaces, or creation of other impervious surface areas between 1,000 and 7,500 square feet;
 - d. The rehabilitation or reconstruction, but not new construction, of piers, docks, wharves, bridges, retaining walls, and other structures located within the shoreland zone;
 - e. A site alteration in which vehicle access is proposed from more than one (1) street.
3. Plan Requirements for Minor Residential and Low-Impact Site Development, to be provided in addition to the general submission requirements for all site plan applications, listed under Section 16.1(A). Site plans shall be based upon the boundary survey and show the following information:

- a. Existing and proposed structures, as applicable, and distance from property lines;
- b. Existing and proposed paved areas, if applicable;
- c. Proposed ground floor area and finish floor or sill elevation;
- d. For minor residential only, exterior building elevation drawings (all sides);
- e. Location of proposed utilities;
- f. Identification and proposed protection measures for any significant natural features, as defined in Section 14.6.2 of the land use code;
- g. Identification and proposed protection for alterations of watercourses, if applicable;
- h. Identification and, if applicable, proposed impacts and protection measures for wetlands;
- i. For minor residential projects only, soil type;
- j. Existing and proposed grades and contours;
- k. Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed;
- l. Proposed stormwater management control;
- m. Soil erosion control plan;
- n. Existing vegetation to be preserved, proposed site landscaping, screening, and proposed street trees, if applicable;
- o. Existing and proposed curb and sidewalk;
- p. Location, area, and limits of the proposed site disturbance or alteration;
- q. Proposed pier, dock, wharf, pier, or slope stabilization in the Shoreland Zone, if applicable.

- E. Master Development Plan. A Master Development Plan is an optional submittal as part as part of the site plan review process. If the applicant elects to submit a Master Development Plan for review, it shall include the following information in addition to general submission requirements listed above:
1. A neighborhood context map, at a scale not less than one (1) inch equals one hundred (100) feet, providing a graphic description of the neighborhood in which the tract lies, including roads, utilities and other public facilities, major existing buildings and structures. There shall also be a statement and/or plan as to the general impact of the proposed Master Development Plan upon the area, indicating how the Master Development Plan relates to surrounding properties and what measures will be taken to create appropriate transitions and access from the subject property to abutting public properties (i.e. parks, waterfront, etc.) or other neighboring tracts (if applicable).
 2. A conceptual site plan drawn to a scale of not less than one (1) inch equaling fifty (50) feet, or series of drawings at the same scale, and any necessary supporting information, showing:
 - a. The approximate boundary lines of existing and proposed lots within and immediately adjacent to the Master Development Plan, with approximate areas and dimensions. With respect to residential areas, the proposed density, lot configuration, circulation and a typical plot plan shall be included in the application.
 - b. An analysis of the natural features of the site, including existing and/or adjacent natural waterways, wetlands, floodplains, topography, soil conditions and other natural features requested or required by the Planning Authority.
 - c. An analysis of the designated view corridors, historic resources, and archeological resource associated with the site.
 - d. Existing/proposed buildings and other significant structures, building groupings, exterior building elevations and entrances, parking areas, and other significant physical features of the site.
 - e. The context and design approach, including context drawings, perspective renderings, photographic montages, or computer-generated graphics depicting the proposed development within the surrounding building and environmental context, and building elevations. These drawings shall include the following:

- i. Illustrations of all sides of the structures;
- ii. Views of major entries or prominent building features;
- iii. Illustration of building articulation and elements;
- iv. Building finish composition; and
- v. Views of the pedestrian and streetscape experience.

The submission shall include a digital three-dimensional model tied to a specific location that is submitted as a KML, KMZ, DXF, or DWG file on a CD or DVD or such format as approved by the Planning Authority. It is the applicant's responsibility that the model is complete and represents the proposed development accurately using best practice modeling techniques and layering standards.

- f. Major circulation patterns surrounding and serving the site, the existing and proposed lines of streets (including the street width), ways, easements and any public areas within or next to the site.
- g. Major landscaping elements, features, open space, and plans for preservation of natural features.
- h. An analysis of the public safety services needed to support the master plan.
- i. An analysis of the anticipated impacts on the public-school system to support the Master Development Plan.
- j. A generalized drainage plan for the site, indicating drainage ways, flow, points of outfall, and indicating impacts of development on affected drainage basins. The plan shall include contour information at not less than two-foot (2') contour intervals and document anticipated quantities of run-off characteristics. General statements concerning storm water management techniques shall also be submitted with the application.
- k. The plan shall clearly show Master Development Plan boundaries, north arrow, date, scale, legend, the title "Master Development Plan Concept Site Plan" followed by the formal project name, and the name(s) of applicant(s), engineer(s), designer(s) and/or agent(s).
- l. A traffic analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies, including

current traffic counts for streets surrounding the project, analysis of the existing capacity of those streets, projections of the amount of traffic that will be generated by the proposed development, and the ability of the street system to absorb the increased traffic without decreasing the level of service below an acceptable level – said level to be determined by the Planning Authority in concert with the Department of Public Works. In cases where the Master Development Plan is subject to a Traffic Movement Permit (TMP) for all phases, the TMP submissions and review shall supersede these requirements.

- m. A utilities analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies. Said analysis shall contain an inventory of existing utilities including, but not limited to, storm sewers and drains, sanitary sewers, electrical lines, fire alarm boxes and lines, gas lines/mains, water mains, lighting, curb and gutter, etc. Said inventory shall illustrate utility locations, sizes, diameters, carrying capacity and present load on the system. The engineer's report shall state if the current system is capable of adequately serving the proposed development. If the current utility system is found to be inadequate for the proposed development, the report shall confirm the deficiencies and make recommendation(s) as to the infrastructure improvements necessary to properly service the proposed development and maintain the existing service. The report shall also present a formal plan for infrastructure improvements, documenting timing, funding mechanisms and coordination with the City; and
- n. Any other supportive information the applicant feels may be beneficial in the evaluation of the request.
- o. The Planning Authority or Planning Board may reduce the level of information required at the Master Development Plan review stage, provided more detailed supportive documentation is provided at final major site plan review of the Master Development Plan or phases thereof.

16. 2. SUBDIVISION

The applicant shall submit for review a packet of materials and submissions in a form and content as specified by the Department of Planning and Urban Development to demonstrate compliance of the development with the subdivision standards listed in Article 15 of the Land Use Code. Such submissions shall contain, at a minimum, the following elements:

A. Subdivision Plat. The following information shall be shown on the subdivision plat unless otherwise indicated:

1. Date, north point, title and graphic scale. Scale shall not be more than 60 feet to the inch unless lots are more than an acre, but in no event more than 100 feet to the inch;
2. Based on a recent survey by the subdivider, existing contours at two feet intervals or as otherwise required by the Public Works Authority. Existing structures which are to remain will shall be delineated;
3. Names of proposed streets, width of rights of way, and typical cross section reservation, and depth of construction materials;
4. Locations, widths and purposes of other rights of way or easements to be recorded;
5. All appropriate street curve information, including point of curvature, point of tangency, tangent distance, radii and interior angle, in standard engineering format;
6. Location of those utilities existing on or adjacent to the tract to be subdivided, including size and elevation of buried or underground utilities (may be shown on separate plan);
7. Tract boundary lines and property lines of lots, with accurate dimensions and either bearings or deflection angles. All lots shall be numbered;
8. Names of adjacent property owners with parcels over 25,000 square feet or names of adjacent subdivision;
9. Designation of flood hazard areas, as defined by the National Flood Insurance Program and shown on the city flood hazard boundary map, as well as any other areas in the subdivision subject to inundation by storm water or storm sewer overflow;
10. All potential wetlands within the proposed subdivision, regardless of the size of those wetlands;
11. Any river, stream or brook within or abutting the proposed subdivision. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S. § 480 B, Subsection 9.
12. Existing historic sites and structures which either appear on the National

Register or are nominated to the National Register by the state historic preservation officer;

13. Proposed private and public utility system including water, gas, telephone, fire hydrants, and any other services which shall supply the area (may be shown on separate plan);
14. Sanitary sewer and storm drain plans and profiles showing size, kind and slope of pipe, proposed manhole rim and invert elevations and catch basin locations and drains (may be shown on separate plan);
15. Lighting plan showing the location, design, height and spacing from each other of the support poles, in accordance with standards and specifications established by the Public Works Authority (may be shown on separate plan);
16. Tree plan showing groups of existing, sizeable trees which the subdivider intends to preserve (may be shown on separate plan);
17. A detailed plan of the entire subdivision and the immediate vicinity showing all existing and proposed drainage both on- and off-site including drainage swales, ditches, etc., with directional flow arrows and approximate slope grades, and showing proposed finished "spot elevations" around the perimeter of the subdivision. Proposed drainage shall be shown as it may affect or restrict development on individual lots and with reference to improvements for which a performance guarantee is required under this article. Where deemed feasible by the Public Works Authority, proposed finished contours at intervals of two feet shall be provided on the drainage plan upon request (may be shown on separate plan);
18. Location and designation of any zoning district boundaries affecting the subdivision;
19. All future phases and sections of the subdivision proposed by the subdivider (may be shown on separate plan);
20. Proposed parks and school sites, or other public open space that the developer proposes to convey to the city;
21. Names, addresses and stamp or certification, if applicable, of registered professional engineer, subdivider, and owner:
22. At the option of the subdivider, any other information that may be necessary for the full and proper consideration of the subdivision shall be submitted in writing;

23. Streets and right of way monuments and property line markers;
24. Vicinity sketch (may be shown on separate plan);
25. Total site data, including total area of the subdivision, total area in streets, total area in recreation or open space and number of house lots;
26. Profiles of each street or way in the subdivision shall be shown on the subdivision plat. They shall be drawn to a longitudinal scale of 40 feet to one foot and a vertical scale of four feet to one inch. Such profiles shall include separate profiles of each side line and center line of the street or way. Any buildings abutting on the street shall be shown in standard engineering format as requested by the Public Works Authority.

B. Supplemental Submission Items. The following submission items shall be provided if required by the Planning Board and insofar as feasible:

1. When private sewage systems are used, the results and supporting data of a soil test of each lot in the subdivision conducted by a soil evaluator licensed in the state;
2. When the adequacy of the subdivision's load bearing capacity is in question, the results and supporting data of test borings conducted by a professional engineer registered in the state;
3. When conditions warrant, a program which shall be implemented by the subdivider to control dust, erosion and sedimentation and/or vehicular traffic during construction;
4. Evidence of the applicant's financial capability to carry out all phases of the proposed development;
5. Evidence of technical capacity to undertake the development;
6. Evidence of state and federal approvals, licenses or permits required by law, or the status of applications therefor;
7. Price range of houses that will be built in the subdivision;
8. Traffic impact analysis;
9. High intensity soil survey, if required by the Planning Authority;

10. Types and estimated quantities of solid waste to be generated by the development;
11. Construction plan outlining the anticipated sequence of construction of the major features of the project including without limitation roads, retention basins, sewer lines, seeding and other erosion and sedimentation control measures, and pollution abatement measures and also setting forth the approximate dates for commencement and completion of the project;
12. A narrative and a plan showing all proposed buffer strips, their dimensions, and maintenance plans and responsibilities;
13. A description of any wetlands, wildlife and fisheries habitats, archaeological sites or unusual natural areas located on or near the project site and a description of the methods that will be used to protect such area; and
14. Where submission drawings are available in electronic form, the applicant shall submit any available electronic CADD.DXF files with final plans.

C. Recording Plat. The Recording plat shall be an original ink drawing on linen or mylar, or as necessary to be acceptable to the Registry of Deeds, and shall be tied to an accepted street or to a proposed street under construction and bonded to insure construction. The plat shall show the following:

1. Title, date, graphic scale, north arrow, name, signature and registration number or seal of a registered land surveyor licensed in the state, name and address of developer and owner;
2. Tract boundary lines and property lines of lots, with accurate dimensions and either bearings or deflection angles. All lots shall be numbered;
3. All appropriate street curve information, including point of tangency, tangent distance, radii and interior angles, in standard engineering form;
4. Street names, width of street rights of way and typical cross section showing only surface dimensions of roadway pavement, esplanade and sidewalk reservation;
5. Street and right of way monuments and property markers. Iron pipes shall be designated by a small circle at the point of installation;
6. Locations, dimensions and purposes of any easement or right of way;
7. Purpose for which sites, other than residential lots, are dedicated or

reserved; it being understood that any reservations of areas shall be subject to the proper zoning thereof;

8. Reference to recorded subdivision plats of adjoining platted land by book and page number;
9. Space for the signatures of the Planning Board and date of approval;
10. Where required by 30 A M.R.S. § 4406, the fact that initial approval or subsequent amendment of a subdivision is based in part upon the granting of a variance from any of the applicable subdivision approval standards.

To: Chair Stanley & Members of the Planning Board
From: Matthew Grooms, AICP
Date: May 6, 2022
Re: Technical Manual Updates: Sections 1, 2, 4, and 10
Meeting Date: May 10, 2022

I. INTRODUCTION

The Department of Planning & Urban Development, in collaboration with the Department of Public Works and the Department of Parks and Recreation, has prepared a package of amendments to the City of Portland Technical Manual, Sections 1, 2, 4 and 10, pertaining to transportation systems and street design, sanitary sewer and storm drain design, landscaping and landscape preservation, and municipal street lighting. These edits include both substantive amendments, such as new or revised review standards and technical details, along with less substantive edits, such as updates to terminology and code references. Per Section 2.1.10 of the Land Use Code, revisions to the *Technical Manual* fall under the jurisdiction of the Planning Board.

II. GENERAL EDITS TO TECHNICAL MANUAL

Below is a summary of proposed changes. For the changes shown in redline format, please refer to Attachments 1-8.

A. Section 1 and Section 17 - Transportation Systems and Street Design Standards and Transportation Studies and Plans. (Attachments 1-3)

- Removed traffic study, parking study, transportation demand management plan, and construction management plan requirements from Section 1 and created new Section 17 of the Technical Manual for transportation studies and plans.
- Renumbered sections based upon these edits.
- ‘Department of Public Services’ has been replaced by ‘Department of Public Works’.
- Where applicable, exact requirements written verbatim (i.e. DOT, AASHTO, local code) have been removed and replaced with references to the current local, state or federal requirements.

B. Section 2 – Sanitary Sewer and Storm Drain Design Standards (Attachments 4-5)

- Separated out standards for sewer systems and storm systems across the section.
- ‘Department of Public Services’ has been replaced by ‘Department of Public Works’.
- Revised approval authority in certain instances from ‘City Engineer’ to ‘Public Works Director’.

C. Section 4 - Landscaping and Landscape Preservation Standards (Attachments 6-7)

- References to appendix figures were revised to be consistent in terminology, (i.e. ‘Figure-XX’).
- In certain instances, existing content was assigned new sub-headings or relocated

within the section to help with navigation, legibility, and administration.

- Instances where the term, 'Department of Public Services' remain have been replaced with 'Department of Public Works'.

D. Section 10 – Municipal Street Lighting Standards (Attachment 8)

- City has selected a comparable replacement for the X-3 lighting bollard, for use in public rights of way, due to the existing model no longer being manufactured.

Note that in addition to the above list, changes to code references have been incorporated into nearly every section of the *Technical Manual*.

III. PROPOSED ADDITIONS TO SECTION 1 AND SECTION 17 (NEW) – TRANSPORTATION SYSTEMS AND STREET DESIGN STANDARDS, AND TRANSPORTATION STUDIES & PLANS (ATTACHMENTS 1-3)

Existing Section 1 of the Technical Manual has been comprehensively reformatted and reorganized, which gives the edited document the appearance of being almost entirely rewritten. As such, content shifts and reformatting are being presented within the redlined version of this document as existing material to aid with legibility. Only substantive edits are shown in redline. These include updated ADA requirements, standards for concrete sidewalks, driveway aprons, curbing, bike lanes, bus stops, curb extensions, traffic islands and pedestrian crossings. Further, several elements that currently exist within Section 1, such as requirements around traffic studies, parking studies, and transportation demand management (TDM) plans, have been relocated to a new Section 17.

For a complete overview of the substantive changes being proposed within this section, please see the accompanying memo from the Department of Public Works (Attachment 8).

IV. PROPOSED ADDITIONS TO SECTION 2 – SANITARY SEWER AND STORM DRAIN DESIGN STANDARDS (ATTACHMENTS 4-5)

Section 2 of the Technical Manual has been comprehensively reformatted and reorganized, which gives the edited document the appearance of being almost entirely rewritten. As such, content shifts and reformatting are being presented within the redlined version of this document as existing material to aid with legibility. Only substantive edits are shown in redline. The majority of this update is a reorganization of the standards to make it more clear which standards are intended for sewer systems and which are for storm drain systems. Previously, these were mixed together and described individually throughout the section. Other substantive edits include provisions to allow accessory dwelling units (ADUs) to tie into the principal unit's sewer lateral, as opposed to a new connection within the City right-of-way. Similarly, standards were introduced for grease interceptors, force mains, and the use of catch basins for on-site field inlets. These standards generally represent a matter of codifying existing practice.

For a complete overview of the substantive changes being proposed within this section, please see the accompanying memo from the Department of Public Works, Water Resources Division

(Attachment 9).

V. PROPOSED ADDITIONS TO SECTION 4 – LANDSCAPING AND LANDSCAPE PRESERVATION STANDARDS (ATTACHMENTS 6-7)

A. Definitions (Section 4.1)

- Feature Mature Tree – A new definition was drafted for feature mature tree, based upon the current definition of a ‘heritage tree’. The heritage tree ordinance, as currently in effect, provides additional protections and enhanced tree replacement/fee requirements for certain trees located within established historic districts. These trees include trees on the ‘Register of Big Trees’ list promulgated by the Maine Department of Agriculture, Conservation & Forestry, certain trees 24” inches in diameter or greater, and rare tree specimens. The ‘feature mature tree’ term is currently in use within Section 4, clearly referring to what would be a heritage tree located outside of established historic districts. Given this, and that no definition currently exists, staff have drafted a new definition based upon the heritage tree definition that is more general and broadly applicable in nature. Staff also removed the term ‘heritage tree’ from the section, as heritage trees are governed under a separate ordinance.

B. Preservation of Existing Vegetation (Section 4.3)

- Section 4.3.1 - Staff recommend introducing a tree survey requirement to identify trees 10” DBH (Diameter at Breast Height) not only on the development site, as is currently required, but also within the right of way (ROW) adjacent to the site.
- Section 4.3.4 - Staff recommend requiring that all tree preservation signage required to be erected and maintained throughout construction be placed outside of the drip line of individual, groupings, or perimeter trees to be preserved. This is consistent with other preservation elements, such as fencing or other protective barriers, and is intended to maintain the health of the tree(s).

C. Site Landscaping (Section 4.5)

- All Landscape Design (Section 4.5.1) - Staff have introduced new introductory language pertaining to all landscape design, which expands the stated purpose of site vegetation and landscaping. The current version encourages low-maintenance landscaping that provides site definition and screening, while supporting biodiversity. The statement has been expanded to encourage landscaping which achieves one or more additional functions, such as furthering climate resiliency and mitigation, creating or enhancing areas of native habitat, improving stormwater management and treatment, and increasing local food production. These edits are supported by policies adopted in Portland’s Plan, One Climate Future, and the currently drafted Community Agriculture Plan.
- Screening and Buffers (Section 4.5.2) - Currently, opaque fencing may be utilized as a site element to screen or buffer contrasting land uses. Staff have introduced additional clarifying language requiring that such fencing be of high architectural quality.
- Parking Areas (Section 4.5.5) - The language requiring some form of separation between

vehicular parking areas and landscaped areas has been modified to allow for either physical or visual forms of separation, with bollards being introduced as an example of such separation.

- Snow Storage (Section 4.5.6) - Staff propose striking a requirement that snow storage be sited so as not to encroach upon required off-street parking. The rationale for this is that off-street parking requirements do not explicitly permit the temporary occupation of required off-street parking spaces, and as such, per Article 19 of the City's Land Use Code, an applicant would not be permitted to routinely store snow atop required off-street parking.
- Slope Stabilization (Section 4.5.8) – Within this subsection, staff have modified the requirement for a retaining wall. Currently, any wall measuring four (4) feet in height from the bottom of the footing to the top of the wall is required to be designed by a licensed engineer. This differs from the City's building permit requirement, which only requires a building permit and engineered design if the wall measures four (4) feet from the proposed finished grade to the top of the wall. Staff recommend modifying this requirement to reflect this, and to also specify that the wall must be designed by a licensed structural engineer.
- Climate Positive Planting (Section 4.5.10) – A new sub-section was introduced titled 'Climate Positive Planting', which encourages new development to prioritize landscaping that furthers the City's climate goals; specifically by requiring that the viability of planted vegetation in a warming climate be considered, by prioritizing expansion of the City's tree canopy in an equitable manner to address the urban heat island effect, and encouraging the use of landscaping elements to reduce energy consumption.

D. Street Trees (Section 4.6)

- Street Trees/Residential Development (Sections 4.6 and 4.6.1) - Staff recommend expanding the street tree requirements to include not only public right-of-way (ROW) but also along private roadways, for example as part of a PRUD.
- Street Trees (Section 4.6) – Edits are suggested to revise planting area requirements for street trees from 10 feet to 20 feet. This aligns with the requirement in Section 4.6.4., which allows for existing trees located within 20 feet of the right-of-way to be counted towards a project's street tree requirement.
- Street Tree Alternatives (Section 4.6.4) – Where an applicant can demonstrate that it is infeasible to plant street trees in the prescribed amount within the right-of-way, that applicant may fulfill the requirement by providing one of six street tree alternatives.
 - The City's preferred alternative is to have the required street trees planted elsewhere within the neighborhood in which the development is occurring on public land, within esplanades or within parks, playgrounds or other locations with tangible public benefit. Staff have introduced two additional alternative locations, those being in areas of the city identified as having minimal tree coverage, or within existing empty street tree wells or planting strips. The first additional alternative is recommended as a means to prioritize and further tree equity across the city. The second alternative is being proposed to reinforce the primary purpose of street

trees, to create comfortable streetscapes and expand the City's tree canopy.

- o Staff propose striking one of the alternatives, which was already struck from the Land Use Code as part of ReCode, which states that the incorporation of measures to enhance tree survival, such as raised planters, irrigation and structural soils, may count towards street tree requirements. Staff's rationale for this edit is that a developer should take necessary measures to ensure a tree's survival, and in the event that such measures are cost prohibitive, a developer should pursue one of the other alternatives.
- o Staff propose striking a second alternative, which states that other planted features may count towards a development's street tree requirement. Staff's rationale for this edit is that other planted features, such as green screens, green roofs, new trees well away from public spaces, and shrubbery, do not provide an in-kind public benefit when compared with street trees, particularly shading of public right-of-way.
- o A new alternative has been introduced which would allow for existing, healthy trees located within the right-of-way to be counted towards a development's street tree requirement. Currently, we explicitly permit existing trees to be maintained on an applicant's property as an alternative, and in practice, permit existing trees within the right of way to count. This amendment simplify codifies existing practice and encourages preservation of existing mature trees.
- o Similar to the above recommendation where a developer would be encouraged to plant new street trees in neighborhoods or locations with minimal tree coverage, staff recommend that street tree contribution funds be similarly directed to increase tree equity city-wide. Staff also recommend eliminating an existing requirement which states that 85% of the Tree Fund be allocated towards new trees, and 15% be allocated towards maintenance. In discussions with Parks and Forestry staff, it was determined that this prescriptive requirement did not adequately account for the constantly evolving needs of our street tree network, and that for example, this requirement might artificially limit the City's ability to respond when additional on-going maintenance is required.

E. Installation and Maintenance of Plantings (Section 4.8)

- Planting Selection (Existing Section 4.7) – This section has been split into two separate sections, with standards related to the installation and on-going maintenance requirements of site vegetation now housed within a standalone section for improved legibility and navigation.
- Section 4.8.2 - A statement requiring that landscaping not installed prior to an issuance of a certificate of occupancy be subject to a performance guarantee has been struck, as performance guarantee requirements already require this, and are listed in the City's Land Use Code.
- Section 4.8.5 - An existing requirement, currently located within Section 4.3, which requires that new vegetation planted as part of site development which shows signs of construction damage within a one-year period following construction be rejected and replaced in kind

prior to the release of the defect guarantee. As Section 4.3 specifically pertains to landscape preservation, this language has been introduced within this proposed new section to apply directly to new vegetation.

VI. STAFF ANALYSIS

Section 2.1.10 of the City's Land Use Code requires that in order for the Planning Board to approve technical standards, such standards should be additional to and consistent with the provisions of the Land Use Code, necessary and reasonable, and "in accordance with sound engineering...practice." As discussed above, the proposed updates to the *Technical Manual* represent clerical edits, reorganization to assist with document legibility and administration, or new policy directly informed either by engineering best practice, or in the case of landscape standards, recommendations from One Climate Future and Portland's Plan, which are in line with best practices observed elsewhere. For example, a major theme expressed in these edits is the notion of tree equity, and ensuring that we not only expand our city's tree canopy, but target expansion in areas with limited tree canopy. In looking at the city's tree coverage, these areas often coincide with neighborhoods exhibiting lower median household incomes, and higher percentages of households of color as well as neighborhoods that have transitioned from predominantly manufacturing to commercial or residential uses. The emphasis on tree equity in our street tree alternatives, and the direction of tree funds towards areas of low tree coverage as opposed to other locations within the neighborhood of development, is an important step towards achieving this goal. Similar changes include the introduction of a climate positive planting standard, and revision to the landscaping purpose statement.

VII. NEXT STEPS

Following the Planning Board workshop on May 10th, staff will consider and incorporate feedback from the Board and members of the public as necessary, and will prepare revised drafts for further Board consideration or action.

VIII. ATTACHMENTS

1. Section 1 – Transportation Systems and Street Design Standards - Suggested Edits
2. Section 1 –Detail Revisions
3. Section 17 – Transportation Studies and Plans – Suggested Edits
4. Section 2 – Sewer and Storm Drain Design Standards – Suggested Edits
5. Section 2 – Detail Revisions
6. Section 4 – Landscaping and Landscape Standards – Suggested Edits
7. Section 10 – Municipal Street Lighting Detail Revision
8. Department of Public Works – Transportation Division Memo
9. Department of Public Works – Water Resources Division Memo

To: Chair Stanley & Members of the Planning Board
From: Nell Donaldson, Director of Special Projects
Date: September 9, 2022
Re: Technical Manual Updates: Sections 1, 2, 4, 10, & 17
Meeting Date: September 13, 2022

I. INTRODUCTION

On May 6, the Department of Planning & Urban Development, with assistance from the Departments of Public Works and Parks & Recreation, appeared before the Planning Board to review a slate of draft amendments to the *City of Portland Technical Manual*. These amendments affect Section 1 (Transportation Systems and Street Design Standards), 2 (Sanitary Sewer and Storm Drain Design Standards), 4 (Landscaping and Landscape Preservation Standards), and 10 (Municipal Street Lighting Standards), and include the reorganization of material into a new Section 17 (Transportation Plans and Studies). In large part, the proposed edits represent an effort to bring standards into alignment with current and best practice, and to reorganize material for legibility.

This memo does not revisit the first draft edits presented at the May 6 workshop, but instead focuses on 2nd draft revisions, with an emphasis on edits made in response to Planning Board input, public feedback, and the recommendations of several third-party reviews. For a complete summary of the 1st draft edits, see the May 6 staff memo (*Attachment 1*).

II. THIRD PARTY REVIEWS

At the May meeting, Planning Board members suggested that staff obtain third party reviews of proposed *Technical Manual* amendments. In response, staff distributed drafts to several consultants who regularly engage in development review, and thus are familiar with the application of *Technical Manual* standards. Section 1 was reviewed by Tom Errico of TY Lin International, the City's consulting traffic engineer (*Attachment 2*), as well as by Will Savage of Acorn Engineering (*Attachment 3*). Lauren Swett of Woodard & Curran, who conducts civil engineering reviews for the City, reviewed the proposed amendments to Section 2 (*Attachment 4*). Staff also met with Sarah Cushman, of Cushman Transportation Consulting, regarding proposed edits to the Transportation Demand Management provisions of Section 17 of the *Technical Manual* (*Attachment 5*).

It is important to note that, in addition to continued coordination with the Department of Public Works and the Department of Parks and Recreation, staff consulted with other departments as necessary on 2nd draft edits as well, including the Departments of Permitting & Inspections and Sustainability.

III. 2nd DRAFT EDITS

Below is a summary of 2nd draft edits to the *Technical Manual*, suggested both on the basis of the feedback received at the May 6 workshop and the recommendations of the third-party reviewers.

A. Section 1: Transportation Systems and Street Design Standards (*Attachment 6*, with new text edits indicated in purple.)

- 1.5: Revised driveway location and design standards to allow DPW discretion around larger driveway openings and driveway separation standards.

- 1.6: Revised language around detectable warning panels to allow for their installation at driveways where warranted, and modified conditions where curb extensions are merited to allow for instances of mid-block crossings and areas of safety concern which may not qualify as high crash locations.
- 1.8: Revised roadway construction, surface, and aggregate standards to align with MaineDOT standards.
- 1.10: Added language to clarify that parking areas must be built to allow for delineation of parking spaces and aisles.
- 1.13: Revised bicycle lane design standards to provide additional detail on standard bike lane paint and striping requirements, address the placement of bike lane buffers, address the potential for obstructions within bike lanes, address conditions in which sufficient width is not immediately available, and speak to general design standards for bike lanes, including parking-separated bike lanes, with a reference to best practice design guides. Note that staff pursued this approach, rather than a more prescriptive one, in acknowledgement of the wide variation in street design contexts within the city.
- 1.14: Refined EV charging requirements to clarify EV-ready standards, acknowledge the potential for Level 3 charging stations in certain land use contexts, address projects with significant supplies of proposed parking, and revise the required number of EV-ready spaces to better align with projected demand. In the case of this last edit, the refined requirement for 50% EV-ready spaces (rather than the current 80%) is based on a calculator developed by the U.S. Department of Energy, which estimates the number of Level 2 workplace charging stations necessary to meet demand at various levels of adoption within a given region. These projections were applied against the total number of existing parking spaces within the area of the 2017 *Parking Study for Downtown, Old Port, and the Eastern Waterfront*, to arrive at a rough target for EV-ready parking spaces.
- Details: Made minor revisions to correct typos or clarify.

For a complete overview of 1st and 2nd draft edits proposed to Section 1, including a list of edits to details, please see the accompanying memo from the Department of Public Works (*Attachment 11*).

B. Section 2: Sanitary Sewer and Storm Drain Design Standards (*Attachment 7*, with new edits indicated in [purple](#).)

- 2.2: Revised language to clarify that spaces surrounding enclosed parking areas should direct stormwater away from the sewer system.
- 2.5: Revised language regarding force main connections into existing manholes.
- 2.6: Revised backflow prevention language to clarify when backflow prevention is necessary.
- 2.8: Added underdrain specifications.
- 2.12: Revised aggregate specifications to eliminate redundancy with Section 1.
- Details: Made minor revisions to correct typos or clarify.

For an overview of the 1st and 2nd draft edits to Section 2, including edits to details, please see the accompanying memo from the Department of Public Works (*Attachment 12*).

C. Section 4: Landscaping and Landscape Preservation Standards (*Attachment 8*, with new edits indicated in purple.)

- 4.6: Revised street tree language to allow for the application of one of three new tree well details, based on the location and suitability of the site for tree survival.
- Details: Updated Detail IV-4a and added new details for tree wells. Revised recommended tree list (to be incorporated into Figures IV-1A and IV-1B) to reflect lessons learned regarding survivability.

D. Section 10: Municipal Street Lighting Standards (*Attachment 9*)

- No additional changes proposed.

E. Section 17: Transportation Studies and Plans (*Attachment 10*, with new edits indicated in purple.)

- 17.1: Revised transportation study scope elements to reflect a more multi-modal approach to traffic analysis.
- 17.3: Revised Transportation Demand Management requirements to promote consistency around metrics across sites, ensure that targets are derived from transportation analysis and designed relative to the local context, and require strategies in each of several Transportation Demand Management categories – infrastructure/operations, incentives, and education.

IV. STAFF ANALYSIS

Section 2.1.10 of the City's land use code grants the Planning Board the authority to review and approve technical standards through the *Technical Manual*. In order to do so, the Planning Board must find that such standards are additional to and consistent with the provisions of the land use code, necessary and reasonable, and "in accordance with sound engineering...practice." As discussed previously, in addition to clerical edits for the sake of clarity or consistency and reorganization to assist with document legibility and administration, the proposed edits to the *Technical Manual* also include substantive edits. These edits are generally designed to reflect lessons learned through practice, and to bring standards into alignment with state and national guidance in engineering and other relevant fields.

V. NEXT STEPS

Following the Planning Board workshop, staff will consider and incorporate feedback from the Board and members of the public as necessary, and will prepare revised drafts for public hearing.

VI. ATTACHMENTS

1. May 6 Memo to the Planning Board
2. Section 1 Review by Tom Errico, TY Lin International
3. Section 1 Detail Review by Will Savage, Acorn Engineering
4. Section 2 Review by Lauren Swett, Woodard & Curran
5. Section 17 Review by Sarah Cushman, Cushman Transportation Consulting
6. 2nd Draft Revisions to Section 1 – Transportation Systems and Street Design Standards
7. 2nd Draft Revisions to Section 2 – Sewer and Storm Drain Design Standards
8. 2nd Draft Revisions to Section 4 – Landscaping and Landscape Standards
9. 1st Draft Revisions to Section 10 – Municipal Street Lighting Standards
10. 2nd Draft Revisions to Section 17 – Transportation Studies and Plans
11. Summary of Updates to Chapter 1 of the *Technical Manual*, DPW

12. Summary of Updates to Chapter 2 of the *Technical Manual*, DPW
13. Public comment

City of Portland | Department of Public Works

Michael Murray, Acting Director



To: Planning Board

From: Keith Gray, City Engineer, Justin Pellerin, Senior Engineer

Date: May 6, 2022 Updated 8/26/2022

Re: Summary of Updates to Chapter 21 of the Technical Manual

Notes: 8/26/2022 updates to this memo listed in red.

The Department of Public Works, Engineering Division, proposes to make changes to the City of Portland Technical Manual Section 1, Transportation Systems and Street Design Standards. The last time this section was updated was in 2017. The updates are significant in places, providing guidance for changes in best practices, removal of obsolete or overly complex items, and addition of a number of details. In addition, transportation study requirements have been moved to a new Section 17 for convenience of reference and shared commonality in the project approval process. These changes, in part are intended to address detail and design changes already informally adjusted by DPW to reflect current needs and practices. Further, the Department has recognized that many other best practice documents exist outside of this manual, including other City documents, and best exist separately from the Technical Manual. Items of note, changes or additions are as follows:

- Section 1 retitled as “Transportation Design Standards” to focus on specific design needs
- Moved Traffic Studies, Parking Studies, and TDM to a newly created “Section 17” for consistence
- “Sidewalks and Driveway Aprons” is now “Sidewalks and Curb Ramps” with driveway aprons in its own section
- Updated language on Americans with Disabilities Act (ADA) requirements to reflect current requirements
- Updated language on the City’s sidewalk Material Policy as per current policy requirements
- Updated language on curb extension and design approvals based on operational needs for vehicles
- New language on construction materials, pedestrian access routes, and design parameters for sidewalks
- Reduced discussion on requirements such as permitting and roadway design, with reference provided to MaineDOT Standard Specifications instead to promote consistence with City and State projects
- Parking requirements referencing the City Land Use Code for both automobiles and bicycles
- Bicycle routes and lanes design updates reference the City’s Bike Route Network Map and AASHTO design requirements for ease and consistency of reference
- Updates to City Traffic Control devices stating compliance with the Manual on Uniform Traffic Control Devices (MUTCD) and reference to the City’s Traffic Signal Policy and Guidance Manual
- The crosswalk subsection has been updated to specify that all public crosswalks shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). Other updates include public improvements definition, street markings, street lighting and signage guidance. All other standards were removed and referred to the MUTCD. Crosswalk types have been combined into a single, block-based crossing marking for consistency and clarity
- Language updated to address comments from third party transportation engineer reviewer Tom Errico throughout the document. See updated document with track changed updated language and responses to the review comments.

- Updates have been made to section 1.8 Roadway Construction, Surface and Aggregate standards to better align with Maine DOT standard specifications.

A list of the standard detail changes associated with Section 1 have been provided as part of this submission. Detail changes have been generally made for the following reasons:

- Consistency in numbering (subject to further adjustment prior to final Planning Board approval)
- More clarity in design requirements and updates where best practices have changed
- New details provided where new requirements have been provided
- Updates made to several details to address comments provided by Acorn Engineering who provided a third-party review of the section 1 details.
- Updates made to several details to provide further clarity.

In addition, the New Chapter 17, Transportation Studies includes:

- Transportation Studies section moved from Section 1, which references the location of MaineDOT's Traffic Movement Permit requirements and other requirements based on Passenger Car Equivalents (PCE's) generated by planned development projects
- Updated language to mitigation and reference to the City's Traffic Impact Fees
- Updated language on parking studies and data collection/analysis
- Updates to Transportation Demand Management (TDM) to reference emerging best practices and to provide Applicants with additional guidance for TDM Plan development
- **Updates made per Tom Errico's comments.**

Name of Detail	June 2022 Proposed		Comments (Aug 22 Updates in Red)
	2011 Detail Number	Detail Number	
LOCAL STREET CROSS SECTION	I-1	I-1	
COLLECTOR STREET CROSS SECTION	I-2	I-2	
ARTERIAL STREET CROSS SECTION	I-3	I-3	
UTILITY LOCATIONS IN STREETS	I-4	I-4	
TURNAROUND ON DEAD END STREET	I-5	I-5	
ACCESSIBLE RAMP GENERAL NOTES		I-6	New Detail
PERPENDICULAR RAMP FOR WIDE SIDEWALK WITH NO ESPLANADE	I-6A	I-6A	
APEX PEDESTRIAN RAMP FOR SIDEWALK LESS THAN 6.5' WIDE		I-6B	New Detail
APEX PEDESTRIAN RAMP FOR SIDEWALK 6.5' WIDE AND GREATER		I-6C	New Detail
SIDE STREET PEDESTRIAN RAMP WHEN NO INTERSECTING SIDEWALK IS PRESENT		I-6D	
RAMP LENGTH TABLE		I-6E	
PEDESTRIAN RAMP REQUIREMENTS		I-6F	
ISLAND PEDESTRIAN CROSSINGS		I-6G	
PARALLEL ADA RAMP LAYOUT FOR NARROW SIDEWALK WITH NO ESPLANADE	I-6B		
PERPENDICULAR RAMP FOR NARROW SIDEWALK WITH ESPLANADE	I-6C		
DIAGONAL SIDEWALK RAMP LAYOUT FOR SIDEWALK WITH ESPLANADE	I-6D		
PREFERRED SIDEWALK RAMP LOCATION AT INTERSECTION	I-6E		
SIDEWALK RAMP DETECTABLE WARNING PANEL	I-7	I-7	
SIDEWALK RAMP DETECTABLE WARNING PANEL (HISTORIC DISTRICT)	I-7A		Detail no longer needed. PB previously approved use of single DWP detail, citywide.
GRANITE STREET MONUMENT	I-8	I-8	
DRIVEWAY APRON LAYOUT	I-9	I-9A	2022 Detail specifies "Residential"
DRIVEWAY APRON LAYOUT COMMERCIAL/INDUSTRIAL		I-9B	
DRIVEWAY APRON AT CONSTRAINED SIDEWALK		I-9C	Removed 6.5' or less from title Aug 2022
DRIVEWAY APRON LAYOUT ALONG STREET FRONTAGE (NO SIDEWALK)		I-9D	Updated Detail title for clarity Aug 2022
BRICK SIDEWALK WITH BITUMINOUS BASE	I-10	I-11A	
BRICK DRIVEWAY APRON WITH BITUMINOUS BASE	I-11	I-10A	Fixed Typo Aug 2022
BITUMINOUS SIDEWALK	I-12	I-11C	
BITUMINOUS DRIVEWAY APRON	I-13	I-10C	Revised detail to add clarity Aug 2022
REINFORCED CONCRETE SIDEWALK	I-14	I-11B	
REINFORCED CONCRETE DRIVEWAY APRON	I-15	I-10B	Added salt guard note shown on I-11B Aug 2022
SIDEWALK EXPANSION JOINT		I-11D	Revised detail to add clarity Aug 2022
VERTICAL GRANITE CURB FULL DEPTH STREET CONSTRUCTION	I-16	I-12	Revised detail to add clarity Aug 2022
VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREETS	I-17		Detail no longer needed. Information included in I-12
SLOPED GRANITE CURB FULL DEPTH STREET CONSTRUCTION	I-18	I-13	
SLOPED GRANITE CURB INSTALLATION IN EXISTING STREETS	I-19		Detail no longer needed. Information included in I-13
MOUNTABLE BEVLED GRANITE CURB		I-15	
GRANITE RADIUS CURB		I-14	
SLIPFORM CONCRETE CURB			Removed Aug 2022.
TYPICAL CROSSWALK MARKINGS	I-22	I-17	Revised detail to show skewed crossing scenario and added notes Sept 2022
VEHICLE PARKING DIMENSIONS	I-27, I-28, I-29, I-30	I-16A	Consolidated into 1 detail
MOTORCYCLE PARKING	I-31	I-16B	
BIKE LANE CROSS SECTION WITH NO PARKING	I-36		Deleted Aug 2022
BIKE LANE CROSS SECTION WITH PARKING	I-37		Deleted Aug 2022
TYPICAL BICYCLE LANE PAVEMENT MARKINGS AND BICYCLE ROUTE SIGNAGE	I-38	I-18	Detail Number Changed August 2022
BICYCLE NETWORK MAP	I-35		Deleted Aug 2022; out of date
BUS STOP BOARDING AREA LAYOUT FOR SIDEWALK WITH OR WITHOUT ESPLANADE	I-39	I-39	
BUS SHELTER AND SHELTER SITING LAYOUT FOR SIDEWALK WITHOUT ESPLANADE	I-40	I-40	

Tech Manual Final Updates

Justin Pellerin <jrp@portlandmaine.gov>
To: "Donaldson, Helen" <hcd@portlandmaine.gov>
Cc: Kevin Kraft <kkraft@portlandmaine.gov>

Thu, Nov 10, 2022 at 1:17 PM

Hi Nell,

Please see attached section 1 and 4 details revised and added for the planning board hearing on 11/22/22.

Additions:

- Curb Extension Detail

Revisions:

- Updated Pavement classifications for Local, Collector and Arterial Streets per guidance from DPW's senior paving engineer
- Section 4 Details 4A, 4B, 4C updated notes.

There was nothing else in the section 1 narrative we wanted to tweak.

Please note that we will need to go through and make sure all the figure numbers are correct and all the unchanged details towards the end make it in the final version before it's released to the public.

Thanks
Justin Pellerin, P.E.
Senior Engineer
Department of Public Works
jrp@portlandmaine.gov
207-874-8881



4 attachments

-  **SECTION_I_FigureS_I_01_40_DTALs_rev_2022_1110.pdf**
4375K
-  **Figure_IV_04B_Granite_Curb_TreeWell_SW_2022_1107.pdf**
164K
-  **Figure_IV_04C_Typical_Granite_Curb_TreeWell_Brick_SW_2022_1107.pdf**
162K
-  **Figure_IV_04A_Expandable Tree Opening_R-8810_2022_1107.pdf**

follow up on TM Section 4

Justin Pellerin <jrp@portlandmaine.gov>

Fri, Nov 4, 2022 at 12:16 PM

To: Helen Donaldson <hcd@portlandmaine.gov>

Cc: Kevin Kraft <kkraft@portlandmaine.gov>, Jeremiah Bartlett <jbartlett@portlandmaine.gov>, "Thomas.errico@tylin.com" <thomas.errico@tylin.com>

Hi Nell

I spoke with Jeremiah and Tom Errico. We are all in agreement that the current Technical manual minimum two-way 90 degree driveway aisle width standard of 24' should remain and any variances to this standard should continue to be reviewed as a waiver request and determined on a case by case basis. 24' is the widely accepted industry standard for this parking configuration. Any variances less than this standard could be based on a multitude of site specific factors which are not easily represented in a single set of design standards. We are requesting that this process continue forward unchanged.

Thanks and let us know if you have any questions.

[Quoted text hidden]

[Quoted text hidden]



To: Planning Board

From: Nathaniel Smith, Project Engineer Water Resources

Date: September 1, 2022

Re: Summary of Updates to Chapter 2 of the Technical Manual

The Department of Public Works, Water Resources Division, proposes to make the following changes to the City of Portland Technical Manual Section 2 Sanitary Sewer and Storm Drain Design Standards. The last time this section was updated was in 2011. The majority of this update was a reorganization of the standards to make it more clear which standards are based for sewer systems and which are for storm drain systems. Previously standards for sewer and storm were mixed together and described by item. Now each system has its own standards for pipes, manholes and other associated parts. Other global changes include changing all references of Department of Public Services to Public Works. Specific changes and or additions are as follows.

- New sections added:
 - New language about enclosed parking, mechanical rooms, and garages not exposed to the elements shall direct surface drainage to an oil/grit separator first then to the sanitary sewer. **Edited per Lauren Swett's review to include her comments.**
 - New Section providing standards for the use of force mains for sanitary sewers. **Revised 2.5.4 as recommended by Lauren Swett.**
 - New section providing standards for Accessory Dwelling Units. This section was added due to the increase of applicants wanting to install ADU's.
 - New language added on how to raise manhole frames to grade.
 - New language was added to Catch Basins to provide standards and the allowance to use field inlets when outside of the street right of way.
 - New language that all catch basins are required to have a hood on the outlet pipe.
 - New section providing standards for Grease Interceptors. These standards match Portland's Fat's, Oil, and Grease Program requirements.
 - New table showing the specifications for Gravel Aggregate.
- Edited Language
 - Revised sanitary manholes text to say that steps are not required.
 - Revised the two specifications for plastic pipe.
 - Revised the requirement that sanitary pipes shall have a minimum velocity of 2 ft/sec.
 - Revised the language on when and how a building sewer can connect to the city main with the use of a coring machine and Inserta-Tee's.

- Revised 2.6.10: Edited the language when a back flow preventer is necessary to be installed.
 - Revised the language on how to plug abandoned sewer laterals to clarify who to contact and the manner to plug the lateral.
 - Revised storm manholes text to say that steps are not required.
 - Revised language to storm drains laterals on when and how a connection can occur using a coring machine and an Inserta-Tee.
 - Added underdrain pipe specifications as recommended by Lauren Swett.
 - Revised 2.12 Aggregate specifications. Removed gravel and concrete specifications which are specified in chapter 1.
 - Revised the crushed stone pipe bedding specifications to match Maine DOT specifications for Type C crushed stone and deleted the separate different requirement for stone for pipes over 42 inches. Contractors just use the ¾" stone for all size pipes.
- Details:
 - Figure II-01 = A new table was added to list all of the details
 - Figure II-02 = Was figure 01 - Manholes - Removed the steps from the figure.
 - Figure II-03 = Changed figure from an outside drop manhole to an inside drop manhole.
 - Figure II-04 = Revised the manhole notes to give invert specifications for how large the pipes are. Added buoyancy calculations are required as recommended by Lauren Swett.
 - Figure II-05 = Revised the MH frames and covers to current approved ones. The old frames and covers are no longer made.
 - Figure II-06 = No changes.
 - Figure II-07 = Was #08. Also revised to provide more detail on the catch basin detail. Added Hood to the detail.
 - Figure II-08 = Was #07. Revised CB frames and covers to current approved ones like MH's. The old frames and covers are no longer made.
 - Figure II-09 = Revised CB hood from the old cast iron one to a new plastic one which we have been using on city projects.
 - Figure II-10 = Rotated detail and also reduced the dish from 3" to only 1.5".
 - Figure II-11 = Rotated detail. No other changes.
 - Figure II-12 = Rotated detail. No other changes. Revised gravel specifications to match Chapter 1 changes.
 - Figure II-13 through 15 = No changes.
 - Figure II-16 = Change "Y" to "WYE" in notes.
 - Figure II-17 = No changes.

- o Figure II-18 = Rotated detail. No other changes.
- o Figure II-19 = External Grease Trap – revised detail and notes to meet current text language.
- o Figure II-20 = New detail for Oil and Grit Separator. Added a note about vent pipes as recommended by Lauren Swett.
- o Figure II-21 = New detail for Accessory Dwelling Units that match the text changes.
- o Figure II-22 and 23 = These two details were in Section 1 – Transportation (#20 & #21). These both are how to install underdrains so they asked us to put them in Section 2. The details also were rotated and updated to match transportations changes.



MEMORANDUM

TO: Nell Donaldson, Director of Special Projects, City of Portland
CC: Nathaniel Smith, Project Engineer, Water Resources, City of Portland
FROM: Lauren Swett, PE
DATE: June 23, 2022
RE: Review of Revisions to Section 2 of the Technical Manual

Woodard & Curran has performed a technical review of Section 2 Sanitary Sewer and Storm Drain Design Standards from the City of Portland's Technical Manual. We have reviewed the red-lined version of the Section 2 text as well as the Section 2 Details. We have the following comments and suggestions for consideration as the City finalizes these documents.

Section 2 Sanitary Sewer and Storm Drain Design Standards

- 2.2.8 I would suggest adding additional clarification to the enclosed parking/garage requirements for drainage being directed to the sanitary sewer. There have been project questions in the past when there is a covered parking area that is open on the sides. I would suggest maybe adding the word covered (i.e. "covered or enclosed parking"). I also like how the oil separator detail refers to the spaces as "partially or totally enclosed parking garages". I would also suggest adding a statement that stormwater from outside of these areas shall be directed away from these areas so that additional stormwater is not directed to the sewer. **Added**
- 2.5.4 I do not understand this statement – it starts with an implication that existing brick manholes are allowed, but then says that replacement is performed. I think there may just be extra wording here. **Revised**
- 2.9.7 Should this restriction clarify that on-street catch basins could connect into other catch basins? In some cases drainage may run catch basin to catch basin in the street before connecting to a manhole. **At this time we want to leave it as is.**
- 2.11.8 For the option with a grease trap to install a manhole at the connection to the sanitary sewer, can this be done even for pipes smaller than 8" that wouldn't need a manhole at the main? **Removed**

Sewer and Storm Drain Details

- Figure II-4 I would suggest adding a note here that all manholes and catch basins require buoyancy calculations, and structures shall be modified as necessary based on those calculations. **Added**
- Figure II-7 The detail notes that an outlet hood is required but does not show it or give the reference to the detail. **Added**



- Figure II-9 The detail does not include any specific acceptable manufacturers. **As long as the meet the specifications we don't usually specify exact manufactures.**
- Figure II-20 One piece of the oil water separator that is often forgotten is that they typically need to have a vent pipe that has a vertical outlet off to the side of the structure. I would suggest adding a note that a vent pipe may be required. **Added**
- Figure II-22 I believe that the granite curb detail has been updated to require concrete embedment of the curb. I'm not sure if it's worth updating this detail to match? **Added**
- Figures II-22 & II-23 This detail gives specific allowable pipe requirements for underdrain. Should this information be added to the text of the standard with the information on stormdrain pipe materials? **Added**

Tree Fund Trees

2 messages

Jeff Tarling <jst@portlandmaine.gov>

Thu, Nov 10, 2022 at 8:51 AM

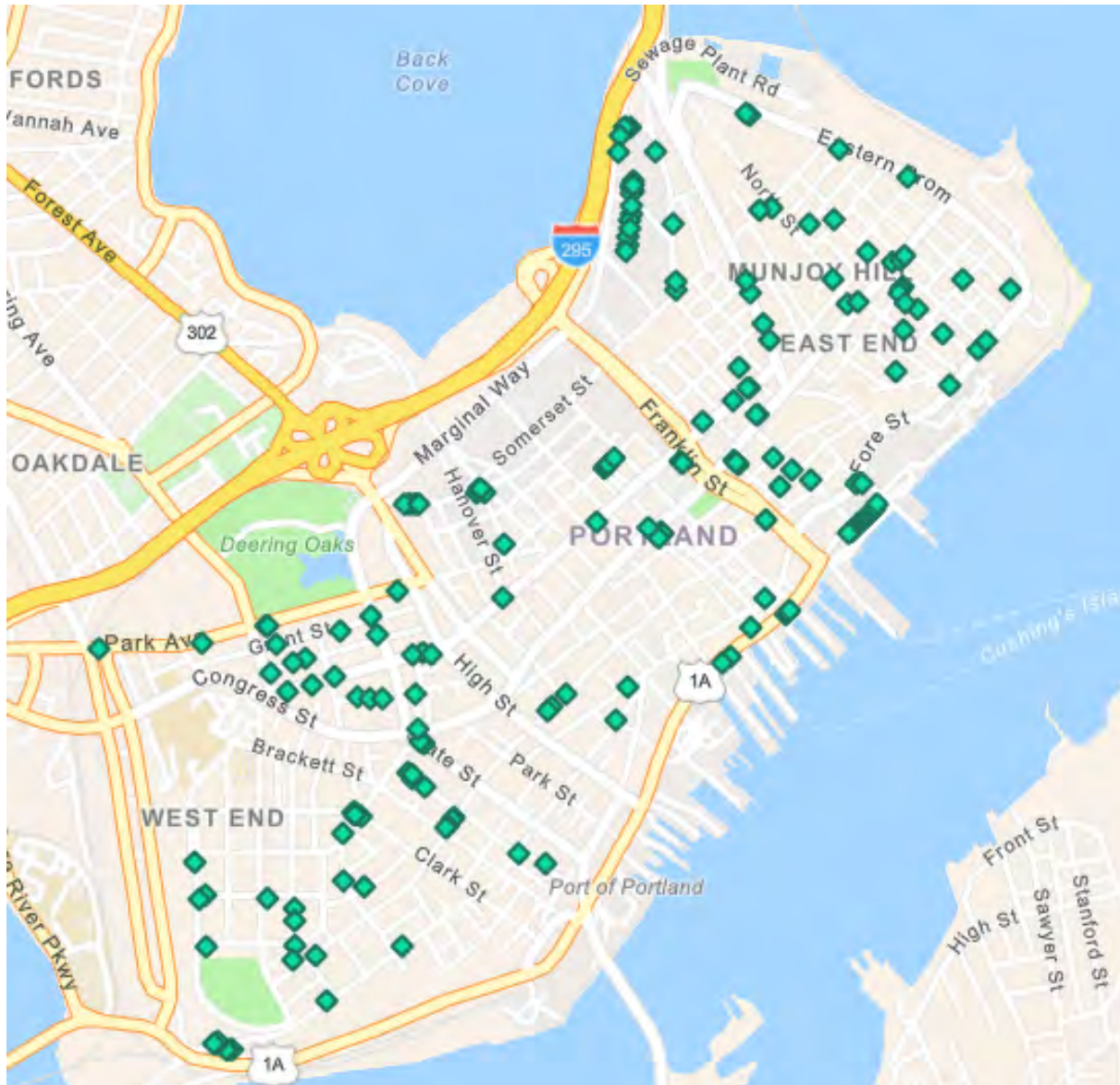
To: Helen Donaldson <hcd@portlandmaine.gov>

Cc: Alex Marshall <amarshall@portlandmaine.gov>

Planning Tree Fund, tree information:

See our 2020 - 2021 Tree Planting Map using Tree Funds, 183 trees were planted in various neighborhoods. The list is attached below.

Tree acquisition costs continue to rise, our average shade tree price for a 2" caliper in 2022 was \$275. Certain slow growing species like Ginkgo can range an additional \$100. Factoring in transportation, site preparation, planting mix, and mulch the overall cost likely exceeds our current tree donation amount. Contract plant cost estimates range from the industry standard (tree cost) x 2.5 and we have contract cost this season of \$150 per tree. This can vary depending on location, mobilization, the number of trees and site conditions.



Jeff Tarling
 City Arborist - City of Portland Maine
 Parks, Recreation & Facilities
 Forestry, Parks & Horticulture
 212 Canco Road - Suite A
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 **TreeFundTrees.xlsx**
 16K

Helen Donaldson <hcd@portlandmaine.gov>
 To: Kevin Kraft <kkraft@portlandmaine.gov>

Thu, Nov 10, 2022 at 10:28 AM

PARKS, REC, and FACILITIES: TREES PLANTED WITH TREE FUND TREES

	Address	Neighborhood	Species	Year_Planted	Notes:
1	519 Cumberland Ave	PARKSIDE	Maple, Red (Redpointe)	2022	
2	205 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
3	72 Melbourne St	EAST END	Cherry (Pink Flair)	2021	
4	151 Cumberland Ave	EAST BAYSIDE	Amelanchier	2022	
5	57 Washington Ave	EAST END	Maple, Red (Somerset)	2021	
6	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
7	33 NEAL ST	WEST END	Cherry (Pink Flair)	2020	
8	278 State St	PARKSIDE	Maple, Red (Armstrong)	2021	
9	304 Eastern Prom	EAST END	Elm (Accolade)	2021	
10	377 Cumberland Ave	WEST BAYSIDE	Crabapple	2020	
11	18 Kellogg St	EAST END	Crabapple (Adirondack)	2020	
12	81 Spruce St	WEST END	Maple, Red (Armstrong)	2021	
13	1 Longfellow Sq	DOWNTOWN	Maple, Red (Redpointe)	2020	
14	71 Federal St	EAST END	Maple, Red (Redpointe)	2020	
15	111 Sherman St	PARKSIDE	Cherry (Accolade)	2022	
16	70 Bowdoin St	WEST END	Maple	2022	
17	Bayside Trail (89 Cove St)	EAST BAYSIDE	Cherry	2022	
18	93 Washington Ave	EAST END	Hackberry	2021	
19	Bayside Trail (89 Cove St)	EAST BAYSIDE	Maple, Red	2022	
20	471 Danforth St	WEST END	Birch, River	2021	
21	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
22	51 Hampshire St	EAST END	Cherry, Sargent	2022	
23	536 Cumberland Ave	PARKSIDE	Cherry (Accolade)	2022	
24	87 Atlantic St	EAST END	Crabapple (Adirondack)	2022	
25	8 North St	EAST END	Crabapple (Adirondack)	2022	
26	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
27	58 Alder St	WEST BAYSIDE	Maple, Red	2022	
28	Acr 366 Spring St	WEST END	Cherry (Pink Flair)	2020	
29	164 Pearl St	WEST BAYSIDE	Hackberry	2021	
30	31 Fore St	EAST END	Cherry (Pink Myst)	2021	
31	22 Eastern Promenade	EAST END	Maple, Red (Redpointe)	2020	
32	76 Congress St	EAST END	Crabapple (Adirondack)	2020	
33	76 Atlantic St	EAST END	Maple, Red (Bowhall)	2020	
34	9 Boyd St	EAST BAYSIDE	Cherry, Sargent	2022	
35	378-388 Eastern Prom	EAST END	Sycamore, American	2020	
36	70 India St	EAST END	Cherry (Pink Flair)	2020	
37	72 Pine St	WEST END	Hackberry	2020	
38	45 TYNG ST	WEST END	Hawthorn, Crusgali	2020	
39	129 Grant St	PARKSIDE	Crabapple (Adirondack)	2022	
40	251 Congress St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
41	155 Anderson St	EAST BAYSIDE	Maple, Red (Redpointe)	2022	
42	Acr 88 Spring St	DOWNTOWN	Sycamore	2020	
43	59 Deering St	PARKSIDE	Elm (Accolade)	2021	
44	Danforth St	WEST END	Maple, Red (Bowhall)	2021	
45	37 Danforth St	DOWNTOWN	Elm, American (Princeton)	2021	
46	139 Cumberland Ave	EAST BAYSIDE	Honey Locust (Skyline)	2022	
47	Neal St & Bowdoin St	WEST END	Elm	2022	
48	279 Danforth St	WEST END	London Planetree (Exclamation)	2021	
49	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
50	58 Alder St	WEST BAYSIDE	Amelanchier	2022	
51	2 Commercial St	EAST END	Cherry (Accolade)	2020	
52	77 Congress St	EAST END	Cherry (Pink Flair)	2020	
53	43 Washington Ave	EAST END	Maple, Red (Karpick)	2021	
54	36 ATLANTIC ST	EAST END	Cherry (Pink Flair)	2020	
55	195 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
56	51 Hampshire St	EAST END	Cherry, Sargent	2022	
57	107 Anderson St	EAST BAYSIDE	Cherry (Accolade)	2022	
58	Bayside Trail (Cove St to Diamond St)	EAST BAYSIDE	Maple, Red (Karpick)	2022	
59	Danforth St	WEST END	Maple, Red (Bowhall)	2021	
60	341 FORE ST	DOWNTOWN	Cherry (Pink Flair)	2020	
61	Acr 88 Spring St	DOWNTOWN	Sycamore	2020	
62	63 Myrtle St	WEST BAYSIDE	Hackberry	2021	
63	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
64	471 Danforth St	WEST END	Birch, River	2021	
65	32 Alder St	WEST BAYSIDE	Hackberry	2020	

PARKS, REC, and FACILITIES: TREES PLANTED WITH TREE FUND TREES

	Address	Neighborhood	Species	Year_Planted	Notes:
66	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
67	181 Western Prom	WEST END	Maple	2022	
68	146 Sherman St	PARKSIDE	Crabapple (Adirondack)	2022	
69	110 North St	EAST END	Maple, Red (Redpointe)	2021	
70	556 Cumberland Ave	PARKSIDE	Cherry, Amur	2021	
71	148 Newbury St	INDIA STREET	Maple, Red (Redpointe)	2020	
72	28 Marion St	EAST END	Maple, Red (Somerset)	2021	
73	236 Eastern prom	EAST END	Elm (Accolade)	2021	
74	110 Winter St	WEST END	Cherry (Pink Flair)	2020	
75	77 Pine St (Andrew's Sq)	WEST END	Oak	2022	
76	207 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
77	390 Congress St	DOWNTOWN	Maple, Red (Karpick)	2021	
78	Acr 215 Commercial St	DOWNTOWN	Crabapple	2020	
79	175 State St	DOWNTOWN	Elm (Accolade)	2021	
80	Franklin St & Cumberland Ave	DOWNTOWN	Cherry (Accolade)	2020	
81	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Amelanchier	2022	
82	96 WINTER ST	WEST END	Cherry (Pink Flair)	2020	
83	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
84	284 Cumberland Ave	DOWNTOWN	Elm (Accolade)	2020	
85	150 Park Ave	PARKSIDE	Hackberry	2021	
86	2 Commercial St	EAST END	Cherry (Accolade)	2020	
87	100 Commercial St	DOWNTOWN	Elm, American (Princeton)	2021	
88	365 Danforth St	WEST END	Crabapple (Adirondack)	2021	
89	447 Cumberland Ave	PARKSIDE	Maple, Red (Bowhall)	2021	
90	40 Deering St	PARKSIDE	Elm	2022	
91	71 Walnut St	EAST END	Maple, Red (Somerset)	2021	
92	87 Atlantic St	EAST END	Oak (Upright)	2022	
93	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
94	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
95	411 Marginal Way	EAST BAYSIDE	Cherry	2022	
96	300 Park Ave	VALLEY STREET	Maple, Red (Armstrong)	2021	
97	113 Winter St	WEST END	Honey Locust (Street Keeper)	2020	
98	19 Anderson St	EAST BAYSIDE	Oak, Swamp White (Beacon)	2021	
99	378-388 Eastern Prom	EAST END	Sycamore, American	2020	
100	18 Pleasant St	DOWNTOWN	Oak, Swamp White (Beacon)	2020	
101	390 Congress St	DOWNTOWN	Oak, Swamp White (Beacon)	2021	
102	389 Congress St (City Hall)	DOWNTOWN	Honey Locust (Street Keeper)	2021	
103	673 Congress St	DOWNTOWN	Elm (Accolade)	2020	
104	76 Congress St	EAST END	Crabapple (Adirondack)	2020	
105	98 CARROLL ST	WEST END	Maple, Sugar	2020	
106	446 Cumberland Ave	PARKSIDE	Maackia (Starburst)	2021	
107	Franklin St & Cumberland Ave	DOWNTOWN	Cherry (Accolade)	2020	
108	72 Grant St	PARKSIDE	Cherry	2022	
109	230 Anderson St	EAST BAYSIDE	Crabapple	2022	
110	47 India St	EAST END	Maple, Red (Bowhall)	2020	
111	48 Deering St	PARKSIDE	Elm	2022	
112	39 Neal St	WEST END	Cherry	2022	
113	2 Commercial St	EAST END	Cherry (Accolade)	2020	
114	139 Cumberland Ave	EAST BAYSIDE	Honey Locust (Skyline)	2022	
115	411 Marginal Way	EAST BAYSIDE	Crabapple	2022	
116	457 Cumberland Ave	PARKSIDE	Hackberry	2021	
117	Bayside Trail (89 Cove St)	EAST BAYSIDE	Cherry	2022	
118	100 Commercial St	DOWNTOWN	Elm, American (Princeton)	2021	
119	113 Vaughan St	WEST END	Maackia, Amur	2021	
120	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
121	411 Marginal Way	EAST BAYSIDE	Cherry	2022	
122	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
123	264 STATE ST	PARKSIDE	Maple, Red (Red Sunset)	2020	
124	158 Fore St	EAST END	Maple, Red (Redpointe)	2021	
125	37 Wilson St	EAST END	Cherry, Sargent	2021	
126	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
127	77 Pine St (Andrew's Sq)	WEST END	Oak	2022	
128	230 Commercial St	DOWNTOWN	Cherry (Pink Flair)	2022	
129	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
130	Spring St & Oak St	DOWNTOWN	Sycamore	2020	

PARKS, REC, and FACILITIES: TREES PLANTED WITH TREE FUND TREES

	Address	Neighborhood	Species	Year_Planted	Notes:
131	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
132	127 Congress St	EAST END	Crabapple	2020	
133	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Oak (Upright)	2022	
134	114 Emery St	WEST END	Oak	2022	
135	109 MIDDLE ST	DOWNTOWN	Magnolia (Merrill)	2020	
136	Danforth St	WEST END	Maple, Red (Bowhall)	2021	
137	123 Sherman St	PARKSIDE	Crabapple (Adirondack)	2022	
138	89 Pine St	WEST END	Maple, Red	2022	
139	Bayside Trail (89 Cove St)	EAST BAYSIDE	Cherry	2022	
140	28 Park Ave	PARKSIDE	Crabapple (Adirondack)	2022	
141	63 Atlantic St	EAST END	Cherry (Pink Myst)	2021	
142	61 St Lawrence St	EAST END	Cherry (Pink Myst)	2021	
143	156 Oxford St	WEST BAYSIDE	Hackberry	2021	
144	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
145	411 Marginal Way	EAST BAYSIDE	Crabapple	2022	
146	164 Danforth St	WEST END	Crabapple (Adirondack)	2021	
147	21 Merrill St	EAST END	Cherry (Pink Myst)	2021	
148	75 Alder St	WEST BAYSIDE	Maple, Red	2022	
149	77 Pine St (Andrew's Sq)	WEST END	Cherry	2022	
150	251 Congress St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
151	107 Anderson St	EAST BAYSIDE	Cherry (Accolade)	2022	
152	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
153	390 Congress St	DOWNTOWN	Maple, Red (Karpick)	2021	
154	208 PINE ST	WEST END	Elm (Accolade)	2020	
155	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
156	158 Fore St (AC Hotel)	EAST END	Zelkova (Musashino)	2021	
157	Bayside Trail (89 Cove St)	EAST BAYSIDE	Maple, Red	2022	
158	117 Winter St	WEST END	Honey Locust (Street Keeper)	2020	
159	150 Park Ave	PARKSIDE	Crabapple (Adirondack)	2021	
160	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Karpick)	2022	
161	358 SPRING ST	WEST END	Cherry (Pink Flair)	2020	
162	100 Commercial St	DOWNTOWN	Elm, American (Princeton)	2021	
163	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
164	87 Atlantic St	EAST END	Oak (Upright)	2022	
165	411 Marginal Way	EAST BAYSIDE	Elm	2022	
166	26 Deering St	DOWNTOWN	Elm	2022	
167	51 Hampshire St	EAST END	Cherry, Sargent	2022	
168	208 Park Ave	PARKSIDE	Crabapple (Adirondack)	2021	
169	11 Morning St	EAST END	Cherry (Accolade)	2022	
170	58 Alder St	WEST BAYSIDE	Maple, Red	2022	
171	390 Congress St	DOWNTOWN	Oak, Swamp White (Beacon)	2021	
172	197 Spring St	WEST END	Honey Locust (Street Keeper)	2021	
173	6 Eastern Promenade	EAST END	Maple, Red (Redpointe)	2020	
174	Bayside Trail (89 Cove St)	EAST BAYSIDE	Maple, Red	2022	
175	471 Danforth St	WEST END	Maple, Red (Somerset)	2021	
176	195 Kennebec St	WEST BAYSIDE	Cherry	2022	
177	63 Myrtle St	WEST BAYSIDE	Hackberry	2021	
178	5 Moulton St	DOWNTOWN	Honey Locust	2022	
179	Bayside Trail (Cove St to Diamond St	EAST BAYSIDE	Maple, Red (Bowhall)	2022	
180	Acr 18 Thames St	EAST END	Cherry (Accolade)	2020	
181	65 Merrill St	EAST END	Maple, Red (Somerset)	2021	
182	27 North St	EAST END	Crabapple (Adirondack)	2021	
183	77 Pine St (Andrew's Sq)	WEST END	Oak	2022	



Helen Donaldson <hcd@portlandmaine.gov>

Fwd: Technical Manual & bike lanes

Christine Grimando <cdg@portlandmaine.gov>
 To: Helen Donaldson <hcd@portlandmaine.gov>

Wed, Aug 31, 2022 at 2:50 PM

Christine Grimando, AICP
 Director
 Planning & Urban Development Department
 389 Congress Street
 Portland, Maine 04101
cdg@portlandmaine.gov
www.portlandmaine.gov
<https://www.recodeportland.me>



----- Forwarded message -----

From: **Maggie Stanley** <MStanley@cwsarch.com>
 Date: Wed, Aug 31, 2022 at 2:14 PM
 Subject: RE: Technical Manual & bike lanes
 To: Winston Lumpkins <winston.lumpkins@gmail.com>
 Cc: planning@portlandmaine.gov <planning@portlandmaine.gov>, Matthew Grooms
 <mgrooms@portlandmaine.gov>

Winston,

Thank you for your email. All of our communications on particular agenda items need to be included in the public record as public comment so I am copying planning staff here so they will be included. The meeting you attended was a workshop where the public and board members were able to provide feedback, but no vote occurred and this agenda item has not come back to us yet for final approval. If I remember correctly there had not been an evaluation of the separated bike lanes as of yet, but per my feed back would be considered, either in this update or future.

Your detailed comments and descriptions of the bike lane are exactly as I experienced them as a user, and with my own research came to the conclusion that they do not meet the standards of other cities that have installed them have used. They were a good idea, that was executed in rapid speed with very little public input and disregard of that input given. If there were fewer curb cuts in that stretch of roadway, they more properly connected to bike lanes at the end of the separated stretch and were wider, they may have been more successful. Thank you for including your comments and the Mass DOT standards.

Maggie Stanley

OFFICE 207-774-4441 | **MOBILE** 207-266-7803



From: Winston Lumpkins <winston.lumpkins@gmail.com>

Sent: Wednesday, August 31, 2022 1:32 PM

To: Maggie Stanley <MStanley@cwsarch.com>

Subject: Technical Manual & bike lanes

Dear Chair Stanley,

I hope you'll forgive my finding your email on google. Perhaps it's inappropriate for me to email the chair of the planning board. Please let me know if that's the case.

I'm Winston Lumpkins, Vice Chair of the Portland Bicycle & Pedestrian Advisory Committee, an Ad-Hoc committee which advises the city.

I've been researching the Technical Manual & happened to listen to the 5/10/22 Planning Board workshop on the Technical Manual. During that meeting you mention the lack of standards for Separated bike lanes, and mentioned your own experiences with the Park Ave bike lanes. I don't think Staff addressed your question?

I'm curious if you have any thoughts on what could be done to include them in the Technical Manual? Is it entirely up to the planning board?

I strongly believe that we need such standards & it seems like the Technical Manual is probably the right place to put them.

I'll include my own amature comparison between the Park Ave lanes & the Mass DOTs Standards, as it may interest you.

Sincerely,

~Winston

Winston Lumpkins IV (he/him/his)

Vice Chair, Portland Bicycle & Pedestrian Advisory Committee

<https://www.portlandbikeped.org/>

winston.lumpkins@gmail.com

207-408-1508



Helen Donaldson <hcd@portlandmaine.gov>

Technical Manual Planning Updates

Bill Weber <wjweber77@gmail.com>

Thu, Sep 1, 2022 at 4:46 PM

To: Kevin Kraft <kkraft@portlandmaine.gov>, hcd@portlandmaine.gov, Andrew Zarro <azarro@portlandmaine.gov>

Kevin, I noticed the Planning Board has a workshop next week on Technical Manual Updates. The sections to be reviewed include street design, sewer and storm drain design, site landscaping, etc. Section 16 of the Technical Manual covers Application Submission Requirements. Is there an opportunity to discuss revisions to these requirements? I am particularly interested in Greenhouse Gas estimates that the developer can provide when they submit their application.

As I am sure the Planning Department is aware, the One Climate Future Plan, Portland and South Portland Climate Action Plan, requires the city to consider the impact on climate change in its decision making process. Can we discuss this further? Thanks

--

Bill Weber
66 Roaring Brook Road
Portland, ME 04103
(207) 232-9802

Zack Barowitz <zbarowitz@gmail.com>

8:47 AM (2 hours ago)

to Planning Board, Portland Bicycle-Pedestrian Advisory Committee

Dear Chair Stanley and members of the Planning Board:

In your consideration of the technical manual I would like you to include standards for widening sidewalks. As you know, bloated roadways cause all sorts of problems from speeding, to pollution, to safety, to lost economic development opportunities. Unfortunately, anytime this matter comes up, the impracticality of moving the storm drains is used to shoot it down. However, there are design and engineering solutions that could allow for widening the sidewalks while keeping the storm drains where they are. And the good news is that it is not a matter of inventing the wheel as there are numerous good, better, and best practices available.

So while I totally understand why some people might prefer paint, there are certain contexts where a road narrowing would reap far greater rewards. I want us to be ready.

Thank you,

Zack

--

[207-838-6120](tel:207-838-6120)

[917-696-5649](tel:917-696-5649)

ZacharyBarowitz.com

**George Rheault**

11:59 AM (44 minutes ago)

to Planning, Christine, me, Abigail

The rewrite of the landscaping standards is fatally flawed and needs to be rebuilt with an entirely new intellectual foundation.

The Planning Board needs to acknowledge our urban environment and the benefits encouraging urbanism brings to our society.

As the attachment makes clear, we have choices to make whether we are going to have real urbanism or whether we are going to have warmed over auto-centric suburbanism.

Trees in an urban environment are entirely secondary to the built environment. To give them precedence FOR SOME APPLICANTS is dumb and wrong and is part of why our planning apparatus to show for all the effort put behind it since the mid-1920s.





Winston Lumpkins <winston.lumpkins@gmail.com>

10:09 AM (1 hour ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov, Andrew Zarro, Victoria Pelletier, Roberto Rodríguez

Dear Chair Stanley & Members of the Portland Maine Planning Board,

I'm Winston Lumpkins, Chair of the Portland Bicycle & Pedestrian Advisory Committee.

The committee has discussed the Draft of the Technical Manual at length, but we have not yet adopted a consensus on changes. What follows are my own opinions.

Thank you to those who've been putting the work into this document. It's really very good. These comments are not exhaustive, given the short period of time available for public review. Given the opportunity PBPAC would be happy to go over the proposed revisions in their entirety.

I want to encourage the planning board to adopt some of the changes in particular: The updated driveway apron requirements, the updated Bicycle parking specifics, doorzone warning buffers between bike lanes and parked cars and, of course, the strongly worded suggestion to look at travel lane width & configuration if necessary to provide bicycle lanes of minimum width.

There is much more that I like in the draft, however, I will address a few ways in which it could be improved:

I think in addition to Neck Downs, AKA bulb outs, we should be using raised sidewalk crossings when vehicle speed needs to be reduced. [This Guide](#) covers their application & even addresses stormwater concerns, beginning in section 3.14.

A raised sidewalk crossing on a street with a bike lane allows the cyclist to continue without having to merge with traffic & allows the bike lane to be continuous. They also do away with sidewalk grade changes, which can be difficult for those with mobility difficulties to traverse. I think they should be used at many intersections between Major streets & neighborhood streets in addition to problematic crossings of Major streets.

Raised Sidewalk Crossings should be used when a multi-use trail crosses a street it's grade separated from, and that use case should be mandatory. Ideally, that would have been in place when the Bayside Trail was extended from Elm to Brattle Street. It should be in place for all future intersections of multi-use trails & travel lanes, especially in cases where the trail might have higher traffic volume than the street.

I strongly advise the Planning board to direct the DPW & the Planning department to reference the [Massachusetts DOT's separated bike lane guide](#) instead of the FHWA guide.

It's a more exhaustive, clearer, more current document. I am a year round commuting cyclist & I would be far more comfortable with separated bike lanes if the Mass DOT's standards were used.

I would like to see requirements that new street lights have the ability to sense bicycles- I know that some new ones can do this, but it should, eventually, be universal. I would like to see us start using separate bicycle signals. If we're serious about separated bike lanes we need to get serious about Portland's ridiculously dangerous intersections. At the very least, we should consider, in some cases, allowing bicycles to proceed at the same time as pedestrians.

Thanks for reading these comments & for all the work put into improving the Technical Manual.

Sincerely yours,
~Winston Lumpkins

Winston Lumpkins IV (he/him/his)

Chair, Portland Bicycle & Pedestrian Advisory Committee

<https://www.portlandbikeped.org/>

winston.lumpkins@gmail.com

207-408-1508



Helen Donaldson <hcd@portlandmaine.gov>

Status of Technical Manual process and adtl. comments

Winston Lumpkins <winston.lumpkins@gmail.com>

Tue, Oct 11, 2022 at 11:13 AM

To: Helen Donaldson <hcd@portlandmaine.gov>, planning@portlandmaine.gov, planningboard@portlandmaine.gov

Dear Ms. Nell Donaldson, Chair Stanley & the planning board,

First of all I want to inquire about the status of the Technical manual update- is there a timeline for the eventual vote & public hearing? You mention in the meeting on the 13th that you'd welcome follow up comments & further comments on the material, is that still the case, and what's the timeline for comments to be useful?

I do really like the process around re-code, and think that the Technical manual is at least as important to the day to day lives that people in Portland live. That said, I do like the changes proposed so far, so I don't want to bash the process, but, some level of robust process & opportunity for regular people to comment without necessarily reading through the technical language would be nice.

Additional comments from the workshop on the 13th September:

A month late, I want to provide some brief follow up comments in response to the discussion on the 13th of September. Again, I'm speaking for myself here, and not [BBPAC](#), though, I draw on the experiences of all the Cyclists & Pedestrians in my life when I form my own opinions:

Chair Stanley mentions riding with the pedestrian signal, as it's safer. She's right, which is why it would be really nice if it was clearly legal.

Technically, the "Idaho stop" which allows cyclists to treat stop signs as yield signs & stop lights as stop signs has proven to be safer. It's not Maine State law, and thus, riding with the pedestrian signal, while very often the safest thing you can do, is illegal as far as I know. As someone who has been ticketed for a moving violation by the PPD (running a blinking red at midnight- in compliance with the Idaho stop, which I'd read was safer, but which isn't legal), I can't bring myself to do it. I'm unsure about whether or not Portland could adopt the Idaho stop on a citywide basis- but I am sure the Planning board can't.

Improvements could be as simple as providing a few signs in places where it's really obviously safer to proceed like that (Franklin & congress perhaps) which state: "Cyclists may proceed with pedestrian signals" or something. I'm not sure if council action might be needed to ensure the police recognize the legality of such signs.

For fully separated signal phases, we're beginning to transition to infrared cameras which can differentiate a bicycle from a car. In theory, these should allow a signal phase to exist which wouldn't be automatically used every time, but, could be triggered by a cyclist in a bike box (like the ones just painted on Baxter & Prebble & the ones planned for Elm & Marginal way) or a bicycle in a separated lane or multi use path.

Ideally cyclists in bike boxes should be allowed to clear the intersection, or at least get most of the way through before the cars are allowed to. Which would technically be a leading bike interval. Part of me would love to tie separate signal phases to bike boxes, as I think they're useful in the same places. For instance: the intersection where York Street, State Street & the Casco Bay Bridge meet springs to mind- cars are allowed to go straight onto York, or the Casco bay bridge, presenting a significant risk of right (or I guess straight) hook for cyclists proceeding from the bike lane onto the bridge- cars NEVER signal their intentions, so, you just have to guess. A bike box & separate signal phase would probably help a lot in

making that intersection less dangerous.

I would also like to point out that any intersection design which asks a cyclist to push a walk button is bad. Though this email reflects just my personal opinion, I think I can safely say that most cyclists hate them & will often do something sketchy & just wait for a real or imagined gap in traffic, instead of pushing the walk signal.

Finally, I wanted to comment on the new raised crosswalks on Stevens Ave:

I've heard multiple people say they're less raised than they used to be, which allows cars to travel over them faster, partially mitigating the good they do... Clearly, they aren't free, and so should really be as good as possible. Without clear standards, it's hard to comment on complain- anything is better than nothing when nothing is required- also, without technical standards, presumably they are simply made up by the construction crew?

Raised Crosswalks seem like they are only installed where people ask for them, not everywhere pedestrian traffic, car speed etc. means they should be used. They shouldn't be handed out only to neighborhoods with the required political clout to get them. **Pedestrian safety shouldn't be a reward for privileged neighborhoods, it should be standardized & implemented equitably.**

Thanks for all the work you're all doing, as I've said, I do really like many of the proposed changes,

Sincerely,
~Winston Lumpkins IV

East End, Portland Maine

Winston Lumpkins IV (he/him/his)

Chair, Portland Bicycle & Pedestrian Advisory Committee
<https://www.portlandbikeped.org/>

winston.lumpkins@gmail.com
207-408-1508

Public Comment - Technical Manual - Landscaping: Overcomplicating Tree Protection

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0 views



George Rheault <george.rheault@gmail.com>

12:16 PM (16 minutes ago)

to Planning Board, Christine Grimando, jmy, Abigail Reed, jra...@portlandmaine.gov

Why is the Planning Board endorsing the MOST EXPENSIVE TREE PIT solutions when much less expensive options exist? The budget from AUTUMN 2022 says that a raised granite planter will cost a minimum of \$4,750 which is probably more now AND cheaper because it was part of a large bundle of such planters which probably brought the cost down (see below).

Also - see attached lots of DIY solutions made out of wood which the City of Portland apparently endorses since they are allowed to persist in the sidewalk medians.

Also - what about SUNKEN tree grates (see attached photos) - when are those mandated and needed versus a granite curb raised planter?

Also - why not just allow simple tree guard fencing like they use in New York City? [Tree Guards : NYC Parks \(nycgovparks.org\)](#)

SOURCE LINK: [Tree Canopy Funding Details - Google Docs](#) (from here: [Tree Canopy Overview - Bayside Blitz - Google Docs](#) which is from here [Approved ARPA Projects - Google Docs](#))

Tree Canopy Funding

Proposal for American Rescue Plan Act Funding

This project will consist of funding a one-year surge of tree planting in the Bayside neighborhood, an area bounded by Cumberland Ave, Washington Ave, Marginal Way, and Forest Ave. In a typical year, the City plants between 170-200 trees city-wide, with approximately 30 of those trees being in the Bayside neighborhood. Bayside currently has a much lower canopy cover rating and a lower overall number of trees than other areas of the City. This project aims to make positive progress on correcting that inequity.

Bayside is a notoriously difficult neighborhood to plant trees due to the fact that it is a dense neighborhood with not many green spaces or sidewalk esplanades in which to plant trees. What trees do exist often do not survive to maturity due to road salt, accidents, or vandalism. In order for trees to be successful in sidewalk plantings in this neighborhood, raised granite curb planters are necessary in order to divert salt away from the roots and give adequate room for the tree to grow without soil compaction. This project will fund granite curbed planter materials and construction, sidewalk alterations and repairs, labor costs, project management costs, tree watering equipment, and the actual trees themselves. It will result in 80 trees being planted in Bayside, in conditions that will allow them to thrive and grow to maturity. An approximate breakdown of costs are below:

- Tree Watering Equipment: \$75,000
- Project Management: \$27,500
- Granite Curb Raised Planter: \$95,000 (20 @ \$4,750/piece)
- Planting Supplies (mulch, stakes, watering bags): \$12,500

- Labor Costs: \$20,000
- Trees: \$20,000 (80 @ \$250/tree)













Public Comment - Technical Manual - Landscaping: Site Plan Tree Planting Compliance

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George Rheault <george.rheault@gmail.com>

9:09 AM (4 minutes ago)

to Planning Board, Christine Grimando, jmy, Abigail Reed, jra...@portlandmaine.gov

During the two previous workshops for this item, Kevin Kraft boldly assured the members of the Planning Board that any early demise of street tree plantings (required as part of site development approvals) was easily remedied by simply holding property owners to the terms of their initial site plans.

The Planning Board was its typical credulous self in response. Apparently, they accepted this nonsense hook, line and sinker.

A real Planning Board, doing serious work and not just rubber stamping, would have asked some key follow-up questions, such as:

- 1.) What does enforcement of replacing dead "after-the-Certificate-of-Occupancy-is-received" street trees per an approved site plan actually look like? Does the property owner first receive a violation letter from Permitting & Inspections? Corporation Counsel? The Planning Department? A knock on the door from Jeff Tarling with a chainsaw in his hands? What are the steps in the process from identifying the problem all the way to full replacement? Does the city arborist do annual inspections of all approved site plans going back the last 10 or 20 years seeing as it takes this long for a street tree to get fully established?
- 2.) Has this enforcement process been successfully attempted - in the recent past or EVER? When and where? Is the replaced street tree thriving and who is monitoring that?
- 3.) Legally, can the property owner be asked to do this multiple times (if the street trees die more than once) until the street tree finally "takes" and reaches maturity?

Below are all very recent projects in "Greater Bayside" that each have at least one or more recently planted dead street trees (evidenced by stumps, rotting trunks or completely empty tree pits that once held once-upon-a-time-alive saplings).

What is the Planning Department or the city arborist doing to ensure that the owners of these properties actually replace dead street trees per their approved site plans so that the costs (other than the cost of enforcement) do not fall to the City to fund the purchase and installation of a replacement tree?

- Pearl Place - Both ONE and TWO - Oxford/Pearl/Lancaster (AVESTA)
- 60 Parris Street (Jack Soley but not run by Condo HOA)
- 70 Anderson Street (REDFERN)
- 85 Anderson Street (REDFERN)
- 405 Cumberland Avenue (AVESTA)

To: Chair Stanley and Members of the Portland Planning Board
From: Zach Powell, Senior Planner
Date: November 18, 2022
Re: Institutional Overlay Zone, Zoning Map and Text Amendment: Roux Institute/IDEALS
Applicant: IDEALS/Roux Institute
Project ID: ZN-001934-2022
Meeting Date: November 22, 2022

I. INTRODUCTION

The Initiative for Digital Engineering and Life Sciences (IDEALS) has submitted a zoning map and text amendment application on behalf of The Roux Institute at Northeastern University to amend the existing Institutional Overlay Zone (IOZ) regulations to permit The Roux Institute at Northeastern University to pursue an IOZ as an



Figure 1: Artist rendering of Campus. View from I-295 NB

identified major City institution, change the underlying zoning of the site from I-M to B-5, and adopt a new IOZ for this property. The requested actions would facilitate the future development of a mixed-use campus for The Roux Institute, including academic buildings, office, lab, and incubator space, retail, hotel, and housing as well as publicly accessible open space.

The process for designation of an IOZ requires the institution to prepare an Institutional Development Plan (IDP), which is a proactive planning document for identifying and addressing anticipated change and growth by an institution. The IDP is reviewed and approved by the Planning Board and informs the institutions Regulatory Framework.

The IOZ also requires that a Regulatory Framework be submitted, to be included in the Land Use Code, which identifies the land area to be included on the zoning map as the Institutional Overlay Zone along with associated use, dimensional and design requirements. The Planning Board reviews and recommends to City Council the Regulatory Framework and IOZ boundary. An overview of this process is included on Page 2.

Review of the IOZ has spanned across four Planning Board Workshops, serving as an opportunity to provide a comprehensive [overview of the project](#) (June 14, 2022), and discussions on [phasing, design, and height](#) (August 9, 2022), [transportation](#) (October 11, 2022), and [infrastructure and community engagement](#) (October 25, 2022).

The Planning and Urban Development Department mailed 153 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the November 11, 2022 edition of the *Portland Press Herald*.

Institutional Overlay Zone (IOZ) Review Process

An IOZ includes three components:

IOZ Map Amendment

The map amendment for the IOZ boundary.

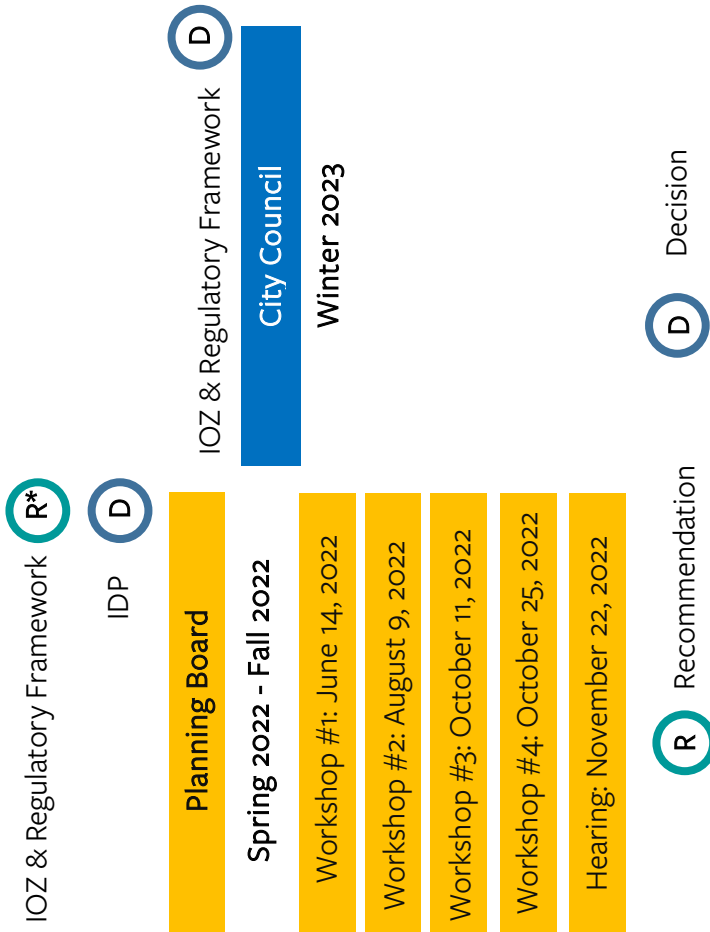
Institutional Development Plan

An IDP (Institutional Development Plan) serves as a master plan for an institution in the short-, mid-, and long-term documenting current and anticipated conditions.

Regulatory Framework

To implement the vision of the IDP, the Regulatory Framework supplements the existing base zoning through dimensional and design requirements, as well as specify the process for monitoring reports & amendments to the IDP & Regulatory Framework.

IOZ applications are reviewed by the Planning Board, then the City Council.



*Related reviews include a text amendment identifying The Roux Institute at Northeastern University as an eligible institution to submit an IOZ application, as well as the proposed map amendment to rezone the base zoning to B-5 (Urban Commercial)

II. UPDATES FROM OCTOBER 25, 2022 WORKSHOP

Building from the discussion at the October 25, 2022 workshop, City Staff sent the Applicant an assessment (Attachment 1) of the completeness of the IDP and Regulatory Framework based on the required content listed in Sec. 8.5.4.C. and Sec. 8.5.5.D. of the City's Land Use Code. The Applicant revised both of these documents to address remaining content deficiencies and submitted updated versions of the IDP (Attachment A) and Regulatory Framework (Attachment B).



Figure 2: Artist interpretation from the IDP of the proposed waterfront shared-use path and potential uses.

From the takeaways at the October 25, 2022 meeting, the Applicant will be presenting on:

- The projected sustainability impact of the project;
- A rationale/methodology for the proposed heights in relationship to the site constraints and institutional needs;
- Framework for review and approval of open space provisions, including access to open space, and
- Integrating materials from the Transportation Memorandum (Attachment C) into the IDP and Regulatory Framework to respond to comments from the Planning Board, members of the public, and City Staff.

The following sections of this report review the compliance of the zoning map and text amendments for compliance with the City's Land Use Code and Comprehensive Plan. The structure of the report is as follows:

- [Section 3: Review of Institutional Development Plan](#)
- [Section 4: Review of Regulatory Framework & IOZ Map Amendment](#)
- [Section 5: Review of Zoning Text Amendment](#)
- [Section 6: Review of B-5 Map Amendment](#)
- [Section 7: Comprehensive Plan Consistency](#)
- [Section 8: Neighborhood Meetings & Public Comment](#)
- [Section 9: Requisite Council Action](#)
- [Section 10: Proposed Motions](#)
- [Section 11: Attachments](#)

III. REVIEW OF INSTITUTIONAL DEVELOPMENT PLAN

Table 1 provides a summary view of the IDP content review, with the 'Requirements' column, simplified and consolidated to include one or more sub-requirements of the IOZ ordinance. For a complete list of IOZ content requirements, please see Section 8.5.4.C in the Land Use Code.

Table 1: Required Content of the IDP (8.5.4.C)		
Requirements	Provided	Notes
Mission Statement	Yes	The IDP clearly identifies the mission statement and vision of the University, and how future development furthers these aims.
Baseline Institutional Data	Yes	Baseline Institutional Data related to current programming, enrollment, and facilities has been provided.
Institutional Characteristics	Yes	Baseline data related to the subject property and the surrounding neighborhood, as well as a list of relevant municipal plans, projects, and studies have been provided.
Summary of Public Involvement	Yes	The Applicant has provided the meeting minutes for the two required neighborhood meetings, as well as the meeting minutes for the supplemental public engagement through the Roux Roundtable Meetings.
Identify Institutional Needs	Yes	The Applicant has identified the projected physical improvements and facilities needed to support the objectives and projected campus growth in the short-, mid-, and long-term.
Transportation & Access	Yes	A detailed transportation memorandum has been developed to support the Transportation & Access section of the IDP. The document outlines the proposed shift to increasing non-motorized trips to the site, identify potential mitigation strategies throughout all phases, and develop a schedule for these potential improvements. Parking ratios align with current Land Use Code requirements for the site, which will be informed through the review of parking studies and development of a TDM plan. Projected mode shares will inform campus development to limit the amount of parking on site to respond to access constraints of the site and align with the campus goals of providing a greener, more walkable and bikeable campus.
Environmental Impacts	Yes	A framework for the campus charter has been provided and will continue to be developed to meet the goals of the campus and the institution for sustainability and resiliency. An analysis of existing conditions have found that no existing habitats exist in close proximity to the site and appropriate measures for mitigation to meet State and National standards have been included in the IDP and Regulatory Framework.
Infrastructure	Yes	The previous energy usage and current capacity have been provided for the site. Phasing plans have identified potential on-site safety and utility improvements that will meet future public safety needs.

Design	Yes	The building and site design has evolved to mitigate negative visual and shadow impacts on the surrounding East Deering Neighborhood, enforce smooth transitions to and from the site, and thoughtfully incorporate existing site elements into the campus design.
Neighborhood Engagement	Yes	A framework has been included to ensure consistent communication between residents and local stakeholders on future development and construction management.

A. Institutional Development Plan Review Standards

The IDP is subject to 13 separate review standards, each of which are intended to ensure first that the IDP contains sufficient information to provide a reasonable, well-calculated depiction of what campus growth will look like in the subsequent 20-year period, providing a strong foundation and basis for the Regulatory Framework. The second principal element of the IDP is to accurately project impacts before development occurs, so as to facilitate timely and strategic improvements to minimize or mitigate those impacts.

1. *Address all content requirements, unless explicitly modified by the planning authority or planning board.*

Staff Comment: As demonstrated in Table 1 and Attachment 1, the Application has addressed all content requirements.

2. *Reflect the issues/topics identified in the required public process.*

Staff Comment: In the two required neighborhood meetings, a significant number of comments were submitted on the following topics, which reflected the majority of written comment and testimony at Planning Board workshops:

- Traffic Impacts;
- Hotel & Campus Programming;
- Building & Site Design;
- Campus Integration, and
- Property Management & Acquisition.

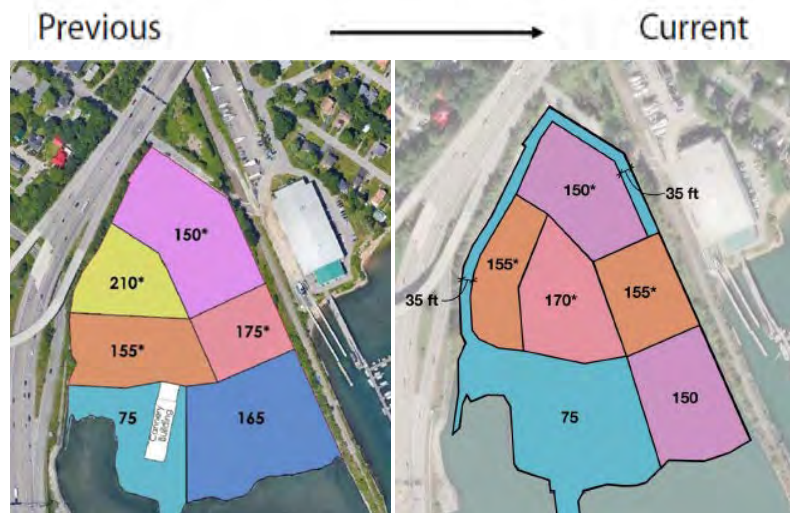


Figure 3: Image showing the original and currently proposed height maps for the IOZ.

The Applicant has reflected these topic areas in the development of the application through:

- Traffic Impacts:** The submission of a transportation memorandum with a robust analysis for the IOZ review that assesses the potential impacts of the project throughout all proposed phases, developed site and building design standards to promote a walkable campus, and support the development of a residential parking program to mitigate negative transportation impacts on the surrounding neighborhood. The memorandum will serve as a starting point to inform more location-specific analyses in the future development of the TDM plan, site plan reviews, and TMP reviews.
- Hotel & Campus Programming:** In response to concerns about the scale of non-institutional uses on the campus, the Applicant reduced the overall square footage dedicated to these uses, developed dimensional restrictions on the scale of the proposed hotel, and has thoughtfully combined supportive uses for the campus to support the development of a complete neighborhood campus that reduces single occupancy vehicle trips to and from the site.
- Building & Site Design:** Comments on the scale and location of the proposed buildings led the Applicant to decrease the maximum permitted heights and shift the taller buildings to the center of the site, which reduced the shadow and visual impacts on the surrounding neighborhood and respect existing features such as the Cannery Building and the waterfront. Additional dimensional requirements such as setbacks building length, and floor plate provisions were also added to ensure the massing of buildings is broken down.



Figure 4: Map showing multiple modes and forms of access to and from the site.

- Campus Integration:** While the site is separated from the East Deering Neighborhood by Maine DOT right-of-ways and the waterfront, the proposed use led to some concerns about how the site will integrate with the neighborhood and with the identity of the City of Portland. To respond to these concerns, design standards have been included to more thoughtfully address transitions on- and off-site, reinforcement of the accessibility of the Waterfront with multi-modal access that is open to the public, and continuing to maintain open dialogue throughout all phases of

development by establishing connections with community advocacy groups and developing a community advisory group/forums.

- **Property Management & Acquisition:** Comments arose relating to the involvement of IDEALS as part of the IOZ process, as well as if The Roux Institute at Northeastern University anticipated expanding the campus to any off-site locations. Supporting documentation (e.g., Articles of Incorporation, Memorandum of Understanding) and updates to the Regulatory Framework & IDP have more clearly delineated IDEALS' role in facilitation of the development and ultimate transfer of the land to The Roux Institute. Questions regarding off-site locations have been addressed in the IDP by clarifying that all operations will relocate to 1 Bean Pot Circle from the current leased space at 100 Fore Street. The applicant has stated that there is no intention to expand the campus to any off-site locations. Any expansion outside of the proposed IOZ boundary would require the applicant to seek an amendment to the IDP.

3. *Demonstrate consistency with the city's comprehensive plan and the purpose of this ordinance.*

Staff Comment: Section 7 of this memorandum identifies the consistency for all proposed map and text amendments with the Comprehensive Plan goals. As demonstrated in that list of applicable strategies, the submitted IDP supports and furthers a significant number of the goals of *Portland's Plan 2030*.

The proposed base rezoning and IOZ content meet the purpose of the ordinance by proactively planning for the future of the site and supporting the development of a mixed-use, multi-modal site.



Figure 5: Graphic visualizing the structure of Portland's Plan 2030.

4. *Demonstrate how the property ownership, proposed growth, and requested regulatory framework relate to the institution's mission.*

Staff Comment: 1 Bean Pot Circle is currently owned by IDEALS, which is the non-profit tasked with supporting the development of The Roux Institute at the site. Ownership of the site by IDEALS has enabled The Roux Institute to transition to a larger site that will fulfill the anticipated growth in the short-, mid-, and long-term by providing opportunities for connection with STEM businesses, housing for students, faculty, and guests, and larger academic/incubator spaces for the facility as compared to the current leased campus space at 100 Fore Street.

The regulatory framework also allows The Roux Institute to achieve the visions for the site by:

- Expanding the B-5 permitted uses to better align with the proposed uses of the Institute and partner facilities,

- Allowing increased heights/densities, which has facilitated improved buffers, additional publicly accessible open space, and reduced visual shadow impacts as well as taking into consideration future sea level rise and flood zones,
- Enforcing the sustainability and resiliency goals of the campus through the development of a sustainability charter, and
- Proactively plan for a more multi-modal campus by planning shared-use paths networks, identify potential mitigation measures to improve non-motorized mode share, and promote iterative growth in the future reviews of TMPs, the TDM plan, parking studies, and site plan applications.

5. *Demonstrate that traffic and parking impacts have been anticipated and that the proposed parking provision is justified as based on an assessment of options for reducing traffic and parking demands.*

Staff Comment: The Applicant has provided additional information on how trip generation and mode share for the site is calculated, mode splits by use, and anticipated mitigation measures for anticipated declines in LOS. Identification of potential shared-use path connections has also been included as a starting point in identifying solutions to meet lower-motorized mode share for future site plan and Traffic Movement Permit (TMP) reviews.

The phasing of the project allows for the fine-tuning of analyses and multimodal mitigation measures over time to meet the mode share targets via monitoring.

Thresholds for multi-modal improvements will align with TMP and TDM review requirements. Parking ratios for the site aim to utilize existing exemptions in the Land Use Code that require parking studies and the development of a TDM plan, which will help support the vision for a more walkable, bikeable campus and iterative development.



Figure 6: Mid-Term Development Plan from the IDP showing points of access and circulation patterns.

6. *Outline an approach to open space, natural, and historic resources that supports preservation and enhancement*

Staff Comment: The IDP includes design guidelines that stress the importance of wayfinding, shared use paths connections to the Bean Building and Waterfront, and ensuring barrier free access to all members of the public. Overall, the inclusion of these principles will lead to more successful outcomes for open space & enjoyment of natural & historic resources. The Cannery Building was designated as a local historic landmark on October 17, 2022 under Order 86-22/23.

7. *Demonstrate that potential cumulative environmental impacts have been anticipated and can be minimized or satisfactorily mitigated.*

Staff Comment: The IDP has confirmed that there are no environmentally sensitive areas on the site or habitats for endangered species. The Applicant will be developing a sustainability charter which will guide future development patterns and materials to promote a more resilient and sustainable campus. Additionally, the ethos for the campus being a more walkable and bikeable, complete neighborhood is anticipated to reduce overall single-occupancy vehicle (SOV) trips to the site, decrease the impervious surface area on the site, and restore the existing shoreline, which will lead to positive environmental impacts. Thresholds for future improvements will align with State and Federal standards and mitigation will correspondingly be required to meet those standards.

8. *Demonstrate that utility impacts have been anticipated and can be minimized or satisfactorily mitigated.*

Staff Comment: The Applicant has stated that the current utility connections provide a sufficient starting capacity for the short-term development of the site and that development in the mid- and long-term will include routine service improvements that will mitigate negative impacts to the site and the surrounding area.

9. *Reflect a comprehensive design approach that ensures appropriate transitions with the existing or future scale and character of the neighboring urban fabric.*

Staff Comment: Language related to circulation and building design have also taken steps to improve connections between buildings and the public realm, recognized differing needs for pedestrian-oriented design based on the proximity to automobile access on the perimeter of the site, and how functions of the site will differ based on the anticipated site users (e.g., public vs. semi-public, waterfront vs. Roux Institute facilities). Recognized public access and invitation to the waterfront have assisted in strengthening connections to the rest of the City.

10. *Promote compatibility with existing or future uses in adjacent neighborhoods, maintain housing, and support local amenities.*

Staff Comment: With the separation from adjacent neighborhoods by DOT right-of-ways and the waterfront, the site has unique considerations in providing compatible uses. As compared to other IOZs, there is physical separation that reduces the impact of the more institutional uses being located near

residential zones. The proposed project is compatible with existing and future uses in adjacent neighborhoods. To the west, beyond Interstate 295 is a B-2 Community Business zone, which allows a mix of uses including residential, commercial uses such as retail, offices, hotels, bars, restaurants, and low-impact industrial. To the north is an I-L Industrial Low-Impact zone, which immediately abuts an R-3 Residential zone. I-L zones allow commercial and service uses such as recreation and amusement centers and repair services, institutional uses such as places of assembly, and industrial uses including low-impact industrial, office, manufacturing facilities, warehousing, and lumber yards.

IDEALS has indicated that they'd like to foster a close relationship with the neighborhood and are strengthening physical connections with the surrounding neighborhoods, through extension of the Back Cove Trail, potential improvements to Sherwood Street, and the availability for connections for rail or rail trail along the existing rail right-of-way. The site will be open to the public and will feature new public open space, including areas along the waterfront. Additionally, a Stakeholder Advisory Group will be established that features a number of transportation advocacy stakeholders to inform future development.



Figure 7: Diagram depicting connections between proposed campus uses.

The proposed development does not eliminate any existing housing and includes the construction of up to 650 units at the completion of the long-term phase. With an expected enrollment of $\pm$ 4,500 students, the site is expected to include amenities and services (restaurants, small grocery retail, and improved connections to the waterfront and trails) that are anticipated to reduce the number of trips off-site and can connect to existing trail networks.

11. Anticipate future off-site improvements that would support the integration of the institution into the community and citywide infrastructure.

Staff Comment: The Applicant has submitted a transportation memorandum on potential multi-modal

mitigation measures that will be required to support the integration of the institution at each phase of development. Assessment of the visual and site design transitions throughout the site have thoughtfully considered how future residents will access the site and how members of the public will be welcomed in to utilize the public open space, shared use paths, and ground-floor commercial spaces. The infrastructure section has confirmed that the site has the utility capacity to meet needs for the short-term phase, with routine improvements into the mid- and long-term phases. Finally, the Applicant has proposed the establishment of a community advisory group and regular neighborhood forums, which can help guide the decision-making process for future off-site improvements to meet the needs of the neighborhood and greater City.

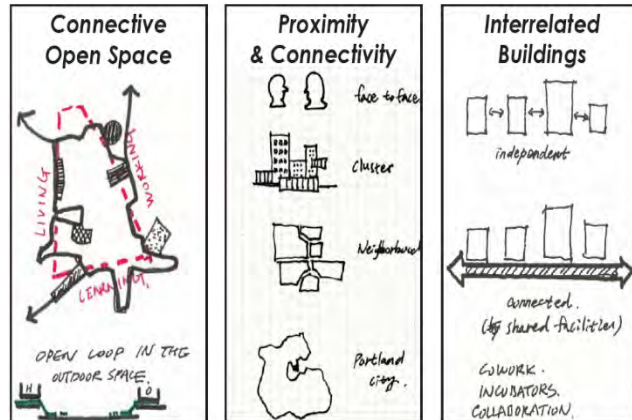


Figure 8: Concept sketches used to inform the building and site design.

12. *Conform with the standards of Article 17 for designated landmarks or for properties within designated historic districts or designated historic landscapes, if applicable. When proposed adjacent to or within 100 feet of designated landmarks, historic districts, or historic landscapes, the IDP shall be generally compatible with the major character-defining elements of the landmark or portion of the district in the immediate vicinity.*

Staff Comment: The Cannery Building was designated as a local historic landmark on October 17, 2022 under Order 86-22/23. Future phases of development will be subject to HP review within the designation area shown in Figure 9, in the case of work proposed on the Cannery Building itself. The local landmark designation includes language that limits Historic Preservation review to only the portions of the site designated as a local landmark, without 100 foot advisory review from historic preservation staff. The IDP identifies that the Cannery Building will be prominently featured on the site, with other development set back and limited in height within close proximity of the Cannery Building. Any new improvements within the designation boundaries shown in Figure 9 will need to comply with Article 17 of the Land Use Code.



Figure 9: Designation boundaries for the Cannery Building and area immediately surrounding the Building.

13. Incorporate strategies to support clear communication and ongoing public engagement between institutions and nearby neighbors.

Staff Comment: IDEALS has developed a variety of strategies to engage members of the community in on-going planning work. This included semi-regularly scheduled ‘Roux Campus Roundtable’ meetings, throughout the project development cycle. In addition, IDEALS maintains a website, www.rouxcampusportland.org, where relevant project information is regularly updated, with opportunities to take surveys, provide feedback, or contact a representative to ask questions. Additionally, IDEALS has designated a community contact who serves as direct liaison between IDEALS and members of the public. As mentioned and going forward, the Stakeholder Advisory Group will assist in providing additional opportunities for communication and transparency in future development.

IV. REVIEW OF REGULATORY FRAMEWORK & IOZ MAP AMENDMENT

Table 2 includes a summary of the required content for the regulatory framework, along with the current compliance with those submittal standards:

Table 2: Required Content of the Regulatory Framework (8.5.5.D.)		
Requirements	Provided	Notes
Zoning boundary of the IOZ	Yes	The zoning boundary is clearly defined in a map on the first page.
Phasing and schedules	Yes	Details relating to amendment thresholds and specific improvements at proposed phases has been provided.
Uses	Yes	Expansion of permitted uses have been provided and takes into consideration the institutional purpose and viability of the site.
Dimensional requirements	Yes	A Height Map and height standards for the proposed hotel have been provided.
Transportation	Yes	The Transportation section has been expanded to include considerations related to the design for proposed bicycle and pedestrian networks, which will help promote pedestrian-scale design. Thresholds for access improvements have also been included to help inform phasing and mitigation. Parking ratios will be informed through the review of the future TDM plan, TMP, site plans, and parking studies.
Environment	Yes	The Regulatory Framework provides clarification on how and when open space will be provided during the first phase of construction. The references to the Sustainability Charter cement connections to the Institute’s goals for sustainable and resilient development. While no environmentally-sensitive areas currently exist on the site, protections/procedures for any future environmentally-sensitive areas have been included.
Mitigation measures	Yes	The Regulatory Framework includes a broad approach on identifying mitigation measures. Goals for preserving access to the waterfront and the Cannery Building as a local landmark have been provided. Thresholds to address deficiencies related to transportation have also been included.

Design	Yes	The submitted design section provides design guidelines that more clearly translate the design principles into enforceable standards. Design requirements clarify the future envelope of buildings and connections between vehicular and non-vehicular pathways ensures that the placement promotes the walkable intent of the campus. Integration of the existing views, waterfront, and Cannery Building have also been provided to ensure a campus identity that is cohesive and respectful of the existing industrial, waterfront character. Transitions between different areas of the site have thoughtfully considered the range of uses and users of the site.
Neighborhood integration	Yes	The Regulatory Framework provides a number of strategies to ensure more transparent and open dialogue through the creation of a Stakeholder Advisory Group consisting of community stakeholders, as well as a community liaison. Additionally, the phasing section of the Regulatory Framework states that pedestrian linkages and safety will be addressed during the first site plan review, and includes requirements for a pleasant pedestrian experience during construction phases. Construction updates will be provided on a dedicated webpage and a number of forms of communication have been provided for residents to ask questions and provide feedback.
Monitoring	Yes	The Regulatory Framework has identified a schedule for monitoring and report submittal timeframe.

B. Regulatory Framework Review Standards

The Regulatory Framework is subject to 4 separate review standards, each of which are intended to ensure, consistent, and measureable zoning implementation that aligns with the goals of the Comprehensive Plan. These standards of the Regulatory Framework are anticipated to include parameters that guide the growth and change of the institution, as well as broad strategies to address potential impacts, with plans and details to be developed under site plan review.

1. *Be consistent with the Comprehensive Plan and the Institutional Development Plan*

Staff Comment: The submitted Regulatory Framework is consistent with the Comprehensive Plan and the assessment of how the suite of zoning text and map amendments align with the Comprehensive Plan can be found in Section 7 of this memorandum. Overall, the connections between the elements in the IDP and the guidelines in the Regulatory Framework are strong. City Staff have worked with the Applicant to improve connections between the Design Principles of the IDP and Guidelines of the Regulatory Framework, which is demonstrated in Attachment 2.

2. *Provide a clear zoning framework, using graphics and tables as appropriate, to apply to future site plan reviews.*

Staff Comment: Guidance from the Planning Board and City Staff have helped to evolve the Regulatory Framework into a more functional document that more clearly regulates and anticipates the unique elements and needs of the site and the surrounding area. Updates have included the addition of more graphics, revisions to align the language of the Regulatory Framework with the remainder of the Land

Use Code, and the removal of unclear/redundant language. As submitted, the Regulatory Framework will ensure clear implementation of the vision of the IDP in future site plan reviews.

3. *Provide specific regulatory statements as appropriate that respond to concerns raised during the required public involvement.*

Staff Comment: Based on comments received during the Roux Roundtable discussion and Planning Board public comments, both written and verbal, the Applicant has included the provision for a Stakeholder Advisory Group, allowance for snow ban parking on the site for neighboring residents, and developed design elements that will promote more thoughtful transitions in and around the site. Updates have been made by the Applicant to provide additional information on the proposed height of the hotel and associated structured parking to address concerns relating to the height and scale of the building.

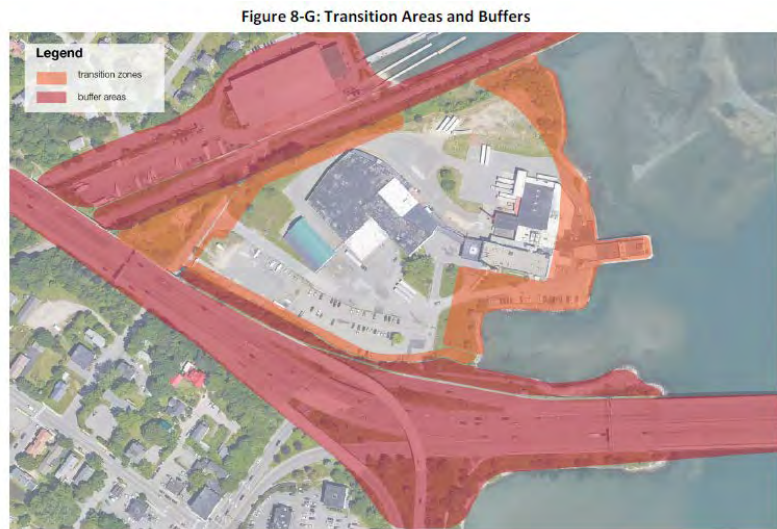


Figure 10: Map from the Regulatory Framework identifying transition areas and buffers in and around the site.

4. *Outline measurable goals and thresholds for improvements or other actions identified in the IDP to be advanced in subsequent site plan applications.*

Staff Comment: The submitted regulatory framework has identified the goals for mode share and how future transportation topics will be addressed through future site plan, TMP, and TDM Plan reviews. Future achievement of sustainability goals for the campus will come from the development of a Sustainability and Resiliency Charter prior to the submission of the first site plan application.

V. REVIEW OF PROPOSED TEXT AMENDMENT

The City of Portland currently limits the Institutional Overlay Zone (IOZ) as a regulatory tool to four of the city's major medical and higher education institutions; those being Maine Medical Center, Northern Light Mercy Hospital, the University of Southern Maine, and the University of New England (UNE). The City's work to develop an IOZ tool began in 2016 with preliminary discussions with four of the City's major institutions. At least three of which were considering major changes to their core campuses, and, for some, the existing zoning presented challenges. For example, Maine Medical Center's contract zone, developed in 2005, did not support their long-term vision, and UNE's existing zoning, consisting of five disparate zones, presented challenges for their future planning as well. Moreover, the City recognized

that the growth and change contemplated by institutions is integral to their long-term health, and given their central economic, academic, and health care roles, also critically important to the health of the city, region, and state. The City also recognized that institutional growth and change can place pressure on surrounding neighborhoods and the city more broadly, and that proactive, long-term planning would allow the city to better anticipate municipal needs and would foster additional dialogue and relationships with surrounding neighbors. Therefore, the city developed the concept of the IOZ. At the time of adopting the IOZ, in 2017, as a new zoning tool for institutions, the City clarified that it was anticipated that the IOZ process would be extended to other institutions as needed.

In order to pursue an IOZ, a text amendment application in conjunction with the Zoning Map Amendment applications, to amend Article 8.5 of the Land Use Code. The amendment reads as follows:

8.5.1 Purpose

“The Institutional Overlay Zone (IOZ) designation provides a regulatory mechanism available to the city’s ~~four~~ five major medical and higher education campuses...”

And;

8.5.2 Location and Applicability

The city’s ~~four~~ five ~~primary~~ major medical and higher education institutions are eligible to apply for designation as Institutional Overlay Zones. The eligible institutions are the two major hospital institutions of Maine Medical Center and Mercy Hospital and the ~~two~~ three major academic institutions of University of Southern Maine, ~~and~~ University of New England, and The Roux Institute at Northeastern University, their successors and assigns. Designation as an IOZ is the preferred mechanism where the eligible institution’s proposed development is inconsistent with the existing zoning.

The proposal to have The Roux Institute at Northeastern University added to the list of institutions eligible to pursue an IOZ is a different model for inclusion of a major institution as compared to the existing four institutions. The existing institutions are already established in their respective campuses, and may apply for an IOZ/IDP to support their future physical and programmatic expansion, whereas Roux is still in the early stages of its evolution through a leased space at 100 Fore Street. Additionally, the development of the institution involves a partnership between The Roux Institute at Northeastern University and IDEALS, the non-profit tasked with developing the Roux Campus, with the Roux Institute as primary occupant and institutional anchor of the site.

While this is a somewhat different approach, the inclusion of The Roux Institute does align with the IOZ purpose statements, as shown below in Table 3, by leveraging public-private partnerships to facilitate the proactive growth of a major educational institution that meets the goals of the Comprehensive Plan and provides more transparent, open dialogue with community members throughout the planning process.

Table 3: IOZ Purpose Statements (8.5.1.)	
IOZ Purpose Statement	Notes
A. Acknowledge that the city's major academic and medical institutions play a prominent role in the health and well-being of the local and regional community, and in order to sustain that role, these institutions need flexibility to change and grow.	The Applicant has identified in the IDP the impact that the Roux Institute has in Portland and the establishment of an IOZ provides a flexible structure that will facilitate the growth of the institution in the short-, mid-, and long-term phases of development.
B. Encourage proactive planning for institutional change and growth which identified and addresses likely long-term institutional needs and cumulative impacts while leveraging potential benefits at the neighborhood, city, and regional level.	While the other institutions currently eligible to submit an IOZ have a context and existing issues that influence future development phases, the proposed allowance for The Roux Institute to apply for an IOZ has provided an expanded opportunity for additional planning and thought in the development of a newer institution, that can build from the experiences of existing IOZs while chartering a more iterative course into the long-term future.
C. Ensure that institutional change and growth both complements and, as appropriate, integrates adjacent or surrounding neighborhoods through carefully planned transitions.	While the site is bounded on all sides by right-of-way or the waterfront, the development of the IDP and Regulatory Framework has been able to examine and carefully identify how the site is going to fit into the East Deering Neighborhood, the identity of the City of Portland, and how to develop feasible transitions/transportation plans given the limited number of potential access points to the site.
D. Support the formation and continuation of mutually beneficial public-private cooperation.	The development and execution of IOZs inherently support cooperation between the City, residents, and Applicants. The proposed IOZ has also been made possible due to the partnership of IDEALS and The Roux Institute. As a continuing theme throughout all of these purpose statements, building these relationships earlier on in the development of an institution will only enhance this cooperation throughout all phases of development.
E. Support an ongoing public engagement process that benefits both the institutions and nearby neighborhoods.	Including an institution like The Roux Institute in to the available IOZ process provides an even greater amount of time for public dialogue & engagement about their institutional growth. Through the IOZ structure, this helps establish a structure for communication at an earlier time and can help to lead to more proactive, responsive development in the future.
F. Reflect Comprehensive Plan and other policy objectives.	The Applicant has identified connections to the Comprehensive Plan, One Climate Future, and other

	relevant transportation plans in the surrounding area. The text amendment, along with other text and map amendments will facilitate the achievement of Comprehensive Goals that are more specifically identified in Section 7 of this memorandum.
G. Provide a consistent regulatory approach to all major institutions which allows unique regulatory requirements that balance the particular needs of institutions with the needs of the surrounding neighborhood and wider community.	While at a different stage of development as compared to other IOZ eligible institutions, the Applicant has used previous regulatory frameworks as a template for future development. Modifications from previous regulatory frameworks have been made to address comments related to transitions, height, and the scale of the proposed hotel on the campus.

VI. REVIEW OF B-5 MAP AMENDMENT

In addition to the development of the IDP & Regulatory Framework for the IOZ, the applicant has requested that the subject property be rezoned from Moderate Impact Industrial (I-M) and Residential (R-3) to Urban Commercial (B-5) mixed-use zone. The approval on an IOZ allows modifications to the base zoning related to uses and dimensional requirements, while also addressing any campus-specific considerations, such as mitigation measures.

While the Application could have been submitted without the requested change to the base zoning, the requested rezoning to B-5 is beneficial and aligns with the Land Use Code by:

- Selecting a base zoning classification that provides a strong foundation for the campus and minimizes the deviation of the IOZ from the base zone, which reinforces its use as a zoning supplement (Overlay) as opposed to a base zone, and
- Provides better alignment in the event that only a portion of the proposed IOZ development program is constructed and future development cannot utilize IOZ allowances and must comply with all B-5 requirements.

The following sections walk through the purpose of the B-5 zone and how it compares to the primary existing zoning for the site (I-M). Alignment with the goals of the Comprehensive Plan is discussed in Section 7 of this memorandum.

A. B-5 PURPOSE STATEMENT

The purpose of the B-5 zone is:

“To provide for areas of the peninsula near the downtown where a mixture of uses, including marine, industrial, commercial, and residential uses are encouraged. The B-5 and B-5b is typically characterized by larger underdeveloped lots with potential for denser, clustered, urban mixed-use development and more efficient use of existing land and building. It is anticipated that the dense, mixed-uses of the B-5 will rely on a shared infrastructure system, including service alleys, parking lots, public transportation facilities, stormwater management, and driveways”

The Roux Campus as proposed is consistent with this purpose statement by:

- The B-5 zones is applied to various peninsula and near-peninsula areas of the city with industrial pasts that are transitioning to mixed-use.
- Proximate to Downtown Portland being located a little over a mile from the B-3 zone;
- Proposes a mixture of marine, industrial, commercial, and residential uses;
- Is a larger underutilized former industrial lot that is proposed to be redeveloped for denser, clustered, urban mixed-use development, and
- Reconfigures the site to provide shared parking facilities & utilities, proposes to increase the building square footage, and diversifies the number of uses on-site from the previous operator.

B. COMPARISON OF I-M & B-5 ZONES

When comparing the B-5 with the I-M zone, the most notable distinctions include use provisions and dimensional standards. Key differences are provided in the tables below.

Table 4: List of Permitted and Conditional Uses		
Uses	I-M	B-5
Single-Family Residential		P
Two-Family Dwellings		P
Multi-Family Dwellings		P
Handicapped Family Units		P
Combined Living and Working Spaces		P
Lodging Houses		P
Clinics		P
Cultural Facilities		P
Schools		P
Emergency Shelters	C	C
Government Uses		P
Places of Assembly (All)		P
Pre-School Facilities	P	P
Post-Secondary Schools		P
Intermediate Care Facilities	P	
Auto Service Stations		P
Bars		P
Exhibition, Meeting, Convention Hall		P
General Offices (All)	P	P
General Services (All)		P
Hostels		P
Hotels		P
Recreation and Amusement Centers	P	P
Restaurants		P
Retail (All)		P
Theaters and Performance Halls		P
Communication Studios		P
Intermodal Transportation Facilities	P	P
Low Impact Industrial (<10,000 SF)	P	P

Low Impact Industrial (>10,000 SF)	P	C
Laboratory & Research Facilities	P	
Lumberyard	P	
Marijuana Cultivation (<7,000 SF)	P	
Marijuana Manufacturing Facility	P	
Marijuana Testing Facility	P	
Printing & Publishing	P	P
Recycling and Solid Waste Disposal	P	
Repair Services	P	P
Construction & Engineering Services	P	
Dairies	P	
Food and Seafood Processing, Packaging and Distribution	P	
Studios for Artists & Crafts People	P	P
Warehousing, Storage & Distribution	P	P
Telecommunications Tower	P	
Tow Lots	P	
Correctional Pre-Release Facilities	P	
Marine Uses		P
Off-Street Parking		P
Parks & Open Spaces		P
Solar Energy Systems (Minor)	P	P
Solar Energy Systems (Major)	P	
Utility Substations	P	P
Wind Energy System (Minor)	P	C
Wind Energy System (Major)	P	

As can clearly be seen in the use table above, the two zones have different purposes with use provisions reflective of their stated purpose. The I-M zone is geared toward traditional low to moderate impact industrial uses, which frequently rely upon convenient automobile & truck access to regional transportation infrastructure, benefit from regulations which account for the need to store materials and equipment outdoors dealt with through appropriate performance measures, and necessitate buffers between residential and/or other sensitive uses.

Conversely, the B-5 zone, as can be seen in the uses listed above, is among the more permissive mixed-use zones, anticipating scenarios such as that of the proposed development, in which large, underutilized properties are redeveloped to support both job generating uses and residential uses. As might be expected, this zone broadly permits residential, office, retail, restaurant, low-impact industrial uses <10,000 square feet, and other service-based uses. In addition, the zone permits a range of institutional uses, as well as some light industrial and transportation related uses, reflective of the types of redevelopment envisioned and alluded to within the zone's purpose statement.

Similar to use standards, both zones differ in their regulation of dimensional requirements, as seen below:

Table 5: Dimensional Standards by Zone		
Dimensional Standard	I-M	B-5
Street Frontage	60 Ft.	
Front Setback	1 Ft. for each Ft. of building height	
Rear Setback	1 ft. for each ft. of building height up to 25 ft., except 35 ft. when abutting residential zone	
Side Setback	1 ft. for each ft. of building height up to 25 ft., except 35 ft. when abutting residential zone	
Structure Height	75 Ft	65 Ft
Impervious Surface Ratio	75%	
Pavement Setback	10 Ft.	

Both zones are fairly permissive in terms of dimensional standards, however the I-M zone exhibits restrictions intended to buffer industrial uses from abutters, while also requiring minimum frontage, and limiting the amount of impervious surface. The B-5 anticipates a truly high-density urban form, and aside from limits on building heights, does not generally restrict uses or development dimensionally. In this instance, the I-M does permit taller buildings, up to 75 feet, while the base B-5 permits max building heights up to 65 feet, or up to 90 feet with affordable housing density bonuses. However through the established Regulatory Framework, the eligible institution would be permitted taller heights for this property as shown on the height overlay map (Figure 11). It should be noted that affordable housing density provisions would not be applied to heights shown on the IOZ overlay map.

Staff agree that the proposed program of uses for the Roux Institute appear to better align with the purpose of the B-5 zone as compared with the I-M zone.

Building Height:

The maximum permitted height in the B-5 zone is 65 feet and up to 120 feet on Thompson's Point. In addition to the base B-5 height, the applicant proposes a height overlay map as part of the Regulatory Framework. The proposed height overlay map is geographically limited to the Roux Institute site and is tied to development by the Roux Institute.

The subject parcel is bounded by ±106-foot-wide Interstate 295 to the west, the St. Lawrence and Atlantic Railway and Maine Yacht Center to the north and Casco Bay to the east and south. The surrounding area includes an I-L (Industrial Low-Impact) zone and Contract Zone 54 for the Maine Yacht Center, which is currently improved with a 35-foot tall, 35,000 square foot building for boat storage, workshop space, offices, and accessory uses and operates as a full-service marina and boatyard facility and is permitted to have open air/outdoor storage of boats up to 90 feet in height.

Beyond the St. Lawrence and Atlantic Railway and Maine Yacht Center is a residential neighborhood zoned R-3 (Residential), characterized by single-family homes. To the west, beyond Interstate 295 is zoned B-2 (Community Business) and is characterized by a mix of commercial retail and offices as well as residential uses. The B-2 zone permits building heights up to 45 feet, except 50 feet if the first floor is in commercial use. B-2 zones are eligible for affordable housing density bonuses ranging between 10 and 25 feet and therefore allow buildings up to a maximum height of 75 feet.

As part of the regulatory framework, the Applicant proposes a height overlay map which includes heights ranging from 75 feet, 150 feet, 155 feet, and 170 feet for portions of the site (Figure 11). The applicant's approach is to create transitions from the surrounding context by creating a 75-foot maximum height buffer along the site's edges and stepping up and directing taller buildings to appropriate locations within the interior of the site and towards

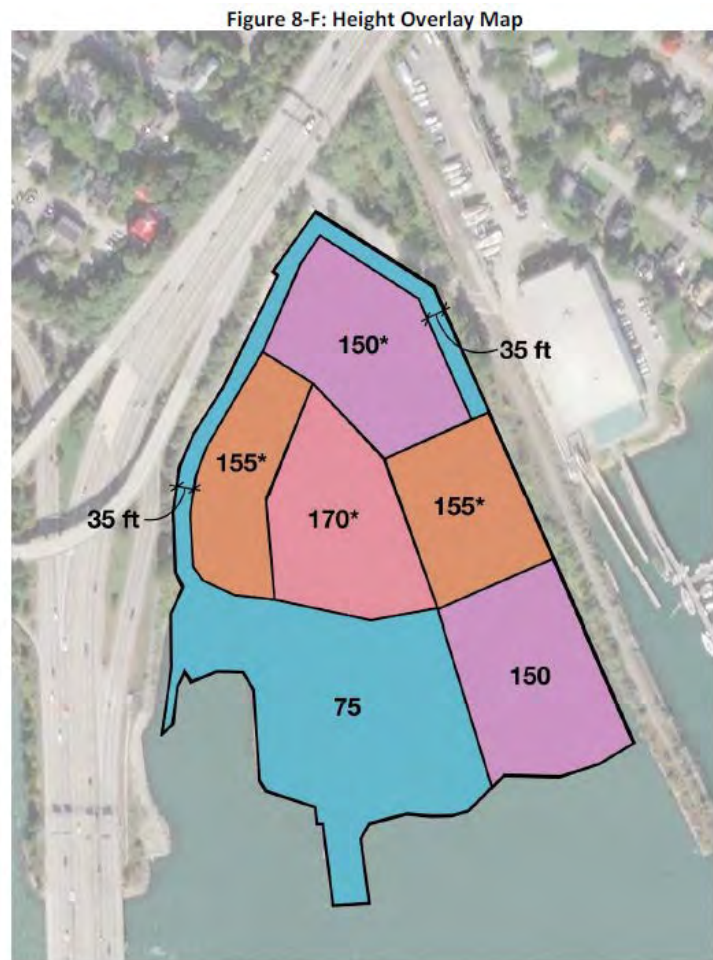


Figure 11: Height Overlay Map from the Regulatory Framework.

Interstate 295 and Casco Bay. Furthermore, the applicant proposes restricting floorplate sizes in specific locations to a max of 35,000 square feet for portions of buildings above 75 feet, and to include stepback requirements above minimum and maximum street wall heights, which will shape the bulk and scale of larger buildings.

The allowance for greater heights on the parcel has raised some concerns for compatibility with the East Deering contexts and has received support from others. Currently, height maximums are highly variable within Portland's higher density urban zones mapped across the city. While the B-3, B-6, and B-7 zones as well as USM Overlay and Maine Med IOZ utilize building height overlay maps, the B-1, B-2, and B-5 zones have maximum building heights in addition to each having geographically or use specific modifications to increase buildings heights. Furthermore, B-1/B-1b, B-2/B-2b/B-2c, B-3/B-3b/B-3c, B-5, R-7, and R-P zones are eligible for affordable housing height bonuses ranging between 10 and 25 feet.

Planning staff believes that the proposed heights as shown on the submitted height overlay map is appropriate. The proposed site is uniquely situated, with Casco Bay bordering the site to the south and east, ±106-foot-wide Interstate 295 bordering the site to the west and the St. Lawrence and Atlantic Railway and Maine Yacht Center to the north. The Roux site relates strongly to the Interstate 295

corridor, is isolated from surrounding neighborhoods, and has a history of dense, intensive industrial development and use.



Figure 12: Potential Site Section from the IDP depicting the proposed building heights in relationship to the existing Cannery Building, I-295, and East Deering Neighborhood.

The site is accessible to public transit and offers opportunities for multi-modal access and walkability with connections to various trail networks including Back Cove Trail, Eastern Promenade Trail, and Bayside Trail. The site is within an approximately 15-minute bicycle ride of City Hall via Back Cove Trail and Bayside Trail and an approximately 40-minute walk.

Planning Staff believes that the proposed overlay map is responsive to the surrounding context by arranging and distributing heights that will shape future buildings bulk and scale in manner that accommodates the proposed density. The proposed heights are designed to adjust to the context. At the site's northern most point, nearest to the Maine Yacht Center and the St. Lawrence and Atlantic Railway beyond which is a lower-scale residential neighborhood and along the site's western most point adjacent to Interstate 295, the Applicant proposes maintaining a maximum height of 75 feet to a depth of 35 feet, preserving the current maximum height allowed on the site. In addition, a 75 foot maximum height is mapped for the majority of the sites waterfront, preserving key views into the site from Tukey's Bridge/Interstate 295 and maintaining a similar scale to the B&M building, a locally designated historic landmark, to ensure compatibility with future designs. Beyond the 75 foot maximum height buffer,

building heights transition and increase ranging between 150 and 155 feet before establishing a maximum building height of 170 feet located at the center of the site. Planning Staff believes that the manner in which the building form will come together will effectively establish a transition to the medium-rise contextual neighborhoods of East Deering to the north and west and the waterfront to the south and east.

Past practice has demonstrated the wisdom of applying building heights that reflect the geography and development context of particular sites. Policies promoting urban scaled density can be implemented while neighboring properties can be best protected when topography, view corridors, street hierarchy, and other context specific issues are reflected in the zoning. Akin to these past practices, Portland has precedent for high-density buildings adjacent to a low- to medium-density context. The Maine Medical Center IOZ regulates building heights via a height overlay map and utilized a similar approach by focusing taller heights, ranging from 125 feet to 200 feet, towards the interior of the site and transitioning down in scale, ranging between 70 feet and 85 feet, to the surrounding neighborhood context, which includes smaller scale single, two-family, and multi-family buildings. A similar condition also exists where both the B-3 and B-7 zones abut low-to-mid density neighborhoods.

Planning Staff believes that the proposed development as contemplated would fulfill multiple public policy objectives, including: the future construction of a higher education institution, research, lab, and office space, retail, housing, and publicly accessible open space, which further supports goals identified in *Portland's Plan 2030*, including: supporting sustainable growth in our educational, medical, and cultural institutions; valuing innovation and creativity as cornerstones of the local economy and as central to Portland's uniqueness and diversity; investing in, attracting, and retaining human capital to support a growing economy; respecting that our unique quality of place is key to our future economic success as well as valuing and nurturing Portland-based businesses; and reinforcing the waterfront as a key component of Portland's economic health, balancing traditional and emerging industries with tourism and recreation.

Furthermore, the contemplated heights would allow for a proposed development that supports the City's housing and recreation and open space policies, including: encouraging additional contextually appropriate housing density to support complete neighborhoods and pursuing policies to enable people who work in Portland to have the option to live in Portland as well as encouraging quality, sustainable design in new housing development. Moreover, permitting additional height on the site creates opportunities for additional open space supporting the state goals such as promoting and protecting the availability of outdoor recreation opportunities for all Maine citizens, including access to surface water, and local goals, including sustaining our system of parks, trails, and open spaces; strengthening connections between open spaces and providing high-quality, well-designed, well-maintained, safe, and integrated parks, trails, public open spaces and recreational opportunities accessible to all residents. In addition, the site is encumbered by FEMA flood zones and permitting concentrated height away from the water's edge will ensure the site is able to accommodate future climate related events and provide additional previous and open spaces.

The proposed development at the contemplated heights would create a dense concentration of uses, adjacent to existing and future multi-modal transit options, including railroad corridors, promotes walkability, and aligns with the goals to create complete neighborhoods. Situating this type of density

adjacent to an array of transit options and creating a mix of uses on site is emblematic of sustainable land use planning and has the opportunity to support future trail connections and public transit such as buses and/or passenger train service.

VII. COMPREHENSIVE PLAN CONSISTENCY

Maine law requires that zoning enactments and amendments, to be valid, must be “pursuant to and consistent with [the municipal] comprehensive plan.” 30-A M.R.S. 4352. Zoning is “consistent” with a comprehensive plan when it is “in basic harmony” with some (though not necessarily all) portions of it.

The majority of strategies in *Portland’s Plan 2030* are tied to development, infrastructure, and policy implementation. The following list includes the major categories of the Comprehensive Plan, along with each of the strategies being met through the combination of proposed map and text amendments that facilitate development in future site plan applications:

Environment

- **Minimize impacts to the City’s waterways** by reducing combined sewer overflows and implementing stormwater best practices.
- Incorporate additional Low Impact Development (LID) standards into City codes.
- **Support reduction in impervious surfaces and implementation of green infrastructure** through local codes and incentives, and in infrastructure investments where appropriate.
- **Reduce city-wide nonrenewable energy consumption through policies that support public and private investments in alternative energy sources.**
- **Encourage commercial entities to reduce fossil fuel use through expanded benchmarking,** incentives for improved lighting and heating efficiencies and purchase of electric vehicles.
- **Encourage fossil-free transport** through support for electric vehicles, electric public transit, dedicated bicycle lanes, and vehicle exclusion zones.
- **Ensure that all municipal decisions take into account the necessity of essentially eliminating carbon dioxide emissions within 30 years.**

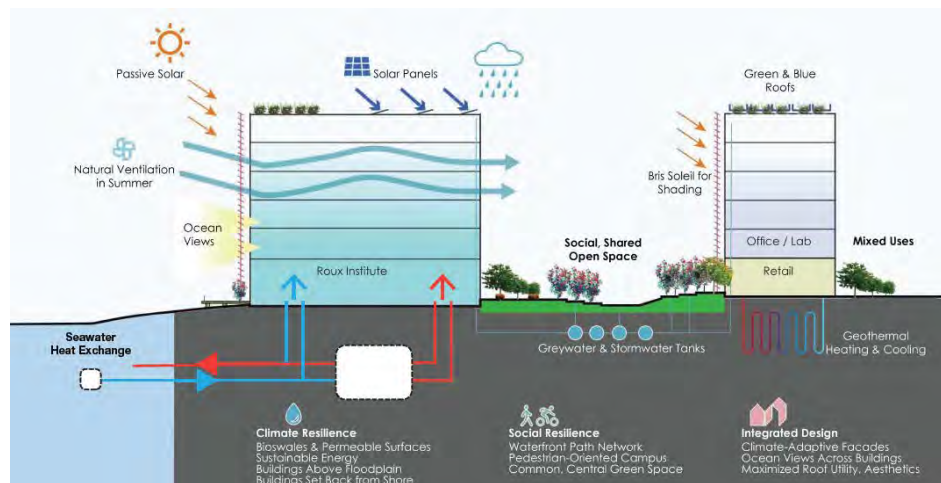


Figure 13: Diagram from the IDP illustrating potential alternative energy and sustainable building practices for the campus.

- **Coordinate future land use policy changes with long-range regional transportation planning, including planning for transit, pedestrian, and bicycle improvements, to reduce local regional vehicle miles traveled.**
- **Continue to develop land use policies which support complete neighborhoods.**
- **Encourage landowners and developers to incorporate sustainable design, materials, and practices in rehabilitation of historic resources and new construction.**

Historic Resources

- **Document and designate resources of historic, architectural, and/or cultural significance, based on survey findings and input from applicable stakeholders, to encourage thoughtful building rehabilitation, deter demolition, and support neighborhood revitalization.**
- **Expand interpretative signage programs for historic parks and selected sites.**
- **Accommodate multiple objectives, such as improved accessibility, improved energy efficiency, or climate change adaptation, in alterations to historic structures while adhering to preservation objectives.**
- **Ensure an appropriate balance of continuity and change as Portland grows and evolves.**



Figure 14: Photo of the site c. 1900. Source: Maine Memory Network

Waterfront

- **Expand waterfront access for the public where possible and appropriate.**
- **Integrate best practices for adaptive waterfront strategies, including adaptive construction techniques, stormwater infrastructure and utilities, site protection, floodproofing, and risk avoidance into the City's technical standards and land use code.**

Economy

- **Prepare** our current and future **residents to compete in an increasingly knowledge-based economy.**
- **Invest in educational institutions and training as a means of attracting, developing, and retaining an educated workforce.**
- **Evaluate zoning** and the condition of existing infrastructure in priority areas – downtown, in identified neighborhood nodes and **along transit corridors – to ensure that employment and housing growth can be supported.**
- **Modify ordinances** and make strategic investments **to better promote business development and job creation in priority areas.**
- **Promote the orderly expansion of institutional uses, such as educational, cultural, and hospital campuses, which are central to workforce development, employment, and the health of the local and regional economies.**
- **Ensure that the growth of Portland's educational, medical, and cultural institutions is integrated into Portland's urban fabric through the use of high-quality design, management of impacts, community partnerships, and innovative planning.**
- **Sustain and strengthen relationships between local organizations and our anchor institutions** to capitalize on their unique value to the well-being and future success of Portland and the region.
- **Support policies that foster innovation, entrepreneurship, and the creative economy,**
- **Capitalize on emerging open data trends to encourage transparency, test ideas, and develop solutions for urban issues.**
- **Recognize the role of the transportation system in the current and future economic health of the City.**



Figure 15: Long-Term Campus Concept Plan from IDP.

Housing

- **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.**
- **Encourage energy efficiency in new construction** and rehabilitation of our housing stock.
- **Encourage housing that is resilient in the face of climate change,** severe weather events, and storm surges, **especially in vulnerable low-lying areas.**
- **Pursue new opportunities for increased energy efficiency, increased densities, mixed incomes, and greater connectivity to surrounding neighborhoods.**

Recreation & Open Space

- Expand safe, well-lit walking and cycling routes to open spaces, including crosswalks, sidewalks, and bike lanes.
- Improve the utility of existing spaces by developing and programming parks and open spaces for diverse, simultaneous, complementary uses.
- Pursue opportunities for **optimizing green infrastructure** and **enhancing the existing stormwater management and flood storage functions of the City's open spaces** where appropriate and practicable.
- **Encourage physical and visual access to Portland's waterfront – Casco Bay, Back Cove, and the Stroudwater, Presumpscot, and Fore Rivers – as a “blueway” network and an extension of public space for local and regional recreation and transportation needs.**
- **Prioritize open space acquisition and programming toward creating linkages where there are gaps in the network, particularly between Stroudwater and the Fore River, Evergreen Cemetery and the Presumpscot River, Portland Transportation Center and Bayside, Martin's Point and the Back Cove, and the Western Waterfront and the Fore River.**



Figure 16: Map of Proximate Open Spaces from IDP.

Facilities & Services

- **Leverage** State, local, and **private funding** to allow a **comprehensive approach to sustain excellence in the school system.**
- Continue to **provide** continuing education and **job training for adults and new residents.**
- Pursue public/private partnerships to fund needed projects and services

Transportation

- **Monitor** indicators such as **mode share, multi-modal levels of service, and levels of active transportation, particularly on key transportation corridors.**
- **Benchmark existing conditions and set targets for specific future years.**
- Make **improvements to the transportation system** to improve **equity, sustainability, and accessibility** for all ages and abilities.
- **Address existing High Crash Locations, improve ADA accessibility, and ensure pedestrian access to transit stops and along Safe Routes to School Routes.**
- **Support the vision of large, transformative projects** such as the redesign of Franklin Street, the transformation of Forest Avenue, and others, as well as future studies through strategic, cost effective, and incremental actions.
- **Minimize the impact of highway infrastructure, such as ramps and overpasses, on City streets and neighborhoods.**



Figure 17: Map of Potential improvements over all phases of development.

- Identify and plan for parking needs, particularly downtown, on the waterfront, and in conjunction with larger institutions.
- Develop robust, integrated parking management strategies to reduce parking demand.
- Invest in a walkable city through sidewalk maintenance, **accessibility improvements, trail and path connections, snow clearance, lighting, landscaping, traffic calming, enhanced street crossing, strong urban design, artistic elements, and wayfinding.**

- **Complete** and maintain the City's system of shared use pathways, neighborhood byways, and protected/enhanced bike lanes in a legible and continuous network, and develop the complementary infrastructure, such as bicycle parking and wayfinding, to support it.
- Explore potential locations for separated bike infrastructure.
- Expand Transportation Demand Management (TDM) initiatives for large development sites and institutions, building upon the recent implementation of TDM plans for individual employers and sites.
- Support initiatives to strategically increase the frequency and span of service, on-time reliability, and geographic scope of transit service.
- Develop transit centers, enhance bus stops, and improve transit stop and transit corridor operations and accessibility.
- Plan for multi-modal trip connections through bike storage, timetable coordination, or other measures that facilitate ease of transitions between modes of travel.
- Support the waterfront as a signature transportation resource.
- Enhance regional trail connections.

The combined proposed building and site design, IDP & Regulatory Framework, associated text amendments, and future TMP & site plan reviews facilitate the achievement of a significant number of Comprehensive Plan goals.

VIII. NEIGHBORHOOD MEETINGS & PUBLIC COMMENT

Two neighborhood meetings are required for IOZ applications, with the first meeting taking place prior to application submission on November 18, 2021, and the second meeting taking place after application submission on April 6, 2022. Summaries of these meetings can be found in Attachment E.

A total of 73 written public comments were submitted to the Planning Board between June and November of 2022. 49 pieces of public testimony were provided at the June 14, August 9, October 11, and October 25 Planning Board workshops.

On November 16th, comments were submitted to the Planning Board with suggested changes to the Regulatory Framework (PC 8) to address concerns and comments from the East Deering Neighborhood. Comments primarily focused on the use of consistent terminology for references to The Roux Institute at Northeastern University, clarification of procedures for submittal of application documents and eligibility for amendments, and references to

strategies to mitigate transportation impacts on the surrounding neighborhood. As part of the updates made to the IDP and Regulatory Framework, the Applicant has worked with City Staff to address these topic areas to improve the functionality of the document and structural consistency with the existing IOZ for Maine Medical Center and other regulations outlined in the City's Land Use Code.



Figure 18: Photo from September 6, 2022 Open House on the Roux Campus.

Links to the written public comments and recordings for each of these workshops can be found on the first page of this memorandum.

IX. REQUISITE COUNCIL ACTION

Any proposed rezoning, regardless of whether it is favorably or negatively recommended by the Planning Board, must be approved by City Council vote in order to take effect.

X. PROPOSED MOTIONS

1. On the basis of materials submitted by the applicant, the City of Portland Land Use Code, Portland's Comprehensive Plan, public comment, and the information provided in the public hearing on November 22, 2022 for the application ZN-001934-2022, and/or other findings, the Planning Board finds that the proposed zoning text amendment to identify The Roux Institute at Northeastern University as an eligible institution to submit an IOZ application **[is/is not]** consistent with the Comprehensive Plan for the City of Portland; and therefore, the Planning Board **[recommends/does not recommend]** to the City Council adoption of the zoning text amendment as shown in Attachment F.

2. On the basis of materials submitted by the applicant, the City of Portland Land Use Code, Portland's Comprehensive Plan, public comment, and the information provided in the public hearing on November 22, 2022 for the application ZN-001934-2022, and/or other findings, the Planning Board finds that the proposed B-5 zoning map amendment **[is/is not]** consistent with the Comprehensive Plan for the City of Portland; and therefore, the Planning Board **[recommends/does not recommend]** to the City Council adoption of the zoning map amendment for the area of land as shown in Attachment 3.
3. On the basis of materials submitted by the applicant, the City of Portland Land Use Code, Portland's Comprehensive Plan, public comment, and the information provided in the public hearing on November 22, 2022 for the application ZN-001934-2022, and/or other findings, the Planning Board finds that the proposed IOZ zoning map amendment **[is/is not]** consistent with the Comprehensive Plan for the City of Portland; and therefore, the Planning Board **[recommends/does not recommend]** to the City Council adoption of the zoning map amendment for the area of land identified as 1 Bean Pot Circle (447 A001001) as shown in Attachment 4.
4. On the basis of materials submitted by the applicant, the City of Portland Land Use Code, Portland's Comprehensive Plan, public comment, and the information provided in the public hearing on November 22, 2022 for the application ZN-001934-2022, and/or other findings, the Planning Board finds that the proposed regulatory framework **[is/is not]** consistent with the standards of Sec. 8.5.5. of the Land Use Code; and therefore, the Planning Board **[recommends/does not recommend]** to the City Council adoption of the regulatory framework as included in Attachment B.
5. On the basis of materials submitted by the applicant, the City of Portland Land Use Code, Portland's Comprehensive Plan, public comment, and the information provided in the public hearing on November 22, 2022 for the application ZN-001934-2022, and/or other findings, the Planning Board **[finds/does not find]** that the proposed Institutional Development Plan (IDP) is consistent with the Institutional Development Plan standards of Sec. 8.5.4. of the Land Use Code.

XI. ATTACHMENTS

Staff Attachments

1. Review of Required IDP and Regulatory Framework Content
2. Connection between Design Principles and Regulatory Framework
3. Description of B-5 Map Amendment Boundaries
4. Map of IOZ Boundary
5. November 16, 2022 Memorandum from METRO Regarding Service to Roux Institute Campus
6. City Corporation Counsel Determination on Right, Title, and Interest

Applicants Submittal

- A. November 18 Institutional Development Plan

- B. November 17 Regulatory Framework
- C. Roux Roundtable Meeting Summaries
- D. Proposed Text Amendment
- E. Neighborhood Meeting Summaries
- F. Floodplain Technical Memorandum
- G. Sustainability Charter Executive Summary

Public Comment

- a. PC1: Tom Payne
- b. PC2: Reginal Parson
- c. PC3: Desi Avn Til
- d. PC4: Julia Brady
- e. PC5: Anna Marie Klein-Christie
- f. PC6: John Baldacci
- g. PC7: Lucas St. Clair
- h. PC8: Cheryl Leeman
- i. PC9: Randy Marmet
- j. PC10: Melissa Smith
- k. PC11: Emma Bond
- l. PC12: Sarah Maloney
- m. PC13: Tamas Peredy
- n. PC14: Barbara Vestal

Institutional Development Plan

Roux Institute Campus

November 2022



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Introduction

Artist Interpretation



Northeastern University's Roux Institute represents a bold new model for learning, research, and entrepreneurship, developed from day one in partnership with industry, government, and other colleges and universities. Through the strong partnership and jointly held vision of Northeastern University leaders, Barbara and David Roux, and the Harold Alfond Foundation, the Roux Institute is delivering on the university's mission to erase the boundaries between the real world and academia.

Northeastern University founded The Roux Institute to stimulate the regional economy through the cultivation of talent and cutting-edge technology capabilities within Maine and northern New England. It achieves this goal by customizing learning programs and research initiatives to meet the needs of employers, by integrating classroom learning with professional experience, and by supporting the launch of innovative startup companies. The Roux Institute's collaborations with its employer-partners keep the institute in step with the economy's—and society's—changing needs and opportunities. They also enable the Roux Institute to identify and begin to address the state's most consequential challenges.

The Initiative for Digital Engineering and Life Sciences (IDEALS) is a Maine non-profit organization tasked with and solely committed to locating and developing a campus for the Roux Institute. Northeastern University in Portland, Maine: a space for cutting-edge educational, research, and collaborative programs in areas including artificial intelligence, computer and data sciences, digital engineering, advanced life sciences, and medicine. IDEALS was formed in 2018 with support from David Roux, a technology entrepreneur and Lewiston native, and his wife Barbara. They sought to create a graduate institute providing opportunities for Maine people to fill talent gaps for growing digital and life sciences companies while ensuring the 21st century success of greater Portland and Maine's economies. IDEALS recruited Northeastern University to establish and run the program, and the Roux Institute at Northeastern University launched in 2020. The Roux Institute now offers post-graduate degrees and certifications, conducts research, assists start-up entities, and partners with private, public, and non-profit entities to develop 21st century workforce talent and spur innovation.

The Roux Institute is temporarily located in leased space in Portland. A permanent campus for the Roux Institute is essential to fulfill its educational and economic potential. The vision for that home - the Roux Institute Campus - is one that allows for continued growth of the education, research, entrepreneurial, and collaborative programs of the Roux Institute while providing space to support those programs and serve

the community. After completing an exhaustive four-year search both on and off the Portland peninsula and its surrounding area, IDEALS acquired land formerly occupied by the B&M Baked Beans facility along the Portland waterfront.

Recognizing the prominent role that major educational and healthcare institutions play in the health and well-being of the community, the City of Portland's Land Use Code allows for the creation of Institutional Overlay Zones (IOZ) to "provide a regulatory mechanism where an improved regulatory structure is needed to facilitate a consistent, predictable, and clear growth management process." Consistent with that purpose, we seek designation of an IOZ for the Roux Institute Campus. We will simultaneously seek to change the underlying zone to B-5 Mixed-Use Business. The IOZ designation process requires two components: an Institutional Development Plan (IDP, this document) and a regulatory framework. The purpose of this IDP is to establish baseline institutional data for existing land uses and services while also communicating planned growth; it is the basis of the proposed regulatory framework, submitted under separate cover. The regulatory framework translates the IDP into a set of clear and specific zoning requirements, which will constitute the text and map amendment to the City's Land Use Code. Unlike other institutions for which the IDP process was established, the Roux Institute is in its early years and has not established a stand-alone campus. The IDP allows Northeastern University and IDEALS to memorialize the long-term strategic plan for the Roux Institute Campus in consultation with the Portland community at the very outset of development.

Creation of a new campus provides the opportunity to establish a people-oriented space right from the start. It will prioritize people over cars by creating a pedestrian-friendly landscape supported by multi-modal programs that provide incentives for alternative transportation options. The campus will improve site resilience and sustainability by replacing much of the existing pavement and rooftops with green space and incorporating sustainable building practices.

We intend to create a dynamic, mixed-use campus that contributes to the East Deering neighborhood without encroaching on it or burdening City resources. By providing ancillary uses on site (office and lab space for institutional partners, housing for students, faculty, and employees, a hotel for visitors to the Institute and its partners, retail, and personal services), the Roux Institute Campus will meet demand created by the Roux Institute at Northeastern University and its collaborating partners.

1. Establishing the Context



Our Roots

The Roux Institute at Northeastern University



The Roux Institute Campus will be the first of its kind in the Northeast. It will integrate graduate education in technology and science with groundbreaking research and a wide range of collaborations to spark innovation and economic development. The campus is being designed at a scale that will facilitate learning, collaboration, and research breakthroughs and innovations, encourage start-up businesses, and strengthen existing Maine businesses and institutions. Every component of the campus is directly linked to the mission of the Roux Institute, from the housing – keep students and faculty on campus to foster collaboration and reduce traffic, to the hotel – provide a convening space and accommodation for Institute guests from around the globe so that, together, they can spark new ideas. The iconic waterfront location, minutes from downtown Portland (by bike, bus, boat, car, or on foot) with striking architecture and a vibrant community, will attract talent from around the globe and spread economic advancement throughout Portland and beyond.

At the direction of Northeastern University, IDEALS will oversee the design and construction of a primary academic building housing the Roux Institute and will also seek partnerships from the private sector to construct and operate ancillary uses, such as housing, parking, a hotel, and commercial office and laboratory buildings that support the primary academic uses—all of which would be on a ground lease basis.

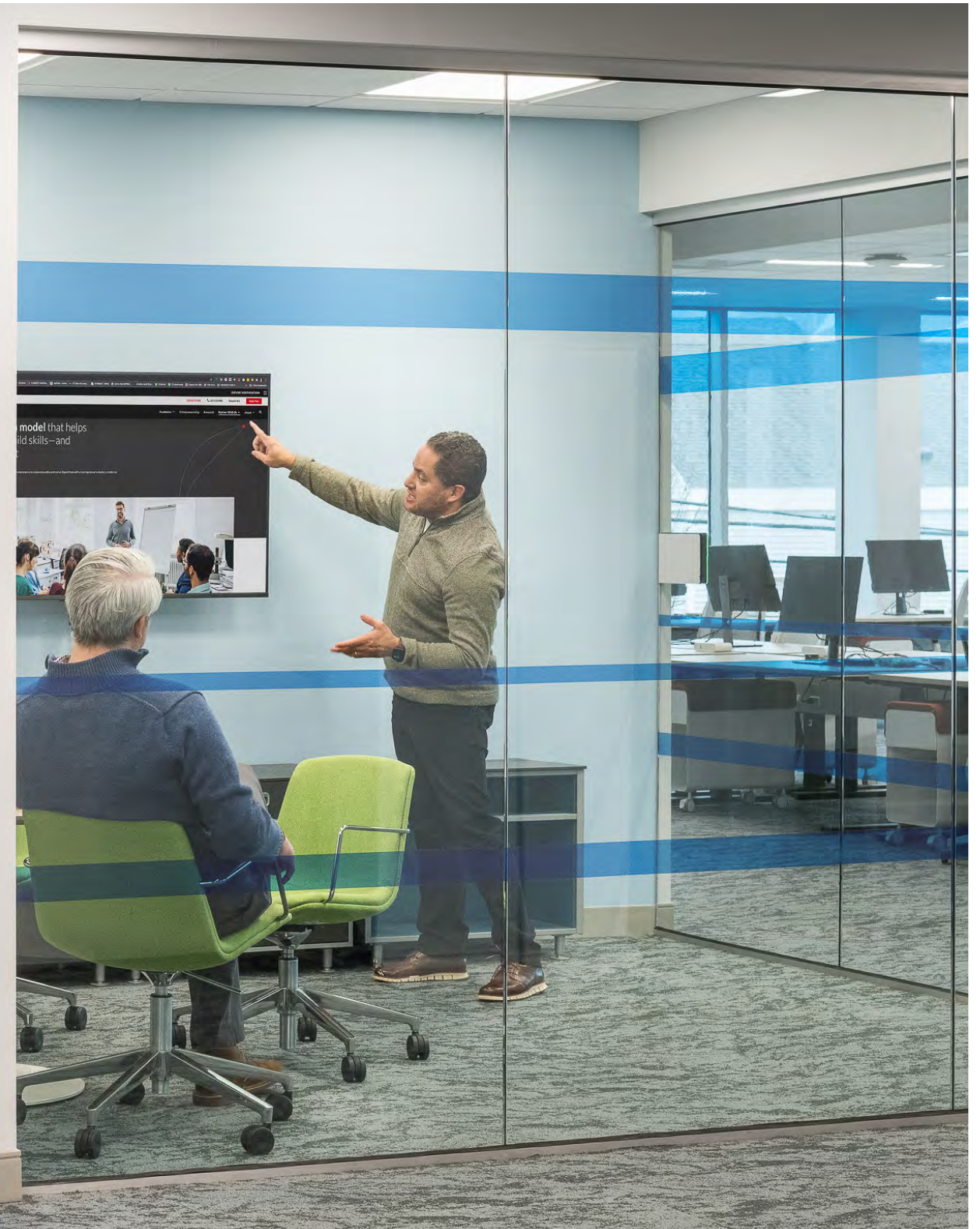


The Roux Institute at Northeastern University was established to develop talent, conduct research, and encourage innovation to support and attract businesses that will thrive in the 21st century economy.

Vision: The State of Maine will be home to a thriving, high-tech economy fueled by people and businesses leading in experiential artificial intelligence, machine learning, big data, life sciences and medicine, engineering, and data visualization. This new economy will attract people and businesses from around the world to the region and provide unprecedented opportunities for all Mainers in a manner that honors and enriches the Maine lifestyle and culture.

Mission: With a vision to enable the creation of a synergistic technology and life science-driven economy and workforce, the Roux Institute designs, curates, and integrates learning, research, and entrepreneurial solutions in collaboration with industry, academic institutions, and community organizations to catalyze talent development and economic impact throughout Maine.

Institutional Context



The Roux Institute at Northeastern University currently has 125 full-time, Maine-based employees, 55 of whom are faculty and post-doctoral staff. The Institute currently has 500 graduate students enrolled. Of Maine's 16 counties, 15 are represented in the student body. The Institute offers 17 graduate programs in computer and data science, analytics, cloud software, cybersecurity, life sciences, and project management.

These educational programs are bolstered by collaboration. The Institute's partnership ranks have grown tenfold as more than 110

Maine organizations now work with and benefit from the institute. Approximately 900 of these partners' employees have taken courses designed by the Roux Institute in concert with their employers. Additionally, 36 startup companies have worked in residence at the Roux Institute, creating 52 new Maine jobs and raising \$21M in investment capital to grow their businesses.

The Roux Institute at Northeastern University currently occupies 44,000 square feet of space leased at 100 Fore Street. This space enabled the Roux Institute to begin providing graduate education services

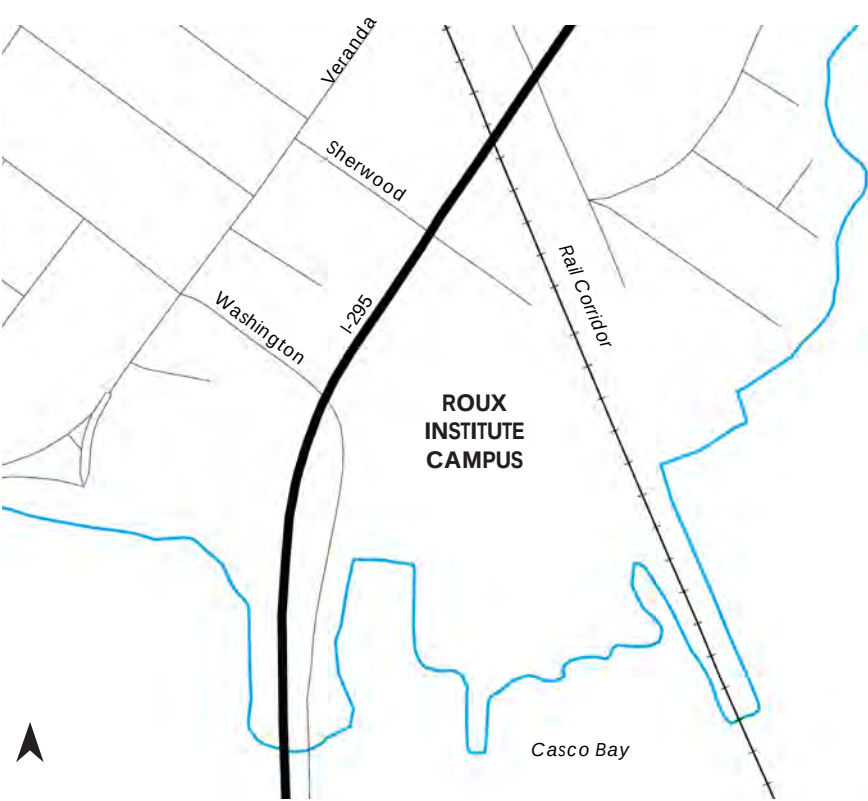
in Portland, but significantly more physical space is needed to meet its Mission & Vision. In the near term (0-5 years), the Roux Institute anticipates enrollment expanding to 1,750 learners; in the medium term (10-20 years), enrollment is anticipated to grow to 2,500; and in the long term (20+ years), enrollment is projected to grow to 5,100, including on-campus, virtual, and hybrid learning settings. The Roux Institute intends to transfer all operations from 100 Fore Street to the new Roux Institute Campus.

Neighborhood Context

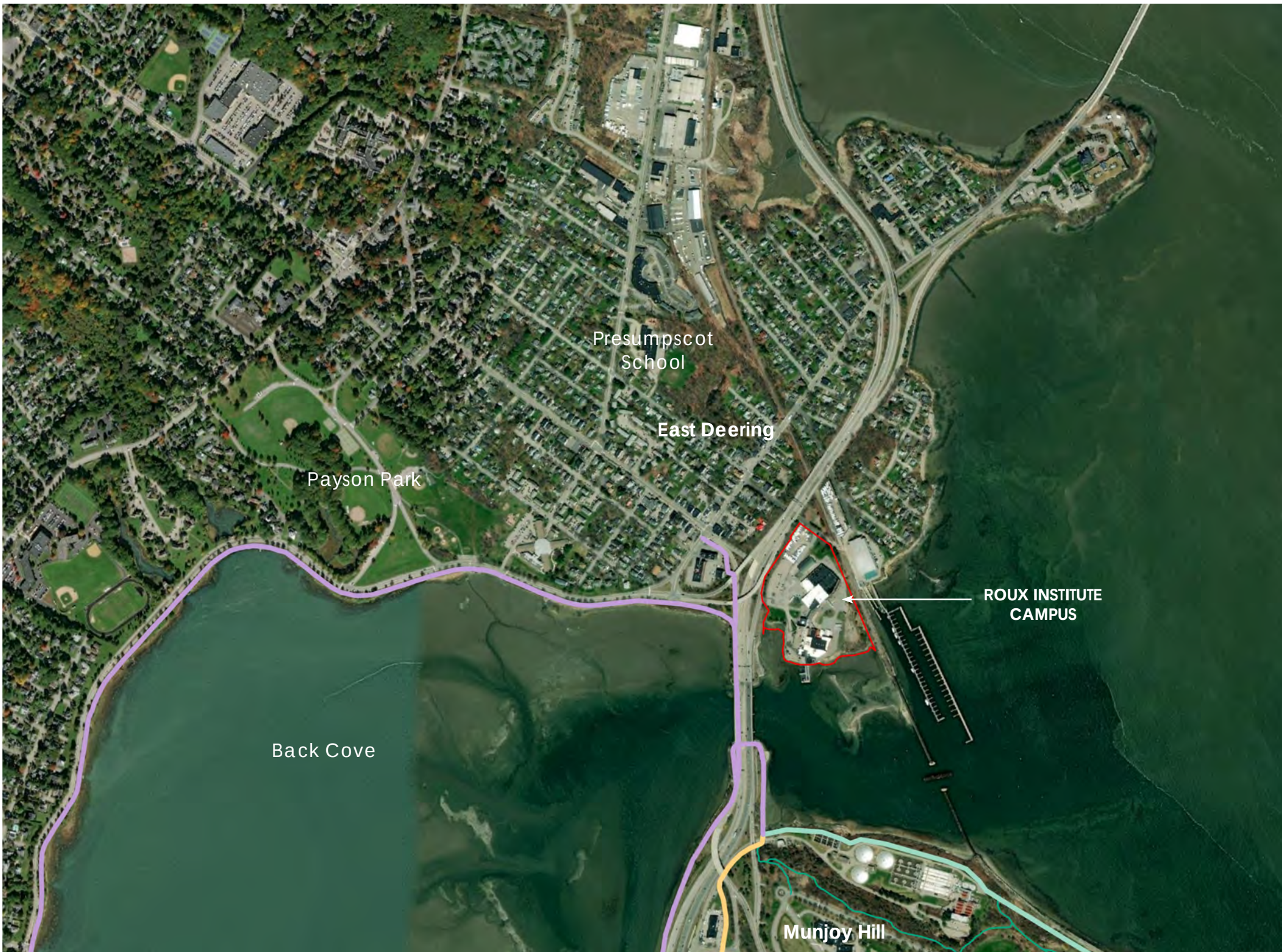
The proposed Roux Institute Campus is located within Portland’s East Deering neighborhood, near a residential area of single and multi-family homes (three-story apartment buildings) and a commercial node featuring restaurants, bars, mechanics, and offices. While proximate to these areas, the site is remarkably buffered. I-295 to the west, state-owned vacant parcels to the north, a disused rail corridor and marine business to the east, and Casco Bay to the south collectively surround the property. Access to the site is via Sherwood Street at the intersection with Veranda Street, through a 40-foot-wide highway underpass.

This setting makes for a campus full of potential. Due to its relatively large 13+ acre size and existing buffers, the site lends itself to dense development. Taller buildings with smaller footprints will allow for additional public open space, a mix of landscaped and natural green space, and public waterfront access while helping to reduce impact on Portland’s challenged housing stock. The Roux Institute Campus will connect to and enhance the surrounding East Deering neighborhood while simultaneously fostering its own identity.

Future development will acknowledge these advantages and constraints. The site must be planned responsibly to maximize community access while minimizing off-property impacts. The creation of compelling pedestrian, bicycle, water taxi, and public transit connections to the Roux Institute Campus and the waterfront will be particularly crucial. Additional information regarding mode splits, pedestrian, transit and bicycle infrastructure is included in Section 3 of this IDP.



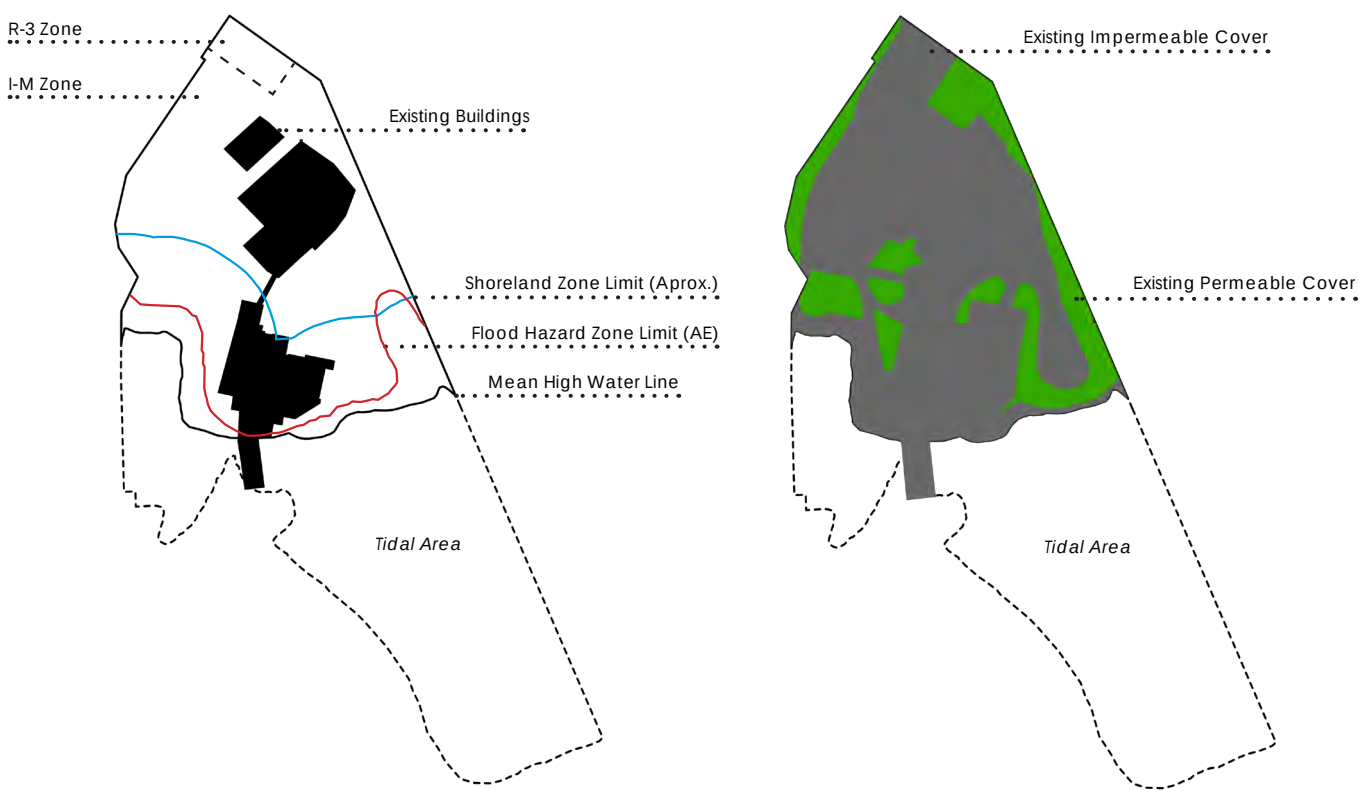
The site’s current industrial use does not allow for public open space or amenities or access to considerable shoreline frontage.



Back Cove Trail
Bayside Trail
Eastern Prom Trail
Other Trails

The site is near several of Portland’s most popular bike and pedestrian trails, including Back Cove Trail, Bayside Trail, and Eastern Prom Trail. Its redevelopment can facilitate better community access to Portland’s waterfront, as public open space enhancement is a key design parameter for the Roux Institute at Northeastern University.

Site Context



Under current conditions, the site is inaccessible to the public.

Zoning
The majority of the site is currently zoned I-M (Moderate-Impact Industrial), with the area immediately adjacent to and across Sherwood Street zoned R-3 (Residential). Parcels adjacent to the site include I-L (Low-Impact Industrial) at the Maine Yacht Center to the east and R-3 (Residential) across the railroad tracks to the north. Parcels west of I-295 are generally zoned R-5 (Residential) and B-2 (Mixed-Use Business).

Existing Buildings & Parking
City property assessment records indicate existing buildings were previously used for manufacturing and warehousing. The site has 272 striped parking spaces and additional unstriped trailer parking areas. The reported general building use and total floor area is provided in the table below.

Size of Existing Buildings (Food & Seafood Processing, Packing, and Distribution Land Use Classification)	Total Floor Area (SF)
Main Production (Bean) Building	63,255
Warehouse, Annex and Fuel Storage Building	49,897
Maintenance (Fish House) Building	16,728
Storage, Labeling and Packing Building	80,180
Finished Product Warehouse Storage Building	9,572

Relationship to Water
The parcel includes approximately 13+ acres above mean high water line (the site) as well as an adjacent 11 acres of submerged lands. The site has 1,000 linear feet of waterfront, within associated Flood Hazard and Shoreland Zones.

The City of Portland designates a shoreland zone within 250 feet of tidal water bodies. Within the shoreland zone, a minimum setback of 25 feet from the normal high-water level is required for structures, roads, and driveways.

Portions of the site are delineated as Special Flood Hazard Areas according to FEMA’s Flood Insurance Rate Map (FIRM). The current and effective FIRMs for Cumberland County, based upon FEMA’s 1986 publication, indicate portions of the site are within the AE Zone, representing 1% annual chance of flooding. Base flood elevations range from 9 to 11 feet.

Impervious Areas
The majority of the site is developed land, with limited areas of natural vegetation. Approximately 10 acres of land above the mean high-water line are impervious (paved areas, building roofs, etc.). The remaining 2.5 acres of permeable area include lawn and approximately half an acre of vegetated, early successional non-lawn area adjacent to the rail corridor abutting the site to the east.

Not only is the site largely covered in pavement and building structures, it is also inaccessible to the public. Fencing prevents

access to the waterfront and the interior of the site. This security was necessary for industrial use. However, new development can “soften” site edges and provide improved access to the waterfront.

Geotechnical & Environmental Investigations
IDEALS conducted preliminary soil investigations of the site. The results of these investigations inform the design of structures. Beneath a surficial layer of pavement or topsoil, the test borings encountered a soil profile generally consisting of fill and uncontrolled fill, overlying glaciomarine clays or bay mud, overlying marine sands, overlying glacial till, and overlying refusal surfaces (probable bedrock).

IDEALS also conducted environmental site assessments, including review of available documentation (such as current permits, record drawings, historic photos, and maps) and site investigations involving soil and groundwater sampling, as well as survey for and sampling of building materials. The environmental site assessments indicated no evidence of oil or hazardous material releases that would require remediation. Environmental conditions including fill soil that may be encountered during earthwork or generated as excess material will be properly managed within the context of the construction project. IDEALS identified hazardous building materials including PCB-contaminated caulking and asbestos containing materials (ACM) consistent with what would reasonably be anticipated given building ages, which will be remediated during the demolition and development process.

Utilities

B&M’s facilities required intensive utility and infrastructure development sized appropriately for industrial use. Fortunately, this historic use translates well to re-use in a denser development, as proposed. Based upon existing utility infrastructure age and historic and projected demand, we anticipate the need for targeted investment and renewal; however, there are no foreseen barriers to servicing the campus development.

Water

Domestic and fire protection services are provided by Portland Water District's (PWD) infrastructure at Sherwood Street. The public water mains nearest to the site are 8-inch and 12-inch, consisting of ductile iron and cast iron. The site is, and will continue to be, serviced by a combined domestic/fire protection loop.

Wastewater

Wastewater will continue to discharge to a gravity public sewer along the I-295 corridor. Downstream of the service connection, public sewer transitions from 15-inch to 48-inch reinforced concrete gravity line conveying combined storm and sanitary sewer from the East Deering neighborhood west of I-295. The 48-inch combined sewer transitions to a 3-barrel (two 18-inch and one 30-inch) siphon along Tukey’s bridge and discharges through a pumping station prior to treatment at the Portland Water District’s (PWD) East End Wastewater Treatment Facility.

Wastewater is conveyed across a portion of the site near Sherwood Street and I-295 from properties to the northeast (Lennox, Berwick, and Kensington Streets) via an easement benefiting PWD. This easement will remain in place unless otherwise approved by PWD.

Stormwater

Stormwater runoff from the site is managed through a combination of catch basins, buried infrastructure, and overland flow, discharging untreated runoff via outfalls to the bay. The Roux Institute Campus redevelopment allows for reduction of site impervious area and incorporation of low-impact development techniques; these will improve the water quality and reduce the quantity of runoff prior to its discharge into Casco Bay.

In addition to private stormwater outfalls, a public stormwater outfall is located at the site’s southwest corner. This outfall will continue to convey drainage from the neighborhood west of I-295 through an easement located near the southwest corner of the site.

Electricity

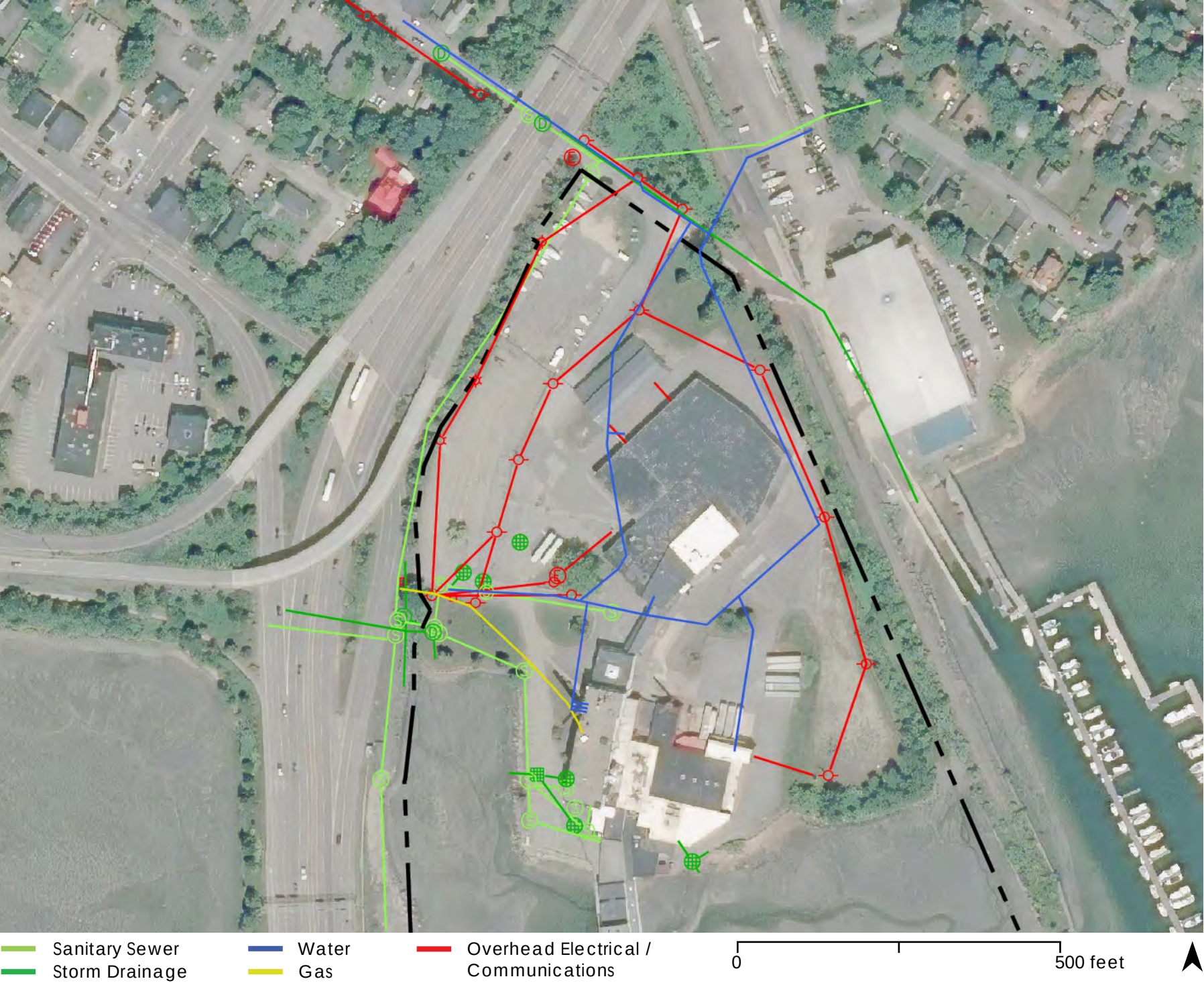
Central Maine Power provides electric power via an overhead 12.47kV 3-phase distribution system. The facility has two main secondary metered services. New utility corridors will include electrical infrastructure improvements. Energy-saving technologies and renewable energy sources will be incorporated into building and campus design to reduce electricity consumption and advance sustainability goals. Additional information regarding Energy Conservation Measures is included in Section 3 of this IDP.

Telephone & Data

Fiber-optic internet is located along Veranda Street and Sherwood Street.

Natural Gas

Unitil provides natural gas service to the site via a 6-inch diameter service. Natural gas infrastructure in the East Deering neighborhood is provided at intermediate pressure.



Utility	B&M Historic Demand Reference	Roux Institute Campus Projected Demand (Near-Term)	Roux Institute Campus Projected Demand (Long-Term)
Water	153,000 gallons per day	87,000 gallons per day	215,000 gallons per day
Wastewater	90,000 gallons per day	79,000 gallons per day	195,000 gallons per day
Electricity	0.5 megawatts	11 megawatts	28 megawatts
Telephone & Data	Unknown	Multiple service providers resulting in redundant services to the campus.	Potential service hub for cloud providers such as AWS, Microsoft, etc.
Natural Gas	72,000 average monthly therm	183,000 average monthly therm	408,000 average monthly therm

Coastal & Natural Resources

Immediately adjacent to this highly developed site are natural resource areas including: an estuarine inter-tidal emergent marsh located east of the site near the rail corridor; coastal wetlands for all areas below highest annual tide; tidal waterfowl and wading bird habitat, and blue mussel habitat. Portions of the site are delineated as Special Flood Hazard Areas according to FEMA's Flood Insurance Rate Map (FIRM).

The majority of the on-site work will occur adjacent to, but outside of, coastal wetlands and estuarine inter-tidal emergent marsh areas. Erosion and sediment control measures will be required during construction to protect adjacent natural resources. On-site work in coastal wetlands will be required for pier removal and replacement,

bank stabilization and stormwater outfall installation. The footprint of the proposed pier will not extend beyond the existing pier. Likewise, bank stabilization is not intended to extend beyond the toe of the existing riprap slope. Off-site improvements for the bike/pedestrian trail connection will likely require fill in coastal wetlands and will be coordinated through Maine DOT and permitted through Maine DEP and ACOE. Work in coastal wetlands will be minimized to the maximum extent and completed in accordance with Maine DEP wetland permitting requirements (NRPA).

Topography of the site slopes downward from the north to the south, toward the water. The highest elevations are near Sherwood Street, at elevation 28 +/- . The lowest grades are near the loading dock at

the B&M Bean Building, at elevation 8.5 +/- . These low areas are only 1-foot above Highest Astronomical Tide.

In recognition of existing vulnerabilities and future sea level rise, resiliency will be key to the Roux Institute Campus. The redevelopment will raise site grades and incorporate infrastructure improvements to create a flood resilient landscape. It will also rehabilitate this brownfield site, enhance natural resource areas, and reduce the impacts of current impervious, industrial conditions by creating habitats that foster ecological diversity and productivity at the water's edge.



The coastal wetland includes rockweed anchored to rocks in tidal mudflat.



Stormwater outfalls drain into the wetland where a scour channel cuts across the mudflat.



The tidal flat is home to tidal waterfowl and wading bird habitat.



Blue mussels are abundant under the pier, where soft-shell clams also grow.



The tidal mudflat portion of the site stretches far into the inlet, resulting in dramatic daily change.



Outfall pipes drain to wetlands in the ravine.



The ravine's slope is vegetated with native sumac and invasive Japanese knotweed.



The estuarine system extends up a ravine along the site's eastern boundary.

Historic Resources

The campus was occupied by residences and a lobster cannery prior to 1913, when Burnham & Morrill (B&M) relocated its operations to the site from Franklin Street. The address of the B&M facility at that time was Water Street, which granted access from the west prior to construction of I-295. By 1913, the five-story B&M Bean Building stood on site, as well as the cod-fish building located on the pier. In the 1920s, B&M began experimenting with brick-oven baked beans in an attempt to offset declines in other product lines (canned fish, meat, and vegetables), and in the 1920s and 1930s began selling brick-oven baked beans in cans. In 1965, B&M's address was designated as 1 Bean Pot Circle. With an appreciation for the B&M history at the site, IDEALS, as the landowner, nominated the B&M Bean Building for designation as a City Historic Landmark. Following a positive recommendation from the City's Historic Preservation Board, the Council approved the landmark designation of the Bean Building (Cannery) and area surrounding the building including the pier. A more extensive description of site history and the preservation of the Bean Building may be found in the Landmark Designation Report for the Burnham & Morrill Company Cannery by Heritage Consulting and Essex Preservation Consulting, dated June 2022.

Bean Building

The Bean Building (Cannery) was the cornerstone and flagship of the B&M food manufacturing facility. Constructed circa 1912 by Aberthaw Construction Co., Boston, MA, the building housed the baked bean manufacturing processes and the plant management offices. It is a robust five-story, reinforced-concrete building with a high live-load floor capacity. The concrete frame is exposed on the exterior of the building with brick and masonry infill walls and glass windows. The building is structurally sound with only minor structural modifications required. The main entry is on the 2nd floor level, which is at elevation 21.5', well above today's 100-year flood zone



The Bean Building as it stands today

elevation. This, along with the rugged structure and historic community value, make the building an ideal candidate for reuse. A permanent exhibit of artifacts and photographs is planned for the site.

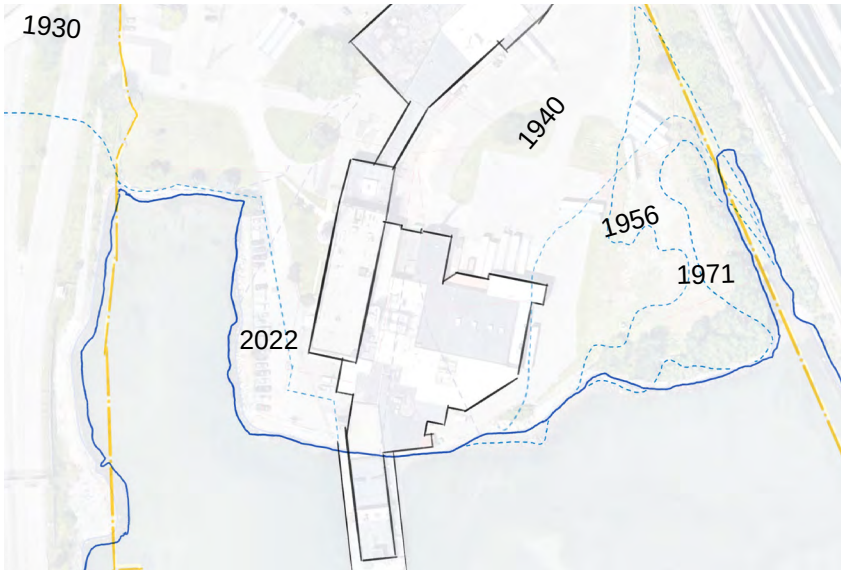
A Changing Shoreline

Buildings are not the only changes that occurred onsite over the last 100-plus years. As indicated in the diagram at right, the shoreline has significantly shifted in reach and shape across decades. Some of the shifts were caused by intentional human manipulation; others appear to have been natural changes where mud flats (with limited salt marshes) extended onto the site.

A New Perspective

The historic relationship of the East Deering neighborhood and B&M site was one of stark contrast between residential and industrial uses. Sudden transitions between residential and manufacturing zones, and from manufacturing to the sea, heightened the disparity. Construction of the Grand Trunk railroad line in the 1860s, and then of Interstate 295 in the 1960s, further isolated the campus' industrial identity. The Roux Institute Campus presents an opportunity for new connections, public access, and thoughtful transitions from the surrounding neighborhoods into a dynamic environment built around the B&M Bean Building.

Changes to shoreline from 1930 to 2022



Views of the B&M campus and related infrastructure earlier in Portland's development (all images from [Maine Memory Network](#))

Municipal Plan Context

The former B&M site is ripe for renewed use and redevelopment. The proposed campus includes adaptive re-use of the B&M Bean Building, facilitates public interaction with the waterfront, creates a new walkable core of diverse uses, and bolsters economic opportunity in East Deering, the City of Portland, and beyond.

Portland’s Plan 2030 focuses primarily on eight aspects of Portland’s identity and performance: environment, waterfront, transportation, housing, recreation and open spaces, facilities, historic resources, and economy. While the facilities section generally focuses on municipal operations and the waterfront section is focused on the working western, central, and eastern waterfront areas of the peninsula, the other six sections are directly relevant to the proposed plan. Excerpts from the plan relevant to the Roux Institute Campus are provided here.



Portland’s Plan 2030, adopted in 2017, is the City’s comprehensive plan.

Environment

“Adopt sustainable land use and transportation policies that support connectivity, walkable neighborhoods, and multi-modal transportation.”

“Plan for the mitigation and redevelopment of brownfields to support productive uses and a healthier environment for residents.”

Transportation

“Promote multi-modal accessibility, enabling residents and visitors of all ages and abilities to participate fully in the social and economic life of the community.”

Housing

“Encourage additional contextually appropriate housing density in and proximate to neighborhood centers...”

“Identify priority growth areas.”

“Allow for a range of housing models in City codes, whether small units, co-housing, or others that may suit changing needs and demographics.”

Recreation & Open Space

“Encourage physical and visual access to Portland’s waterfront – Casco Bay, Back Cove, and the Stroudwater, Presumpscot, and Fore Rivers – as a “blueway” network and an extension of public space for local and regional recreation and transportation needs.”

Historic Resources

“Stabilize and enhance historic areas of the city by ensuring quality investment in existing structures and compatible infill development.”

“Ensure an appropriate balance of continuity and change as Portland grows and evolves.”

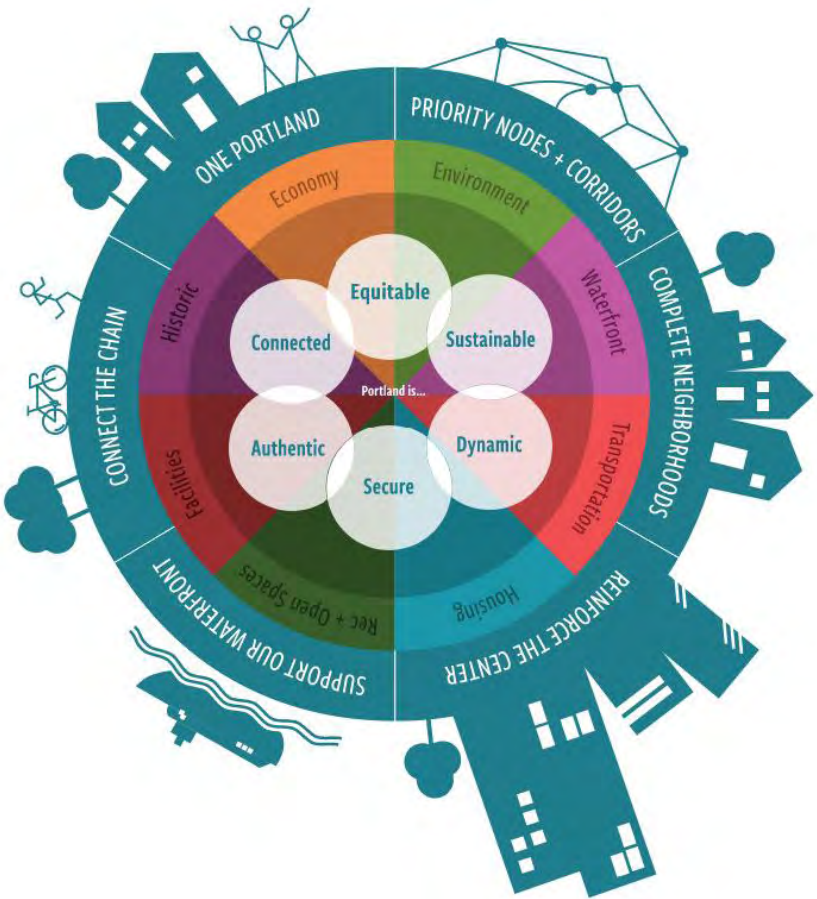
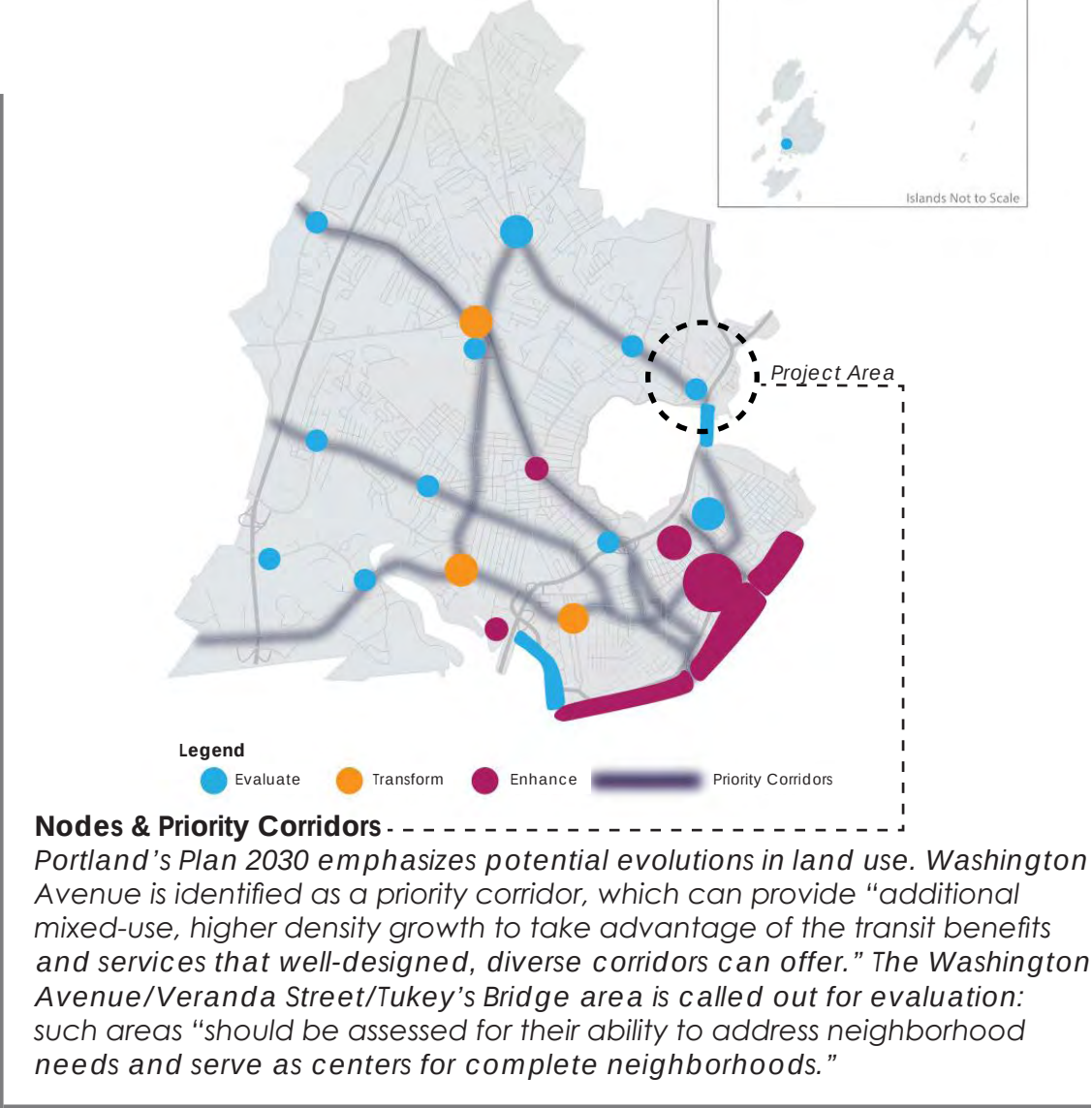
Economy

“Support job creation and business growth through public initiatives and private, institutional, and regional partnerships.”

“Develop programs that support industries with high-growth/high-value potential such as life sciences, food production, information technology, and marine-related industries.”

“Modify ordinances and make strategic investments to better promote business development and job creation in priority areas.”

“Ensure that the growth of Portland’s educational, medical, and cultural institutions is integrated into Portland’s urban fabric through the use of high-quality design, management of impacts, community partnerships, and innovative planning.”

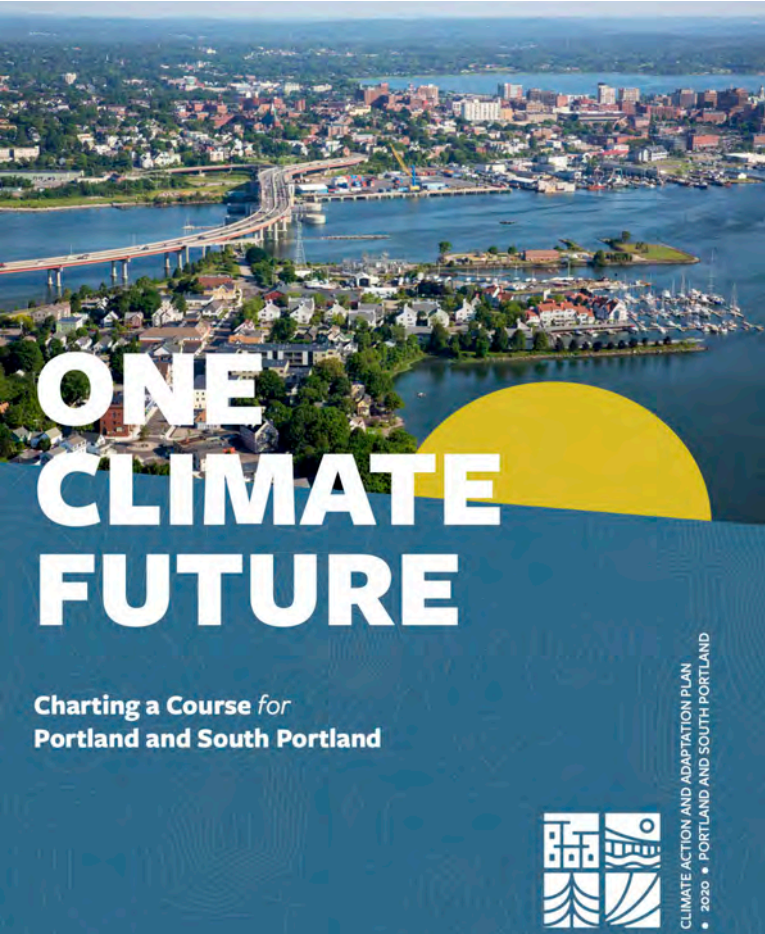


Municipal Plan Context (continued)

One Climate Future

The Roux Institute Campus is an opportunity to showcase sustainable buildings, fostering a resilient community across East Deering and the region of Portland. Its waterfront location demands proactive planning for extreme weather and storm surge events although it is not located within the FEMA Velocity Zone. Its location on a developed, industrial piece of land with a single point of access/egress, means that campus development must take advantage of existing infrastructure within the East Deering neighborhood, facilitating trips by active alternative, multi-modal, and mass-transit options.

In 2020, the Cities of Portland and South Portland both adopted a collaborative sustainability and resilience plan: One Climate Future. The plan addresses many challenges, priorities, and strategies for responsible climate stewardship and mitigation of climate-related public health threats. It includes great specificity and is summarized by six general action items. The following are One Climate Future’s “six big moves” and discussion of their relevance to the Roux Institute Campus.



Portland and South Portland both adopted the One Climate Future plan in 2020.

1. Build better buildings.

A new campus of higher education, research, and development deserves thoughtful design; it represents an opportunity to implement best practices for energy efficiency, healthy communities, human comfort, and interaction with the surrounding environment. Aside from the iconic B&M Bean Building, existing on-site buildings are not suitable for adaptive reuse. Much of the site will be redeveloped with new construction. In order to attract and respect climate-conscious students and corporate partners, these new buildings will be created with sustainability and resilience top-of-mind. As described in the design guidelines within this plan, Northeastern University is committed to high-performance buildings while setting a standard for design through signature architecture.

2. Connect people to places, to opportunity.

Graduate education, research, and collaboration exist in order to provide opportunity. At their best, they do this in a collaborative and social setting. The Roux Institute at Northeastern University will achieve both. The campus presents this opportunity to the nearby community, where on-site resources become local community resources, as shown on the 15-minute walkshed map included on page 27. Finally, by establishing itself within and supporting existing public transportation networks, the Roux Institute Campus will be accessible to all Portlanders as well as those in the broader greater Portland region, and beyond.

3. Power everything* with clean renewable electricity.

Electrification allows for appliances, buildings, and systems to support the shift to renewable energy in our power grid, without cementing a need for fossil fuels moving forward. This entails moving away from carbon intensive heating and energy sources, as more energy is produced by clean energy renewable sources like solar and wind. IDEALS and Northeastern University will evaluate power purchase agreements for renewable energy sourcing, incorporate passive solar and photovoltaics, consider the use of geothermal and sea water exchange heating and cooling for buildings, and encourage EV usage through on-site charging capacity.

4. Grow a circular economy.

Fostering technology knowledge and life-science research in Portland will diversify its economy and help prepare for the future. Yet workers in these fields will still rely on other, existing aspects of the regional economy. Food producers and preparers, makers and artists, essential workers, and support staff, all make the City of Portland a compelling and delightful place to live. On a small scale, the Roux Institute Campus will facilitate a circular economy through mixed-use, neighborhood-scaled urbanism that creates a place to live, learn, work, and play. On a broader scale, it will strengthen the region through education, research, and collaboration with corporate and community partners; fueling progress through innovation.

5. Nourish ecosystems, which nourish us.

The Roux Institute Campus’ tidal waterfront location will allow it to meaningfully contribute to ecological health by designing with nature in mind. While B&M has been a steward of their property, the campus development will result in a significant reduction in impervious surfaces and yield a healthier site that protects and enhances the local ecosystem, which has been diminished through the historically industrial development of the property.

6. Build collaborative capacity to create this future.

The Roux Institute at Northeastern University will develop technology and life science talent and position Mainers, new Mainers, and international students for financially stable and personally rewarding careers. The campus will connect budding talent with existing corporate and community partners, and thus create opportunity for fresh thinking and an innovative future. The Roux Institute Campus will catalyze tech talent and innovation in Portland.

Other Studies

A number of other studies have been conducted that are centered on or relevant to the project area, as outlined below:

I-295 Corridor Update – Scarborough to Brunswick. The I-295 Corridor Update included a study of 17 interchanges that provided access between I-295 and major highways/arterials extending from Scarborough to Brunswick. Improvements for this project were recommended into near-term, medium-term, and long-term. Despite acknowledgement of the heavy volumes and weave section in the vicinity of the Roux Institute project site, no specific improvements were included at the Exit 8 interchange. The long-term recommendations include future study of travel demands, capacity, and opportunities in the urban core of Portland.

Veranda Plan. The Veranda Plan started with an investigation of the rehabilitation and replacement alternatives for I-295 over Veranda Street and US Route 1 bridge. Ultimately, the bridge was replaced and the project construction continues. The project will realign Veranda Street to improve safety and operations by allowing all movements between Veranda Street and points south on I-295 via signalized intersections. The project will also improve bicycle and pedestrian travel along Veranda Street by upgrading it to a complete street.

Martin’s Point Shared Use Path Study. The Martin’s Point Shared Use Path Study recommended several projects to improve the connection from the Back Cove Trail to Martin’s Point including crossing the Roux Institute Campus site. Unfortunately, the current design of the I-295/Veranda Street interchange did not include right of way for a shared use path connection as was envisioned in the Martin’s Point Shared Use Path Study. However, the project will be providing a shared use path connection along the waterfront of the site and is interested in future connections that may be developed to reach Martin’s Point and beyond.

2. Imagining the Future



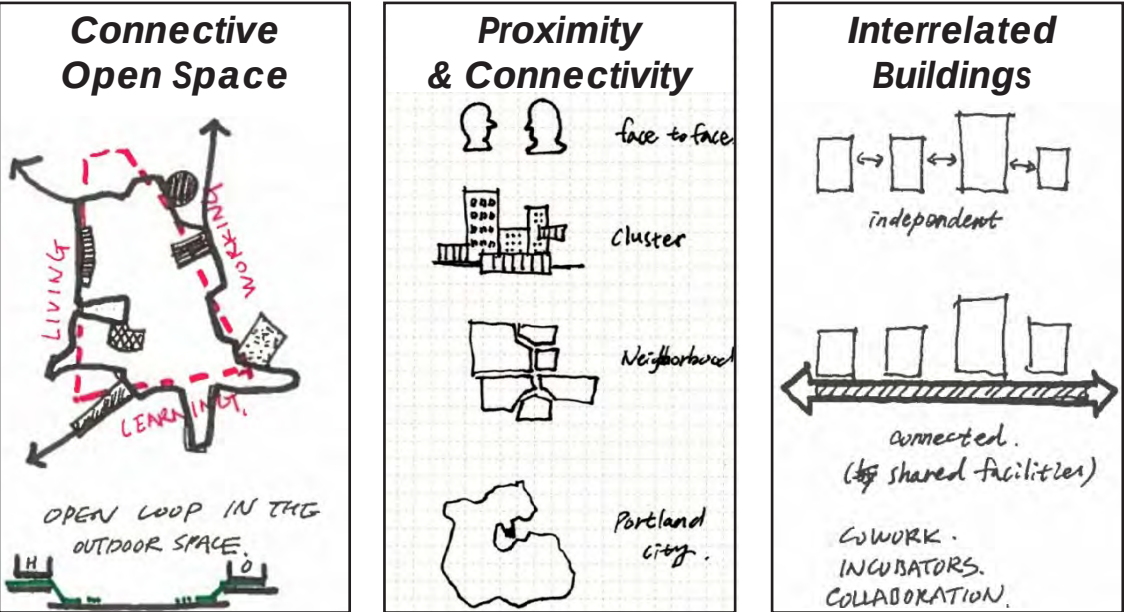
Campus Programming

The Roux Institute Campus will encompass mixed uses regularly associated with graduate education and research: classrooms and laboratories, faculty offices, an incubator, dining areas, convening spaces, fitness centers, neighborhood retail facilities, and housing. As an essential part of the Roux Institute’s graduate education programming, the campus will support collaboration with private industry, other institutions, and community organizations. This collaboration is essential to the Roux Institute at Northeastern University’s approach to learning through integrated research, student-work opportunities, and entrepreneurial endeavors. Light manufacturing, research and design facilities, and other industry-oriented spaces will allow start-up businesses and established companies to contribute employment opportunities, foot traffic, and dynamism to the area. Hotel rooms will cater to prospective students, start-ups, visiting lecturers, specialists, business partner guests, and families of students. Most importantly, the hotel will provide the opportunity for unplanned and informal interactions that are so essential to new ideas and innovation.

A range of rental housing options will foster community and provide on-site opportunities for students, faculty, staff, and their families. These units will ease some of the housing and traffic pressure that might otherwise result from new residents attracted to Portland by the Institute. Housing units not occupied by residents affiliated with the Roux Institute may be made available to the public to further assist in easing the housing pressure.

Public open space, including waterfront access and recreational uses, will foster a sense of community. Restaurant, neighborhood grocery, and/or other limited retail options will provide another means for welcoming the neighborhood while reducing dependence on automobiles. The Roux Institute will incentivize transportation options including buses, bikes, pedestrian access, car pooling, and water shuttle or taxi connections.

The long-term vision for the site is to maximize green space and public shoreline access. That vision includes a potential bike and pedestrian path under Tukey’s Bridge and bicycle and pedestrian connections at Sherwood Street, Veranda Street, and beyond. These would link to the Back Cove, Eastern Promenade, Bayside, Martin’s Point Bridge, and future trail systems.



Concept sketches by Tsoi Kobus Design display the intent to build dynamic, community-rooted space.



Phasing

Before shifts in transportation and distribution networks, the site offered a competitive location for food processing and manufacturing in the 20th century. Now, the site’s many compelling attributes enable the pursuit of science, education, and entrepreneurship for the 21st century and beyond. The Roux Institute Campus is envisioned as a hub for collaboration, innovation, and inspiration that contributes to the education of Roux Institute students, stimulates Maine’s economy, and enriches the lives of Portlanders through the resources it offers.

While the proposed vision represents an ambitious undertaking, the entire endeavor is based on simple tenets of placemaking: provide a mix of uses, allow for creativity and entrepreneurship, and encourage recreation. This vision takes time to grow and develop. Understanding that institutional uses have phased planning horizons, this IDP considers near, medium, and long-term growth plans. The resulting phasing of the development is represented in the figure to the right.

Fortunately, the nature of the Roux Institute at Northeastern University lends itself well to phasing strategies. Corporate partnerships are a core part of the institute’s educational strategy, meaning that office and laboratory partners will sit comfortably within the primary academic building during its first years, before extending outward in the longer term. As the site develops, more and more students, faculty, and employees will be drawn to live and work on site. Like any new campus, as the population of students, residents, and employees grow, so will demand for limited retail and restaurants. In addition, the expanding program needs of the campus may be supported by such uses as on site daycare, bike commuter facilities, maintenance facilities, and security offices.

The proposed vision offers a realistic framework for flexible growth. As the Roux Institute Campus evolves, and the world changes, new opportunities and needs may present themselves. Neighborhood feedback will also inform future growth. A core presence of educational, research, incubator, and partner space will provide the Roux Institute Campus with a strong start, around which additional community needs and services can thrive over time.

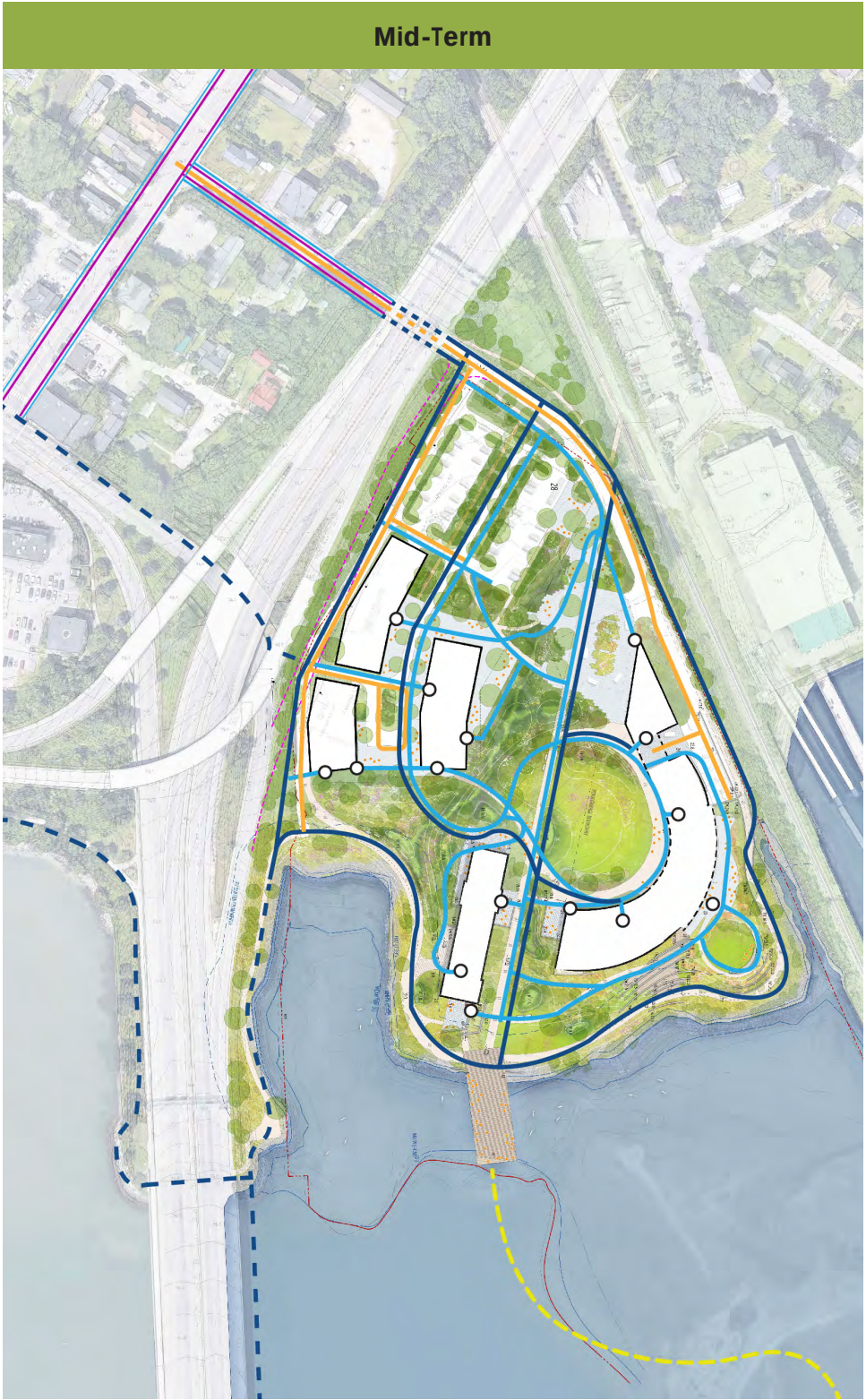
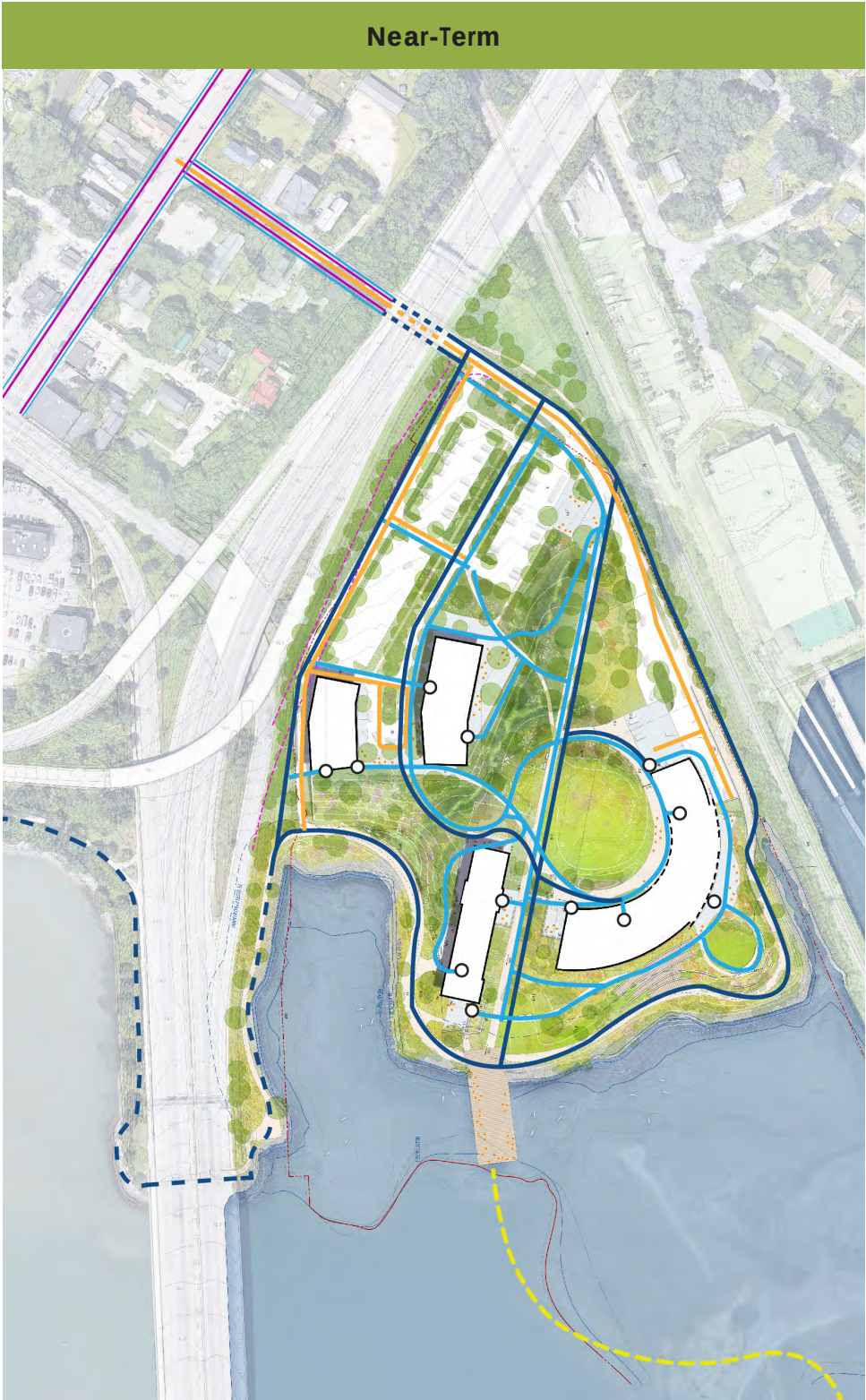
Anticipated Phasing (Cumulative Totals)

Building Program	Near-Term (0-5 Years)	Medium-Term (10 Years)	Long-Term (20 Years +)
Academic & Research	1,750 Students 222,000 sf.	2,500 Students 372,000 sf.	5,100 Students 372,000 sf.
Office/Lab Partners	Included in the Roux Institute	Included in the Roux Institute	200,000 sf.
Business Incubation	40,000 - 50,000 sf.	40,000 - 50,000 sf.	40,000 - 50,000 sf.
Residential	175 - 250 Units 150,000 - 200,000 sf.	350 - 425 Units 300,000 - 350,000 sf.	525 - 650 Units 450,000 - 550,000 sf.
Hotel	90,000 sf.	90,000 sf.	90,000 sf.
Retail (Restaurant, Cafe, Market, Kayak, etc.)	10,000 sf.	15,000 sf.	25,000 sf.
Totals	512,000 - 572,000 sf.	817,000 - 877,000 sf.	1.177 - 1.287 million sf.



At the completion of each phase, the Roux Institute Campus will be a model of comprehensive design. At least three acres of permanent, significant public space will be established early in the development of the campus to ensure public benefit. Interim features such as surface parking lots or construction staging areas will be designed to not detract from the pedestrian experience through planting, lighting, wayfinding, graphics, artwork, or fencing. Other interim areas of the site will be appropriately landscaped or accommodate gathering on lawns and hardscape spaces. Interim features such as parking lots may also be programmed with markets, festivals, or cultural events. Lighting and layout of these spaces will be considered to facilitate flexibility so that they can accommodate a variety of campus events.

Development Plan



- Pedestrian
- Vehicular
- Bike/Pedestrian
- Primary Entrance
- Water Taxi
- Potential Off-Ramp
- Potential Shared Use Path Connection

Development Plans are conceptual and intended to illustrate how design guidelines and principals could potentially be implemented at this site.

Design Principles

The Roux Institute Campus will be a paradigm for 21st-century education with urban, sustainable, and resilient design. All elements of the campus will be conceived holistically to support the educational program of the Roux Institute. Near and long-term planning supports a vibrant campus environment with views and connections to the waterfront, a variety of public spaces, and site access via bike paths, walkways, and the public pier. Key principles of the design approach include:

Connected to the Waterfront, Portland, & the World

- Engage the waterfront
- Promote visual and physical connectivity
- Encourage connections to the waterfront through diverse spaces
- Create a holistically built environment
- Restore, repurpose, and revitalize the Bean Building
- Create an iconic architectural expression

Places to Gather

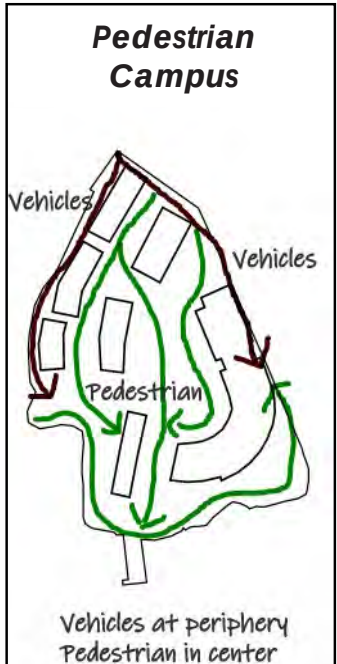
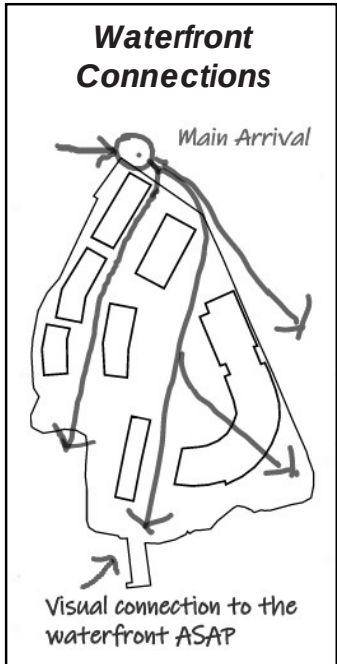
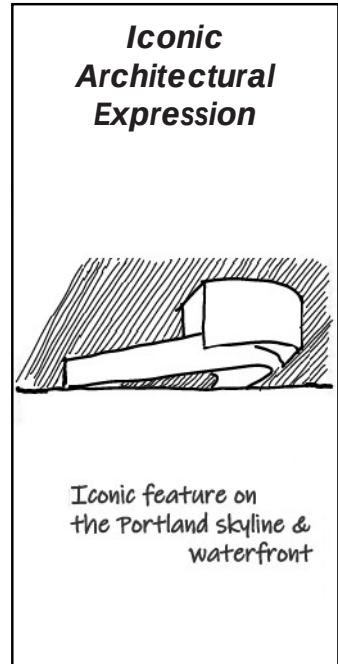
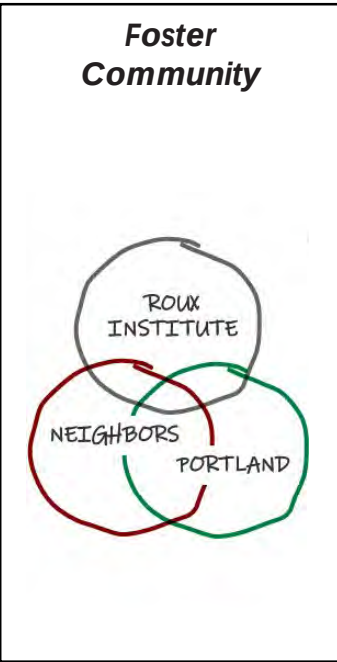
- Welcome the surrounding neighborhood
- Foster community with shared spaces and interaction
- Build a strong association with the City of Portland
- Develop purpose-driven spaces that yield regular connections
- Provide public open space
- Provide spaces where neighbors can work and read while enjoying the campus's environment

A Sustainable & Resilient Campus

- Employ sustainability benchmarking for environmental stewardship
- Incorporate state-of-the-art features, systems, and techniques
- Minimize energy consumption campus-wide
- Build for resilience; prepare for extreme weather and climate change
- Maximize green space through appropriate building height

Integrated Landscape

- Enhance access through TDM and multi-modal support
- Contribute to Portland's open space network



Above: Concept sketches by Cambridge Seven and Tsoi Kobus Design

Design Guidelines

Waterfront

- The waterfront will be publicly accessible to provide a variety of open spaces throughout all phases of development that foster social interaction.
- New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space (if provided) may be closed to the public during special events, outside normal operation hours, and when necessary for security or public safety purposes.

Cohesive campus

- The overall composition and experience of the campus will be considered for cohesive identity from approaches along I-295 and views from the East Deering neighborhood.

Historic preservation

- Buildings, site development, circulation, and open space will respect the B&M Cannery Building, a designated historic landmark.

Connectivity

- Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service, and emergency vehicles at each development phase.
- Surface parking lots shall be located to the maximum extent practicable toward the rear or side of a building not occupied by a principal entry to a building facing a street, public right-of-way, major pedestrian access routes, open spaces, and/or the waterfront.

Open space

- Open space will be publicly accessible to provide multiple functions for recreation, social gathering and buffers that integrate within the overall composition and experience of the campus at each development phase.

Sustainable practice

- Buildings and site development will incorporate sustainable technologies in building design, orientation, energy production and sensitivity to natural resources at each development phase.

Resilience

- Buildings and site development will incorporate resilience strategies to account for flooding, severe weather events and integration of publicly accessible spaces at each development phase.

Building design

- Building facade materials will be of high quality, durable to the marine climate and contribute to an attractive public realm. The first 35 feet of building height shall complement the pedestrian character in materiality, transparency, and detailing.
- Rooftop appurtenances will be incorporated, screened, and set back from roof edges to reduce visual impact from the surrounding neighborhood.

Building entrances

- Building entrances will include prominent facades and be oriented toward, located adjacent to, or accessible from rights-of-way, major pedestrian access routes, or open spaces.

Mitigation of impacts

- Buildings and site development will endeavor to minimize potential negative impacts related to shadows, wind, noise, heat, glare, lighting, contaminants, and the environment.

Visualizing the Guidelines: Potential Long-Term Layout & Circulation



Connected to the Waterfront, Portland, & the World

Artist Interpretation



Development of a new landmark campus, with focus toward the community and the waterfront, will enhance the East Deering neighborhood. New, forward-looking campus buildings adjacent to the restored and repurposed Bean Building will update and respect its legacy. The waterfront will integrate with the entire campus through ecologically focused design. Water views from the ground and buildings will emphasize the site’s uniqueness and become an integral part of the campus identity. Pedestrian/bicycle trail connections and water shuttle or taxi service will let the waterfront serve as an entrance to the campus.

Places to Gather

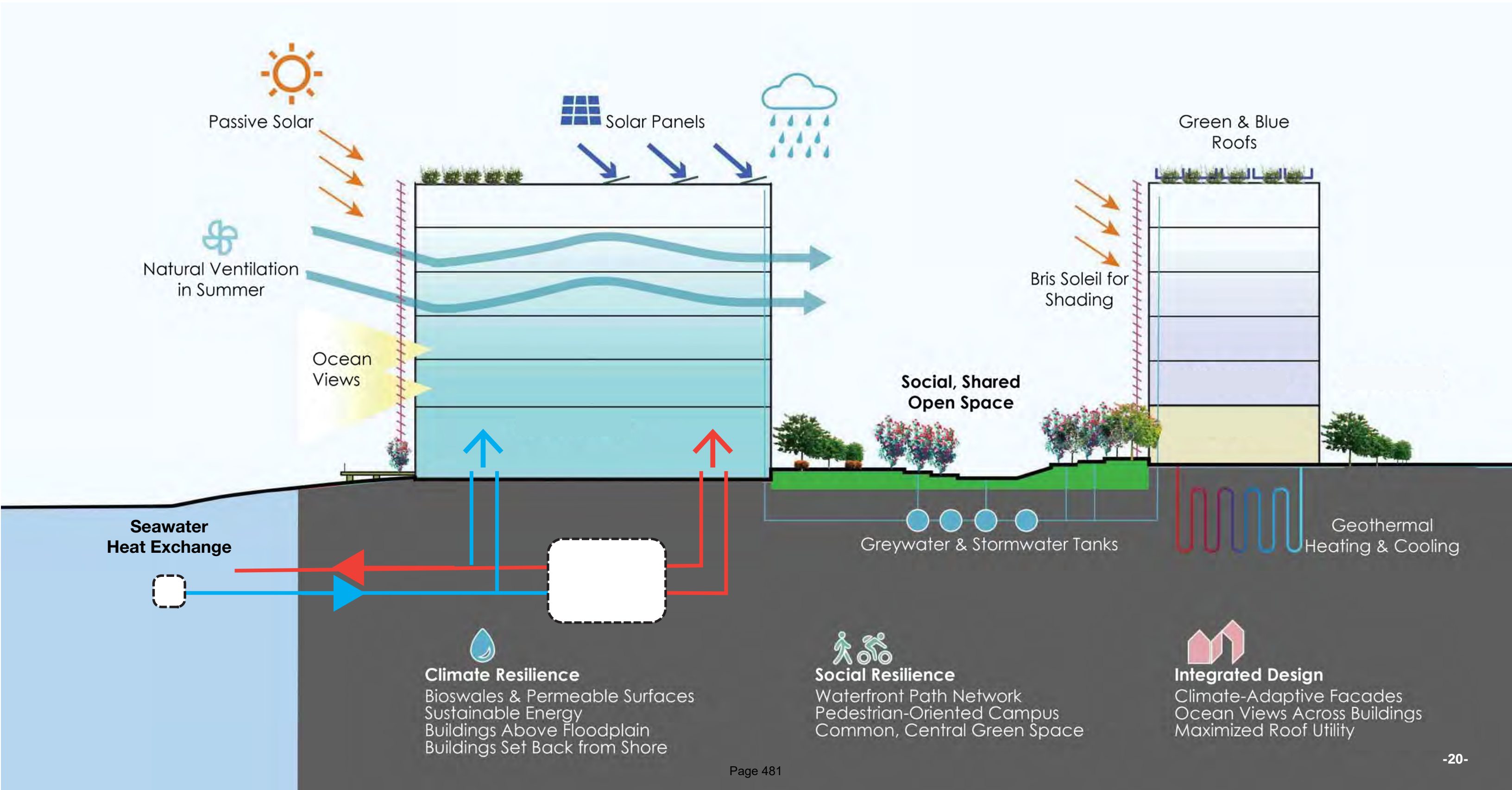
Artist Interpretation



All new buildings will connect through linking landscaped terraces with a central, pedestrian-oriented green space. The campus will maximize publicly accessible open space through building height and density. This plan will foster a mixed-use environment encouraging interaction and innovation. Internal connections are echoed by external circulation and access points (pedestrian, bicycle, public transit, potential water taxi, automobile) that further strengthen the connection with neighboring communities and the City of Portland.

A Sustainable & Resilient Campus

The Roux Institute Campus intends to incorporate state-of-the-art sustainable technologies. Examples of possible technologies (illustrated below) that will be thoroughly studied include geothermal heating and cooling, photovoltaic solar panels, high-performance building envelopes with triple glazing, green roofs, blue roofs, stormwater/greywater management, passive solar gain, sea water cooling, and natural summer ventilation. If necessary, purchase of renewable power produced off-site will supplement on-site sources. Resilience strategies like constructing buildings well above the 100-year flood zone will also be deployed to account for rising sea levels and severe weather events.



Enhance Access

The striking campus is visible from Interstate 295, as well as from its on- and off-ramps which are located nearby. US Route 1 and downtown Portland are both accessible within minutes. Via Sherwood Street, the Roux Institute Campus will connect to the East Deering and Back Cove neighborhoods. Bus routes within easy walking distance, and waterfront pedestrian and bicycle trails (including a potential new connection under Tukey's Bridge and improvements to Sherwood and Veranda Streets) will link the Roux Institute Campus to the neighborhood as well as to the Back Cove Trail, Bayside Trail, Eastern Promenade, and future trail networks. Within the site, ADA pathways and inclusive design principles will ensure the site benefits all users.

Adjacent to the Roux Institute Campus (but not on its property) is the former Grand Trunk Railway line, which could one day provide a new transportation route. Connections to Casco Bay ensure water access to the peninsula, islands, and the entire Maine coast.



- Vehicular Routes
- Pedestrian/Bicycle Routes
- Former Grand Trunk Railway
- METRO 7 bus
- METRO 9a/9b bus
- Water Shuttle
- Boating Locations

Contribute to Portland's Open Space Network

The Roux Institute Campus will add significantly to Portland's open space network via a modern waterfront with public amenities such as lawns, a pier, plazas, and extended green space. Enhanced sidewalks and bike lanes, a potential direct connection to the Back Cove, Eastern Promenade, and Bayside trails, along with a pier for a water shuttle and/or taxi, will help the public get to the Campus. Gardens, native meadows, trees, and natural areas will offer new, calming spaces and create a variety of healthy habitats.

The primary academic building of the Roux Institute at Northeastern University will anchor a cohesive campus of learning, research, and collaboration along with residential and retail facilities that support them; natural systems will integrate with everyday life. A network of inland pathways across various landscapes will thread uses together.

The Roux Institute Campus will transform an industrial site into an ecologically diverse, urban waterfront setting. Many existing impervious surfaces will give way to open spaces and green roofs inspired by natural landscapes from the Greater Portland area. Stormwater management strategies will further contribute to the environmental function of the site.



3. Creating the Path Forward



Assessment of Growth

The City’s Land Use Code establishes content requirements for Institutional Development Plans, including considerations of transportation, environment, infrastructure, design, and neighborhood engagement. The following pages apply these lenses to the Roux Institute Campus, how they interact, and the opportunities they create.

Transportation

With one vehicle entry point, the development must be properly planned to minimize impacts on the surrounding street network. Reductions in trip generation through complementary on site uses, alternative modes of transportation, and transportation demand management are crucial.

Infrastructure

Any development is limited by the capacity of nearby utilities infrastructure. Fortunately, the site’s previous industrial demands dovetail nicely with the needs of a mixed-use development. High-performance buildings can help reduce further infrastructure demands.

Environment

One compelling aspect of the Roux Institute Campus is the waterfront location; yet decades of production and transportation-oriented industrial use diminished its ecological function. Thoughtful redevelopment will restore some of this function over time.

Design

While the Roux Institute at Northeastern University seeks to inspire aesthetically, the Roux Institute Campus will be designed with neighborhood context and nature in mind. It can serve as a proving ground for best practices in ecological and urban design.

Neighborhood Engagement

The Roux Institute at Northeastern University cannot thrive without the support and goodwill of its neighbors. By establishing and maintaining community engagement, the organization will incorporate fresh ideas and build trust.

The environment of the site influences its design. That design leads to higher or lesser demands on transportation networks and utility infrastructure, which in turn impact the environment. Underlying the entire process is neighborhood engagement, without which the Roux Institute at Northeastern University cannot succeed.

Boundary of Proposed B-5 & IOZ



The proposed Roux Institute Campus aligns well with the B-5 (Urban Commercial) purpose statement in the City of Portland’s Land Use Code:

“To provide areas of the peninsula* near the downtown where a mixture of uses, including marine, industrial, commercial, and residential, is encouraged. The B-5 and B-5b zones are characterized by larger underdeveloped lots with great potential for denser, clustered, urban mixed-use development and more efficient reuse of existing land and buildings. It is anticipated that the dense, mixed-uses of the B-5 and B-5b zones will rely on a shared infrastructure system, including service alleys, parking lots, public transportation facilities, stormwater management, and driveways.”

*Per the City of Portland’s Land-Use Code, “on-peninsula” is defined as all land south of I-295. The proposed Roux Institute Campus is south of I-295.



Transportation

The Roux Institute Campus is well-situated to several major thoroughfares, including I-295, US Route 1, Washington Avenue, and Baxter Boulevard. The site has a single access point, located on Sherwood Street; that access will continue to provide vehicular access in and out of the site in the future. Access to Sherwood Street is provided via Veranda Street which connects to Washington Avenue, I-295, Baxter Boulevard, and US Route 1.



The intersection of Washington Avenue and Veranda Street is critical. Traffic from I-295, Baxter Boulevard, and Washington Avenue all travel through it to reach the site.

Washington Avenue accommodates all users, with traffic using two lanes in each direction south of Presumpscot Street, one lane in each direction north of that point, and buffered bike lanes north of Presumpscot. Bus routes run along Washington Avenue and pedestrian accommodations are present, including sidewalks. In addition, the traffic signal system along Washington Avenue is a traffic responsive system operating with high efficiency. Intersections of Washington Avenue at Veranda Street, at Presumpscot Street, and at Ocean Avenue are each signalized intersections with pedestrians processed concurrently to traffic.

Veranda Street accommodates vehicular traffic with a single lane in each direction. Sharrows (faded) indicate that bicycles share the travel lane. Sidewalks are provided on both sides of Veranda Street and transit stops are present. Sherwood Street is a two-way roadway that is not striped and allows parking. Sherwood Street intersects Veranda Street to form a slightly offset four-way intersection. Both Sherwood Street approaches are stop-controlled at Veranda Street as well as Presumpscot Street.

Bates Street extends from the intersection of Washington Avenue and Veranda Street toward Baxter Boulevard, and consists of a vehicular traffic lane in each direction and a bike lane from Washington Avenue to Baxter Boulevard. A sidewalk runs along the west side of the street, but narrows and is periodically blocked by utility poles. A single lane in each direction at the intersection of Bates Street and Baxter Boulevard provides access north on I-295. Access south on I-295 is via a two-lane connection in each direction at the intersection of Washington Avenue at Veranda Street and Bates Street. This widens at Washington Avenue for turn lanes.

Adjusted Traffic Volumes at Washington Avenue and Veranda Street (2021)

Approach	Movement	AM Peak Hour Volume	PM Peak Hour Volume
Veranda St. Southbound	Left	130	70
	Through	65	95
	Right	50	60
Washington Ave. Eastbound	Left	35	50
	Through	1195	995
	Right	65	90
Veranda St. Northbound	Left	65	65
	Through	45	95
	Right	160	155
1-295 Exit Ramp Westbound	Left	100	150
	Through	650	1090
	Right	80	190

Several high crash locations (segments or intersections with eight or more traffic crashes and a critical rate factor exceeding 1.00 over the most recent three-year period) are located near the campus:

Intersections (with Crash Totals)	Segments (with Crash Totals)
Washington Ave. at Randall St. (8)	Washington Ave. I-295 NB Exit 8 to Veranda St. (12)
US-1 at Veranda and I-295 Ramps (14)	Washington Ave. from Veranda St. to Galvin St. (11)

From 2019 to 2021, one fatal crash occurred within the study area at the HCL location of Veranda Street/US-1 with the I-295 SB On-Ramps. The crash was determined to be caused from a driver running a stop sign. Safety improvements are being made as a part of the Veranda Street Bridge Replacement project.

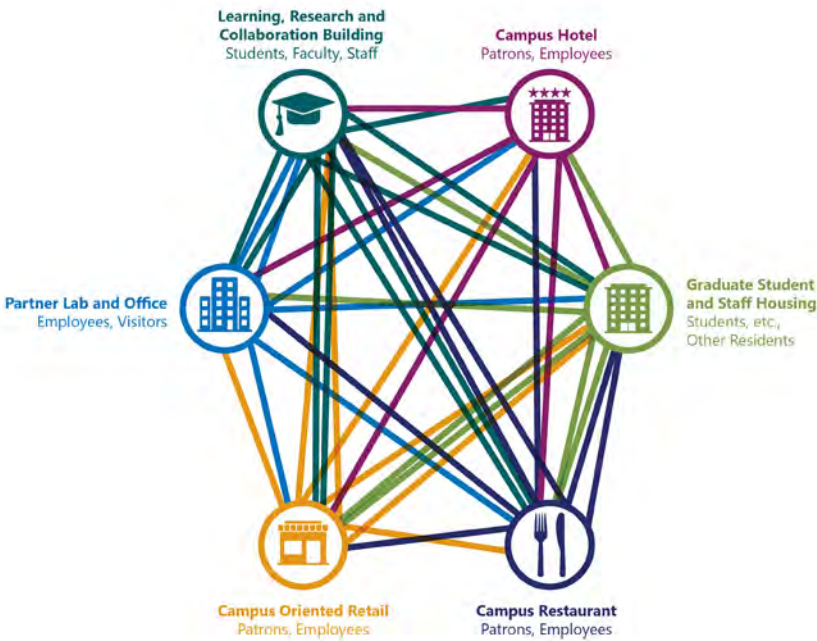
With adequate sight distance, the crashes along Washington Avenue, including at Randall Street, may be attributed to vehicles changing lanes or attempting to turn in or out of side streets where adequate gaps are not available due to congestion. There were no reported pedestrian crashes at the HCL locations. Three bicycle crashes occurred in the study area: one each at the intersections of Washington Avenue/Bates Street/ Veranda Street, Bates Street/Baxter Boulevard, and Washington Avenue/Churchill Street.

Trip Generation

The site is currently closed and therefore does not generate any existing vehicular, bicycle, pedestrian, or transit trips to and from the site. Future trip generation was evaluated using standard rates and Maine DOT guidance for the long-term development of the site. Trip generation rates were obtained from the Institute of Transportation Engineers Trip Generation Manual, 11th Edition, where available. Input was received from the City of Portland regarding appropriate land use codes, specifically for the restaurant component. In addition, because the land use code for university/college does not reflect the type of institution proposed here, VHB developed a trip generation methodology based on the anticipated populations at the site.

Relevant uses for the Roux Institute Campus include general office building (LUC 710), multi-family housing mid-rise (LUC 221), high-turnover sit-down restaurant (LUC 932), strip retail plaza (LUC 822), and hotel (LUC 310). As a mixed-use development, many trips will occur between destinations on the campus. Students, faculty, and staff will eat in on-site restaurants and shop at on-site retail stores. Some students and staff will live in the residential units or work in the office space. Partner employees may travel between offices, university buildings, restaurants, and stores.

Inclusion of ancillary uses on the campus, such as housing, hotel, office space and retail, will reduce the number of external trips to the site; internal trips will not generate external traffic or impact the adjacent road network. For traffic generation purposes, internal trips are separated from total trips estimated using engineering standards. The overall internal trip capture across the land uses for this development were estimated to be approximately 28% in the AM peak hour and 22% in the PM peak hour for the IDP full build program. Detailed trip tables are provided in the Transportation Appendix C.



Vehicle Trip Assignment

Vehicle trips were assigned to area roadways by estimating the proportion of trips arriving or leaving on each approach to the area. Estimates were based on data from several sources, including population density maps and US Census Journey to Work data. The process was repeated using catchment areas of various sizes, with minimal change in results. Trip distribution for people within a commuting distance of the site is shown in the adjacent top graphic.

Approximately 50% of trips are anticipated to travel from the south to reach the site and 15% are anticipated to approach from the north. (The thicknesses of arrows are scaled to indicate the share of trips that will use that route.)

Anticipated distribution of vehicular trips on neighborhood streets is shown in the adjacent bottom graphic. Almost 90% of trips are expected to travel through the intersection of Washington Avenue and Veranda Street. However, to access I-295 southbound, some drivers may choose instead to exit by taking a right and traveling up to the southbound on-ramp.

Additionally, approximately 20% of the site traffic is oriented to points west /southwest along local roadways or to and from the north on I-295; this will impact the intersection of Bates Street and Baxter Boulevard.

Mode Share

As indicated above, the existing site is not operational, so there are no regular trips visiting the site from any mode. The East Deering Neighborhood is served by multiple bus routes and, at many locations, features a pedestrian network and bicycle network. With improvements to these resources, the campus will be well suited for trips by modes other than single-occupant vehicles. The Roux Institute Campus is committed to working with Portland METRO to support increased transit opportunities to and from the campus area. These factors, in addition to a Transportation Demand Management (TDM) plan, will reduce auto mode share at the site.

The existing Roux Institute Campus population was surveyed in August 2022 to estimate existing campus mode shares. The survey revealed that 23% of the Roux population is currently using alternate modes of travel with 13% walking, 4% using transit and 6% bicycling. With a more aggressive TDM program, as envisioned at the site, as well as investment in pedestrian, bicycle and transit opportunities, much higher percentages of non-auto trips may be reached.

A transportation engineer developed target mode shares for each envisioned Roux Institute Campus land use, in consultation with City of Portland and Maine Department of Transportation officials. These shares were applied to external trips to determine the likely number of trips by each mode, yielding the estimates in the table at right.



Estimated Mode Split (%)

Land Use	Transit	Ped. & Bike	Vehicle	Carpool Rider
Office	10	10	75	5
Retail	10	50	40	0
Restaurant	10	50	40	0
University	10	20	65	5
Residential	10	20	65	5
Hotel	10	10	75	5

Transportation Improvement Opportunities

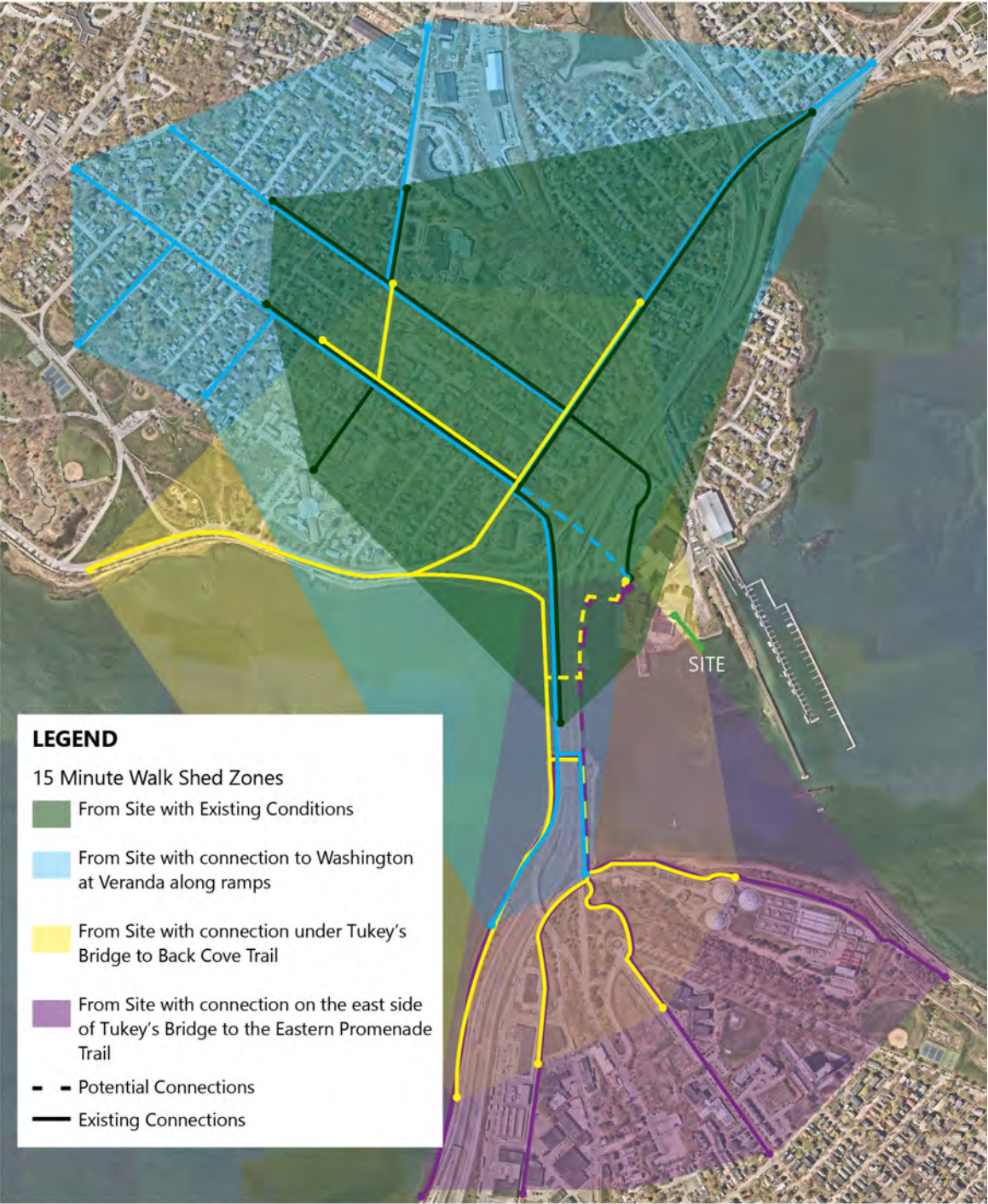
Bicycle and Pedestrian Connection Opportunities

The existing bicycle and pedestrian network includes known constraints along the existing bicycle and pedestrian route across Tukey’s Bridge. The sidewalk connecting from the intersection of Washington/Veranda is narrow and adjacent to vehicular traffic on the ramp to I-295. Then this walkway meets the Back Cove Trail which adds bicycle and pedestrian demand to a narrow shared use path over Tukey’s Bridge which according to Portland Trails data carries an average of 1300 to 1400 daily trips during the summer months. Current pedestrian and bicycle demand in the study area is low. During the PM peak hour for example, only 6 pedestrians and 6 bicyclists traveled along Veranda Street crossing either leg of Sherwood Street. Similarly, only a total of 20 pedestrian crossings were reported across all legs of the intersection of Washington Avenue and Veranda Street during the PM peak hour during turning movement counts collected by VHB in 2021.

Improvements to bicycle and pedestrian connections will increase those mode shares for the site and Infrastructure improvements can alleviate some neighborhood traffic impacts. Two opportunities stand out when considering bicycle and pedestrian improvements.

The first is an improved connection between the Back Cove Trail and Washington Avenue. At present, users of the Back Cove Trail face a 90-foot mid-block crossing to reach the northwest side of Bates Street. Converting the intersection of Bates Street and sweeping right-turn maneuver would create a shorter, safer crossing. The second improvement is a direct connection from the Roux Institute Campus to the existing trail network, either by extending the shared-use path below and alongside the north end of Tukey’s Bridge or by a shared use path on a new bridge parallel to Tukey’s, or both. The site walkshed and bikeshed distances, or typical distances that people are comfortable choosing alternate modes, increase to points south with these connections, increasing the opportunities for bicycle and pedestrian trips and improving the overall bicycle and pedestrian network.

The Roux is committed to working with the City and MaineDOT to provide additional bicycle and pedestrian capacity to accommodate future demand. A Traffic Movement Permit will be required for each phase of the project. At that time, actual mitigation will be tied to the impacts that are anticipated at that time.



Transportation Improvement Opportunities

(continued)

Parking Demand and Capacity

Parking will be built over time as part of the development program. All vehicular trips are intended to park on site. As demand increases during the phased development, parking will be introduced incrementally to avoid excess supply and inadvertent encouragement of driving to the site.

Base parking demand (calculated for each hour of the day using ITE Parking Generation Manual rates, 5th Edition, and the same land use codes as for trip generation) indicate that total parking demand across all uses on the site will peak at 4 PM. At completion of the near-term phase of development, parking demand is expected to be approximately 700 vehicles. Demand at full build-out could be as high as 1900 vehicles, inclusive of day users and residents with goal mode shares. All on-site parking is intended to be communal; availability in the closest lot to a destination will not be guaranteed. Additionally, uses with opposing peak parking demands will be able to share parking resources.

All on-site parking will be paid parking, and a parking office will be created to handle permitting and enforcement for the campus. Parking costs and regulations may vary between categories of users (students, staff, residents, office tenants, visitors, etc.). The Roux Institute Campus may include on-site car share, enabling travel to and from the site using other modes, with the comfort that vehicles are available if necessary.

The parking numbers are estimates based on target mode shares and the currently contemplated building program. As the site is developed, Site Plan Review and Traffic Movement Permits will be required that will involve monitoring and reporting on traffic and parking. Based on monitoring results and TDM measures included in these submittals, the parking demand and ultimately supply will be determined so that the site is properly parked for the context at that time. As stated in the Land Use Code, the Planning Board will establish the off-street parking requirement based on a parking study. The Roux Institute is actively pursuing strategies with the City of Portland to prevent on-street parking by campus visitors.

Public Transit

Two bus lines currently stop near the site: METRO Route 7 and METRO Routes 9A/9B. These routes provide direct connections to the peninsula, North Deering and Falmouth. With a transfer at any of the Downtown Transfer Centers, riders can reach the rest of Portland and Greater Portland Region.

Buses run continuously throughout the day, readily accommodating the varied schedules of students and other campus users. METRO BREEZ express bus service to Yarmouth, Freeport, and Brunswick and the Husky Line to Westbrook and Gorham establish a regional footprint for transit service. Ten local and express routes connect the campus to most of the Portland area with no more than one transfer.

The monthly ridership on the Metro Route 7 is one of the lowest in the Metro system. In 2021, on the average weekday, there were 2521 boardings on Route 7. Each bus has the capacity of approximately 30 people and the bus runs 13 times per weekday inbound and outbound or a monthly capacity of approximately 7800 boardings, which leaves plenty of capacity on Route 7 to accommodate site related traffic.

The Roux Institute Campus is working with METRO to improve the quality and frequency of transit connections to the Roux Institute Campus. Reduction of headways on Route 7, creation of a new route that ends at the Roux and travels through the Peninsula, and construction of a transit stop and turnaround for either service to travel into the site, furthering the convenience of transit as a mode of travel are all being considered.

In addition, the Roux Institute at Northeastern University will promote and incentivize transit use by subsidizing transit passes for students, staff and faculty.



Transportation Improvement Opportunities (continued)

The Roux Institute Campus is constrained on three sides by the Bay, I-295, and a rail line, with Sherwood Street as the access road. The campus's vehicle traffic will be highly concentrated on certain streets and intersections immediately surrounding the site. Targeted roadway improvements at these locations can increase capacity and prevent excessive congestion.

These improvements are not tied to specific years or development phases. They are held out as potential mitigation measures to be considered as future traffic warrants. As development continues, the Roux Institute will apply for traffic movement permits (TMP). Potential improvements will be evaluated during the TMP process in collaboration with the Maine Department of Transportation and City of Portland.

1. Vehicles exiting the campus via Sherwood Street may turn right or left on Veranda Street to access I-295 South. The left turn lane from southbound Veranda Street to Washington Avenue currently has a storage length of only 130 feet. At higher traffic volumes, the line of vehicles waiting to turn left may extend beyond this length, delaying through and right turning vehicles from reaching the intersection. If this type of congestion becomes frequent, it may be mitigated by extending the left turn lane further back. This will require widening Veranda Street between Washington Avenue and Sherwood Street within the existing right-of-way. Widening on Veranda Street would also allow bicycle lanes to be added. This impact will also be reduced through use of signs indicating that I-295 South can also be readily reached by turning right and using the Veranda Street on-ramp.
2. With 100% of campus traffic traveling through the intersection of Sherwood Street and Veranda Street, improvements may become necessary. The intersection is currently controlled with a stop sign on Sherwood Street. To improve traffic flow, Sherwood Street could be widened at the intersection within available city right-of-way to separate outbound traffic into left and right turn lanes. A bicycle lane could also be added within this space. This would substantially increase capacity on the Sherwood Street approach. If traffic volumes eventually exceed this new capacity, a traffic signal could be installed at the intersection.
3. Vehicles approaching the campus from I-295 southbound will exit at Baxter Boulevard and make a right onto Bates Street. There is a significant unused right of way on Bates Street between Baxter Boulevard and Veranda Street that could be repurposed to increase capacity. Another northbound turn lane could be added (isolating left, through, and right movements) at the intersection as well as adding a bike lane. A bike lane would also have the benefit of completing the trail connection from the Back Cove Trail. The intersection of Washington Avenue, Veranda Street, and Bates Street may eventually need other mitigating measures to increase capacity, such as reconfiguring lanes on the I-295 exit ramp approach.

A potential timeline has been developed and is provided in the Transportation Appendix for when the improvements described above may be implemented if development proceeds as currently anticipated and goal mode shares are met. As the site is developed, Site Plan Review and Traffic Movements Permits will be required that will involve monitoring and reporting on traffic and parking. Based on monitoring results and Transportation Demand Management (TDM) measures included in these submittals, the parking demand and ultimately supply for each phase will be determined so that the site is properly parked for the context at that time. As stated in the Land Use Code, the Planning Board will establish the off-street parking requirement based on a parking study.



Managing Transportation Demand

Active Transportation

In addition to the transit options in the study area, the Roux Institute Campus development will benefit from existing pedestrian and bicycle infrastructure. Sidewalks are in good condition and pedestrians are accommodated at signalized intersections with crosswalks and concurrent pedestrian signal phasing. Future visitors will benefit from upgraded pedestrian accommodation along Sherwood Street. Once on the site, pedestrian connections will link site uses and points along the waterfront.

The Roux Institute Campus can promote human-powered trips to the site through improved connections to this infrastructure. The area is densely populated, bicycle lanes are provided along Washington Avenue and other roadways, and the Back Cove Trail is nearby. In the future, cyclists will be accommodated on Veranda Street and into the site on Sherwood Street via dedicated bicycle lanes.

Transportation Demand Management (TDM)

TDM programs seek reductions in traffic impacts by subsidizing and marketing alternative commute options. Northeastern University plans aggressive targets of non-single occupant auto trips and intends to limit on-site parking - the goal is a 37 percent reduction in automobile trips from ITE Trip Generation predictions, and a minimum of 20 percent reduction in parking demand compared to anticipated ITE Parking Generation. As mixed uses are created during development, internal trip-making will increase, and these targets may be revised.

Transportation Coordinator: Northeastern University plans to follow industry best practice by appointing a campus-wide transportation coordinator. This person will collect data on the TDM program to ensure it evolves as the site develops. Once aspects of the site are operational, they will conduct a transportation survey to establish a baseline for future trip reduction goals. They will also collect and disseminate information (including non-automobile travel options) among the employers and facility managers on site to encourage TDM participation.

Public Transit Support: Northeastern University intends to partner with Portland METRO to subsidize shorter headway service to the Roux Institute Campus. Student subsidies will enable frequent and reliable service to and from the site.

To further support trips via public transit, the Roux Institute at Northeastern University intends to subsidize bus trips for students and employees (for employees, their purchase can also be included as a pre-tax benefit). Lease agreements will encourage transit pass subsidies by other on-site employers.

Carpools: Northeastern University will prioritize parking for carpools near building entrances. The transportation coordinator can facilitate carpools by maintaining a database of interested parties; commuters may be matched with others who live near them or can access a park-and-ride location along their route. The coordinator can also participate in the Maine DOT commuter resource program, which facilitates carpools across nearby sites and provides participants with rewards for carpooling.

Parking Fees: Paid parking is intended to be shared across uses on the Roux Institute Campus, not guaranteed in individual lots.

Bicycle Travel: Northeastern University will support active transportation by investing in complete streets and trail connections, bike storage, and shower facilities and lockers.

Water Travel: Northeastern University plans to build a modern pier over the footprint of the current pier, in order to accommodate water shuttles and taxis, and those accessing the site and commuting by boat.

Monitoring: Northeastern University will monitor transportation to the campus in order to ensure that mode share goals are being met and shall make adjustments as necessary to achieve such goals established in the applicable TDM or TMP.



Transportation, Access, and Circulation Plan

- | | | |
|----------------|---------------------|--------------------|
| Multi Use Path | Bike Lanes Two way | Bike Lanes One Way |
| Shared Lanes | Neighborhood Byways | Paved Shoulders |

Transitions

With I-295 to the west, state-owned vacant parcels to the north, the rail corridor and marine business to the east, and Casco Bay to the south, the Roux Institute Campus is surrounded by existing areas of transition from the campus to the surrounding neighborhoods. In addition to the existing buffers, development will further ease the transition to and from the campus through the following design methods.

Between Site Entrance & Campus

Public open space will ease transition from the smaller scale of Sherwood Street. Views to the water and the Bean Building, and clear wayfinding and circulation of pedestrian and bicycle pathways, will welcome site visitors further into the campus. A smooth transition will also be accomplished through thoughtful facade design at the pedestrian level. Potential nuisance features like dumpsters, air handlers, and parking will be appropriately screened. Buildings will avoid blank walls to respect the adjacent neighborhood and facilitate a sense of permeability and welcome.

Between Buildings & Campus

Building entrances will face major public spaces or circulation paths. Lower stories will be programmed for activation where they meet the pedestrian realm or feature visually interesting details and activities related to the building. Building articulation, massing, and materials will contribute to the sense of a well-textured, connected campus.

Between Campus & Water

The shoreline area between the buildings and the water will serve as meaningful public open space. This open space will contain a combination of pedestrian and bike trails, passive and active gathering spaces, restored and ecologically improved landscape and shoreline to anchor the site’s relationship with the water. Building facades facing the water will be considered public-facing, with views designed for interest from the water and Eastern Promenade Trail.

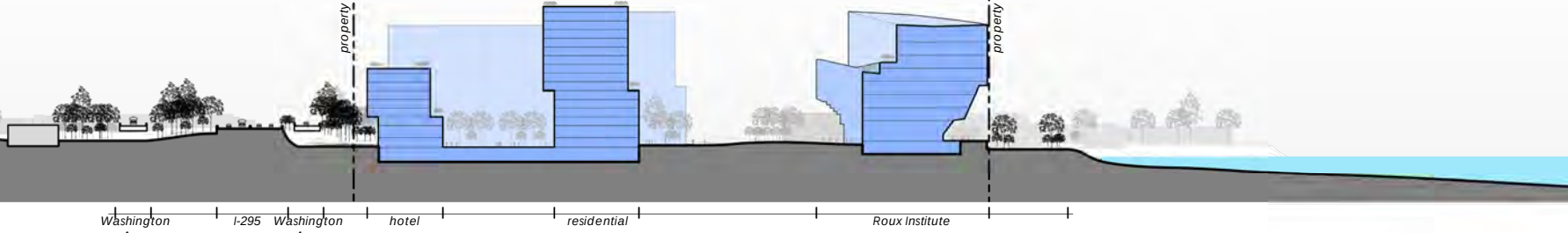
Crime Prevention Through Environmental Design (CPTED)

Key to these successful transitions is a sense of welcome, comfort, and safety. To ensure this, the campus will incorporate the following CPTED design strategies demonstrated to deter crime:

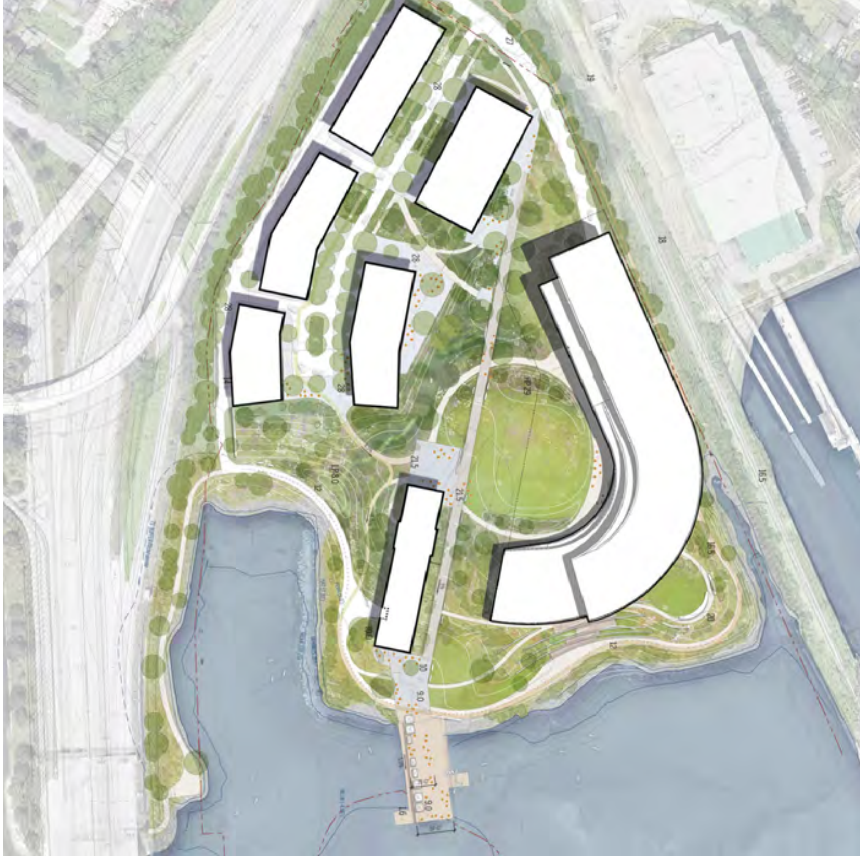
- Mixed use, multi-tenant 24-hour campus that generates “threshold capacity” for a diversity of places, people, and programs
- Ecologically restored, biophilic and publicly accessible campus connected to the wider community
- Highly durable, vandal-resistant materials in the public realm to communicate a well-maintained, clean campus
- Systematic, clear, and appropriately scaled wayfinding to guide and inform all transportation modes and user groups
- Matrix of pedestrian and bike paths connecting well-lit transit stops, bike storage areas, and parking areas to maintain clear sight lines
- Street-level building elevations designed for visibility, minimizing hidden corners and spaces
- Transparency and openness of buildings at ground levels and entrances to connect with the public realm and create pathways
- Controlled campus access points for special events or emergencies

As campus growth occurs, measures appropriate to each phase will be implemented and scaled to the Institute population and site usage. These measures may include such things as increased lighting, emergency phones, maintenance of clear sight lines, additional wayfinding and attention to spaces between buildings to ensure the governing CPTED principles are maintained.

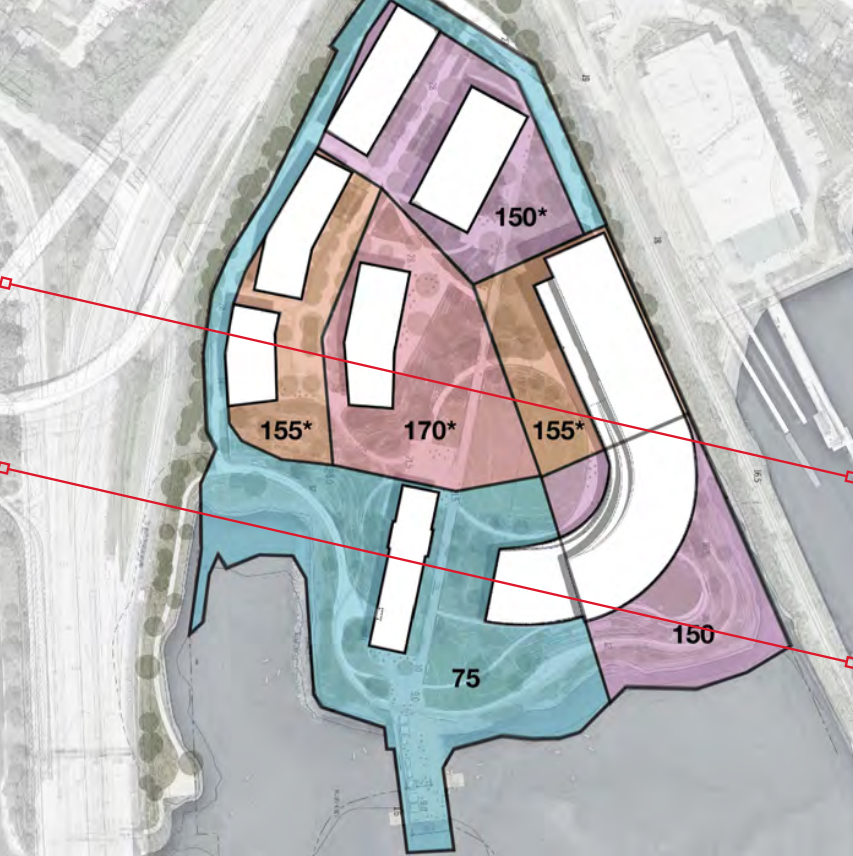
Potential Site Section



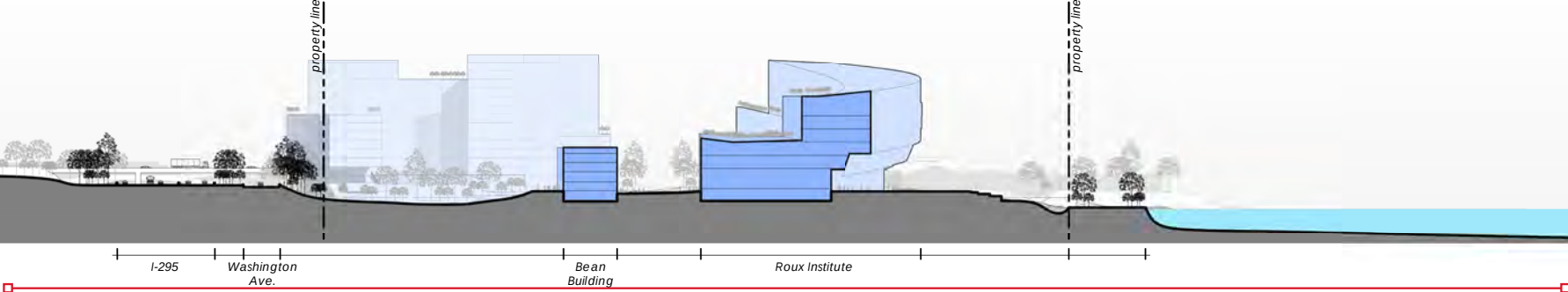
Potential Open Space Breaks and Buffers



Potential Building Heights



Potential Site Section



Safety & Environment

Strengthening Resilience & Ecology

The site is roughly 75% impervious with approximately 10 acres of building roofs, parking areas, and loading dock space. Minimal shoreline buffer is present at the site, with pavement extending right up to the armored embankment along much of the shoreline. Existing site grades adjacent to the Bean Building are only 1-foot above highest astronomical tide. In recognition of these existing vulnerabilities and with a desire to improve ecological function for the site, the redevelopment will raise interior site grades and soften landscapes to reduce impervious area and increase flood resilience.

Energy Consumption

The development presents an opportunity to mitigate energy consumption through high performance building envelopes, particularly with the likely southern exposure of the Academic/Research building. Similarly, we intend to explore and hopefully incorporate renewable energy sources such as active and passive solar, sea water cooling, and/or geothermal. A sustainability charter will be developed for the campus prior to the first site plan submission to establish sustainability benchmarks and guidelines.

Energy Conservation Measures

The project design will include strategies to reduce the energy consumption of the building and associated utility demand and greenhouse gas emissions. The design will incorporate both passive and active energy conservation measures that will allow the project to realize significant reductions in energy demand. The project will incorporate high performance envelope features including triple glazed windows with low U-value, solar control systems and optimized solar heat gain coefficients to reduce heating gains in the summer but take advantage of them during the winter. High efficiency energy recovery systems will be installed to capture and reuse as much heat as possible to significantly reduce the energy required for conditioning outside air. Energy efficiency mechanical distribution systems are being targeted such as radiant heating and other Dedicated Outdoor Air Systems. The project is aiming to electrify as much of the campus energy use as possible and utilizing heat pump systems to maximize efficiency and minimize demand on the grid. Finally, solar generation is being explored as a way to reduce the energy consumption, energy cost and the building’s CO2 footprint.

Noise Generation

The proposed mixed-use academic campus is compatible in uses with the surrounding East Deering neighborhood. The Roux Institute Campus is buffered by I-295, the abandoned Grand Trunk Railway, and adjacent marine uses. Development will adhere to City of Portland technical standards regarding noise, vibration, and other potential nuisances. Pre-development noise measurements will serve as the baseline of analysis, in order to assess noise impacts accurately and to allow improvements to baseline conditions where possible. Development will employ noise abatement techniques (screening, acoustical attenuation, landscape buffering, etc.) for the benefit of residents, students, and all users of the site.



Hazardous Materials

Use of hazardous materials, if any, will be in academic and laboratory contexts, and managed in conformance with all local, state, and federal requirements.

Heat, Glare, and Radiation

Development studies will include analysis of heat, glare, and radiation impacts in order to understand and eliminate safety hazards and lessen impacts of new development. Development will comply with all City standards regarding heat, glare, and radiation.

Wind

Occupant comfort analysis will be performed during each phase of development when applicable site plans are reviewed, with design modifications as necessary to maintain acceptable conditions. The analysis will include comfort at and around buildings as well as major public spaces. Existing buffers of plantings at property lines will be maintained or replaced where appropriate.

Lighting

Exterior lighting will be full cut-off and dark-sky friendly. Fixture output will comply with all City lighting regulations to avoid light spill into neighboring areas from the site. Photometric analysis at each phase of development will be used to inform lighting design in accordance with Illuminating Engineering Society of North America (IESNA) Standards.

Height and Massing

The allowable building heights on the Roux Institute Campus are informed by the historic location and prominence of the Bean Building, the desire to create meaningful public open space while meeting all programmatic goals for the Roux Institute, resilient building design, and potential shadow and other impacts to neighboring properties. Building heights will stagger, with the greatest height at the center of campus and lower heights near the site’s boundaries. Building heights around the Bean Building and within 35’ of the western and northern edges of the campus will be no greater than 75’. Conceptual massing studies based on proposed building heights are attached as Appendix A.

Shadows

Height and massing will minimize shadow impacts to neighbors and avoid negative impacts to nearby existing public open spaces. The campus height map places the greatest heights to the middle of the site and progressively lower zones to the perimeter. Mechanical enclosures will be set back from roof edges to minimize impact. Conceptual shadow studies based on proposed building heights are attached as Appendix B.

Public Safety

Access to the campus is via Sherwood Street, through a 40-foot wide, 14’10’ high highway underpass. The underpass height exceeds the NFPA requirement of 13.5 feet of clearance. The East Deering Fire Station is located one mile away from the campus. In addition, fireboat access will be available at the campus pier.

Public safety needs for the campus will be similar to those on other higher education campuses. Northeastern will have a 24-hour security presence on the Roux Institute Campus. Security personnel will be trained in basic emergency medical services, such as CPR. Other security measures planned for the campus will consider most current proven technologies, including remote-monitored security cameras and emergency blue light telephone boxes.

Bird Safe

The development will incorporate proven technologies and materials with acknowledgment that bird-friendly buildings reduce threats to birds without sacrificing attractiveness, functionality, or natural lighting.

Open Space

The campus will include a minimum of three acres of public open space designed to enhance waterfront access and provide bicycle/ pedestrian network connectivity. The public open space shall be meaningful space, functioning as recreational, natural habitat, and/or public gathering space.

Neighborhood Engagement

The Roux Institute Campus is intended to become an extension of the East Deering neighborhood, which is separated from the site by Interstate 295, the rail corridor, and Maine Yacht Services. The site will be a walkable addition to the neighborhood, with open spaces, waterfront, campus-oriented retail, and restaurant amenities, but it also represents a change. To ensure the campus is designed in a manner benefiting the neighborhood will require robust communication with interested stakeholders.

The Land Use Code requires two Neighborhood Meetings related to the Institutional Overlay Zone and Institutional Development Plan processes. The Roux Institute team has used those requirements as a starting point for ongoing dialogue. The first Neighborhood Meeting was held virtually on November 18, 2021, with 26 registered attendants and 11 attendees. The feedback was positive, and attendees expressed interest in construction job opportunities, sought additional information regarding traffic and associated transportation improvements, indicated a desire for bike/pedestrian connectivity, requested that lighting plans be considerate of adjacent neighborhoods, and asked about climate resilience and disturbance during construction. A second Neighborhood Meeting was held in person at the Ocean Avenue Elementary School on April 6, 2022. Although the City only requires that abutters within 500 feet of the campus be notified of the meeting, IDEALS and Northeastern expanded the list of invitees to include a much broader radius and mailed over 1700 meeting notices, 48 people attendance. Many attendees expressed concerns about the scale of the proposed development, building height, and traffic. As a result, IDEALS and Northeastern reduced the planned square footage of construction by 27% and the tallest proposed building heights by 19%.

In addition to Neighborhood Meetings required by the regulatory process, IDEALS and Northeastern have hosted periodic virtual forums called Roux Institute Campus Roundtables as a way to engage with the East Deering neighborhood and beyond on an on-going basis. The first such event occurred December 14, 2021. Additional meetings occurred on February 1, March 23, and June 2, 2022 An Open House was held at the site on September 6, 2022, with over 130 public participants.

To keep all potential stakeholders apprised of the development plans, IDEALS and Northeastern maintain a website, www.rouxcampusportland.org, to showcase up-to-date plans, present information about the Roux Institute at Northeastern University, and provide notice of upcoming events with links to meeting documents and recordings of prior forums. The site is an interactive platform with an email link for questions and a feedback section that probes for input on a wide variety of issues. This platform will also be a valuable communication tool during construction, providing a means to share information related to construction schedule, work hours, management plans, public safety, and site access.

Additionally, Northeastern University and IDEALS have a designated community contact for members of the public. This contact works closely with neighborhood and city stakeholders to solicit ideas and feedback and ensure that any concerns are dealt with promptly, whether reported in person or through the website.

Finally, members of the team are conducting regular outreach to interested stakeholders and potential partners to gain broad input into development plans. This will continue to facilitate assessment and calibration regarding how the Roux Institute Campus can fit into the Portland landscape and ways it can best live up to its potential as a model for education, economic development, recreation, and aesthetics.

Regular Neighborhood Forums

Northeastern University and IDEALS will continue to host neighborhood forums on a quarterly basis to discuss items such as phasing plans, project impacts, construction plans and schedule, and any neighbor concerns.

Northeastern University and IDEALS will provide an estimated construction schedule at the beginning of a project and provide regular updates throughout construction.



Community Advisory Group

Northeastern University and IDEALS will create a Community Advisory Group to maintain a dialog for the purpose of sharing information on project development, planning, and seeking input. To the extent practicable, the group shall be comprised of a representative from the following categories:

- | | |
|---------------------------------|---------------------------------|
| • East Deering Neighborhood | • Portland Harbor |
| • Recreation, parks, and trails | • Portland Public School System |
| • Bicycle/pedestrian | • Higher Education |
| • Rail | • Sustainability |
| • Public Transit | • Business Community |

The Community Advisory Group will meet quarterly and may meet more frequently as necessary. Input gathered and meeting documentation from Neighborhood Forums will be provided to the Community Advisory Group.

Construction Management Principles

A detailed Construction Management Plan will be submitted as part of the site plan review, based on the following principles:

- Open and transparent communication
- One-on-one conversations whenever possible
- Multiple channels to give and receive information
- Timely sharing of plans and considerations
- Receptivity and response to input
- Respect for affected parties

Northeastern University and IDEALS are committed to communicating early and often with neighbors and interested parties. Existing communication platforms – in-person meetings and calls; website; info@rouxcampusportland.org; and Neighborhood Forums will be supplemented with a dedicated construction webpage on the website, along with social media, texting, and a hotline to ensure the public has easy access to timely and accurate information.

Project Schedule

A Master Project Schedule will be prepared at the onset of each stage of construction, with distinct project schedules for buildings developed over the course of construction. Scheduling updates will be shared at the outset of each undertaking.

Public Safety Considerations

During construction of the initial phase, the site will be off-limits to the public. Thereafter, secured fencing and signage will be used to protect public spaces from construction areas and direct traffic flow. Pedestrian, bike, and vehicular access will be clearly marked throughout the campus. Appropriate lighting will ensure safe pedestrian routes. Where possible, buffers will be established between construction sites and vehicular and pedestrian ways. Following completion of initial phase, interim connections to bike and pedestrian ways will be provided when temporary construction impacts are necessary. All procedures will be OSHA compliant.



Construction Staging

Construction staging will occur inside the project's limit of work, as designated on the site plan submission or as approved by the Planning Board during the site plan review process.

Truck Routes

Truck routes and timing will be addressed in the projects' Construction Management Plan during site plan review and monitored throughout construction. In coordination with the city, wayfinding signage may be installed where specific locations are identified as no-travel zones for reasons of safety or traffic impacts. Every effort will be made to schedule construction traffic to avoid undue impacts when roadways are busy and/or queuing to gain access to the site. There will be no truck or construction-related parking within the city right-of-way.

Noise Impacts

Notwithstanding the existing buffers to the site, there will be noise impacts as a result of construction activities. For those noise events that are above the regular background level, advance notifications will be provided using the communications mechanisms described above. The City of Portland Noise Ordinance will be followed.

Air Quality Impacts

Construction Managers have a range of tools available to mitigate and manage dust and other agents effecting air quality. While the waterfront location and general westerly winds will partially alleviate these impacts, additional measures to be implemented as needed include covering loaded truck beds and soil stockpiles, use of wetting agents, and periodic cleaning of construction staging areas, roadways, and truck wheels.

Community Benefits

The Roux Institute at Northeastern University, through its programming and its publicly accessible waterfront campus, will provide numerous benefits to the residents of the City of Portland and beyond. At the core of the Roux Institute’s mission is service to Portland and Maine’s people by offering graduate programs in high-growth fields with generous scholarship support, launching startups and driving talent development, and supporting existing Maine businesses and institutions--all with the goal of bringing cutting edge technology capabilities to Maine through education, research, and entrepreneurship. The nearly billion-dollar investment in the Portland Campus will generate local jobs at all levels, both temporary and permanent. The very nature of an innovation hub like the Roux Institute is to create new opportunities.

Community Spaces

The Roux Institute's publicly accessible, waterfront campus will benefit the adjacent neighborhoods and greater Portland community. Some of those benefits include:

- At least three acres of open space will be built in the first phase of construction and maintained thereafter, available for use by all members of the public
- Safe public bicycle/pedestrian trails linking to the Back Cove and Eastern Promenade trails available for use by all members of the public
- Open space and a waterfront pedestrian walkway available for use by all members of the public
- Indoor spaces for use by members of the public, as available
- Convening space available for use by members of the public
- Snow ban parking for adjacent neighbors
- A pier available for public use with facilities for kayaking and paddleboarding

Workforce Development During Construction

Construction of the Roux Institute campus provides an opportunity to educate and develop our workforce for the future. The following are some examples of community benefit opportunities during the construction phase of the project:

Outreach to Local Schools - Portland Public Schools, Trade Schools and Community Colleges

- Host a Roux Institute Campus Construction Lab, where interested parties including future and current tradespeople will be invited to come learn from the project team about construction techniques, project management strategies, and trade work on this complex and technical project. This will gain exposure for a younger population to learn about the trades and construction industry and will contribute to the advancement of Maine's existing trade workforce
- Attend and participate in training programs within each of the established educational facilities interested in participating
- Involve field supervisory staff and craft workers in establishment of a curriculum for the core skillsets anticipated for the project
- Involve staff members as part time “adjunct professors” in the interested educational facilities and work to incorporate elements of the planning of the project in curricula via:
 - » ACE Mentoring and similar programs to engage with high school students
 - » Community College and Portland area Higher Education Institutions with the goal of incorporating project specific construction scheduling, estimating, and virtual design concepts into the curriculum

Apprentice Program Development

- Encourage and educate potential subcontractors on the incorporation of apprenticeship programs in their current business/recruiting and employee retention planning
- Incorporate the evaluation of trade contractors’ apprenticeship programs in the selection of the subcontractors for the project
- Evaluate the current and past performance of the apprenticeship programs when evaluating potential subcontractors
- Establish goals for apprentice participation in construction workers on site and at off-site fabrication facilities



Local Worker Preference

- Hold local job fairs prior to the start of construction and throughout the construction phase of the project to ensure that the maximum number of local workforce participation is achieved
- Set goals and measure performance of each contractor for local resident worker participation including other measures of business level participation in the project, such as:
 - » Maine Based Business participation
 - » Women Owned Business
 - » Disadvantaged Business
 - » New Mainers

Community Benefits (continued)

Northeastern University’s Roux Institute is delivering on its mission to erase the boundaries between the real world and academia. It achieves this goal by customizing learning programs and research initiatives to meet the needs of employers, by integrating classroom learning with professional experience, and by supporting the launch of innovative startup companies. The Roux Institute’s collaborations with its employer-partners keep the institute in step with the economy’s—and society’s—changing needs and opportunities. They also enable the Roux Institute to identify and begin to address the state’s urgent and most consequential challenges.

Together, the Roux Institute and its partners are:

- Co-designing educational programs that prepare workforce talent for today’s innovation economy, focusing on STEM fields such as artificial intelligence and the computer, data, and advanced life sciences, and by integrating classroom learning with professional experiences afforded by employer-partners
- Conducting interdisciplinary research focused on solving challenges that affect Portland, the state of Maine, and communities globally. The explicit goal is to translate findings into knowledge and activities that make a significant, measurable impact on the world. Priorities include widening access to equitable and effective healthcare; providing broader and more reliable access to technology; and devising data- and technology-driven methods to mitigate dependence on unreliable supply chains
- Attracting, supporting, and launching new businesses throughout Maine, opening new doors to opportunity and prosperity for people across the state and region

Now in its third academic year, the Roux Institute is steadily laying the groundwork for transforming Maine’s economy and is securely rooted in Maine and leading important, transformational impact throughout the state. From its launch through the start of the current academic term in September 2022:

- The institute’s partnership ranks have grown tenfold as more than 110 Maine organizations now work with and benefit from the institute
- Five hundred graduate students are enrolled, and more than 900 employees of partner organizations have completed custom training programs
- Thirty-six startup companies have worked in residence at the Roux Institute, creating 52 new Maine jobs and raising \$21M in investment capital to grow their new businesses
- Five, robust research programs are established, led by globally recognized leaders who are pursuing substantial governmental and private funding to spur growth
- And more than 125 Mainers are employed by the institute, 25% of whom relocated to Maine to join the effort and support the institute’s mission

Commitment to Diversity, Equity, and Inclusion

The COVID-19 pandemic, a heightened awareness of the devastating impact of racial and ethnic discrimination, and other global disruptions have starkly illustrated the need for a new higher education model that empowers people to navigate and solve complex problems across a multiplicity of contexts, whether geographic, political, intellectual, socioeconomic, or cultural.

To this end, Northeastern University recently unveiled *Academic Plan: Experience Unleashed*, a strategic vision that aligns learning, research, and entrepreneurship to solve urgent challenges in collaboration with partners around the world. Central to the plan is a commitment to human diversity. Throughout the university’s global system, Northeastern teams are working with local partners and communities to build a diverse, equitable, and inclusive community of learners, faculty, entrepreneurs, staff, and partners. This work is based on the truth that humankind’s toughest challenges are dynamic, interconnected, and affect people and communities in ways that depend upon context. To maximize our impact within diverse and rapidly evolving contexts, we must immerse learning, discovery, and innovation in real-world experience.



Enabling Access for all Mainers

Through the transformational Roux Institute’s *Alfond Scholars Initiative*, the university will distribute \$67 million in scholarships to Maine residents who are studying at the institute, providing unprecedented support for Mainers to pursue academic and career advancement. More than \$11M in need-based scholarships have been awarded inception-to-date. The Roux Institute’s *Alfond Scholars Initiative* also supports the recruitment and retention of diverse learners through its co-op and post-doctoral research programs.

Benefits to Employers and the Business Community

The Roux Institute was founded on collaboration with employer partners and higher education partners, which keep the Institute in step with the economy’s—and society’s—changing needs and opportunities. Twenty-three of the institute’s industry partners are headquartered in Portland. Collectively, these organizations employ more than 40,000 people. Eleven Portland-based community and academic partners, who collectively employ 12,000 people, also work with the Roux Institute. These partnerships enable The Roux Institute to support Portland-based companies and the people they employ, while also identifying and beginning to address the city’s most urgent and consequential challenges.

Benefits to Higher Education and Community Partners

Northeastern University, through its work at The Roux Institute, is committed to working with higher education and community partners throughout Maine to decrease the barriers of entry to high tech careers, and to bring our talent and expertise to benefit these vital organizations.

Community Benefits (continued)

The institute’s work with Maine higher education partners focuses on building an ecosystem that creates clear pathways for learners to and through college and onto graduate learning, as well as building the critical R&D capacity across the city and the region. Through its fourteen higher education partnerships, the Roux Institute and its partners feature joint expertise to ensure that Maine-based learners get a robust education and can contribute effectively to workforce and research needs. For example, the institute has developed accelerated matriculation and completion pathways with five higher education partners, helping college graduates to maximize returns on both time and tuition investments, while remaining in Maine to complete master’s degrees at The Roux Institute on an accelerated timeline.

The institute’s various community partnerships focus on leveraging people, space, and networks to advance the work of Maine’s mission-drive, community organizations. For example, Roux Institute faculty volunteer to lead computer science training for teachers in Portland schools; Casco Bay High School students complete internships at The Roux Institute; and the institute hosts Girls Who Code camps for middle and high school students from throughout Maine.

Similar, near-term events are planned as well – some of which are directly linked to the university’s diversity, equity, and inclusion commitments. For example, The Third Place and The Roux Institute are partnering to host networking events to support BIPOC professionals as they connect, live, and work in Portland. The institute is committed to expanding and scaling these offerings. In the future, the institute’s community engagement programs will support educators, students, and community groups that share our commitment to a diverse, equitable, and inclusive high-tech ecosystem that is a possibility for all – and benefits all.

Supporting the Growth of Local Entrepreneurs

A final community benefit is the robust entrepreneurship programming supporting people to learn about business creation and supporting entrepreneurs to launch their ventures. Already, the Institute has hosted two “Maine Start Summits,” which are three-day business creation hackathons and many other events for entrepreneurs, which create open and accessible on-ramps for anyone to bring an idea to life and begin to not only provide Portland with great products, but also generate more jobs and revenue at the same time.

Commitment to the City of Portland and our Region

Ultimately, the university’s success will be inextricably linked to that of its faculty, graduates, and partners. Through the work of the Roux Institute and other organizations, Maine will be home to a thriving, tech-forward economy fueled by people and businesses leading innovations in realms from AI-driven healthcare to life sciences technology. This economy will attract new people and companies to the region. It will also provide unprecedented opportunities for all Mainers in a manner that honors and enriches their treasured lifestyle and culture.



Appendix A

Conceptual Massing Studies

Campus Concept | near-term



Campus Concept | near-term



Campus Concept | long-term



Campus Concept | long-term



Appendix B

Conceptual Shadow Studies

Shadow Study | December/June: 9am, 10:30am Noon, 1:30pm & 3pm, near-term & long-term



Appendix C

Supplemental Transportation Information

VHB’s Technical Transportation Appendix

Trip Generation

The person trip generation estimates for the currently contemplated full development were determined including both internal trips between uses on the site and external trips that have either origins or destinations off site that use all modes to travel to and from the site. The total trips generating and their associated ITE Land Use Codes are provided in Table 1. Information on Roux projected population and programming and the resulting trip profile are provided in Table 2 below. For more specific information for the trip generation of the Academic Building, the detailed trips by academic population are illustrated in Tables 2, 3 and 4 for the near-, mid-, and long-term.

Table 1: Person Trips for IDP Full Build Development Program (including internal and external)

Site Land Uses and Descriptions				AM Peak Hour			PM Peak Hour		
LUC	Land Use	Size	Unit	Total	Entering	Exiting	Total	Entering	Exiting
N/A	Academic Building	400	1,000	314	288	26	562	138	425
221	Multifamily Housing (Mid-Rise)	650	Units	274	63	211	254	155	99
710	General Office Building	200	1,000 SF	304	268	36	288	49	239
760	Research and Development Center	50	1,000 SF	52	42	9	49	8	41
310	Hotel	125	Rooms	58	32	25	74	38	36
822	Strip Retail Plaza (<40k)	10	1,000 SF	24	14	9	66	33	33
932	High-Turnover Sit-Down Rest.	15	1,000 SF	144	79	65	136	83	53
Total Trips				1169	786	382	1428	503	926

Table 2: Academic Building Trip Generation Components on a Typical Day (Near-Term)

		AM Peak Hour	PM Peak Hour
755 Enrolled Graduate Learners (hybrid)	in	14	22
	out	0	29
	total	14	51
1,000+ Corporate Learners (online and hybrid)	in	20	0
	out	0	40
	total	20	40
150 People at Special Events	in	15	50
	out	0	15
	total	15	65
30+ Embedded Startups (ITE LUC Office 70 emp)	in	30	10
	out	4	47
	total	34	57
65 Faculty & Staff (ITE LUC Office 65 emp)	in	28	9
	out	4	44
	total	32	53
10% more Visiting Faculty & Staff (ITE LUC Office 7 emp)	in	3	1
	out	0	4
	total	3	5
65 Researchers (ITE LUC R&D 65 emp)	in	33	4
	out	6	32
	total	39	36
Total Academic Building Population	in	143	95
	out	14	211
	total	157	307

Table 3: Academic Building Trip Generation Components on a Typical Day (Mid-Term)

		<i>AM Peak Hour</i>	<i>PM Peak Hour</i>
1,680 Enrolled Graduate Learners (hybrid)	in	32	48
	<u>out</u>	<u>0</u>	<u>64</u>
	total	32	112
2,500+ Corporate Learners (online and hybrid)	in	50	0
	<u>out</u>	<u>0</u>	<u>100</u>
	total	50	100
150 People at Special Events	in	15	50
	<u>out</u>	<u>0</u>	<u>15</u>
	total	15	65
50+ Embedded Startups (ITE LUC Office 100 emp)	in	43	13
	<u>out</u>	<u>6</u>	<u>61</u>
	total	49	74
120 Faculty & Staff (ITE LUC Office 120 emp)	in	52	14
	<u>out</u>	<u>7</u>	<u>70</u>
	total	59	84
10% more Visiting Faculty & Staff (ITE LUC Office 12 emp)	in	5	1
	<u>out</u>	<u>1</u>	<u>7</u>
	total	6	8
85 Researchers (ITE LUC R&D 85 emp)	in	42	6
	<u>out</u>	<u>7</u>	<u>40</u>
	total	49	46
Total Academic Building Population	in	239	132
	<u>out</u>	<u>21</u>	<u>357</u>
	total	260	489

Table 4: Academic Building Trip Generation Components on a Typical Day (Full Build out)

		<i>AM Peak Hour</i>	<i>PM Peak Hour</i>
1,680 Enrolled Graduate Learners (hybrid)	in	32	48
	<u>out</u>	<u>0</u>	<u>64</u>
	total	32	112
3,500+ Corporate Learners (online and hybrid)	in	70	0
	<u>out</u>	<u>0</u>	<u>140</u>
	total	70	140
150 People at Special Events	in	15	50
	<u>out</u>	<u>0</u>	<u>15</u>
	total	15	65
50+ Embedded Startups (ITE LUC Office 100 emp)	in	43	13
	<u>out</u>	<u>6</u>	<u>61</u>
	total	49	74
165 Faculty & Staff (ITE LUC Office 165 emp)	in	71	18
	<u>out</u>	<u>10</u>	<u>88</u>
	total	81	106
10% more Visiting Faculty & Staff (ITE LUC Office 16 emp)	in	7	2
	<u>out</u>	<u>1</u>	<u>9</u>
	total	8	11
105 Researchers (ITE LUC R&D 105 emp)	in	50	7
	<u>out</u>	<u>9</u>	<u>48</u>
	total	59	55
Total Academic Building Population	in	288	138
	<u>out</u>	<u>26</u>	<u>425</u>
	total	314	562

Target mode shares for each proposed Roux Campus land use were developed and discussed with City of Portland and Maine Department of Transportation officials at several meetings. These shares, as outlined in Table 5 below, were applied to external trips to determine the likely number of trips by each mode.

Table 5: Mode Share By Land Use

Land Use	% Transit	% Ped/Bike	% Vehicle	% Carpool
University	10%	20%	65%	5%
Residential	10%	20%	65%	5%
Office	10%	10%	75%	5%
Hotel	10%	10%	75%	5%
Retail	10%	50%	40%	0%
Restaurant	10%	50%	40%	0%
Overall Site Mode Shares	10%	18/19%	67/66%	5%

Applying each of these mode shares to the trip generation for the appropriate land use results in the trip generation by mode as shown in Table 6 below.

Table 6: External Trips by Land Use and Mode for Long-Term Build Out

Peak Hour	Vehicle			Transit			Walk/Bike/Other			Total Trips		
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
AM	424	141	565	62	22	84	107	46	153	593	208	801
PM	217	520	737	34	77	111	77	133	211	329	730	1058

Parking Demand

Parking demand will be determined by phase as the existing parking demand and anticipate mode shares are determined. In each phase, the existing and future parking will be evaluated. Base parking demand was estimated for each hour of the day using ITE Parking Generation Manual, 5th Edition rates and the same land use codes as for trip generation with the exception of the Roux Institute which used the evaluation of population travel profiles as outlined above. The estimates indicate that total parking demand across all uses on the site will peak at 4 PM as driven by Roux Institute parking needs.

Table 7: Estimated Peak Parking Demand based on Current Long-Term Buildout Development Program¹

LUC	Land Use Group	Size	Unit	Peak Parking Demand (4:00 PM)
710	General Office Building	200	1000 Sq. Ft.	329
820	Convenience Retail	10	1000 Sq. Ft.	6
	High-Turnover (Sit Down)			
932	Restaurant	15	1000 Sq. Ft.	24
222	Multifamily Housing (High Rise)	650	Units	153
310	Hotel	125	# Rooms	55
550	Roux Institute	400	1000 Sq. Ft.	1002
760	Research and Development	50	1000 Sq. Ft.	62
Total:				1631

¹ Parking demand as calculated based on goal mode shares provided above

As indicated, the parking numbers are estimates based on target mode shares and the currently contemplated building program. As the site is developed, Site Plan Review and Traffic Movements Permits will be required that will involve monitoring and reporting on traffic and parking. Based on monitoring results and TDM measures included in these submittals, the parking demand and ultimately supply will be determined so that the site is properly parked for the context at that time. As stated in the Land Use Code, the Planning Board will establish the off-street parking requirement based on a parking study. The Roux Institute is actively pursuing strategies with the City of Portland to prevent on-street parking by campus visitors.

Transportation Improvements

Based on the evaluation of the IDP full build program and the anticipated impact on the transportation network, a series of potential projects have been identified that could mitigate these impacts, if they are found to occur in the future. Each project is listed with the anticipated phase of the program development at which the mitigation may be necessary based on operations. On page 29 and 30 in the main IDP document, please find maps showing the locations of the potential transportation improvements.

- › Sherwood Street (short-term)
 - o Improve Sherwood Street to accommodate bicycles and pedestrians in separate facilities (i.e., bike lanes and sidewalk) where possible with potential shared accommodations through the limited cross section under the I-295 bridge. A separate left and right turn lane on Sherwood is not anticipated to be required until the mid-term and a traffic signal that is required in the long-term.
- › Shared Use Path Connection (mid-term)
 - o A shared use path connection from the site to provide better connectivity to the Back Cove Trail, neighborhood, and/or Eastern Promenade Trail

- › Washington Avenue at Veranda Street (mid- to long-term)
 - o Addition of an eastbound right turn lane (Bates approach) and northbound right-turn lane (I-295 Ramp). With these lanes, and timing changes, the overall LOS will improve to a C during the AM peak hour and LOS D during the PM peak hour (was LOS F without improvement). Alternatively, the ramp from the Washington Avenue off-ramp to Sherwood Street could be considered.
- › Veranda Street (mid-term)
 - o Improve Veranda Street to accommodate bicycles in separate space.
- › Veranda Street at Sherwood Street (full IDP build program as currently contemplated)
 - o Provide signalized control including a separate northbound left-turn lane. These changes would result in an overall LOS C/D during the AM/PM peak hours.
- › Bates Street at Baxter Boulevard (full IDP build program)
 - o Provide an all-way stop controlled intersection. Under all-way stop control, the intersection would experience a slight increase in delay resulting in less than 19 seconds of delay for the westbound and eastbound approaches. However, it would improve the southbound left turn from LOS B during the AM and PM peak hours to a LOS A.
- › Washington Avenue at Presumpscot Street (full IDP build program as currently contemplated)
 - o Per discussion with the City's Consultant, VHB also looked at the intersection of Washington Avenue at Presumpscot Street based on its likely effect on the operations of Washington Avenue at Veranda Street. For the full IDP build program, a northbound left turn prohibition would need to be considered, a second southbound thru lane added and the southbound left advance phase removed to address the poor operations during the AM peak hour. In addition, the pedestrian crossing the south leg of the intersection would need to be removed in order to improve overall operations.

REGULATORY FRAMEWORK

8.5.7 The Roux Institute at Northeastern University Overlay Zone Regulatory Framework

A. Applicability: All development proposed by The Roux Institute at Northeastern University ("Roux Insitutie") within the boundary of the Roux Institutional Overlay Zone (IOZ) shall be consistent with the approved Institutional Development Plan (IDP), consistent with the Comprehensive Plan, and meet applicable standards of the Land Use Code, unless such standards are superseded by the following regulatory framework. This regulatory framework shall govern future development by the Roux Institute within the IOZ unless amended by the Portland City Council upon formal application of the Roux Institute. The Roux Institutional Overlay Zone shall have the boundaries depicted below and shall include the approximately thirteen-acre property located at 1 Bean Pot Circle and identified as parcels 447-A001 and A002 in the City's assessing records.

Figure 8-E: Roux Institutional Overlay Zone Boundary

Proposed B-5 & IOZ



B. Phasing and monitoring.

1. The Roux Institute Campus will be developed in phases, as set forth in the IDP. The IDP will be updated on a regular basis to ensure that the data is current and that the document remains accurate. Accordingly, monitoring reports will be filed every three years and shall include a summary of progress on IDP implementation and of acquisitions and divestment since the date of IDP approval. At the time of the submission of the monitoring report, any updates to the IDP shall be identified which may result from updated master planning, changes in baseline information, or changes in the adjacent neighborhood which affect the campus, to allow the IDP to remain current. Updates and minor amendments not described below shall be reviewed administratively by the Planning Authority.
2. At completion of each phase, the Roux Institute Campus shall have the appearance of a complete and comprehensive design. Permanent and meaningful public space shall be established in the first phase, to ensure public benefit. Interim conditions shall be designed for a pleasant pedestrian experience through planting, lighting, wayfinding, graphics, artwork, or ornamental fencing to provide screening, buffers, and enhancement. Interim areas of the site which are not actively used for parking or construction staging will be appropriately landscaped or accommodate gathering on lawns or other aesthetically hardened spaces.
3. Minor amendments that change the approach to parking, transportation, neighborhood engagement or design shall be reviewed by the Planning Board for consistency with the objectives of the IDP. This review may occur simultaneously with the site plan review of a proposed project.
4. Major amendments shall be reviewed by the Planning Board and are required under the following circumstances:
 - a. A change to the regulatory framework is required.
 - b. The IDP is no longer representative of the institutional mission or approach to community as a result of redevelopment in the area or City upgrades to neighborhood planning (such as roadway changes, infrastructure upgrades, community design, lighting).
 - c. A change in approach to parking, transportation, neighborhood engagement or design is inconsistent with the objectives of the IDP, resulting in a modification to the applicable objectives.

Review of major amendments may occur simultaneously with the site plan review of the proposed project.

C. Uses. The Roux Institute Campus will encompass a variety of uses to support the mission of the Roux Institute to spur innovation, build talent, and drive economic growth. Partnerships with industry, academia, and government are essential components of the Institute's success. Campus uses will include classrooms and laboratories, housing, faculty offices, dining areas, convening spaces, fitness centers, retail facilities, entrepreneurial spaces, light manufacturing, incubator space, research and design facilities, hotel, and office space. The uses on the campus will support collaboration with private industry, other institutions, and community organizations, which is essential to the Roux Institute's approach to learning through integrated research, student work opportunities, and entrepreneurial endeavors. Hotel rooms will cater to prospective students, faculty and staff, visiting lecturers, specialists, and business partner guests, providing multiple opportunities for informal and unplanned interactions and collaboration that would otherwise not be available if staying in a hotel miles away

from campus. A range of rental housing options will foster community and provide on-site opportunities for students, faculty, staff, and their families. These units will ease some of the housing pressure and traffic that might otherwise result from new residents attracted to Portland by the Institute. Housing units not occupied by residents affiliated with the Roux Institute may be made available to the public to further assist in easing the housing pressure.

Recognizing the community value of a large waterfront parcel in close proximity to a primary bike and pedestrian trail system, the Roux Institute Campus will be designed to include those uses that will welcome the neighbors to the campus, including publicly available open space, waterfront access, recreational opportunities, restaurant, dining, small neighborhood grocery, and/or other limited retail options. These uses will provide a means for serving the residents and other users of the campus, as well as welcoming the neighborhood to foster connectivity and community engagement, activating the public realm, and reducing dependence on automobiles.

1. In addition to the uses permitted in the underlying zone, the uses in Table 8-E shall also be permitted as a matter of right in all buildings that are located within the IOZ and on land owned or leased by the Roux Institute. In recognition that the Roux Institute is a graduate-level educational and research institution with a number of corporate partners, and in recognition of its location outside of the downtown, the following uses and many that are permitted in the underlying zone, such as multi-family housing, hotels, offices and retail, are ancillary to and support the vision and mission of the Institution. In addition, ground floor retail, restaurant, or comparable community-oriented uses that provide services to local residents, students, faculty and staff shall be provided. Such uses are expressly permitted whether ancillary to or supporting the educational institution, and shall be open and welcoming to the general public in addition to students, faculty, staff, or visitors of the Roux Institute.

Table 8-E: Permitted Uses
Laboratory and Research Facilities
Low-impact Industrial (>10,000 SF)
High-tech Manufacturing

2. Within the boundary of the IOZ hotels shall be limited as follows:

- a. No more than one hotel shall be located in the IOZ.
- b. The hotel shall contain no more than 130 rooms.
- c. The hotel shall be no more than eight stories in height, not including structured parking. There shall be no more than two levels of above grade structured parking beneath the first floor of the hotel. Nothing herein is intended to preclude the co-location of hotel use and structured parking on one or more levels of the hotel.

D. Dimensional requirements.

1. Applicability

All principal buildings and structures located within the IOZ and located on land owned or leased by the Roux Institute shall be subject to the dimensional requirements of the underlying zone, except where modified by the provisions of this Section.

Table 8-F: Dimensional Requirements	
Building Height (max.)	Maximum building heights for new principal buildings in the IOZ shall be governed by the Roux IOZ Height Map (Figure 8-F)

2. Rules of Measurement

Publicly accessible corridor: A corridor accessible to the general public that is open to the sky or enclosed with a minimum width of 20 feet. Enclosed portions of publicly accessible corridors shall have a minimum height of 30 feet.

Street wall: Within the Roux IOZ the term “street wall” shall mean a wall or portion of a wall that includes the principal entry to a building facing a street, public right-of-way, major pedestrian access routes, or open spaces. Orientation of the principal entry to a building shall be determined by the applicant.

3. Minimum and maximum street wall heights

New principal buildings in the IOZ shall rise to a minimum street wall height of forty-five feet (45’), and may rise to a maximum street wall height of one hundred and five feet (105’).

4. Stepback requirements

At a height not lower than the minimum street wall height or higher than the maximum street wall height, a stepback with a minimum depth of at least 10 feet shall be provided. Required stepbacks shall only apply to a building’s street wall.

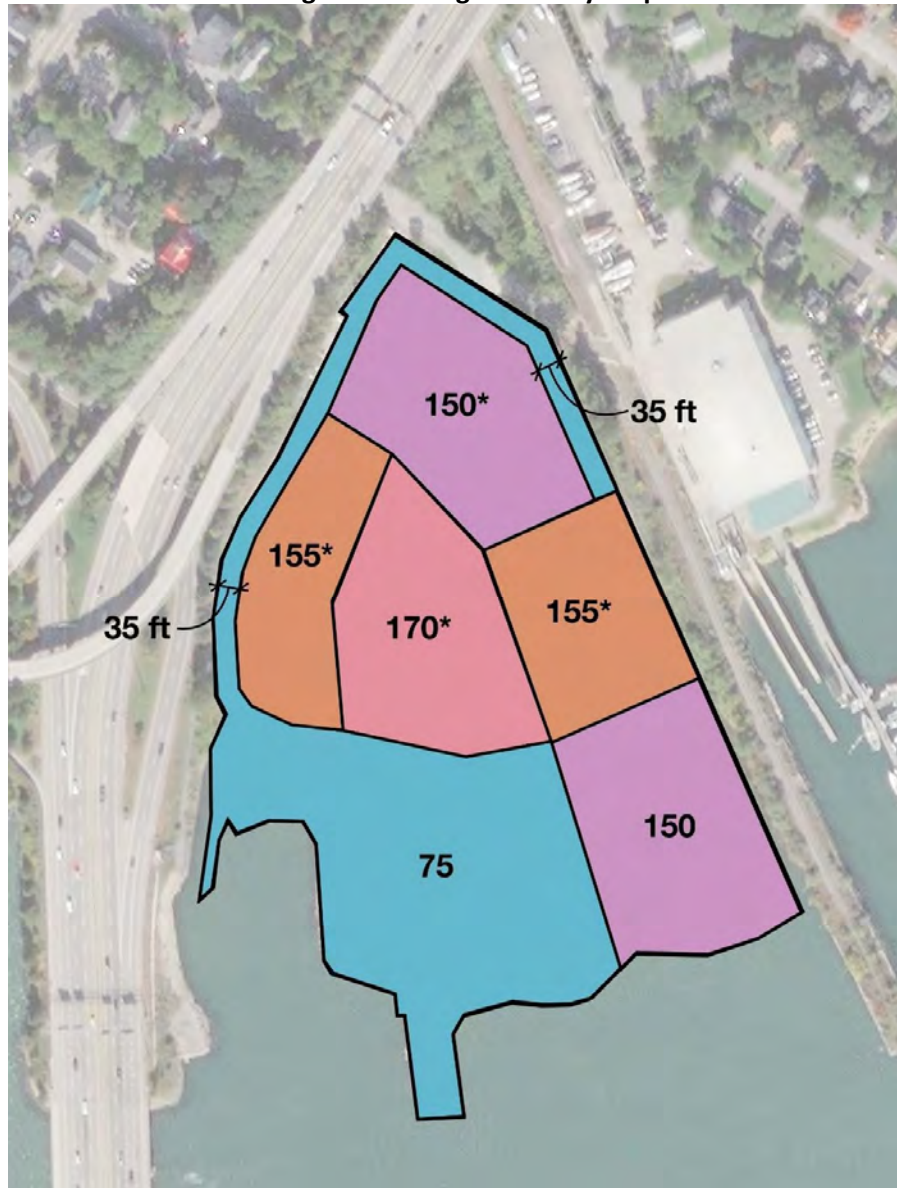
5. Building length requirements

- a. For buildings with a length greater than 250 feet, a continuous, publicly accessible corridor that connects two streets, public right-of-way, major pedestrian access routes, or open spaces shall be provided, with the precise location to be identified, defined, and reviewed under site plan review. Building length shall be measured at grade in a straight line between the outer corners of the designated street wall.
- b. Publicly accessible corridors need not be linear and may have necessary grade changes.
- c. Any building wall situated along a publicly accessible corridor shall be designed to provide sufficient architectural and graphic amenities to provide visual interest, transparency between interior activities and pedestrian activity, or active uses and relate the building, and its use to passersby.
- d. Publicly accessible corridors shall:
 1. Include pedestrian amenities such as benches and other seating;
 2. Be illuminated to levels that are adequate but not excessive for the safety, comfort, and conveniences of occupants and users of the site, and
 3. Provide access to the public during regular operating hours of the Institute.
- e. The Roux Institute may close off public access to a publicly accessible corridor during special events or when determined necessary by the Institute for security or public safety purposes.

6. Transitions and Buffers

- a. The campus is surrounded by existing buffers, with I-295 to the west, state-owned vacant parcels to the north, the rail corridor and marine business to the east, and Casco Bay to the south. In addition to the existing buffers, development shall further ease the transition to and from the campus through the following design methods in areas shown on Figure 8-G.
- b. Public open space will ease transition from the smaller scale of Sherwood Street. A transition onto the campus will also be accomplished through thoughtful facade design at the pedestrian level. Potential nuisance features like dumpsters, air handlers, and parking will be appropriately screened. Buildings will avoid blank walls to respect the adjacent neighborhood and facilitate a sense of permeability and welcome.
- c. The shoreline transition area between the buildings and the water will serve as meaningful public open space. Building facades facing the water will be considered public-facing, with views designed for interest from the water and Eastern Promenade Trail.
- d. The transition area between the campus and I-295 contains a height limitation of 75 feet along the edge and between the highway and the B&M Cannery Building, preserving the historic view of the building from the highway and easing the transition to the greater allowable building heights in the center of campus.
- e. The transition area along the edge of the campus adjacent to the rail corridor also contains a height limitation of 75 feet along the edge of the property closest to the residential neighborhood, further easing the transition to the greater allowable building heights at the center of campus, mitigating shadow impacts to adjacent properties.

Figure 8-F: Height Overlay Map



NOTES:

1. Applies to zones shown with an asterisk (*): above height of 75 feet, no building floorplate shall exceed 35,000 square feet.
2. Above height of 50 feet, no two buildings shall be closer than 40 feet apart.
3. Building heights for buildings that span two or more height zones shall be measured by calculating the highest point (as defined in the Land Use Code) of that portion of the building within a particular height zone. If the roof is sloped, height is measured at the midpoint of that portion of the slope located within the particular height zone.

Figure 8-G: Transition Areas and Buffers



E. Transportation.

1. Transportation Demand Management (TDM)

- a. At the time of the first site plan review following IDP approval, the developer shall submit a campus-wide TDM Plan substantially in accordance with those TDM objectives and strategies identified in the approved IDP. The TDM Plan may be phased into short-, mid-, and long term actions to allow for progressive implementation over time.
- b. The TDM Plan shall be designed to provide transportation choice with the goal of reducing parking demand and single-occupancy vehicle trips to and from the Roux Institute Campus by students, faculty, staff, institutional partners, and visitors.
- c. The TDM Plan shall establish parking, mode share, and trip reduction targets associated with each phase of development, as well as a data collection plan.
- d. Annual monitoring reports will be submitted for the TDM Plan. TDM monitoring reports shall include a summary of progress towards targets established in the TDM Plan. If deficiencies are identified, they will be resolved in accordance with the Site Plan approval.

2. Traffic Movement Permit (TMP)

- a. Any development that will generate over 100 passenger car equivalents will trigger TMP review which will determine applicable mitigation for that development program. There are

contributions anticipated to areawide elements to support trip reduction targets, such as contribution to the development of shared use path infrastructure and support for additional transit service to the campus. The TMP review may consider an individual site plan or may cover more than one site plan. Each of the TMP submissions and review will continue to contemplate capacity for multimodal connections to continue to reduce automobile trips.

- b. Mode shares and trip reduction targets have been identified in the IDP and will be updated and modified with each TMP submission as necessary.

3. Bicycle and Pedestrian Access and Safety.

- a. A Transportation, Access, and Circulation Plan has been provided in the IDP. At the time of the first site plan review, the developer shall submit an updated Plan. Where possible, the bicycle and pedestrian access routes shall connect to established bicycle and/or pedestrian facilities. The developer shall look to establish new bicycle and pedestrian bicycle and/or pedestrian facilities where feasible.
- b. The site and building design shall not prohibit the enhancement of transit service to and from the site.
- c. Bicycle, pedestrian, transit, and motorized vehicular facilities proposed to and from the site shall provide sufficient capacity and allow for safe connections for all modes of transportation.
- d. Sherwood Street shall be improved to accommodate bicycles and pedestrians within the existing right-of-way. Separate sidewalks and bicycle lanes shall be provided where feasible.

4. Parking.

Parking requirements in the IOZ, including but not limited to parking ratios, shall be established at the time of site plan review for each phase of development based on a parking study that includes a campus-wide analysis of demand and supply. Parking studies shall integrate parking and trip reduction achievements and data contained in the TDM Plan. Parking requirements shall be determined in accordance with the requirements in the Land Use Code in effect at the time of site plan review.

5. Circulation

- a. The campus shall contain a bike and pedestrian circulation network which includes a perimeter access loop, an internal system of pathways and a major campus “promenade” which will link campus developments, the upland, and the waterfront.
- b. The perimeter access path for bicycles and pedestrians will serve to connect the campus to primary site entry points from the community and provide a continuous recreational loop. Where appropriate, the perimeter access path will be enhanced by wayfinding, lighting, landscaping, and safe crossings at vehicular intersections. Where possible, building facades will respond to the perimeter access path for views into the building and periodic activation to building entrances.
- c. Internal campus circulation pathways will connect major open spaces, building entrances, and outdoor plazas to create a network of multiple pathways including the perimeter access path. Pathways will be located along or oriented toward facades that have active programs, architectural articulation, appropriately scaled entrances, and windows. Pathways will avoid traveling along stretches of undifferentiated or blank facades back doors or service areas. Pathways will be generally lower-velocity systems than the access loop. Where appropriate, the

internal campus circulation pathways will be enhanced by wayfinding, lighting, landscaping, and safe crossings at vehicular intersections.

- d. The campus promenade will serve as a major organizing feature connecting the upland and the water and providing access to open spaces, allowing views of principal campus of buildings, and connecting to the internal campus circulation pathways and perimeter access path. The promenade will be enhanced by lighting, wayfinding, landscape buffers, and open spaces. Viewsheds and topography along the promenade will emphasize the Roux Institute and Burnham & Morrill (B&M) Cannery building, pier and other principal buildings and spaces.

F. Environment.

1. The IOZ shall contain a minimum of three acres of public open space designed to enhance waterfront access and provide bicycle/pedestrian network connectivity. This open space requirement shall be met at the completion of construction of the first site plan approval and shall be maintained at all phases of development. The three acres need not be contiguous and may be provided in new and/or different locations following completion of development phases. The public open space shall be meaningful space, functioning as recreation areas, social gathering spaces, or natural buffers. The method of assuring public access to the public open space shall be determined at site plan review.
2. A Sustainability and Resilience Charter will be created by the Roux Institute for the campus. The Charter shall contain sustainability goals related to development categories such as energy, water, transportation, equity, and resilience and may be revised over time in response to evolving technology and industry standards. The Charter will require all development on the campus to utilize critical components of industry standard benchmarking systems such as LEED, SITES, WELL, ILFI, and Passive House. The Charter will be submitted to the Planning Authority prior to submission of the first site plan application. Proposed site plans shall be consistent with the goals outlined in the Charter.
3. Development shall utilize lighting designs required for safety and comfort and that minimize impact to the night sky in accordance with light pollution reduction standards in ANSI/ASHRAE/IESNA 90.1-2007 or its most current edition.
4. Development shall be carried out in such a way as to minimize the impacts of sea level rise, protecting infrastructure and site features by designing to a minimum of 2-feet above the Base Flood Elevation (BFE) as shown on the most current FEMA Flood Insurance Rate Map.
5. The shoreline edge and immediate adjacent upland shall be protected through shoreline armoring and vegetation to prevent erosion and enhance natural resource protection. Work in coastal wetlands and significant wildlife habitats (as defined by the Maine Department of Environmental Protection) will be minimized to the maximum extent practicable and shall comply with all applicable local, state and federal permitting requirements in effect at the time.
6. Design of exterior building envelopes will be developed in conjunction with the American Bird Conservancy and Cornell Ornithology Lab standards to mitigate bird strikes to the extent practicable.

G. Mitigation measures.

1. Site plan impacts to off-premise infrastructure shall be mitigated in a manner proportionate to those impacts. Mitigation may include financial or in-kind contributions to existing or planned City projects focused on mitigating the impacts of the development. Mitigation contribution shall be determined based on the City's standard procedure in effect at the time of site plan review.
2. Impacts to natural resources shall be mitigated in accordance with local, state and federal

permitting standards in effect at the time.

H. Design.

1. Introduction and intent.

New development in the IOZ shall adhere to the following design guidelines and the site plan standards of the City of Portland. All new development shall be designed to create a visual connection with the goal of achieving a cohesive campus appearance with a strong identity and sense of place. New development may be contemporary and forward looking in architectural style, but shall be informed by or responsive to the iconic B&M Cannery Building as an example of Portland's unique legacy of innovation, adaptation and durability. Reference to the building specifically and in general to the early 20th century industrial factory building type may inform the architectural principles of highly functional yet articulated human- centered facades and details, a combination of local and innovative materials, use of natural daylighting, high degree of flexibility and scalability and capacity for long service life. New development shall be characterized by excellence in architectural design, craftsmanship, materials, streetscape, resilience, sustainability and landscape improvements, signage, and lighting appropriate for a campus development on a coastal site.

These principles and standards are intended to regulate the future build out of the Roux Institute Campus while ensuring that new development is sensitive to adjacent residential neighborhoods and commercial areas and successfully integrates the existing site into the public realm while establishing a global beacon for thought leadership in artificial intelligence, computer and data sciences, digital engineering, and advanced life sciences.

2. Standards

a. Waterfront

1. The waterfront will be publicly accessible to provide a variety of open spaces throughout all phases of development that foster social interaction.
2. New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security or public safety purposes.

b. Cohesive campus

1. The overall composition and experience of the campus will be considered for cohesive identity from approaches along I-295 and views from the East Deering neighborhood.

c. Historic preservation

1. Buildings, site development, circulation, and open space will respect the B&M Cannery Building, a designated historic landmark.

d. Connectivity

1. Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service and emergency vehicles at each development phase.
2. Surface parking lots shall be located to the maximum extent practicable toward the rear or side of a building not occupied by a principal entry to a building facing a street, public right-of-way, major pedestrian access routes, open spaces, and/or the waterfront.

e. Open space

1. Open space will be publicly accessible to provide multiple functions for recreation, social gathering and buffers that integrate within the overall composition and experience of the campus at each development phase.
- f. Sustainable practice
 1. Buildings and site development will incorporate sustainable technologies in building design, orientation, energy production and sensitivity to natural resources at each development phase.
- g. Resilience
 1. Buildings and site development will incorporate resilience strategies to account for flooding, severe weather events and integration of publicly accessible spaces at each development phase.
- h. Building design
 1. Building facade materials will be of high quality, durable to the marine climate and contribute to an attractive public realm. The first 35 feet of building height shall complement the pedestrian character in materiality, transparency and detailing.
 2. Rooftop appurtenances will be incorporated, screened and set back from roof edges to reduce visual impact from the surrounding neighborhood.
- i. Building entrances
 1. Building entrances will include prominent facades and be oriented toward, located adjacent to, or accessible from rights-of-way, major pedestrian access routes, or open spaces.
- j. Mitigation of impacts
 1. Buildings and site development will endeavor to minimize potential negative impacts related to shadows, wind, noise, heat, glare, lighting, contaminants, and the environment.

I. Neighborhood integration.

1. Neighborhood Engagement

- a. For the purpose of keeping surrounding residential areas apprised of its future development plans, and to address any neighborhood issues related to the operations of the Roux Institute Campus, the Roux Institute shall adhere to the ongoing neighborhood engagement principles identified in the IDP.
- b. Ongoing community engagement shall be conducted, including the continuation of neighborhood forums and maintenance of the Roux Institute Campus website.
- c. A Community Advisory Group shall be created for the purpose of sharing information on project development, planning, and seeking input. To the extent practicable, the group shall be comprised of representatives of interested groups such as the East Deering Neighborhood, recreation, parks and trails, sustainability, rail, bicycle/pedestrian, public transit, Portland Harbor, Portland Public Schools, higher education, and the business community.
- d. A designated community contact shall be engaged to be the point of contact for providing information to the neighborhood and receiving feedback.

2. Construction Management

At the time of site plan review, Northeastern University shall submit a Construction Management Plan substantially in accordance with the construction management principles identified in the Institutional Development Plan for review and approval by the Planning Authority.

J. Historic Preservation

1. Historic Preservation Review

The B&M Cannery Building has been designated as a local historic landmark. The area of designation includes the B&M Cannery Building, as well as the area of the former cod fish building and pier. The Historic Preservation Board's review of activity within the site of the former codfish building and pier is limited to review of any activity that would require a Certificate of Appropriateness that is proposed on a newly constructed pier. A Certificate of Appropriateness will not be required for the demolition of the codfish building or construction of a new pier and related infrastructure, including future alterations to the pier structure.

2. Required Interpretive Elements

Northeastern University shall include interpretive element(s) on top of or within the surface of the new pier that convey the history and significance of the codfish building. Prior to construction of said elements, the University shall submit the proposal to the Historic Preservation Board for its review and approval. The interpretive elements shall be designed in a manner that does not interfere with the use and functionality of the pier as a marine passenger facility and for water access by the Roux Institute and the public.

3. 100-foot Review Exemption

The B&M Cannery building is exempt from Section 14.6.4.E.2. for review of development within 100 feet of a landmark.

October 6, 2022

Att. C

Zach Powell, AICP
Senior Planner
Planning & Urban Development Department
City of Portland
389 Congress Street
Portland, Maine 04101

Dear Zach:

Six public forums have been held between December 2021 and June 2022. In addition to the two required Neighborhood Meetings, representatives from the Roux Institute at Northeastern University and IDEALS conducted four neighborhood engagement forums, entitled Roux Campus Roundtables. City staff requested submission of meeting notes from these roundtable meetings. Enclosed please find meeting notes for the four Roux Campus Roundtables held to date, including sessions on December 14, 2021, February 1, 2022, March 23, 2022, and June 2, 2022.

Notices for the Roundtable meetings were sent to over 1,700 households and included both owners and tenants. Emails were regularly sent to commenters offering a personal meeting or calls to follow up on the input or questions received. It was as a direct result from public feedback received at these sessions that the project was downsized by 27%, almost 500,000 square feet, and that heights were reduced by 19%.

In addition to the Roundtable meetings, extensive effort has been made to talk to and/or meet with a wide variety of interested individuals and groups. The outreach began in the fall of 2021 after announcing the selection of the B&M project site. Neighbors, both commercial and residential, were at the top of the list with a particular focus on those neighbors closest to the project site. Soon thereafter, meetings commenced and have continued to this day with neighbors, local businesses, numerous rail and trail organizations, bike and pedestrian advocacy groups, Greater Portland METRO, recreation and parks organizations, historic preservation interests, waterfront organizations, economic development interests, state representatives, climate and sustainability organizations, and neighborhood associations across the city. The Info@rouxcampusportland.org link on the project website has also generated requests for meetings, all of which have been fulfilled.

Most recently, the project team and the Roux Institute hosted a publicly advertised Open House, where the public was invited to explore the site and see renderings and site plans in their proposed surroundings. It also provided them the opportunity to speak candidly with various project team members, faculty and staff from the Roux Institute, Roux Institute students, and other neighbors.

Over 130 guests came to the Open House, and there were many great discussions that enabled us to understand their ideas, and hopefully also helped them understand the project vision.

All of this input, through dozens of meetings, site visits, and the public Open House has resulted in micro and macro level changes that make the project a greater reflection of the values of the Portland community and nearby neighborhoods. We have forged relationships with interested organizations, such as bike/ped, parks/recreation, and travel/transport, that will help guide elements of development going forward. We are grateful for the time and interest so many have invested in making this the best possible campus for the Roux Institute, the neighbors, and the City of Portland, and we look forward to ongoing communications and input.

Sincerely,



Charles E. Hewett, Ph.D.

Enclosures: RCR #1 Meeting Notes – December 14, 2021
RCR #2 Meeting Notes – February 1, 2022
RCR #3 Meeting Notes – March 23, 2022
RCR #4 Meeting Notes – June 2, 2022

**THE INITIATIVE FOR DIGITAL ENGINEERING AND LIFE SCIENCES
PROPOSED INSTITUTIONAL OVERLAY ZONE FOR THE ROUX INSTITUTE
POST-APPLICATION SUBMISSION**

Roux Campus Roundtable #1

December 14, 2021

The first Roux Campus Roundtable meeting was held on December 14, 2021, via Zoom. The meeting began at 5:30 PM with a welcome from Chuck Hewett and introductions of the IDEALS team, which numbered 10, and Chris Mallett from the Roux Institute. 36 participants were in attendance at the outset.

Following a PowerPoint presentation from IDEALS, questions and discussion began at 7:00 PM, focusing largely on the site, project scale (pro and con), traffic routes, and the institution applying for an IOZ.

- I live off Veranda Street. Some of my major concerns are road access. Will the project start after the Veranda Street changes are completed by MDOT? How will your project impact local internet service and traffic? Do you see local jobs created and will this impact the rail line? B&M pays a good deal in property tax. How will this non-profit refund the city going forward?
- I work for Bates so was wondering whether the internet access might be impacted in the neighborhood. I'm also interested in local jobs, are you expecting increases?
- I support any height you want. What is the tallest height you are going to look for?
- Are you looking at potential secondary access so there is not just one road?
- It could be more than a bike path, it's a multi-modal path for bike and pedestrians. I'm involved in the city's bike and pedestrian advisory committee and will be following this project. Your proposed trail would mirror what is on the opposite side of the bridge; has there been any contemplation of hanging a multi-modal path off the south side of the bridge so you could go from one side to the other? There would be significant support for that.
- What about the railroad bridge, what is your thinking about that?
- There is a path toward Falmouth but it's so disjointed and it ends as you get to the Veranda Street off ramp. We advocated to move that off-ramp to allow for continuation of the path into a new park site created by the Veranda Street project. I hope you advocate for that to be done so you have that access between the Roux Campus and Martins Point.
- I personally support your project and look forward to working with you. We encourage not building a parking garage, but it will be well received that you will make it expensive to park and encourage other means of transport. It's good Northeastern University will subsidize METRO ridership for students. They understand the value of public transportation because they are from an urban area (Boston).

- You say you had a public meeting on November 18. I live two blocks away and received no notice, who did you notify?
How many live within 500'?
- I can see your site from my second floor and would have appreciated notice.
- Thank you for the presentation. It looks very interesting. I realize you are in a conceptual phase. Your concept looks suburban. I have zero problem with tall buildings because you can fit more people in them, but towers in a park seems suburban. Will you have a mix of buildings, like tall buildings with shorter buildings like in the old port and other urban spaces?
- Brick is always a good way to go. Are you planning to eliminate any possibility for the rail later?
- I also support the trail across Tukey's Bridge. Many people in Portland see another trail as a necessity. Crossing Washington Ave is a challenge. On your side of Tukey's Bridge, there are still some elements of the sidewalk that could be created. The city often makes a developer contribute to traffic related improvements. Would you consider directing your financial contribution to be a bike-pedestrian trail on the other side of Tukey's bridge, the southeast or northwest side?
- I am also very happy to see the trail on the East Deering abutment of the bridge that you are planning. Your numbers of people who could arrive on foot or bike could be increased by a trail on the other side of Tukey's bridge.
- I think you have probably done a lot of viewing of the surrounding area because only inviting meeting attendees 500' from the site is a problem. This is good for Portland. I live in Windsor Heights. How do you plan on engaging neighbors in the design who are used to their quiet way of life?
- As a commercial real estate developer, I am excited about this project. I'm working on the rail project, and we want to know how you feel about the rail line. We have tried to reach out to you. I am surprised you are not considering use of the railroad to reduce car access. The rail line can help the climate – I haven't heard that word tonight. I wouldn't want to work in that neighborhood with the number of cars coming in. There is a solution and it's right on your property.
- I think the Roux Institute is doing great things. I took a class there last semester. I have a home on Veranda Street with a slight view of the water that will probably be blocked. I'm wondering how this will benefit us and our tenants?
- Change is a good thing but it's also difficult. For those who don't speak English what can you do?
- I read an article in the PPH that said East Deering should be careful because the peninsula had become so saturated and East Deering was the next popular area. I live on Randall Street so we are seeing more development, such as 18 row houses on city land. In the last three years you can't come off Randall and take a left on Washington Avenue easily. It's changed a lot. Will this be a traditional college or university campus with daytime traffic? Now I'm hearing information about bars and restaurants etc., so should this neighborhood be prepared for 24:7 type of activity? And if so, I agree with all the concerns about traffic. Light pollution will be a main concern with tall towers. I encourage you to remember that

we aren't moving the Old Port to this neighborhood and if that is the goal you can anticipate some opposition from those of us who now live here and have been paying taxes.

- I hope so too. My concern is what is in it for East Deering? I get that we are running out of space in Portland. We want to make sure we maintain that character.
- I raised my family in East Deering and was honored to serve Portland in the Legislature. I think this project is deeply out of scale with the neighborhood. It is very selfish to come in with high buildings that will impact neighbors. You should work closely with the neighbors to find something that is more appropriate. Nothing restricts you to communicating to only those within 500'. I would be very interested in understanding the financials. What is the education piece and what is not? It's odd to have faculty stay in a hotel, is that how you are paying for the hotel? Who do you work for? You say you don't work for Northeastern University. We have conflicting messages. There were criteria that led you here, so I'm feeling concern about how it's presented, like it's fully finished without adequate input.
- Are you authorized to speak on their behalf?
- It's an iconic site where people can have views and your plan will limit that, which is problematic.
- With global warming, the lower portion of the B&M factory was a concern. Is this a problem?
- Is the elevation 9' above MSL?
- Will there be any kind of tours or public access before demolition? I'm glad to see the B&M building preserved. Is that a requirement or a preference?
- As someone who was born in Portland and bought a house here, I think people will respond much more positively than what you have heard tonight. I would challenge people to think about what other use it could be, like luxury condos and we know how they are (not) concerned with public input.
- We live at the east end of Sherwood Street. I want to echo the comments that we would rather see an educational situation come here rather than luxury housing or industrial space. But I'm concerned that the Sherwood Street entrance is not a good idea. 40-80 employees use it now, but it could be over 2,000 people using it. We are only 15 – 20 car lengths from exit 8. I'm not convinced that it can handle it, despite what your consultant said. Those of us impacted on Sherwood and Veranda St would like to meet with you to map out what you are thinking. A turning lane will eliminate parallel parking that the residents depend on. This is a sleepy neighborhood; kids could play street hockey when it's not a commuting time. That is going to change. Our community is underserved by public transportation. The #7 bus goes from downtown where no one can afford to live to Falmouth, and back again. Most of your campus workers probably won't live downtown and will have to take their cars. A neighborhood meeting should be set up.
- I echo the statement about the traffic. I would love to meet and chat about this. Did you say it will be changed to a B-5 zone?

The meeting ended at 8:09 pm

**THE INITIATIVE FOR DIGITAL ENGINEERING AND LIFE SCIENCES
PROPOSED INSTITUTIONAL OVERLAY ZONE FOR THE ROUX INSTITUTE
POST-APPLICATION SUBMISSION**

Roux Campus Roundtable #2

February 1, 2022

The second Roux Campus Roundtable meeting was held on February 1, 2022, via Zoom. The meeting began at 5:30 PM with a welcome from Chuck Hewett and introductions of the IDEALS and Roux Institute team, which numbered about 15, including Chris Mallett and Margaret Angell from the Roux Institute. 44 participants were in attendance at the outset.

Following a PowerPoint presentation from IDEALS, questions and discussion began at 6:12 PM, focusing largely on project scale and traffic.

- We live on Veranda Street between Sherwood and Washington Avenue, so we will experience 100% of the traffic, including construction traffic. I'm an architect, so I understand where you are coming from. What is the gross traffic you anticipate, and how much might be shifted to alternative transportation? What requirements must you meet for your traffic and TDM report. Have you thought about an exit off Washington Avenue directly? I think you said earlier that you didn't think that would be safe, but it's the same distance to the Washington Avenue intersection.
- In terms of space for parking, there are a lot of under-utilized potential parking places, and perhaps you could consider restoring some of the rail for commuting from a satellite lot to the campus.
- It is a large site and I appreciate the need for green space and redevelopment. The ground is high on the site which will help with sea level rise. The 210' building area is a concern. The other areas are tall but reasonable. If you increase the height in the other areas, you could lower the 210'. Is the pier disappearing? I hope not. It could be a real draw for the people living there and visiting. I suggest having white roofs not black, to lower heat reflection. The railroad is not narrow gauge in that area. I had hoped for a restaurant on rail cars when I first moved here and saw the site. Overall, I am a proponent. What you are doing is wonderful, and I look forward to biking through there in the future.
- I live on Kendall Street beyond the Maine Yacht Center. I see this has great potential for East Deering, but I have concerns about the heights. Our neighborhood is zoned as R-3 "medium density development with single family homes, unless grandfathered, with structure height of 35'. Your buildings could be overwhelming and shadow our neighborhood.
- Could you give us more detailed information about the draft application? What is the zone change you are looking for and could you provide detail about the Industrial Overlay Zone? It's difficult to participate in a discussion and have to react on the spot. It would be helpful

to have that information on the website, so the neighborhood would have more transparency.

- MMC's regulatory framework is pretty specific with regard to dimensions in the IOZ. Will those types of specifics be in your application? In the code there are dimensional standards. There are not a lot of specifics in the B-5 zone. In asking for the height exception, how does that process work? I personally like the idea of developing this into an educational campus, and a home for the Roux Institute. But, I, along with neighbors have a lot of concerns about the massive scale and height of this development. There will have to be concessions to accommodate the height you want. This is not in keeping with what we have in the city on educational campuses. UNE and USM have kept their facilities in scale with the neighborhood. There must be a way to do what you want with a smaller version of your proposal. This will have a profound impact on our neighborhood. The proposed commercial uses like a hotel don't seem to fit the requirement of the IOZ, for being substantially auxiliary to the educational institution. It's hard to say a hotel is auxiliary to the Roux Institute. It's important that the information be uploaded prior to the meeting. We need more detailed information.
- I commute from Presumpscot to Veranda on out toward Falmouth. Does your project pay for improvements to the entire intersection there or are the taxpayers going to be responsible? Will you be filling in the submerged lands or building on them? Will there be any increased public hazard from the labs?
- I have a lot of questions and remain puzzled about the interplay between the Roux Institute and the entity that owns the property. What percentage of the property is dedicated to educational purposes? I remain concerned about the height and size of the buildings. Why is a waterfront property necessary for this institution? I don't get the decision to come in and propose such massive buildings in this iconic location. I am concerned about traffic. I like the idea of satellite lots. The Washington Ave exit is dangerous. Bringing in 2,000 – 4,500 students will add to that. How do you intend to work with the neighbors to design this facility?
- What percentage is dedicated to education?
- I live within the 15-minute walking distance. Will the city take into account all of the development going on in the area, from a traffic perspective? Within 1-5 years there will be a lot more pressure on Exit 8, what we locals call the luge. Also, what about dark sky impacts from the campus, and how much will it be lit at night? I fully support what you are looking to do, but have a concern about the height, and how much is pure institutional vs just developing. As a charter boat captain, I can tell you the buildings will have to be tall to be seen around the western point of the Eastern Prom.
- I have more questions, but how do we follow the rezoning process, and will Veranda Street be widened and what is the tax structure of the development?
- How will we know about the next meeting?

39 participants remained at the close of the meeting at 7:26 PM.

**THE INITIATIVE FOR DIGITAL ENGINEERING AND LIFE SCIENCES
PROPOSED INSTITUTIONAL OVERLAY ZONE FOR THE ROUX INSTITUTE
POST-APPLICATION SUBMISSION**

Roux Campus Roundtable #3

March 23, 2022

The third Roux Campus Roundtable meeting was held on March 23, 2022, via Zoom. The meeting began at 5:31 PM with a welcome from Chuck Hewett and introductions of the IDEALS and Roux Institute team. 43 members of the public were in attendance, as well as 8 representatives of the applicant, IDEALS, and 1 from the Roux Institute, in addition to those making a presentation described below.

Margaret Angell of the Roux Institute was joined by 2 students and 1 Roux Institute Partner, each of whom described their experiences at the Roux Institute.

Questions and discussion followed, focusing largely on transportation and traffic, train service, sustainability and the bean building.

- A passenger train stop could be located right where the circular drive is in front of the Roux Institute.
- Access on Washington and Sherwood are over capacity. The average daily traffic on Tukey's Bridge is the highest in the state. What plans do you have to mitigate the impact on traffic with the 2000+ students and visitors you expect on the Roux campus?
- I appreciate what you are saying, and like bike paths and pedestrian walkways. We've lived here nine years. There is no way to access Portland and points south without going on I-295. Portland has a miserable bus service.
- There is a great deal of concern over the height of the buildings. Can you explain the necessity of those building heights, what is the capacity of the parking garage and is a hotel really necessary?
- How many students are enrolled both online and in person?
- People in the neighborhood are happy you are coming but we want to be able to live together comfortably. I hope we can continue the conversation.
- I was going to ask about the Christmas tree. We've lived here for 30 years. I'm involved with the Portland Climate Action Team. We work closely with the Director of Sustainability in Portland and the Portland Sustainability and Transportation Committee. Our goal is the One Climate Future, which is a combined plan between Portland and South Portland to mitigate climate change by reducing greenhouse gasses. Can you confirm that the Roux campus will be generating its own energy?
- I understand that last 5% could be difficult but you can buy carbon credits.
- At a previous Roundtable it was mentioned there may be a water shuttle, is that still on the table.
- We are really excited you will be coming to our neighborhood, particularly given the access to trails and the water that you will provide. We are proponents of the Casco Bay Trail Alliance. The option to put bike trails on Veranda is great, but off-road options are critical. The Casco Bay Trail would provide that kind of trail access to the Roux Campus, without going on Sherwood. There is a process

at MDOT to move that forward. Have you given thought to how you would participate in that process and support the trail?

- We have reached out to Roux and will connect one of these days. We envision train service from Auburn to behind Eldridge Lumber. Would your developers be willing to meet with us to talk about a train center at the campus? Because our plans are quite advanced, we believe we have a solution to traffic, parking, congestion, climate change, and all the other problems which will certainly come from the 2,000+ parking spaces you are allocating for cars on your campus. I am an environmental warrior, and the automobile impacts from your development will be ungodly. I believe we can elevate that with the passenger train which will be electric or hybrid.
- Congratulations on being our neighbor! Regarding the previous comments, traffic is a primary concern. We live on Veranda at Ground Zero. Thank you for showing that diagram. You mentioned the 10% increase in traffic, which implies there is data being generated. Is there data you can share with us, we are hungry to see this. The scale of the traffic increase in this little neighborhood is huge! It's a mystery to us how you guys are going to be solving the traffic problem.
- You are asking for an IOZ that accommodates the full 20-year development.
- Maybe this has been answered, but do we go through this process with each phase? What about the hotel and the towers, what phase are they in? Has anything changed since your original presentation?
- Will the hotel be open to the public so I can reserve rooms for my family?
- I also want to reiterate what my neighbors said about traffic, especially to note that there are many other related projects going on in the city that will also generate new traffic.
- Regarding the history of the site, I live in west Bayside with a deck off the attic. I enjoyed seeing the smokestack, which is now gone, which the city knew about but didn't involve the public in letting it go. I hope the wharf building doesn't go. It's a critical part of why B&M chose this site, the wharf was an essential part of their operation. Some have said you can't save that wharf building. I don't like that, it feels wrong. You aren't planning on doing much on that wharf, so it doesn't need a lot to maintain the platform. The city has said they aren't going to have an independent analysis. We ask a lot of owners of historical properties, and sometimes their finances are strained. But sometimes those owners have resources, like you do. It would be a gesture of goodwill to preserve the history there, you should pull out all the stops.
- I hope everyone appreciates the irony that I had to upgrade my Zoom on a call about a graduate tech school! I was very much excited about this coming to Portland. As I read through your documents online, it doesn't sound like a plan for a graduate school campus, but like a plan for a small village, with a priority to invite the general public to come and recreate. I'm not sure why it's critical for the key players to be on site together. Other campuses function ok without a hotel. I don't see other campuses make kayak and paddleboard rentals either. Why do you need the general public so involved? Wouldn't lowering that priority solve a lot of problems. And thank you for taking my question.
- Sam just admitted that this property isn't accessible to the rest of Portland. We are in a bottleneck. What about getting Maine students into the Roux Campus. It sounds like you have at least 15 students from Maine (one from each county).

- That was a very satisfactory answer, about your work for good. There was no hiding of details, such as we are all frustrated about. I know there is survey work being done on Sherwood Street. (NOTE: IDEALS notified Ben and others in advance of the survey work.)
- I live on Berwick Street, which is the street next to the marina. I walk all over the neighborhood, including on the RR tracks. There is an osprey nest by the trestle. Do you plan on having any impact on that area?
- I contacted Audubon, and they said that development doesn't usually have much of an effect on ospreys. It would be great if that little area could stay as it is. Thank you for your answer.
- What are the options for Veranda Street? Would there be any "taking" of abutting properties, in your plan?
- Your plan didn't show the end of Sherwood.
- You're going to widen Sherwood Street, how would you do that without taking? I think you are in a bottleneck; we are looking for your projections. I want to see the problems addressed now.
- On your diagram, have you done a traffic study of increased traffic? If you need to add another lane on Veranda Street, you will take out the dining room of the Veranda Noodle Bar and the awning of Beal's Ice Cream. I wholly support what you are doing with the Roux Institute.
- Regarding scale and height – there has been a lot of talk about finding the right balance. UNE and USM fit into their neighborhoods in an appropriate way. Your rendering overwhelms the neighborhood, and even the Maine Yacht Center.
- We are happy to have you here but want you to be respectful of us neighbors.
- Thank you, Sam, Jenn, and Elizabeth for our meeting. I need to schedule my plowing around the B&M schedule now, it will be much more challenging with all the new traffic. When plowing and backing out into the traffic, I take my life in my hands.
- I am confused about Sherwood Street, is this just the side you will be on?
- Are you hoping to funnel a lot of traffic through Sherwood onto Morse to get out onto Washington Ave, to mitigate some of the traffic issues?
- Will you pay homage to the factory building? Are you going to keep Bean Pot Circle? I appreciate everyone's sensitivity to how we feel about B&M. I worked there, so did my father and uncles. There is a lot of connection. I am looking forward to the Roux. Thank you.

The meeting ended at 7:36 PM.

**THE INITIATIVE FOR DIGITAL ENGINEERING AND LIFE SCIENCES
PROPOSED INSTITUTIONAL OVERLAY ZONE FOR THE ROUX INSTITUTE
POST-APPLICATION SUBMISSION**

Roux Campus Roundtable #4

June 2, 2022

The fourth Roux Campus Roundtable meeting was held on June 2, 2022, via Zoom. The meeting began at 5:31 PM with a welcome from Chuck Hewett and introductions of the IDEALS and Roux Institute team. 41 members of the public were in attendance at the outset, as well as 12 representatives of the applicant, IDEALS, and 5 from the Roux Institute, in addition to those making a presentation described below.

Students and a faculty member from the Roux Institute shared some vignettes and personal stories for about ten minutes.

The IDEALS team presented 53 slides highlighting the changes proposed for the Roux Campus, in response to public input. Questions and discussion followed, focusing largely on transportation and traffic, sustainability measures, and visibility.

- A passenger train stop could be located at the site.
- I commend IDEALS for the changes, this is a real difference in the level and scale of the project, and I compliment the team on the details included in the presentation. Traffic will continue to be an issue. Signage encouraging people to turn in the opposite direction of where they want to go, confirms that this is anticipated to be problematic. It's encouraging to see IDEALS working on this problem and thanks to the team for sharing the traffic numbers.
- I would like to meet with the architects to discuss how to reduce carbon in the building design.
- I live in the East End. My priorities are carbon footprint, sustainability and bird-safe measures. The WEX building is one of the more lethal buildings for migratory birds and the Roux Building looks so attractive to birds.
- I encourage you to invite your community to an in-person meeting, and even better on the site. Put a tent up and show what you are planning. Some of your traffic numbers, that anticipate alternative transportation modes, are not accurate as to how people in Maine actually get places. Bicycles don't work in the winter. I think what you are doing here is amazing, I don't want to be negative, but I have massive concerns about you fitting into this neighborhood. You found other locations that didn't work out, so you ended up here. This state needs to take account of its working waterfront. The pressures will increase in downtown Portland and the B&M site could have been an alternative for the working

waterfront. This was a really nice presentation, though my Zoom was shut off during the traffic presentation. Please resend me those slides.

- There is a little inlet between the highway and the campus. Do you own that, can you put piers and ramps there? Are you going to remove the existing pier? I'm surprised you aren't building the RI over the water.
- It's great to see the vision. I live in North Deering and am concerned about the traffic. I'd love to be invited to an on-site meeting. Our neighbors in North Deering would like to be invited.
- What percent of current students and staff drive to the Roux Campus vs taking other modes of transportation? You said you would look into it. If you don't meet your goals at your existing campus, how will you meet them in the new one?
- What are the next steps to engage the public? There are so many neighbors who don't use Zoom. Could you offer a hybrid meeting?
- It's important to have the minutes of the meetings in the public record.
- I live at 45 Berwick Street, could you create a diagram looking from the end of Berwick west, to see what would be visible, protruding out from the Maine Yacht Street? You have done a good job addressing the neighbors' concerns, I think it will all work out.
- Thank you to everyone at IDEALS and the Roux Institute for being responsive. This is a massive project for the city and the impacts will extend beyond District 4 where it will live. I appreciate the neighbors working with me, and IDEALS for listening, and engaging with the community. It's been a challenging time to do that. I've been advocating for an in-person meeting on the site. It was very impactful for me when I went there. Tonight is just one step. The June 14 Planning Board meeting is important. There will be a public hearing when staff think they are ready for a vote. There will be many opportunities for all of us to connect. My role is to facilitate that connection for everyone. I am here for anyone and everyone listening. Thank you for this level of collaboration and putting your best foot forward. You don't see that often.
- Thank you, Councilor Zarro. This is an awkward format for such a meeting, and it gives you (IDEALS) an advantage, though you are a wonderful group of people. Covid has created a thing where we are so apart from each other. We need to be in a room. Don't hide behind a computer. You all are great people.
- Every commenter has traffic as an issue. Perhaps one of your traffic scenarios could do an impact analysis with the railroad coming through from Ocean Gate to Yarmouth. VHB did a study of the rail coming through to Portland from the Rock Row project. I'll be asking for that at the Planning Board.

The meeting ended at 6:52 PM.

8.5 INSTITUTIONAL OVERLAY (IOZ)

8.5.1 Purpose

The Institutional Overlay Zone (IOZ) designation provides a regulatory mechanism available to the city's ~~four~~five major medical and higher education campuses where an improved regulatory structure is needed to facilitate a consistent, predictable, and clear growth management process. The purposes of the Institutional Overlay Zone are to:

- A. Acknowledge that the city's major academic and medical institutions play a prominent role in the health and well-being of the local and regional community, and in order to sustain that role, these institutions need flexibility to change and grow.
- B. Encourage proactive planning for institutional change and growth which identifies and addresses likely long-term institutional needs and cumulative impacts while leveraging potential benefits at the neighborhood, city, and regional level.
- C. Ensure that institutional change and growth both complements and, as appropriate, integrates adjacent or surrounding neighborhoods through carefully planned transitions.
- D. Support the formation and continuation of mutually beneficial public-private cooperation.
- E. Support an ongoing public engagement process that benefits both the institutions and nearby neighborhoods.
- F. Reflect Comprehensive Plan and other policy objectives.
- G. Provide a consistent regulatory approach to all major institutions which allows unique regulatory requirements that balance the particular needs of institutions with the needs of the surrounding neighborhood and wider community.

8.5.2 Location and applicability

The city's ~~four~~five ~~primary~~major medical and higher education institutions are eligible to apply for designation as Institutional Overlay Zones. The eligible institutions are the two major hospital institutions of Maine Medical Center and Mercy Hospital and the ~~two~~three major academic institutions of University of Southern Maine, ~~and~~ University of New England, and The Roux Institute at Northeastern University, their successors and assigns. Designation as an IOZ is the preferred mechanism where the eligible institution's proposed development is inconsistent with the existing zoning.

Att. D

June 6, 2022

Zachary Powell, Planner
City of Portland
389 Congress St.
Portland, ME 04101

RE: The Initiative for Digital Engineering and Life Sciences
Neighborhood Meeting Information

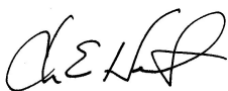
Dear Zach:

On behalf of The Initiative for Digital Engineering and Life Sciences (IDEALS), I have enclosed the required information pertaining to our two formal Neighborhood Meetings held prior to and following submission of our application in accordance with Section 8.5.3(B) of the Land Use Code. The meetings were held on November 18, 2021 (23 attendees) and April 6, 2022 (47 attendees). Although the Code only requires that abutters within 500 feet of the project be notified of the public meeting, we expanded that radius for the second meeting and mailed over 1700 meeting notices.

In addition to the required neighborhood meetings, we have also held informal meetings with the neighborhood that we have called "Roux Campus Round Tables." These meetings were each also noticed to over 1,000 property owners and tenants. To date, we have held four Round Table meetings, for a total of six public meetings regarding our application. We were able to hold the April 6th meeting in public, but the other meetings have been held via Zoom, due to public health concerns. The first Round Table was held on December 14, 2021 and we had 36 attendees from the public; the second was held on February 1, 2022 with 44 attendees from the public; the third was held on March 23, 2022 with 44 attendees; and the fourth was held on June 2, 2022 with 50 attendees.

Please let us know if you have any questions or need additional information.

Sincerely,



Charles E. Hewett, Ph.D.
Executive Director

**THE INITIATIVE FOR DIGITAL ENGINEERING AND LIFE SCIENCES
PROPOSED INSTITUTIONAL OVERLAY ZONE FOR THE ROUX INSTITUTE
PRE-APPLICATION SUBMISSION NEIGHBORHOOD MEETING
November 18, 2021**

The Neighborhood Meeting was held via Zoom Webinar, beginning at 6:30 pm and lasting approximately one hour. Twenty-three members of the public were in attendance, as well as eight representatives of the applicant, IDEALS.

The public comment and questions are summarized below. Major areas of focus included traffic, construction impacts and sustainability.

- I am with the Laborers International Union of North America. This is a big opportunity for construction in this town. I'd like to hear more about the employment opportunities for our union workforce, in terms of construction and environmental work.
- I am so excited that this institution has chosen our neighborhood. I live behind the Martins Point Bridge. We knew it would become something other than the Bean factory, and we are thrilled it's you. There is a big construction project on Veranda Street. Part of that is a multi-use pathway, from the Martins Point Bridge, possibly to connect to Back Cove. Have there been any discussions about connecting into that short span? MDOT had a plan to connect but it never came to fruition. It would be a big deal for those of us nearby.
- I was just wondering about the bridge at Kensington Street, and the rail and trails. It would be possible to have a walkway, but the trail takes a steep drop. That path is supposed to be done, but the MDOT has not completed it. As an alternative commuter, I want to know if you are invested in that? The connection to the rail/trail has not occurred.
- We own one of the two multi-families on the street from Veranda to Sherwood. We think it's wonderful to repurpose this facility. We have concerns about access on Sherwood Street, which is very narrow. And we are also concerned about the duration of construction for our tenants.
- I am a neighbor and a data scientist for one of your partner companies, and very excited about what the Roux Institute means for Portland. Veranda Street can back up a lot from Washington Ave traffic.
- I am really grateful to be a part of this conversation. I'd like to recognize that I'm most impressed that you are going above and beyond what is required for public engagement and planning the roundtables (Roux Campus Roundtables) to make sure people are heard and their input is requested. Being open and honest is very refreshing. There is a lot of excitement, about the Roux Institute potential for education and the city. Hopefully we can get as many residents and businesses as possible to participate.
- How are you going to build the physical infrastructure with respect to climate change. We all know the flood zone figures will be changing.
- What will the area lighting be? We already have the lights from Rt 295.

Neighborhood Meeting for the IDEALS Roux Campus Project

Thursday, November 18, 2021

Via Zoom

First Name	Last Name	Email	Address	City
Christopher	Bruni	chrisbruni111@gmail.com	32 Lennox street,	Portland
Nancy	Olmstead	nancy_olmstead@hotmail.com	14 Berwick St	Portland
SA	Scott	shaesby@gmail.com	100 Kensington St.	Portland
Cheryl	Leeman	cal4161@yahoo.com	37 Savoy Street	Portland
Brian.Harris		BRIAN@MAINEYACHT.COM	100 Kensington Street	PORTLAND
Denise	Kaserman	dkaserman@me.com	4 Country Lane	Falmouth
Julie	Carling	captainjulie225@gmail.com	81 Sherwood St	Portland
Jason	Shedlock	jshedlock@LNEROF.org	93 High Street #303	Portland
Jeraldine	Herrera	jeraldine.herrera@powereng.com	45 Harpswell Rd	Brunswick
Mike	McGuigan	mmcguigan@nasrcc.org	65 Rainmaker Dr	Portland
Michael	Flaherty	michaelflaherty58@yahoo.com	45 Berwick St.	Portland
John	Napolitano	johnlocal716@gmail.com	86 Walnut Hill Rd	N. Yarmouth
Justin	Desmond	jdesmond@iupatdc35.org	DC 35 Member Representative	DC 35 Member Representative
Patrick	Carroll	pcarroll@tcco.com	218 Eastern Promenade, Apt #4	Portland
Adam	Parys	aparys@tcco.com	177 Paradise Road	Bethel
Jaime	Parker	jaime@trails.org	305 Commercial St	Portland
Kathy	Spiegelman	K.Spiegelman@northeastern.edu	360 Huntington Avenue	Boston
Grant	Provost	gprovost@iwlocal7.org	131 spring streetSuite 2C	Portland
Aura	Russell-Bedder	arussellbedder@gmail.com	8 Arcadia St	Portland
Robert	Burr	r.burr@iuoelocal4.org		
cheri	juniewicz	cj@maine.rr.com	38 Bismark St	Portland
Andrew	Zarro	azarro@portlandmaine.gov	389 Congress St	Portland
Paul	Goodrich	paulgoodrich@yahoo.com		

**THE INITIATIVE FOR DIGITAL ENGINEERING AND LIFE SCIENCES
PROPOSED INSTITUTIONAL OVERLAY ZONE FOR THE ROUX INSTITUTE
POST-APPLICATION SUBMISSION NEIGHBORHOOD MEETING
APRIL 6, 2022**

The Neighborhood Meeting was held at the Ocean Avenue School, beginning at 5:30 pm and lasting approximately two and a half hours. Forty-seven members of the public were in attendance, as well as eight representatives of the applicant, IDEALS.

The public comment and questions are summarized below. Major areas of focus included traffic, parking, proposed uses, and scale and height of buildings.

- When did you first become interested in buying this property?
- When do you plan to break ground?
- Will there be blasting?
- We haven't talked about the new construction on Dalton Street, a large apartment complex with 48 units, that will empty out onto Sherwood Street. And the school is also growing, both of which will increase pedestrian and vehicular traffic. I have concerns about all the additional traffic. It's pretty heavy as it is. I want all of it to be taken into consideration.
- How would the hotel add to traffic concerns? There's one way in and out. I drive on Sherwood Street twice a day. Is there secondary access? Are there any traffic predictions?
- Do you have data about the current use of cars at the Roux Institute?
- The height and scale of the buildings do not respect the neighborhood context.
- What will stop people from parking in the neighborhood?
- There is a lot of missing information – wind studies, shadow studies. These are missing from your IDP.
- What percent on campus will be using the hotel and what will be outsiders?
- I am conflicted on this project. While it seems like just what this city needs, no one wants an industrial site in their back yard. How will it change access to the water? I am also concerned about increased traffic.
- We are concerned about traffic as there is only one egress. We think what you say you will do about the traffic (turning lane, etc.) is unrealistic. I suspect you have a backup plan we do not know about. I don't believe the traffic will only be impacted by 10
- Your plans go far beyond what is needed for an educational technology center. You are a developer. You wouldn't be developing this area if there wasn't a profit.
- I don't trust that one hotel will be enough.
- I have friends and family who have had to move out of Portland, because working class people can't afford to live here anymore. We feel you are taking something symbolic of Portland and replacing it with something that has gutted other cities.

- Maine Med has a micro bus system that maybe you could partner with. And consider a satellite parking lot.
- Do you have an estimate of trips in and out of Sherwood Street? How many cars will be coming and going?
- At the last meeting you had a drawing of ideas for Veranda Street. Do you have one for Sherwood?
- This is a nice use of the space. You guys are being considerate. However, the large scale of your plans doesn't seem appropriate for that space.
- I'm excited about your vision but I am very concerned about the traffic and the scale of the project. We have a quiet neighborhood and what you are proposing is going to completely change it. I don't know who came up with the 10% traffic increase, but if the study was done from May-October, it would be much higher. The traffic just sits there.
- We are working on bringing battery electric train power, from Portland to Lewiston. This might alleviate the serious traffic impact on not only this neighborhood, but the climate. This is a solution that is environmentally friendly and economically feasible.
- We have a number of questions that you say are in process, undetermined, etc. It makes us a little nervous that you are pursuing maximum zoning flexibility before you figure those things out.
- As a result of the study, is there a bottom line where the City says "no" to Sherwood Street, that this is not going to work for IDEALS?
- What is the tax gain for a non-profit in this location?
- What is the current waterfront access for the neighborhood? How will that be impacted? How is the neighborhood using that waterfront right now?
- What was your impression of our neighborhood when you were there? Did you notice the noise? As our neighbor, we want to know that you care about our lives and our homes.
- Human behavior being what it is, people aren't going to use public transportation. Have you considered the symbolic impact of building on this property? It represents Maine, as people drive past on I-295. What gives you the right to put the Roux Institute there?
- I want to compliment Roux for meeting with me. I'm offering an alternative for public transportation – Micro Rail. Metro has a long history of keeping people waiting. Have you looked into possible pollutants inside and outside the B&M building?
- At times it sounds like it's going to be a conference center maybe being supported by an education facility. At what point are you able to scale back the project if you're not able to overcome some of the objections? Would you continue with the project if the only thing that was approved was the Roux Institute? Would Phase 1 just be for the Roux Institute, hotel, housing, etc.? And Phase 2 would be to expand all that?
- What advantages are you going to bring to the neighborhood?
- Will you want more space than what you have right now?

- The process I have seen you display in these round tables, has been more transparent than most development projects. You're doing a good job.
- Have you guys purchased other land or intend to?
- What is the % of domestic/international learners?



Neighborhood Meeting Sign-In Sheet

Wednesday April 6, 2022

Ocean Avenue Elementary School - 150 Ocean Ave, Portland, ME 04103

IDEALS: Roux Campus 1 Bean Pot Circle, Portland, ME

Developer and Consultant Team in Attendance:

Name:	Email:
Chuck Hewett IDEALS	
Sam Reiche IDEALS	
Elizabeth Swain IDEALS	
Jenn Conley VHB	
Mary Costigan Bernstein Shur	
Jamie Broder Bernstein Shur	
Barry Sheff Woodard & Curran	
Denise Cameron Woodard & Curran	



IDEALS

Initiative for Digital Engineering
and Life Sciences

Roux Campus

Neighborhood Meeting Sign-In Sheet

Wednesday April 6, 2022

Ocean Avenue Elementary School - 150 Ocean Ave, Portland, ME 04103

IDEALS: Roux Campus 1 Bean Pot Circle, Portland, ME

Members of the Public in Attendance:

Name:	Email:
Doug Cole	C64DTC@gmail.com
JOAN O'NEIL	101 Acadia St
Ashley Lepre	Ashley.Lepre@gmail.com
Todd Zukowski	tzukowski@hotmail.com
Kevin Freeman	kfreeman@landayfrench.com
JAY SETLIFF	JWKS@aol.com
Allison Brown	abrown125@gmail.com
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Katherine Caldwell	caldwk@hotmail.com
Rebecca Morton	rebecca.k.morton@gmail.com
Susan Abt	
Carlene Peterson	c.peterson3@maine.rr.com
M. Zichella	zichella@yahoo.com
Justin Litchfield	
JAMES PRATT	jpratt@hotmail.com

Neighborhood Meeting Sign-In Sheet

Wednesday April 6, 2022

Ocean Avenue Elementary School - 150 Ocean Ave, Portland, ME 04103

IDEALS: Roux Campus 1 Bean Pot Circle, Portland, ME

Members of the Public in Attendance:

Name:	Email:
Phyllis Reames	phyllisreames@yahoo.com
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Nick VAUGHN	nvaughn@smrtinc.com
Ben Carling	gbencarling@gmail.com
Ken Capron	watchdog@maine.rr.com
PIXIE LAVALLEE	MSPICKS@AOL.COM
Clare Hannan	hannanvanvogt@gmail.com
Tony Donovan	me likes RAIL@GMAIL.COM
Hannah Van Vogt	Hannah Van Vogt@gmail.com
Karen Gersen	Klik22g@gmail.com
Callan Cassidy	callan@waypointbikers.com
Daniel Cassidy	dan@danielcassidy.com
Jer Witting	jwittingball@gmail.com



Wednesday April 6, 2022

Ocean Avenue Elementary School - 150 Ocean Ave, Portland, ME 04103

Members of the Public in Attendance:

[illegible]

Neighborhood Meeting Sign-In Sheet

Wednesday April 6, 2022

Ocean Avenue Elementary School - 150 Ocean Ave, Portland, ME 04103

IDEALS: Roux Campus 1 Bean Pot Circle, Portland, ME

Members of the Public in Attendance:

Name:	Email:
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Joshua Loring	Loringjoshua@gmail.com
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Victoria Fisk	vickifiskshop@gmail.com

TO	Zach Powell, AICP	FROM	Julie Pietrzak, P.E.
	City of Portland	DATE	November 10, 2022
RE	Roux Institute SFHA Description	PROJECT NO.	RS22006.00
CC	Barbara Gao	PROJECT NAME	Roux Institute

This memo is prepared for the proposed Roux Institute and outlines the floodplain delineation at the site and flood mitigation strategies which not only meet the code requirements but achieve enhanced resilience by incorporating future climate projections.

Floodplain Delineation

Portions of the project site are delineated as Special Flood Hazard Area (SFHA) Zones AE and VE according to FEMA's Flood Insurance Rate Maps (FIRM). Zone AE is defined as the 1%-annual-chance of being flooded where wave heights are less than 3 feet, and Zone VE is defined as the 1%-annual-chance of flooding with additional hazard associated with storm waves. The current and effective FIRMs for Cumberland County are based upon FEMA's 1986 publication. The effective FIRM shows approximately 1.62 acres of the Site is SFHA Zone AE with base flood elevations (BFE) ranging from 9 to 11ft NAGV29, and no Zone VE area.

In 2017, FEMA revised the FIRM and associated Flood Insurance Study, and these maps were published for planning purposes. On this Preliminary FIRM (PFIRM), approximately 2.44 acres of the Site is SFHA Zone AE with base flood elevation of 10ft NAVD88, approximately 0.59 acres of the Site is SFHA Zone VE with BFE of 13 ft NAVD88 and approximately 0.02 acres of the Site is SFHA Zone VE with base flood elevation of 19ft NAVD88.

A topographic survey of the Site conducted by VHB in June 2021 and revised on October 7, 2022, indicates site topography differs from the delineated effective SFHA boundary. Based on the effective SFHA zone boundaries and site topography, approximately 1.31 acres of the Site is SFHA Zone AE with base flood elevations ranging from 9 to 11 ft NAGV29. Portions of the effective FIRM, Advisory FIRM, and topographic survey depicting the floodplain boundaries in proximity to the site are provided in Figures 1-3.

Flood Resilience Strategy

A comprehensive flood resilience strategy has been developed, in compliance with the Maine Uniform Building and Energy Code (MUBEC) and the City of Portland Land Use Code. Per 2017 PFIRM, the proposed academic building is partially located within SFHA Zone AE with BFE of EL 10ft NAVD88, which is EL 10.79ft City of Portland Datum. The flood resilience strategy is made up of the following key components:

(All elevation noted below are referenced to City of Portland Datum, unless otherwise noted)

- **Elected-Design Flood Elevation (DFE)**
 - o Per the City of Portland Land Use Code, Article 12 – Flood Plain Management, the code-required DFE is EL 12.79ft, which is calculated as BFE plus 2ft of freeboard.
 - o In addition to the code-required DFE of 12.79ft, the elected-DFE for Roux will incorporate some level of Sea Level Rise (SLR) and include SLR projections under climate change scenarios for Portland (One Climate future, 2022). This is currently being studied.

- **Elevation**
 - o The lowest floor (Level 1 finished floor elevation) is at EL 24ft which is higher than code-requirement of two feet above the BFE.
- **Dry Floodproofing** involves measures that make the structure substantially impermeable to water below the elected-DFE.
 - o The dry floodproofing enclosure below the elected-DFE is solely used for parking, building access and storage per code requirement.
 - o The flood walls (FW) and foundation pressure slab (PS) are designed to the flood loading criteria for hydrostatic loads and uplift associated with the elected-DFE in accordance with MUBEC which referenced the chapter 5 of ASCE 24 and additional level of future SLR which is currently being studied.
 - o Flood resistant materials below the elected DFE
 - o Backflow prevention valves and pipes designed for loads associated with the elected-DFE, to prevent flooding through the plumbing systems.
 - o Flood resistant seals on all penetrations through flood walls and foundation systems below the elected-DFE.
 - o Water management systems including a dewatering pump system located in key areas and with emergency power supply to remove any nuisance water that enters the dry floodproofed portions of the building.
 - o Egress above the elected-DEF are maintained during a design flood condition per code provision.
- **Flood Hazard Documentation** per MUBEC Section 1612.5, will be prepared and sealed by a registered design professional and submitted to the building officials. It includes:
 - o The elevation of the bottom floor as required by the lowest floor elevation inspection (Section 110.3.3) and for the final inspection (Section 10.3.10.1)
 - o Construction documents stating the dry floodproofing is designed in accordance with ASCE 24
 - o Flood Hazard Development Permit application and supporting documents

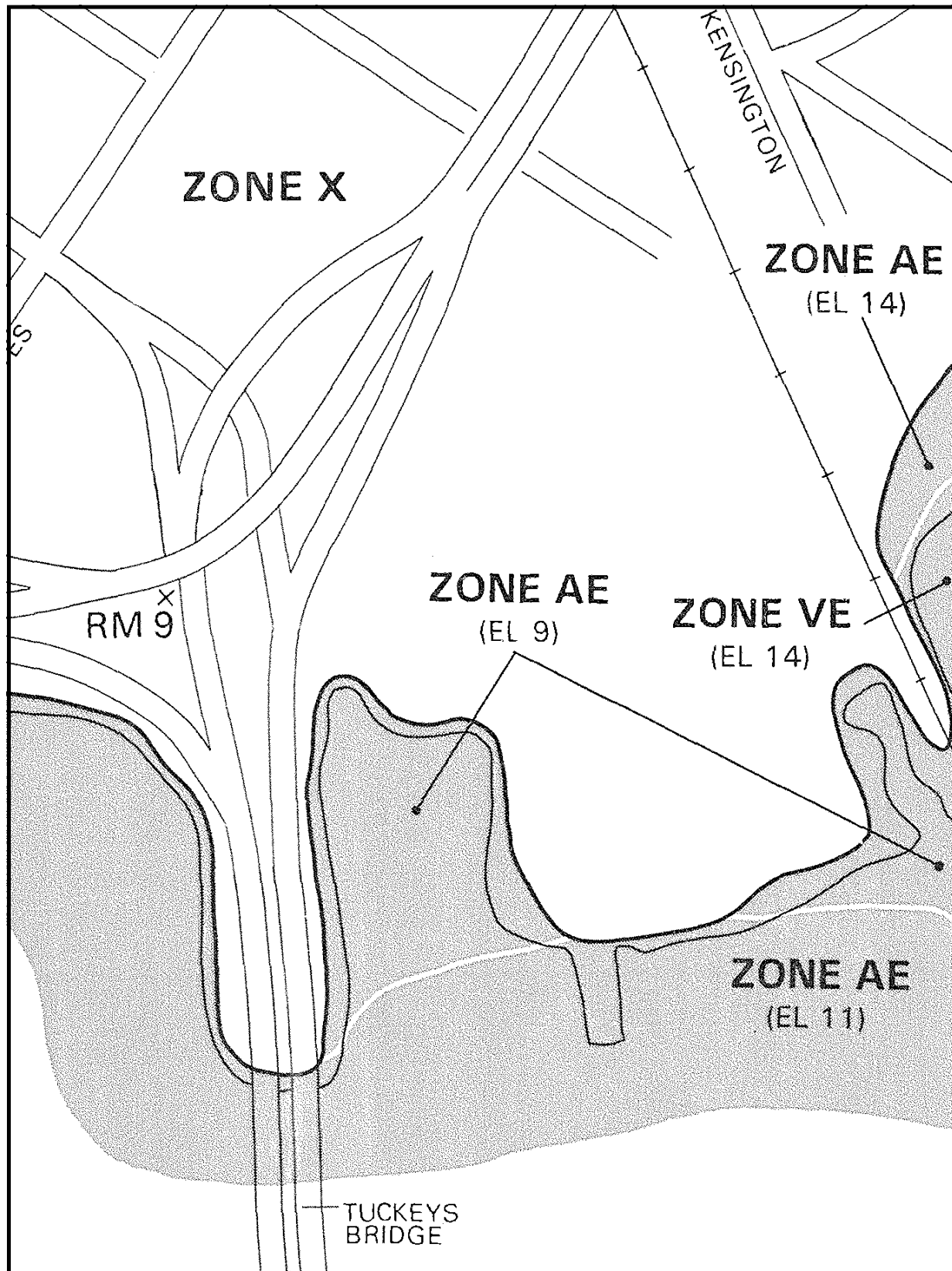


FIGURE 1: 1986 EFFECTIVE FEMA FIRM

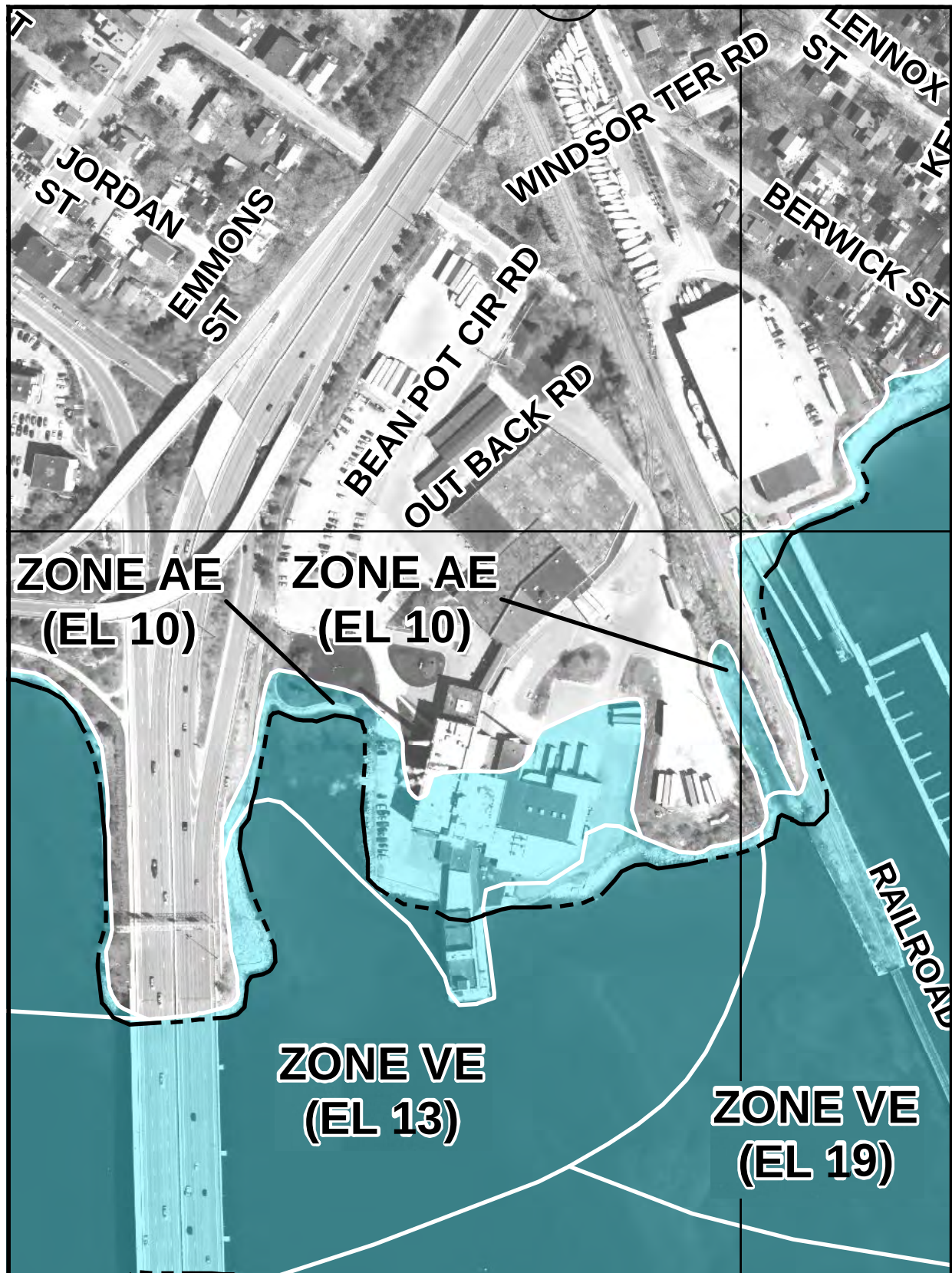


FIGURE 2: 2017 PRELIMINARY FEMA FIRM

THE ROUX INSTITUTE CAMPUS

SUSTAINABILITY CHARTER

November 17, 2022

EXECUTIVE SUMMARY

The purpose of the Sustainability Charter is to outline building and site design strategies that will meet the campus goals of a more sustainable and resilient future. The structure of the Charter will include standards in the following categories and their broad goals:

- **Energy**
 - Overall reduction in energy consumption of buildings and greenhouse gas emissions compared to base City Code Baseline Building standards
 - Monitoring and tracking of energy usage throughout all phases of development to inform iterative building and site design in future phases of development.
- **Water**
 - Overall reduction in water usage for buildings compared to comparable buildings
 - Incorporation of site design practices in a variety of scales throughout the campus for stormwater management and treatment, with a preference for green infrastructure practices
 - Expand opportunities for the use of pervious materials in transportation infrastructure improvements
 - Monitoring and tracking of water usage and sewer generation throughout all phases of development to inform iterative building and site design in future phases of development
- **Equity**
 - Provide all users of the site opportunities to engage in sustainable practices
 - Explore alternative energy generated on or off the site to provide cost-savings
 - Identify opportunities to expand and enhance multi-modal connections on-site and to off-campus connections
 - Active engagement and inclusion of people who are from black and brown communities, have one or more disability, lower-wage earners, identify as LGBTQ+, asylum seekers, and women & gender nonconforming individuals in the development and execution of building and site design, promotional materials related to campus sustainability and resiliency, and monitoring of campus sustainability & resiliency performance
- **Transportation,**
 - Develop pedestrian and cyclist-centric site and building design throughout the site
 - Implement parking demand strategies that reduce the number of single-occupancy vehicle trips to the site
 - Identify opportunities to expand and enhance multi-modal connections on-site and to off-campus connections
 - Integrate monitoring for the TDM plan, campus parking management, and TMPs into a consolidated report to promote iterative, multi-modal growth on campus

- **Resilience**

- Include standards that promote the use of building materials and practices that reduce the need for replacement of materials and buildings
- Include building and site design standards that decrease stress and shock to the site in the event of extreme weather events
- Incorporate monitoring and tracking to develop iterative processes that improve the resilience of the campus throughout all phases of development

The Charter will include a combination of base requirements for all buildings and site design, and may involve additional requirements for certain buildings or areas of the campus, or future programmatic requirements. These distinctions may be realized through the use of a points-based rating system or performance-based measures.

At a minimum, techniques and standards included in the Charter should align with the City Code and the One Climate Future Plan. Additional requirements and techniques may also be included to align with industry best practices/benchmarking standards. Standards in the Charter should identify the point(s) where each applicable standard will be reviewed to determine compliance.

The Roux IOZ 1 view

Subscribe ☐

Payne, Tony M <TPayne@memic.com>
to planningboard@portlandmaine.gov

Oct 26, 2022, 1:33:53 PM (yesterday)

Good afternoon. I had hoped to speak at last evening's Planning Board meeting during the public comment but could not gain access through the Zoom portal. My purpose, though, was to share my support for this exciting investment in Portland's future in a signature location for the city. Here are the points why this site is wonderfully appropriate:

1. The East Deering location is a major gateway for both Maine people and out-of-state visitors to see the dynamic contribution that higher education and research make in our economy. Its visible presence will spur similar activity in terms of jobs and future technology investments.
2. You can look to Bigelow Lab and Jackson Lab as campuses that create and sustain good jobs without degrading quality of life and, in fact, increasing property values and community pride.
3. Northeastern, once a low threshold college for admission, today has made strategic investments to make it one of the premiere universities in the nation. Again, housed at Portland's most visible gateway, it will signal we are a learning and investment hub.
4. Finally, the mix of housing and academic facilities with public access will make the site a neighborhood for local residents, students and faculty.

To close, I've lived half my life in Portland having delivered papers in the morning smelling the sweet aroma of B&M Baked Beans (much better than the odor from S.D. Warren's pulp mill). Portland's a very special place that has arrived because years of good decisions, meaningful investments and quality of life have made it so. I also served for more than a decade on the USM Board of Visitors and have seen first-hand the impact higher education makes in the community. In addition, I chair the Advocacy Committee for the Portland Regional Chamber. In my view, this is precisely the kind of institutional neighbor that will benefit us all. I hope you will approve the plan and continue Portland's reputation as one of the best cities in America. Thank you.

Tony Payne



Tony Payne

Senior Vice President / External Affairs

The MEMIC Group

Ph: [207-791-3506](tel:207-791-3506) | Cell: [207-807-5331](tel:207-807-5331)

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[LinkedIn](#) memic.com

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PC2

Amendment to Public Comment Remarks-Roux Institute

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0 views



Reggie Parson <reginald.parson@maine.e... Oct 27, 2022, 9:12:57 PM (12 hours ago)

to planningboard@portlandmaine.gov

Hello,

I am reaching out to amend my remarks from last night's public comment period with the Planning Board on the Roux Institute expansion to state that while I am still very much in support of this proposed idea from the Roux Institute, I also hope all perspectives are considered in the process from within the community as the Planning Board continues to consider the proposal. Thank you again and take care.

Best,

Reggie

--

Reginald Parson, MPA, JD
University of Maine School of Law

Desi Van Til <desivantil@gmail.com>

2:25 PM (1 hour ago)

to council@portlandmaine.gov, planningboard@portlandmaine.gov

Dear Mayor Kate, Portland City Councilors, and Planning Board Members,

My name is Desi Van Til, a resident of Portland, and one of many engaged citizens who wants to express my enthusiastic support for the Roux Institute's development at the former BM factory location. I cannot fathom a more exciting opportunity for our growing city than to help a world-class institution with the privilege of Northeastern's pedigree in combination with Roux's visionary leadership in developing STEM fields, to create a sustainable campus worthy of its ambitions and noble causes. It will be an extraordinary thing for all of Portland when Roux can offer its hundreds of graduate students the chance to participate fully in a campus with ample housing, modern classrooms, open spaces, waterfront access, and student life facilities. How lucky Portland will be to host a beautiful campus open to all, giving not only its students - but also the public - the opportunity to take advantage of the spaces and facilities that Roux will afford our community if everything goes as it should with our elected officials. Portland is a city poised to maintain its charm and its soul with proper leadership, and as a Portland citizen, I implore you to make the right choice to help clear the way for Roux's forthcoming campus which will only add to the uniqueness of our city, and move us into the future intentionally, responsibly, and with great imagination. Progress doesn't have to spoil that which is great. I have such faith in the thoughtful leadership at Roux, the partners they have chosen to help them evolve with perspicacity and sensitivity into the future, and the way they are working with transparency and in the spirit of openness and negotiation. We don't need Roux to put us on a map. We're on the map. We've got a beloved place to live and a kind, welcoming community that supports each other. We need Roux to help lead our city into the best version of its future self, and the institution deserves a proper home base for all the innovation work that is already happening - and will happen in the decades to come. It feels like a gift, and one that I trust the planning board and city councilors will recognize as such.

A dear friend of mine - an adopted family member by any other name - is a high-achieving graduate student at Roux in the project management program, so I've had the chance to see Roux's impact at very close range. The institution - even in its infancy - is fostering incredible connections between and among students, thinkers, entrepreneurs, from all walks of life, making Roux a powerful crucible of ideas and ideals. It is attracting talent from all corners, from multiple generations and from all time zones with their generous Alford grants. My dear friend who studies at Roux is a telecom engineer from Afghanistan who is adding so much vibrancy to Portland's community, and is likewise gaining vital experience with his masters degree, all thanks to the incredible scholarships that are leveling the playing field for brilliant international students. I only wish he were able to participate in Roux when there is the full and thriving campus he deserves. I've also seen for myself how Portland's housing crisis is especially challenging to its students, and am thrilled that there will be accommodations for its student body, faculty and employees on the amazing proposed campus. To see how much care has been spent designing an environmentally sound, energy-efficient campus is another reason I am so supportive of this next step in Roux's evolution.

As a stakeholder in this city, and as a person who believes that every great city has an educational beacon at its center, I ask you to help Portland reach its own potential by giving Roux what it needs to bring us there. Thank you for reading and considering my views.

Warmly,

Desi Van Til
19 Thomas Street
Portland, ME 04102

Julia Brady <julia@valoventures.org>

Nov 7, 2022, 8:19:44 PM (12 hours ago)

to council@portlandmaine.gov, planningboard@portlandmaine.gov

Dear Mayor, Councilors, and Planning Board Members,

I am a resident of Portland and want to voice my strong support for the proposed plans for the Roux Institute campus at the former B&M factory in Portland. As a business person, I want to let you know that the Roux Institute is one of the most exciting developments I've witnessed in Portland in my 22 years living here, and that the campus will position our city to succeed economically in the future.

I am a partner in a venture capital firm investing in technologies that do something to address climate change. So I'm keenly interested in three things that the Roux is doing and can do more of when they expand:

1. Developing engineering talent for both our firm and our portfolio companies
2. Attracting/retaining startup companies to Portland
3. Attracting/retaining world-class professors and professionals who work at Roux

We've seen that technology companies are interested in Portland but aren't sure about the workforce here. The Roux Institute delivers on training this workforce, and will help us continue to thrive as a growing economy.

The campus will be energy efficient, climate resilient, sustainable, and environmentally friendly.

Many thanks for your consideration.

Julia

9 Moody Street, #1
Portland ME 04101

Anna M Klein-Christie (She/her/hers) <anna.kleinchristie@bax... Nov 14, 2022, 10:38:16 PM (9 hours ago)
to council@portlandmaine.gov, planningboard@portlandmaine.gov

PC5

Dear Members of the Portland City Council and the Portland Planning Board,

Thank you for your hard work and commitment to the City of Portland and its watershed. We appreciate all that you do and your consideration in projects such as the Roux Institute Campus.

Baxter Academy teaches our students to be leaders in research, education, collaborative process and entrepreneurship. We are committed to meeting students where they are, and as a public school we work to engage our students in the community across southern Maine. We are proud to collaborate with the Roux Institute mission as a leader in this vision and we are happy to support the development of its Campus. We see their support in and for the community; their impact in our community will be positive for the long term.

The Roux Institute shows academic and pedogeological leadership that is consistent with our own goals. Their investment in diversity and inclusion is authentic and outcomes-driven; their success is shown in the network benefiting research and business in Maine. Simply, the community benefits if a multitude of voices and experiences are heard and leadership can come from many places. At this time, innovation in technology demands it.

Even the design of the structures align with our priorities. We teach our kids about the innovation seen in building plans - reducing traffic and sustainably managing impact on the neighborhood. We are eager to show these real world examples of construction that are energy efficient, sustainable, and environmentally friendly. Equally important, the Baxter Academy will greatly appreciate access to this space as a public resource. We expect that it will be a benefit to the entire neighborhood.

Again, we are fully supportive of Roux Institute building using its recently submitted plans. It will benefit economy, provide opportunities for innovation and collaboration, and it will be another mark of Maine's leadership. "So goes Maine, so goes the nation."

Feel free to contact me with any questions.

Warmest regards,

Anna

Anna Marie Klein-Christie

Executive Director

Baxter Academy for Technology and Science

Nov. 15, 2022

Hon. Members
Portland Planning Board
389 Congress St.
Portland, ME 04101
planningboard@portlandmaine.gov

To the Honorable Members of the Portland Planning Board:

During my time in public service, first in Bangor and then in the Legislature, Congress and as governor, I've come to realize that there are very few projects that have the potential to be transformational for Maine.

The Roux Institute campus in Portland is one of those projects.

With any project, there will be challenges to overcome and concerns to address. In this case, I believe that the biggest issue facing the Roux campus is traffic. I also believe that those issues can be resolved.

The Roux Institute has shown a commitment to working with stakeholders to improve the project. The overall scale of the project has been reduced by about 30%. By including both housing and a hotel as well as other commercial space, the project design helps to limit some of the in-and-out traffic that the campus might otherwise see. The developers are also working proactively to develop alternative modes of transportation to limit car traffic and have agreed to set aside space for an additional entrance alternative if it becomes necessary.

The Roux Institute will certainly benefit Portland. But the positive impacts are much larger. In partnership with Northeastern University, the Roux Institute will bring innovators and entrepreneurs to Maine, help our state to develop and grow its workforce and encourage new diversity.

Portland is being presented with a unique opportunity for a major investment. Through the hard work of the planning board, through community engagement and stakeholder input, I believe the Roux campus project has been improved and made stronger.

My wife, Karen, and I are Portland residents, and we really enjoy all that the city has to offer. We would like for the city to keep the qualities that make it special and a great place to live and work. I know from experience and work on previous projects that sometimes in order to maintain the qualities that make a place special you have to be willing to make sensible changes. We believe that the Roux campus will help to keep the features that make Portland special and make them stronger.

Thank you for your work on this project and for your service to Portland.

Sincerely,

John Baldacci
Portland

Nov. 14, 2022

Portland Planning Board
389 Congress St.
4th Floor
Portland, ME 04101

Submitted via email: planningboard@portlandmaine.gov

To the members of the Portland Planning Board:

I'm writing today in support of the development of the Roux Institute campus at the site of the former B&M factory in Portland. I believe that this project will not only benefit Portland and its residents but will also be an asset to all of Maine.

As the founder of the Portland Parks Conservancy, I'm particularly impressed with the project team's efforts at public engagement and their commitment to creating and protecting public open spaces. The Roux team held a joint meeting with the Conservancy to brief our members on the project and to seek input. It's my understanding that they have had many similar meetings with other community organizations, neighborhood groups and interested individuals.

In addition to their commitment to open spaces, the Roux team has also demonstrated their willingness to work with the community to mitigate concerns, including their decision to significantly reduce the size of the campus and to work on ways to reduce traffic impacts.

The inclusion of housing – both short and long-term – commercial space and the Roux Institute itself is a good example of the kind of in-fill development that should be encouraged as a way to reduce sprawl and to encourage alternative transportation methods that don't rely on cars.

It's my hope that the members of the Portland Planning Board will approve this project and move it one step closer to completion.

Sincerely,

Lucas St. Clair
Founder, Portland Parks Conservancy

IDEALS/Northeastern University Regulatory Framework

PC8

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Cheryl Ann Leeman <leemanc174@gmail.c... Nov 16, 2022, 10:14:00 AM (yesterday)
to planningboard@portlandmaine.gov, Zachary Powell, ednfrd@gmail.com

Good morning, Zack. I have worked with the neighborhood to prepare some "redlined" suggestions for the Regulatory Framework proposed IOZ zone change for IDEALS/Northeastern University.

Could you be so kind as to provide this email to the Planning Board upon receipt rather than wait for it to go out with their packets for the upcoming meeting. We would like them to see it well in advance of the meeting.

Thank you, with best regards, Cheryl (Leeman)

REGULATORY FRAMEWORK

8.5.7 The Roux Institute at Northeastern University Overlay Zone Regulatory Framework **

A. Applicability: All development proposed by the Initiative for Digital Engineering and Life Sciences ~~or~~ and ~~the Roux Institute at Northeastern University within the boundary of the Roux Institutional Overlay Zone (IOZ) shall be consistent with the approved Institutional Development Plan (IDP), consistent with the Comprehensive Plan, and meet applicable standards of the Land Use Codes unless such standards~~ ~~are superseded by the following regulatory framework.~~ This regulatory framework shall govern future development by IDEALS and Roux within the IOZ unless amended by the Portland City Council upon ~~formal application of IDEALS and/or Roux.~~ The Roux Institutional Overlay Zone shall have the boundaries depicted below and shall include the approximately thirteen-acre property located at 1 Bean Pot Circle and identified as parcels 447-A001 and A002 in the City's assessing records.

co-applicants
IDEALS and
Northeastern
University

co-applicants

Northeastern University

review and
recommendation from
the Planning Board

Proposed B-5 & IOZ



**Applicability: Subsection 8-5.5 states that "the regulatory framework shall apply only to properties within the IOZ boundary and to which the eligible institution holds right, title or interest." The Planning Authority determined that IDEALS and Northeastern University can serve as co-applicants and that all applications must have Northeastern University listed as sole applicant or co-applicant. Further codification of this relationship has been defined in Memorandum of Understanding between the two entities with provisions for transfer of property to Northeastern University within 10 years.

B. Phasing and monitoring.

1. The Roux Campus will be developed in phases, as set forth in the IDP. The IDP will be updated on a regular basis to ensure that the data is current and that the document remains accurate. Accordingly, monitoring reports will be filed ^{annually} ~~every three years~~ and shall include a summary of progress on IDP implementation and of acquisitions and divestment since the date of IDP approval. At the time of the submission of the monitoring report, any updates to the IDP shall be identified which may result from updated master planning, changes in baseline information, or changes in the adjacent neighborhood which affect the campus, to allow the IDP to remain current. ^{and solutions for identified areas of public concern} Updates and minor amendments not described below shall be reviewed administratively by the Planning Authority. Define "Minor" amendments
 2. At completion of each phase, the Roux Campus shall have the ^{appearance} of a complete and ^{??} comprehensive design. Permanent and significant public space shall be established in the first phase, to ensure public benefit. Interim conditions shall be designed for a pleasant pedestrian experience through planting, lighting, wayfinding, graphics, artwork, or ornamental fencing to provide screening, buffers, and enhancement. Interim areas of the site which are not actively used for parking or construction staging will be appropriately landscaped or accommodate gathering on lawns or other aesthetically hardened spaces.
 3. Minor amendments that change the approach to parking, transportation, ^{housing} neighborhood engagement or design shall be reviewed by the Planning Board for consistency with the objectives of the IDP. ^{including identified updates to IDP and TDM/TMP in the annual monitoring reports} This review may occur simultaneously with the site plan review of a proposed project.
 4. Major amendments shall be reviewed by the Planning Board and are required under the following circumstances:
 - a. A change to the regulatory framework is required. ^{including any changes to the MOU}
 - b. The IDP is no longer representative of the institutional mission or approach to community as a result of redevelopment in the area or City upgrades to neighborhood planning (such as roadway changes, infrastructure upgrades, community design, lighting).
 - c. Proposed development is inconsistent with the master facility plan, transportation plan intent, design plan intent, or environment and infrastructure plan intent identified in the IDP.
 5. Annual monitoring reports will be submitted for the Transportation Demand Management (TDM) Plan. TDM monitoring reports shall include a summary of progress towards targets established in the TDM Plan. ^{Insert: Traffic Demand Permitting (TMP)} and shall be reviewed by the Planning Board for consistency with the objectives of the IDP.
- C. Uses.** ^{Institute at Northeastern University} The Roux ^{"customarily and incidental"} Campus will encompass a variety of uses [^] to support the mission of the Roux Institute at Northeastern University to spur innovation, build talent, and drive economic growth. Partnerships with industry, academia, and government are essential components of the Institute's success. Campus uses will include classrooms and laboratories, housing, faculty offices, dining areas, convening spaces, fitness centers, retail facilities, entrepreneurial spaces, light manufacturing, incubator space, research and design facilities, hotel, and office space. The uses on the campus will support collaboration with private industry, other institutions, and community organizations, which is essential to the Roux ^{Roux Institute at Northeastern University's} Institute's approach to learning through integrated research, student work opportunities, and entrepreneurial endeavors. Hotel rooms will cater to prospective students, faculty and staff, visiting

include a campus housing analysis and annual monitoring report to include description of supply and demand, housing demand expected to arise from development and how increased housing demand will be meet

lecturers, specialists, and business partner guests, providing multiple opportunities for informal and unplanned interactions and collaboration that would otherwise not be available if staying in a hotel miles away from campus. A range of rental housing options^{with high priority to students, staff & faculty} will foster community and provide on-site opportunities for students, faculty, staff, and their families. These units will ease some of the housing pressure and traffic that might otherwise result from new residents attracted to Portland by the Institute. Housing units not occupied by residents affiliated with the Roux Institute^{at Northeastern University} may be made available to the public to further assist in easing the housing pressure.^{to include Inclusionary, Workforce housing, etc required by Ordinance}

Recognizing the community value of a large waterfront parcel in close proximity to a primary bike and pedestrian trail system, the Roux Campus^{at Northeastern University} will be designed to include those uses that will welcome the neighbors to the campus, including publicly available open space, waterfront access, recreational opportunities, restaurant, dining, small neighborhood grocery, and/or other limited retail options. These uses will provide a means for serving the residents and other users of the campus, as well as welcoming the neighborhood to foster connectivity and community engagement, activating the public realm, and reducing dependence on automobiles.

1. In addition to the uses permitted in the underlying zone, the uses in Table 8-E are permitted as a matter of right. In recognition that The Roux Institute^{at Northeastern University} is a graduate-level educational and research institution with a number of corporate partners, and in recognition of its location outside of the downtown, the following uses and many that are permitted in the underlying zone, such as multi-family housing, hotels, offices and retail, are ancillary to and support the vision and mission of the Institution. In addition, ground floor retail, restaurant, or comparable community-oriented uses that provide services to local residents, students, faculty and staff shall be provided. Such uses are expressly permitted whether ancillary to or supporting the educational institution, and shall be open and welcoming to the general public in addition to students, faculty, staff, or visitors of The Roux Institute^{on The Roux Institute. to the Roux Institute at Northeastern University campus.}. All of the following uses shall be permitted in all buildings located within the IOZ that are located on land owned or leased by The Roux Institute^{Northeastern University}.

Table 8-E Permitted Uses
All Uses Permitted in the Underlying B-5 Zone
Laboratory and Research Facilities
Structured Parking
Low-impact Industrial (>10,000 SF)
High-tech Manufacturing

2. Hotels shall be limited as follows:

- No more than one hotel shall be located in the IOZ.
- The hotel shall contain no more than 130 rooms.
- The hotel shall be no more than eight^{eight} stories in height, ~~not~~^{not} including structured parking^{and/or density bonuses.}

D. Dimensional requirements.

IDEALS and Northeastern
University

All buildings and structures located within the IOZ and located on land owned or leased by ~~The Roux Institute~~ shall be subject to the dimensional requirements of the underlying zone, except as set forth in Table 8-F.

Table 8-F Dimensional Requirements	
Building Height (max.)	Maximum building heights for new buildings in the IOZ shall be governed by the Roux IOZ Height Map (Figure 8-E)

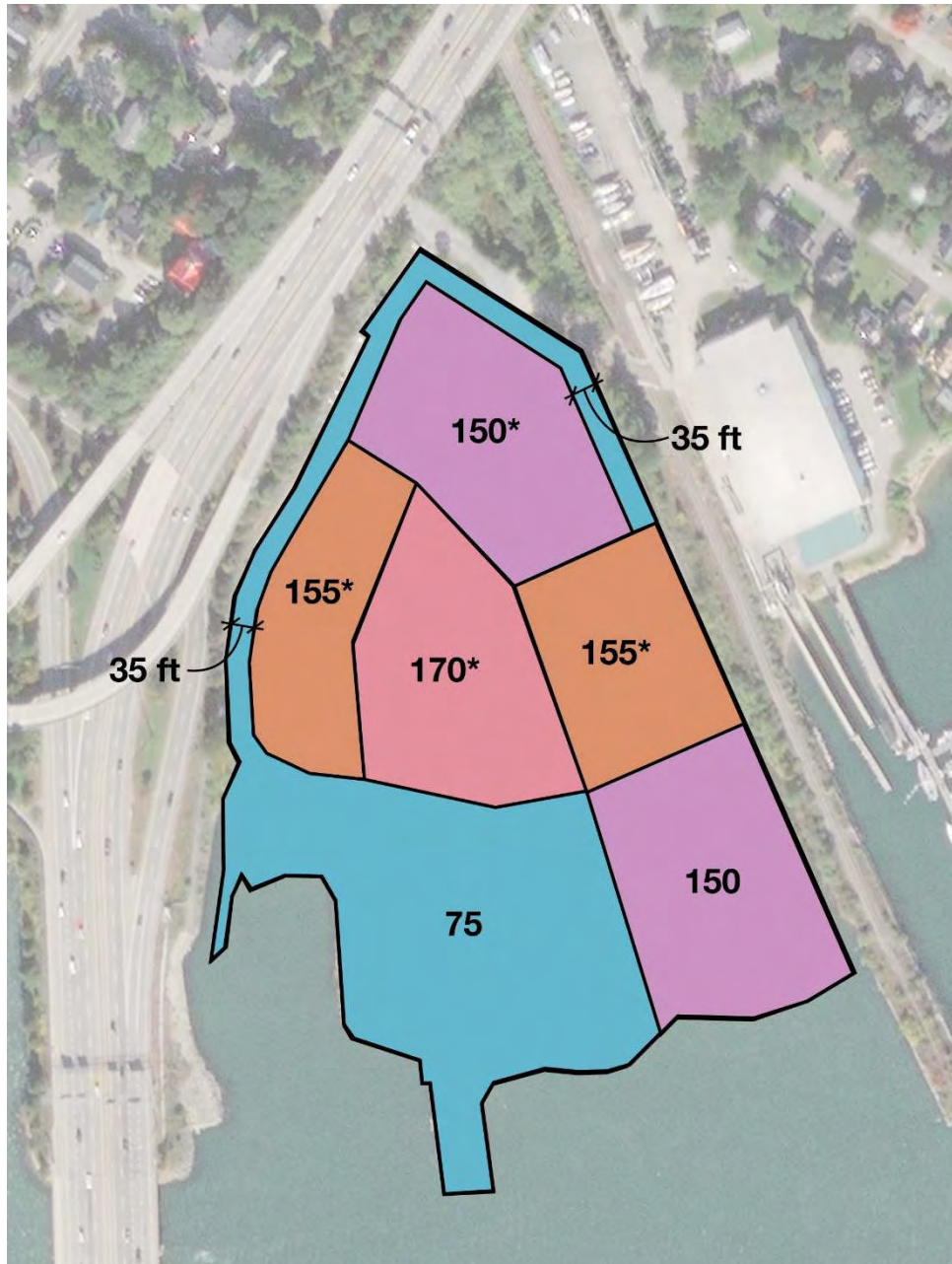
E. Transportation.

Prior to site plan review the developer shall submit "transportation elements" including an "on and around" campus TDM plan in accordance with Subsection 8-5.5 in the IDP requirements for IOZ rezoning.

1. Transportation Demand Management (TDM)

- a. ~~At the time of the first site plan review following IDP approval, the developer shall submit a campus-wide TDM Plan substantially in accordance with those TDM objectives and strategies identified in the approved IDP.~~ The TDM Plan may be phased into short-, mid-, and long term actions to allow for progressive implementation over time. ~~including mitigation measured/thresholds identified in IDP.~~
- b. The TDM Plan shall be designed to provide transportation choice with the goal of reducing parking demand and single-occupancy vehicle trips to and from the Roux Campus by students, faculty, staff, institutional partners, and visitors.
- c. The TDM Plan shall establish parking, mode share, and trip reduction targets associated with each phase of development, as well as a data collection plan ~~and required information on "barriers" and best practices as referenced in City's Technical Manual and assessment of transportation infrastructure and incentive needs~~
- d. The developer shall conduct a traffic "Sensitivity Analysis"
- e. Development and Implementation Plan which discourages on-street parking and on-street parking shall not be used to satisfy parking demand.
- f. TDM plan shall consider off-site parking garage and/or designated satellite parking area(s) with shuttle service.
- g. The TDM plan shall consider incentivized alternative transportation options including but not be limited to student financial incentives, free Metro with University ID cards, carpooling with GOMAIN Commuter Connections, free Lyft credits, etc. (similar to UNE) and consideration of capital/operating contribution to Metro.
- h. The TDM plan shall include data to support reductions in transportation-related carbon footprint on and around the campus.

Figure 8-E: Height Map



NOTES:

1. Applies to zones shown with an asterisk (*): above height of 75 feet, no building floorplate shall exceed 35,000 square feet.
2. Above height of 50 feet, no two buildings shall be closer than 40 feet apart.
3. Building heights for buildings that span two or more height zones shall be measured by calculating the highest point (as defined in the code) of that portion of the building within a particular height zone. If the roof is sloped, height is measured at the midpoint of that portion of the slope located within the particular height zone.
4. Identify any exceptions/density bonuses that might add to the proposed heights
5. Submit fire safety plan given heights of buildings and restricted access of "ladder" trucks due to limited height of overpass on Sherwood Street

2. Bicycle and Pedestrian Access and Safety.

At the time of submission of an application for IOZ zoning designation, the developer shall submit an Institutional Development Plan (IDP) in accordance with 8-5.3 which includes a bicycle/pedestrian access plan.

- a. ~~At the time of the first site plan review following IDP approval,~~ the developer shall submit a bicycle/pedestrian access plan. ~~Where possible,~~ the bicycle and pedestrian access routes shall connect to established accessways. The developer shall ~~look to~~ establish new bicycle and pedestrian accessways where feasible. ~~including projected timeline to meet mode share targets in TDM Plan~~
- b. ~~Shall include financial contribution toward the trail connections~~

3. Parking.

in the IDP as required in 8-5.4, i, (a)

- a. Parking requirements in the IOZ shall be established ~~at the time of site plan review~~ for each phase of development based on a parking study that includes ~~a campus-wide~~ analysis of ~~an around and on campus~~ demand and supply. Parking studies shall integrate parking and trip reduction achievements and data contained in the TDM Plan. ~~including "mitigation measures/thresholds" for access improvements.~~
- b. ~~Parking plan shall provide mitigation plan that discourages on-street parking and seek meaningful alternatives including, but not limited to off-site parking garage and/or off-site areas with shuttle service~~

4. Circulation

- a. The campus shall contain a bike and pedestrian circulation network which includes a perimeter access loop, an internal system of pathways and a major campus "promenade" which serves as a walkway linking campus developments, the upland, and the waterfront.
- b. The perimeter access path for bicycles and pedestrians will serve to connect the campus to primary site entry points from the community and provide a continuous recreational loop. Where appropriate, the access loop will be enhanced by wayfinding, lighting, landscaping, and safe crossings at vehicular intersections. Where possible, building facades will respond to the loop for views into the building and periodic activation to building entrances.
- c. Internal campus circulation pathways will connect major open spaces, building entrances, and outdoor plazas to create a network of multiple pathways including the perimeter access path. They will be located along or oriented toward facades that have active programs, architectural articulation, appropriately scaled entrances, and windows. They will avoid traveling along stretches of undifferentiated or blank facades back doors or service areas. They will be generally lower-velocity systems than the access loop. Where appropriate, the internal pathways will be enhanced by wayfinding, lighting, landscaping, and safe crossings at vehicular intersections.
- d. The campus promenade will serve as a major organizing feature connecting the upland and the water and providing access to open spaces, allowing views of principal campus of buildings, and connecting to the internal and perimeter pathway systems. The promenade will be enhanced by lighting, wayfinding, landscape buffers, major and minor open spaces. Viewsheds and topography will emphasize the Roux Institute and Bean buildings, pier and other principal buildings and spaces.

F. Environment.

1. The IOZ shall contain a minimum of three acres of public open space designed to enhance waterfront access and provide bicycle/pedestrian network connectivity. This open space requirement shall be met

at the completion of phase one and shall be maintained at all phases of development. The three acres need not be contiguous and may be provided in new and/or different locations following completion of development phases.

2. Development shall utilize critical components of industry standard benchmarking systems such as LEED, SITES, WELL, ILFI, and Passive House which will be combined in a sustainability and resilience charter to identify the specific goals and standards for the campus and its buildings. This charter will be submitted to the Planning Authority prior to submission of the site plan application for phase one.

3. Development shall utilize lighting designs required for safety and comfort and that minimize impact to the night sky in accordance with light pollution reduction standards in ANSI/ASHRAE/IESNA 90.1-2007 or its most current edition.

4. Development shall be carried out in such a way as to minimize the impacts of sea level rise, protecting infrastructure and site features by designing to a minimum of 2-feet above the Base Flood Elevation (BFE) as shown on the most current FEMA Flood Insurance Rate Map.

5. The shoreline edge and immediate adjacent upland shall be protected through shoreline armoring and vegetation to prevent erosion and enhance natural resource protection.

5. Design of exterior building envelopes will be developed in conjunction with the American Bird Conservancy and Cornell Ornithology Lab standards to mitigate bird strikes to the extent practicable.

6. Development shall address reductions in transportation-related carbon footprint greenhouse gas emissions created by vehicles.

G. Mitigation measures.

Site plan impacts to off-premise infrastructure shall be mitigated in a manner proportionate to those impacts. Mitigation may include financial or in-kind contributions to existing or planned City projects focused on mitigating the impacts of the development. Mitigation contribution shall be determined based on the City's standard procedure in effect at the time of site plan review.

H. Design.

1. Introduction and intent.

New development in the IOZ shall adhere to the following design guidelines and the site plan standards of the City of Portland. All new development shall be designed to create a visual connection with the goal of achieving a cohesive campus appearance with a strong identity and sense of place. New development may be contemporary and forward looking in architectural style, but shall be informed by or responsive to the iconic Bean Building as an example of Portland's unique legacy of innovation, adaptation and durability. Reference to the building specifically and in general to the early 20th century industrial factory building type may inform the principles of highly functional yet articulated human-centered facades and details, a combination of local and innovative materials, use of natural daylighting, high degree of flexibility and scalability and capacity for long service life. New development shall be characterized by excellence in architectural design, craftsmanship, materials, streetscape, resilience, sustainability and landscape improvements, signage, and lighting appropriate for a campus development on a coastal site.

These principles and standards are intended to regulate the future build out of the Roux Campus while ensuring that new development is sensitive to adjacent residential neighborhoods and commercial areas and successfully integrates the existing site into the public realm while establishing a global beacon for thought leadership in artificial intelligence, computer and data sciences, digital engineering, and advanced life sciences. IDEALS will oversee the design and construction at the direction of Northeastern University.

2. Standards

a. Buildings shall:

- i. be characterized by excellence in architectural design, sustainability, and craftsmanship
- ii. incorporate materials, landscape, signage, and lighting that reflect the industrial heritage of the site as well as Portland's character yet also embrace a high-tech design aesthetic
- iii. create a strong identity and sense of place
- iv. vary in height, with the tallest allowable building heights located toward the center of campus
- v. be organized to take advantage of views, site circulation, and public space along the waterfront as well as provide views of the water from multiple vantagepoints around the campus
- vi. be planned in a manner that preserves the historic view of the Bean Building from Tukey's Bridge
- vii. share visual connections with other campus buildings to achieve a holistic campus appearance
- viii. support and augment activation of public spaces and public access to the site
- ix. be programmed for activation where they meet the pedestrian realm or feature visually interesting details and activities related to the building
- x. respect the adjacent neighborhood and facilitate a sense of permeability and welcome
- xi. celebrate the primary learning and research building through signature architecture
- xii. utilize durable materials resistant to the marine climate & which contribute to an attractive public realm
- xiii. screen rooftop appurtenances and set back mechanical enclosures from roof edges to reduce shadow & visual impact
- xiv. limit sound transmission
- xv. minimize bird strike potential
- xvi. employ sustainability benchmarking to foster environmental stewardship and resilience
- xvii. utilize building articulation and material selections to provide character and scale
- xviii. ensure permeability through and within the site for light, air, views, & access
- xix. be appropriately scaled to support pedestrian activity, utilizing step-backs where appropriate
- xx. be oriented toward open space at the site's center and include prominent facades with windows and entrances oriented toward travel paths
- xxi. be oriented to allow for easy pick-up and drop-off
- xxii. respect and provide a buffer from the historic B&M Bean Building

b. Campus circulation shall:

- i. be bike and pedestrian-centered, with motor vehicle circulation generally at the perimeter where practicable
- ii. serve pedestrians, bicyclists, autos, public transportation, service, and emergency vehicles at each development phase

- iii. provide wayfinding and amenities to create a safe and welcoming environment for the community
- iv. provide bike and pedestrian connectivity to existing ways ~~where feasible~~

c. Open space and public realm shall:

- i. create a strong identity and sense of place
- ii. be designed for safety, comfort, and year-round enjoyment
- iii. enable access to building entrances
- iv. utilize a combination of planting and hardscape
- v. be available to all members of the public, through inclusive and safe design, as well as support purposeful connections and transitions
- vi. provide access and amenities to connect the public to the shoreline and ocean
- vii. include meaningful public open space between the buildings and the water
- viii. support site resilience in consideration of flooding from storm events and sea level rise
- ix. support ecological functions and values
- x. provide an appropriate buffer adjacent to and complementing the historic B&M cannery building
- xi. include lighting that is full-cutoff and dark sky-friendly

d. Parking shall:

- i. when above grade, be architecturally screened to blend in with the surrounding buildings and minimize vehicular disturbances of lights and sound
- ii. when on surface lots, be located at the rear or side of buildings, & not along the primary façade
- iii. not be located along the water's edge
- iv. ensure EV charging capability meets EV demand & is scalable as demand increases
- v. be shared to the extent practicable
- vi. support street activation & pedestrian scale when adjacent to public open space or rights-of-way
- vii. include a plan for alternative modes of transportation to reduce vehicle use, reduce transportation-related carbon footprint and develop parking policy with incentives to mitigate parking demand that discourages on-street parking.

I. Neighborhood integration.

1. Neighborhood Engagement:

a. For the purpose of keeping surrounding residential areas apprised of its future development plans, and to address any neighborhood issues related to the operations of the Roux Campus, IDEALS and The Roux Institute shall adhere to the ongoing neighborhood engagement principles identified in the IDP.

b. Ongoing community engagement shall be conducted, including the continuation of neighborhood forums and maintenance of the Roux Campus website.

c. A ~~Community~~ ^{Neighborhood} Advisory Group shall be created for the purpose of sharing information on project development, planning, and seeking input. To the extent practicable, the group shall be comprised of representatives of interested groups such as the East Deering Neighborhood, recreation, parks and trails, sustainability, rail, bicycle/pedestrian, public transit, Portland Harbor, Portland Public Schools, higher education, and the business community. d. A designated community liaison shall be engaged to

**** reconfigure Advisory to be more representative and inclusive of the neighborhood**

be the point of contact for providing information to the neighborhood and receiving feedback.

2. Construction Management

At the time of site plan review, Northeastern University shall submit a Construction Management Plan substantially in accordance with the construction management principles identified in the Institutional Development Plan for review and approval by the Planning Authority.

3. Snow Ban Parking:

When the City of Portland declares a Snow Parking Ban, Northeastern University shall make parking available to neighbors in a designated parking area on its campus upon the following condition: The hours of snow ban parking for registered vehicles during an announced City of Portland Snow Parking Bans are 6:00pm until 6:00am. Vehicles that are not moved out of these parking areas by 6:00 each morning are subject to towing at the owner's expense.

J. Historic Preservation

The B&M Cannery Building has been designated as a local historic landmark. The area of designation includes the B&M Cannery Building, as well as the area of the former cod fish building and pier. The Historic Preservation Board's review of activity within the site of the former codfish building and pier is limited to review of any activity that would require a Certificate of Appropriateness that is proposed on a newly constructed pier. A Certificate of Appropriateness will not be required for the demolition of the codfish building or construction of a new pier and related infrastructure, including future alterations to the pier structure.

Northeastern University shall include interpretive element(s) on top of or within the surface of the new pier that convey the history and significance of the codfish building. Prior to construction of said elements, the University shall submit the proposal to the Historic Preservation Board for its review and approval. The interpretive elements shall be designed in a manner that does not interfere with the use and functionality of the pier as a marine passenger facility and for water access by the Roux Institute and the public.

Roux Institute Portland Support 0 views

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Randy Marmet <randallmarmet@gmail.co... Nov 16, 2022, 6:33:39 PM (18 hours ago)
to planningboard@portlandmaine.gov

Planning Board;

I have worked in the State of TN with the Economic Development program for the eastern half of TN. My role was to secure financing for all sizes of businesses. I worked with large companies and I worked with small ones. I was able to secure all means of funding and financing from small SBA loans starting at \$100k for startups. I also was instrumental in securing multiple lenders and investors on projects up to \$30MM.

I have been in small business all of my life. I have spent 22 years as a CEO for small companies in Florida, Tennessee, and Maine. I currently am involved in 2 businesses here in Maine.

I am always excited by small business. I love the plans for Maine to take this great step into creating an atmosphere where small business can start and can be supported to thrive. We all know every business has a starting point. This is what makes America what it is.

Thank you for considering this project. I can tell you from my experience that this is a great way to support startups and all types of business. Maine really needs to show America what it means to get behind business both large and small.

The up and coming generations deserve our help and mentoring to make this place in Maine a great place to be in business.

Sincerely,

Randy Marmet, CEO, CTO
Heiwa, LLC



415 Cumberland Ave Comm #2
Portland ME 04101
United States

<http://HeiwaUSA.com>

Support for Proposed Plans for the Roux Institute Campus

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Melissa Smith <melissa.smith@wexinc.com> Nov 16, 2022, 9:17:18 AM (yesterday)
to council@portlandmaine.gov, planningboard@portlandmaine.gov, u.polsky@northeastern.edu

Dear Mayor, Councilors, and Planning Board Members,

I am writing to voice my support for the proposed plans for the Roux Institute campus at the former B&M factory in Portland. The Roux Institute is not only a valued tenant and partner of WEX, but a critical part of Maine's growing economy. WEX and many other local organizations have benefited significantly from the Institute's deep technology focus that directly targets the needs of our state's workforce.

This is an exciting development for Portland. A permanent campus site will enable the Institute to continue growing and transforming Maine in a location that is inclusive and open and accessible to the public. Above all, it will create a cohesive community where innovation can thrive.

I believe these plans to be a beneficial and necessary step for Portland and the Roux Institute, and look forward to our continued collaboration.

Melissa Smith(she/her)

Chair and CEO

WEX

97 Darling Avenue, So. Portland, ME 04106

Office: (207) 523-7643 Mobile: (207) 671-9802

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Nov. 17, 2022

Portland Planning Board
389 Congress St.
Portland, ME 04101
planningboard@portlandmaine.gov

RE: Roux Institution Campus Development Proposal

Dear Members of the Portland Planning Board:

I'm a homeowner in East Deering and a volunteer board member of the Casco Bay Trail Alliance. I'm writing today to express my strong support for the redevelopment of the B&M factory into a new campus for the Roux Institute.

I have been very impressed with the community engagement by project developers. They have been open and transparent with me and others in my community—inviting discussion, welcoming site visits, answering questions, and simply listening to neighborhood concerns. The developers have worked hard to ease concerns about traffic and building height, providing concrete answers and proposals to problem-solve around these issues.

Most importantly from my perspective, the developers have made significant commitments to expand access to open public spaces and to improve public transit and bike and pedestrian access in my neighborhood. East Deering is only one mile away from the peninsula, yet most people traveling downtown would find it easier to get into a car, than to travel by bike, bus, or foot. That is not sustainable. The developers have demonstrated a willingness to push up their sleeves and get to work on transportation issues by communicating and planning with Greater Portland Metro, coordinating with the Maine Department of Transportation, and meeting with bike and trail advocates. This is the sort of planning that we need to integrate the East Deering neighborhood into a functioning public and active transportation network for the City of Portland.

I understand the concerns that some of my neighbors have raised, but I believe the value of this project to the East Deering neighborhood, to Portland, and to all of Maine outweigh those issues. The truth is that the B&M factory will be redeveloped. With the Roux Institute, we get an internationally respected academic and high-tech anchor that will draw new businesses and people to Maine, adding to Portland's economy and vibrancy.

The Roux Institute, through its partnerships with local schools, is already having a positive impact on the lives of students. Through its public engagement, project changes, openness and transparency, Roux has demonstrated that it will be a good partner in the community.

I hope that you will approve the zoning change that will let this project advance.

Thank you.

Emma Bond

63 Arcadia Street

Portland, Maine 04103

Roux Institute 0 views

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Sarah Maloney <sarahmaloney01@gmail.com>
to planningboard@portlandmaine.gov

12:29 PM (1 hour ago)

Sarah Maloney, LCSW
55 Highland Street
Portland, Maine 04103-3042
[207-233-0014](tel:207-233-0014)
sarahmaloney01@gmail.com

November 16, 2022

To Chair Stanley and Honorable Members of the Planning Board:

I am writing to you as a long-time resident of Portland to express my interest in the development of the Roux campus on the old Burnham and Morrill site in the East End. Although Portland has a fabulous reputation already as a wonderful place to vacation and visit, I am thrilled for the opportunity the Roux Institute offers for young people to make and call Portland and surrounding areas home.

The Roux Institute is the best thing to happen to Portland in a generation, maybe a century. Just as it will transform a tired manufacturing site, it offers to replace diminishing traditional industry jobs with high tech jobs of the future. The education and training opportunities are world class, and a multi-purpose campus will employ people at all levels. This is also personal for me; I have two post college age children who would greatly benefit from all that Roux Institute has to offer. I also work at Falmouth High School, and know how much young people crave the ability to stay and study and work in our great city.

I can't imagine a better spot for this purpose than the former Burnham & Morrill site. First, it's in Portland – I'm sure any other city in America would have jumped at this opportunity. Second, it's surrounded by water or infrastructure and buffered from neighborhoods. Third, the proposed urban development is in a city, where it belongs. Tall buildings belong in cities and make much better use of land than sprawling low-rise buildings. Fourth, it perfectly complements Portland's waterfront trail system. Imagine walking or biking from the proposed Portland Harbor Common, along the eastern Promenade trail, over Tukey's Bridge and then under it along the trail into the Roux Campus and all along the periphery, then north to Martin's Point Bridge or south along Back Cove. I am grateful for the public access built into the proposal and look forward to taking advantage of this splendid new resource.

This is the right home for the Roux Institute and the right plan for this location. I hope you will put your seal of approval on the rezoning so it can move forward without delay.

Sincerely,

Sarah Maloney

Sarah Maloney
[207-233-0014](tel:207-233-0014)

No answers to chaos Ideals project would create

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0 views



Tamas Peredy <peredy.tamas@gmail.com>

1:36 PM (1 hour ago)

to planning@portlandmaine.gov

The names of the members of the planning board who allow this project to slip through will go down in infamy. The gargantuan megalith will snarl already overwhelmed chokepoints at Veranda and Washington.

This is not a higher education project but a high end condo, retail store and oh, by the way, a college classroom. When you need a slick sales pitch to deceive the city, you know something sleazy is afoot. The crowding will destroy the surrounding neighborhoods.

And Portland will have the same, homeless, substance use and lack of affordable housing.

Please refuse to permit this l'll-conceived project.

Roux Institute/1 Bean Pot Circle 0 views

 Subscribe ☐


Barbara Vestal <vestal@millerphalon.com>

10:22 AM (8 minutes ago)

to planningboard@portlandmaine.gov, Christine Grimando, planning@portlandmaine.gov

Hello Chair Stanley and Planning Board Members:

I write to urge extreme caution as you have your first public hearing on the Roux Institute proposal. If you determine that the information before you is insufficient to make a decision on the IDP, the related Regulatory Framework, the underlying rezoning to B-5 and amendments to the Institutional Overlay Zone, I would encourage you to postpone any Planning Board decision for as long as necessary, until after you have received what appears to be adequate, well-documented information and plans, and you have given the public sufficient opportunity to comment on the new submissions.

Your recommendation to the City Council should come only after you believe you have exhausted your best efforts to arrive at a plan for effective mitigation of adverse impacts. It is a disservice to the residents of Portland and to the City Council to pass along to the Council a less than fully vetted proposal. Similarly, this rezoning phase is the time that the Planning Board and City Council can have the most impact in determining the course of the build-out over the next 20 years. The tools to effectively manage impacts over time must be put in place as an essential part of the rezoning. It is misdirected to think that major issues can be better addressed in subsequent site plan reviews; you will find yourselves without sufficient tools or leverage at that point.

My major concerns are traffic and accessibility. The location of the proposed development, with only one access road, is highly problematic. I would think the fire department would be concerned about its ability to access the site with ladder trucks and the equipment necessary to fight a fire in buildings of the height proposed. And, as others have repeatedly identified, the transportation plan seems to make significant "very aggressive" assumptions about reducing the volume of vehicular trips while ignoring the fact that alternative modes of transportation will be constrained by harsh winter weather conditions.

I believe that for this particular proposed development, the requirement of, and tools for, heightened review of transportation impacts should be incorporated into the IDP and Regulatory Framework because this proposed development deviates from the existing zoning framework in two important ways:

- 1) The purpose statement of the B-5 zone says that it is to be applied in "areas of the peninsula near downtown" and that it is anticipated that the "dense mixed uses" "will rely on a shared infrastructure system, including service alleys, parking lots, public transportation facilities, stormwater management, and driveways." HERE THE DEVELOPMENT SITE IS NOT ON THE PENINSULA AND THERE IS NO SUCH SHARED TRANSPORTATION INFRASTRUCTURE SYSTEM AVAILABLE FOR THE IMMEDIATE SITE.
- 2) The IOZ was first developed for certain institutions that were already-existing in the location to be rezoned, and it sought to manage cumulative impacts of gradual growth over time. HERE THE INSTITUTION WOULD BE A BRAND NEW USE FOR THE SITE AND NEW IMPACTS, NOT INCREMENTAL CUMULATIVE IMPACTS, ARE WHAT NEED TO BE MANAGED.

The Transportation Demand Management (TDM) objectives and strategies in the IDP need to be fully developed in detail sufficient to convince the Planning Board that what is being proposed will not have an undue adverse impact on the traffic and transportation in the neighborhood and broader portions of the City, and the Planning Board needs to make sure it will have necessary tools to require mid-course corrections if the projections prove wrong and there are undue adverse impacts. Those tools need to be incorporated into the regulatory framework as part of the IOZ amendment for this Roux IOZ.

For example, one possible provision for Roux IOZ zoning text amendment could impose heightened requirements up front on what will be required of any TDM plan for this project that is to be submitted as part of site plan review. It might state:

The TDM plan required as part of any site plan application shall identify multiple levels of mitigation measures that may be required of the developer by the Planning Authority if, in the opinion of the Planning Authority, the annual monitoring reports do not verify that the development is meeting or exceeding all of the parking, mode share and trip reduction targets applicable for that phase of development, or if, despite meeting these targets, the development is nonetheless having an undue adverse impact on traffic and transportation in the vicinity. At the discretion of the Planning Authority, these mitigation measures may include financial contributions for off-site improvements, required shuttle services, required off-site parking lots and/or parking structures, or such other mitigation strategies as may be sufficient to control adverse impacts. These mitigation measures may be required to be implemented, from time to time, during an existing development phase after site plan approval has been granted, and, in addition, no site plan application for a subsequent phase shall be reviewed until the development is consistently meeting or exceeding all relevant targets for the current phase and is not imposing undue adverse impacts.

If mitigation measures are required of the developer by the Planning Authority, the Planning Authority may require ongoing monitoring and reporting on such schedule as it deems appropriate and may require the implementation of additional mitigation strategies and more frequent monitoring as may be required for the development to consistently meet or exceed applicable targets for the phase and to mitigate undue adverse impacts.

The risk of major adverse traffic impacts are self-evident. This is the time, before the rezoning has been granted, to incorporate the types of tools the City must have in its toolbox to figure out the correct balance and to implement a system to require mid-course corrections if the development threatens to overwhelm its host.

Regards,

Barbara Vestal

--

Barbara A. Vestal
Miller & Phalon, P.A.
107 Congress Street
Portland, Maine 04101
Ph: (207) 772-7426
Fax: (207) 761-5822

Roux Institute Institutional Overlay 0 views

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Richard Barringer <richard.barringer@maine.edu>

3:13 PM (9 minutes ago)

to planningboard@portlandmaine.gov, Pious Ali, Andrew Zarro, Christine Grimando

Dear Chairman Mazer and Members of the Planning Board,

Portland is a small city by national standards, at once resilient and charming – on the water, human in scale, generous in spirit and determined to remain “livable.” As a young Coast Guardsman some 60 years ago, I first encountered Portland and witnessed the decay of its waterfront and nearby commercial district. In the late 60s and 70s I saw the City wrestle with the “revitalization plan” of Victor Gruen Associates, as it sought to counter highway-induced suburbanization, as well as the growing revival of the Old Port through largely private efforts and investment.

For the past three decades I’ve had the singular pleasure of living and working here, as founding director of USM’s Muskie School, where for a quarter century I taught public policy, community planning, and sustainable development. In recent years I’ve had the pleasure of leading research on the development prospects for the city and its regional economy, housing, workforce, public infrastructure and transportation, and quality of place.

At present I continue to be involved in creating the Portland Harbor Common (PHC) project from the Maine State Pier to the new Portland Foreside project, Phase 1 of which is about to get underway. At the far end of the Eastern Promenade from the PHC, at the venerable B&M baked bean plant site, a re-zoning application is under consideration to advance the potentially transformative Roux Institute.

I greatly admire that the Roux family has selected Portland as the institute’s home; a spectacular (if challenging) site for its development; and Northeastern University as its academic partner, a national leader in cooperative education

with industry, commerce, and government. If the institute achieves its ambitious goals, it will in time become a most welcome addition to the economic, civic, social, and intellectual life of the city and region.

I have visited the site and reviewed the new, modified application for this private property on the water, as well as the changes proposed to the original application after numerous public listening sessions by the developer. I find much to admire and praise, and strongly support its application for an Institutional Overlay as appropriate zoning that will allow successive site plan proposals and review, as these are sought.

I applaud the workforce and transportation measures promised, the proposed reduction in retail space, creation of a community advisory body, and the important sustainability charter. I likewise praise the imaginative design of the Roux Institute building, itself, as shown in the concept drawings, and hope this same level of creative imagination will be applied in all buildings proposed on the site.

As a former Maine Commissioner of Conservation and Director of State Planning, I am especially pleased at the prospect of the public open space proposed that will in part connect the Eastern Prom and Back Cove trails. We may hope the redeveloped property will give expression to the design principles formulated by the Project for Public Spaces, formulated after some 50 years of research world-wide on how best to transform industrial waterfront properties to successful public use (see www.pps.org/article/turnwaterfrontaround).

A final issue of concern is the massing scale of the institute's original application and concept drawings. On this site, less mass than shown would serve it well, even at the cost of greenspace. As we look to the several, incremental site plans that would follow the Institutional Overlay, important questions remain:

- Will the designs put forward understand the context, be authentic to this city and region, and reflect our shared values and history?
- Or will these represent a slavish imitation of high-tech industry campuses elsewhere in the nation?

- Will the whole, to be realized over decades, cohere as an ensemble, as opposed to a collection of single elements?
- Will the outcome become beloved, as did the Baxter Boulevard over time?
 - Or will it become yet another windswept repetition of soulless architecture that abounds in today's world?

The Roux Institute's promise will be some decades in the realization. Its potential for the city and region is great and should be welcomed. The opportunity is great, as well, for it to create a signature "campus" that is at once pleasing to the eye, a credit to the city, widely appreciated, and deeply valued. If done well, it will appear in the end as if it had long (if not always) been there.

I thank you for your consideration and wish you every success in bringing this most promising project to reality for all the people of Portland and the region.

Sincerely, Richard Barringer

Richard Barringer
22 Hancock St. Unit A-208
Portland ME 04101-4878
richard.barringer@maine.edu
207-871-7890

FW: 📌 UPDATE: B&M Site Development

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0 views



jra...@portlandmaine.gov <jrather@portlandmaine.gov> 3:09 PM (22 minutes ago)
to planningboard@portlandmaine.gov

And this one as well

On Thu, Nov 17, 2022 at 6:13 AM Connect Portland <info@connectportland.com> wrote:

Pay ATTENTION, if you have not been engaged, get involved! We want your input on building height, traffic, parking and a mitigation plan to address these concerns.

Background: IDEALS, a non-profit corporation in Falmouth, has submitted a zoning and text amendment including a 130-room hotel, retail (restaurant, cafe, market, etc.), commercial, housing and academic.

Update: The applicant IDEALS has been moving through the Planning Board review process. The Planning Board will hold a public hearing on Tuesday, November 22 at 4pm via Zoom. <http://www.portland.gov/agendas>
A public hearing will be scheduled in the near future for a Planning Board recommendation to the City Council at planning@portlandmaine.gov

The project will be phased over 20 years, but the impact will be immediate in the first phase and include 650 units, and other proposed commercial and retail uses especially the traffic implications for local roads.

Required Content for the rezoning (traffic):

- Identify institutional needs to guide the development plan for addressing traffic impact and access
- Demonstrate that traffic and parking impacts have been anticipated with assessment of options to mitigate impacts

Comparison of Campus Mode Shares to City Mode:

<u>Mode</u>	<u>AM</u>	<u>PM</u>	<u>City Wide</u>	<u>Campus</u>
Drive Alone	67%	66%	68%	71%

Transit	10%	10%	3%	18%
Non-motorized	18%	19%	14%	5%
Carpool	5%	5%	8%	6%

Conclusion: Increased traffic is projected to be 71% for the 600 to 1,900 plus vehicles entering the surrounding area will be impacted. The most significant impact will be during peak traffic times which The proposed **mitigation plan** suggests that improved Metro bus service and providing bicycle/pedestrian **to solving the 71% increased traffic problem for not only East Deering, but users of Washington** Nor has the issue of **cut-through traffic** been addressed, an existing and growing problem for the surrounding area.

PARKING: Another key point is the expected parking demand of 600 to 1900 spaces, many of which are in demand.

The developer to date has NOT come forth with the required analysis for projected parking demand and its impact on the surrounding area.

NOTE: If you live anywhere in neighborhoods on and off Washington Avenue downtown, access to I-295. etc, - - you will be affected!! Please be aware.

###

Christian MilNeil <c.neal.milneil@gmail.com>

Oct 11, 2022, 1:39:44 PM (21 hours ago)

to planningboard@portlandmaine.gov, Troy Moon, PBPAC@googlegroups.com

Honorable members of the Planning Board,

I'm writing with regard to the proposed Zoning Map and Text Amendment for 1 Bean Pot Circle (Roux Institute project) under discussion at a tonight's planning board workshop.

As you know, motor vehicles are our region's largest source of climate-heating pollutants, and largest source of unhealthy air pollution in general.

However, while admirable by 20th-century standards, the applicants' current Transportation Demand Management (TDM) plan doesn't go far enough to meet [the city's most recent "One Climate Future" goals](#) for shifting more trips to bikes, walking, or transit. And failing to meet those goals will put this site, and the entire East Deering neighborhood, at particular risk for increasing coastal flooding and erosion.

Page 143 of the city's One Climate Future Plan states that "the One Climate Future modeling analysis targets that by 2050, 20% of all trips originating or terminating in the cities will use public transit to meet our One Climate Future goals."

Additionally, in order for the city as a whole to hit that target, large new developments like this one will likely need to over-shoot that mark, and achieve a 25% or 35% transit mode share in order to make up for lower transit mode share in other parts of the city.

The current IDEALS TDM plan proposes that only 10% of trips to and from this site will be made by public transit – which is contrary to the city's official climate plan.

I also don't see any specifics about how much increased transit service the applicants propose to finance. In order to support 250 peak-hour bus trips for this site (consistent with a ~25% transit mode share), the 7, 9A, and 9B would all need to increase their service frequency substantially, which means hiring more drivers and acquiring more buses.

I'm heartened to see city staff voicing support for more aggressive mode shift targets for walking, biking, and transit trips to and from this site. I hope that the Planning Board will support them, and protect the city's climate policy, at tonight's workshop.

Meeting the city's climate targets won't only help protect this site and our city in general from drowning under future flooding; it will also result in a better development with happier tenants who don't have to waste hours of their valuable time stuck in traffic jams.

Christian MilNeil

Roux site needs vibrancy

0 views

Subscribe ☐**Zack Barowitz** <zbarowitz@gmail.com>

Oct 11, 2022, 2:59:40 PM (19 hours ago)

to Planning Board

Chair Stanley and Honorable Members;

The Roux campus presents an incredible opportunity for Portland but only if it is done right. As we have seen with Thompson's Point the key to a successful, vibrant site is multi/model access. This cannot be achieved by adding highway infrastructure or treating it like an office park in Scarborough; but it can by better bicycle, pedestrian, trail, and transit access.

Thank you,

Zack

--

Cheryl Ann Leeman <leemanc174@gmail.com>
to planning@portlandmaine.gov

Oct 20, 2022, 11:38:58 AM (22 hours ago)

TO: Chair Maggie Stanley and Planning Board Members

FROM: Cheryl Leeman, East Deering Neighborhood Association (EDNA)

DATE October 20, 2022

SUBJECT: IDEALS Request for Zoning Change

Please accept the following feedback from the EDNA regarding the proposed site development by IDEALS at the former B & M site. We have been watching the process and feel it is time to weigh in with some of our concerns. We want thank the Planning Board members for their due diligence in the review process to date.

1.) IDP Requirements, Transportation and Access

(a) “An analysis of the projected changes in parking demand, supply and impacts to the off-street and on-street parking capacity, including an explanation of the proposed parking plan”

- There is insufficient data provided regarding this requirement in the IDP and parking impact is of serious concern to the wider East Deering neighborhood given the experience with USM and UNE parking impact on those abutting neighborhoods. The East Deering neighborhood beyond the immediate site has not been discussed with regards to this issue yet the neighborhood off Presumpscot street is within easy walking distance to the site and will not doubt feel the impact of off-site parking. Why are they so reluctant to establish a shuttle service which is common place with educational institutions and would have little or not effect on Metro service?

(b.) An analysis of the projected changes in vehicular, pedestrian transit and bicycle access routes and facilities, their capacity and safety.

- The focus has been primarily on the Veranda Street and Washington Avenue traffic issues rightly so. However, the high percentage of vehicle traffic will create stacking of cars at those locations causing a major problem for the East Deering neighborhood with cut-through traffic which happens now because of frustrated drivers being delayed so they divert through the neighborhood to get to the traffic lights at Presumpscot Street and Ocean Avenue.

- The lofty goals” of using Metro, water taxi and pedestrian, bicycle means to reduce traffic doesn't pass the “straight face test” because these alternatives are based on funding sources other than the developers who is committed to these options but the funding as part of site development further, as indicated in the staff memo data to support aggressive alternatives modes to cars to support meeting the goals set forth. What other options have they made but will not fund which impact the neighborhood? Should the city and neighborhood not get something in return as part of approval?

- *Infrastructure needs due to one narrow street access to the site pose additional issues such as Metro buses being able to get into and out of the site, wide radius turns required to make corners and turn around in the site and wide radius swing of larger vehicles from I95 onto Veranda which forces them into the oncoming lane of traffic*

- *Tukey's Bridge is a Federal Highway thus requiring a lengthy approval process for funding, permitting and implementation of an exit which is highly unlikely given current traffic condition especially level of service, capacity and backup traffic at peak traffic times.*

Height of bridge overpass on Sherwood Street restrictive for fire ladder trucks that would be required given the proposed height of building if their were to be a fire.

2.) Purpose of the IOZ and IDP is specific as to requiring more detail than a Master Planning process, or simple rezoning request for good reason regarding analysis, addressing anticipated impacts for short to medium term (e.g. 1-5 and 5-10 years respectively) with a more “conceptual plan for the long term (e.g. 10 years or more)

- *The constant reminder from IDEALS that these plans are “conceptual” and details will be provided in the next phase does meet the requirement and expectation set forth in the IOZ and development of an IDP. Nor is it responsible to the neighborhood who will feel the major impact of this proposal.*

To suggest that it will looked into in the next phase or the site plan review process does meet the specificity required in the IDP and regulatory framework for approval. Once approved, it is unrealistic to think the city would not allow further development.

3.) Height studies during my tenure on the city council and most recently stated that the height should be in the downtown “spine of the city and elsewhere in- town not off-peninsula that were recognized as important to preserve.

The height of buildings does have a correlation to impact of traffic as the taller the buildings the more people and cars will be invited to visit the site as a “fun place to go’.

Finally, there will be a significant loss of leverage by the city if approved without very detailed requirements in the IDP for approval and prior to site plan review including specific language as to funding commitments from the developer for “promised” site improvements and traffic improvements. The city should not be on the hook for making improvements such as traffic lights, street improvements, pedestrian/bicycle trails, upgrades to sewer/storm water, loss of property taxes, etc.

And community engagement has been totally lacking and the neighborhood respectfully request that an Advisory Committee be set up now not after the fact in order to have a more collaborative process. Thank you.



Zachary Powell <zpowell@portlandmaine.gov>

EDNRD Concerns over the IDEALS Development Plan Traffic Studies and Neighborhood Engagement

EastDeering Neighbors <ednfrd@gmail.com>

Fri, Oct 21, 2022 at 7:49 AM

To: planningboard@portlandmaine.gov, Planning@portlandmaine.gov, Zachary Powell <zpowell@portlandmaine.gov>

Cc: allison brown <abrown125@gmail.com>, Clare Hannan & Steve Von Vogt <hannanvonvogt@gmail.com>, Justin Litchfield <justinlitchfield26@gmail.com>, James Pratt <jrpratt@hotmail.com>, Sandra Ste George <stegeorge@gwi.net>, Phillip Hoose <hoose@gwi.net>, Michelle Zichella <zichella@yahoo.com>, Sandy Comstock <sandycomstock3@gmail.com>

Dear Members of the Planning Board:

Following up on the last Planning Board meeting, EDNRD wishes to respectfully express our continued concern about the massive mixed use development impacts on traffic, appropriateness of proposed building heights, no justification for the necessity of ancillary uses to support Roux Institute, substitution of an MOU to meet title requirements and no meaningful public engagement with the neighborhood.

The presentation by IDEALS leaves us more concerned than ever about traffic impacts. Their mitigation plan relies on "lofty goals" rather than hard factual data. They keep pushing the ball down the road to get approval with "promises" to deal with the issues in the next phases of development – not acceptable nor within the requirements of the IOZ and IDP.

- Pedestrian and bicycle alternatives will not solve the problems and their commitment to connect the trail for access is not without implementation issues not really discussed - site problems, funding and seasonal use
- Metro is yet another "promise" but no firm commitment except to say they are in discussion and Metro has put into their future plans. In addition, no explanation as to infrastructure needs for a bus to be able to maneuver in and out of the site.
- Pinch points at Washington and Veranda and Veranda and Sherwood not adequately addressed
- Avoidance of the question around a shuttle service
- Questions of what happens if they do not meet their mitigation goals leave us very concerned that IDEALS will simply "monitor" the situation with more "promises" for solutions

We have yet to receive a concrete understanding of the necessity of a mixed-use development of this scale as it relates to the Roux Institutional use and reasoning for an IOZ zoning rather than a simple B-5 zoning change.

- Building heights not justified for the Roux Institute's mission as educational institution (USM and UNE do NOT have these ancillary uses)

- Heights proposed are simply not in character with a highly residential off-peninsula neighborhood
- The housing component detail has not been fully explained or a commitment made to affordable or student housing
- IDEALS states that reducing heights will affect open space, etc – footprint remains the same so how does reducing building heights change design?

Neighborhood public engagement has lagged far behind that of IDEALS outreach to outside groups who do not reside in the neighborhood

- EDNRD has from the very beginning of the process asked for a more formal framework of regular meetings as a stakeholder and a more collaborative process
- The meeting with IDEALS representatives felt like an appeasement to meet the request made by the Planning Board to have a meeting
- The suggestion that they are working on establishing a Neighborhood Advisory for inclusion in the IDP is being done without input from the neighborhood.

There is no binding agreement between IDEALS and Roux Institute that ensures that the development will be owed by Northeastern with continued academic purposes.

- Memorandum of Understanding does not legally meet the requirement of title and ownership as required
- Why is the ownership not being transferred now?

On behalf of EDNRD, we thank the Planning Board for their continued efforts to get at the answers to these questions.

Steve Von Vogt on behalf of
East Deering Neighbors for Responsible Development
Windsor Heights
Portland, ME 04103

allison brown <abrown125@gmail.com>

6:33 AM (3 hours ago)

to planning@portlandmaine.gov

To: Chair Maggie Stanley and Planning Board Members

From: Allison Brown

Following the planning board workshop on the transportation components of the IDEALS proposal, it is evident that the infrastructure necessary to support a project of this scale, in the east Deering neighborhood does not currently exist.

I 295, exits 8 and 9, and the neighborhood streets that the project will most impact are at or above capacity. IDEALS proposal does not include any mitigation or practical improvement in these areas. Existing walking paths and bicycle paths are not wide enough or well-lighted enough to accommodate a significant increase in usage. IDEALS proposes improvements and additional walking paths and bicycle paths on the site. Although essential and worthwhile additions to the East Deering neighborhood, they will do little to mitigate the increase in traffic that will inevitably come with a project of this scale. I might also add that these are the least expensive "improvements" included in the IDEALS plan.

I believe that the Roux Institute will be a benefit to Portland and the State of Maine. However, if the city wants to see the Roux Institute have its home as part of the IDEALS development, the planning board needs to insist that the project be scaled back so it can function with the infrastructure as it exists.

Thank you for your time.

Allison Brown
25 Lennox St
Portland, ME 04102



Zachary Powell <zpowell@portlandmaine.gov>

(no subject)

EastDeering Neighbors <ednfrd@gmail.com>

Fri, Oct 21, 2022 at 9:53 AM

To: planningboard@portlandmaine.gov, Planning@portlandmaine.gov, Zachary Powell <zpowell@portlandmaine.gov>, Andrew Zarro - D4 <azarro@portlandmaine.gov>

Cc: allison brown <abrown125@gmail.com>, James Pratt <jrpratt@hotmail.com>, Justin Litchfield <justinlitchfield26@gmail.com>, Phillip Hoose <hoose@gwi.net>, Sandra Ste George <stegeorge@gwi.net>, Sandy Comstock <sandycomstock3@gmail.com>, Chris Briley <cbriley@briburn.com>, Michelle Zichella <zichella@yahoo.com>

Dear Planning Board Members:

Below is a copy of the Order approved by the City Council in relation to the MMC's Community Benefit Donation as part of their long-term plans for expansion and working with the neighborhood/city to improve surrounding its campus and the Western Promenade.

East Deering has yet to see any economic benefit analysis, payment in lieu of taxes due to loss of property taxes and no contributions to the amenities of trail connections, etc or the neighborhood given the profound impact of this development.

We ask that the Planning Board give serious consideration to including language regarding an economic benefit analysis, payment in lieu of taxes and a community benefit contribution from IDEALS for internal and external benefits to the city and neighborhood.

MEMORANDUM City Council Agenda Item

FROM: Jeff Levine, Director Planning & Urban Development Department DATE: February 5, 2019

SUBJECT: Order 160-18/19 Accepting the Donation of \$300,000 from Maine Medical Center - Sponsored by Jon P. Jennings, City Manager SPONSOR: Planning and Urban Development Department/Department of Parks, Recreation and Facilities

SUMMARY Maine Medical Center seeks to make a Community Benefit Contribution to the City for the purpose of improving parks in neighborhoods surrounding its campus, namely Bramhall Square, Valley Street Community Garden/Dog Park, and the Western Promenade.

AGENDA DESCRIPTION In 2017, Maine Medical Center ("MMC") applied for a zone change under the Institutional Overlay Zone (IOZ) provisions of the City's land use code. Under the requirements of the code, the hospital developed a master plan, their Institutional Development Plan (IDP), which framed their short- and long-range expansion plans for the next 20 years. Over the course of the review of this IDP, and the subsequent site plan reviews, the hospital engaged with the surrounding neighborhoods to discuss neighborhood needs, the hospital neighborhood relationship, and potential areas where the goals of the hospital and its neighbors intersect.

One of the areas that emerged is in the realm of parks and recreation. The hospital's neighborhoods have long sought improvements to park and recreation facilities in their midst, recognizing the social, economic development, and environmental benefits of these resources. St. John/Valley has pursued park improvements at the Valley Street Community Garden/Dog Park for the last decade, Bramhall Square has been the source of conceptual planning for almost as long, and the Western Promenade and West End neighborhoods are currently engaged with Parks and Historic Preservation staff to develop a master plan for improvements to the Western Promenade. Park improvements have tangible value to MMC as well; research shows that the presence of parks and recreation facilities have a demonstrable effect on public health outcomes, correlating with higher rates of physical activity, lower rates of childhood obesity, and even decreased risk of cardiovascular and respiratory disease.

Realizing the potential synergy around park and recreation facilities, Maine Medical Center seeks to make a one-time \$300,000 contribution to the City for the purpose of improving parks in these locations: Bramhall Square, the Valley Street Community Garden/Dog Park, and the Western Promenade. The money is to be used for capital improvements only, with the specific projects to be determined by the Department of Parks, Recreation, and Facilities with the input of the neighborhoods where the facilities are located, based on previous or ongoing planning and design work. Five affirmative votes are required for passage following public comment.

BACKGROUND In the past decade, the neighborhoods surrounding Maine Medical Center, with the City as a partner, have engaged in a number of efforts to improve their public spaces. In 2009, the St. John/Valley Neighborhood Association applied for CDBG funds to support improvements at their community garden and dog park; in 2013, Parkside collaborated on a CDBG application to implement improvements to Bramhall Square; and in 2018, the City, working with the Friends of the Western Promenade, initiated a master planning process for the Western Promenade. When Maine Medical Center began to engage neighbors around long-range plans and potential neighborhood investments in 2017, these parks emerged as a prime opportunity. Not only are they valuable community resources with potential social, economic, and environmental benefits, they clearly relate to the hospital's public health mission as well.

In an effort to capitalize on this opportunity, MMC worked with the City's Planning and Urban Development Department, Department of Parks, Recreation, and Facilities, and Corporation Counsel through late 2018 to plan a Community Benefit Contribution, a one-time investment to fund capital improvements within the three parks identified above: Bramhall Square, the Valley Street Community Garden/Dog Park, and the Western Promenade. Specific capital improvements, many of which have been identified through previous or ongoing planning, will be identified by the Parks, Recreation, and Facilities Department and implemented using the revenue from the MMC donation.

INTENDED RESULT AND/OR COUNCIL GOAL ADDRESSED The purpose of this Community Benefit Contribution is to allow a donation of funds from Maine Medical Center to the City of Portland for the improvement of the parks and facilities at Bramhall Square, the Valley Street Community Garden/Dog Park, and the Western Promenade. This contribution directly relates to goals around the City's capital improvement planning.

FINANCIAL IMPACT The Community Benefit Contribution will result in \$300,000 of additional funds with which to make capital improvements to the three parks specified above, with funding to be divided equally between the three eligible parks. The Parks, Recreation and Facilities Department currently maintains these facilities and would continue to maintain them after implementation of improvements. Staff anticipates that there may be some incremental increases in maintenance cost (play space maintenance and replacement parts, maintenance of any structures added, replacement cost of dog park features), but those costs may be partially offset by cost savings due to improvements (drainage and erosion issues addressed, etc...)

STAFF ANALYSIS AND BACKGROUND n/a VII. RECOMMENDATION: The Department of Parks, Recreation, and Facilities; Corporation Counsel; and the Department of Planning and Urban Development have all reviewed the proposed Council Order and recommend that the Council vote to accept the contribution.

Order Accepting Maine Medical Center Donation 2.20.2019 Prepared by: Jeff Levine, Director Planning & Urban Development Department Date: 02/05/2019

Thank you again for your hard work on this matter.

Steve Von Vogt on behalf of
East Deering Neighbors for Responsible Development
Windsor Heights
Portland, ME 04103

Emma Bond <emma.e.bond@gmail.com>

Oct 23, 2022, 2:53:30 PM (18 hours ago)

to planningboard@portlandmaine.gov

Dear Planning Board,

I am a board member of the Casco Bay Trail Alliance and an East Deering resident at 63 Arcadia Street in Portland, and I write in support of IDEALS' application.

IDEALS' proposal would benefit the neighborhood of East Deering, the city of Portland, and the greater Portland area. Not only will the Roux Institute bring a world-class educational institution to Portland, but its proposed plans for the old B&M factory site would convert part of the beautiful coastline of the East Deering neighborhood into public space and integrate East Deering to the peninsula through public trails. No other potential occupant of this land would offer anything similar.

I understand that the proposed density of the project and building height are concerns for some Portland residents. Yet East Deering and Portland are becoming more dense regardless of the IDEALS project. As a steward of the city and the environment, the Planning Board should encourage new development that prioritizes public transit and active transportation infrastructure. This means planning for and encouraging use of buses, biking, walking, and more-- not cars. Only by doing so can Portland grow sustainably. High density development can be a positive, not a negative, especially considering that higher building height leaves open more space for public space, trails, and connections to active transportation.

Thank you for your time and effort in evaluating this application.

Sincerely,
Emma

EastDeering Neighbors <ednfrd@gmail.com>

Oct 23, 2022, 12:37:26 PM (20 hours ago)

to planningboard@portlandmaine.gov, Planning@portlandmaine.gov, Zachary Powell, Andrew Zarro - D4, allison brown, Phillip Hoose, James Pratt, Justin Litchfield, Sandy Comstock, Chris Briley, Sandra Ste George, Michelle Zichella

Dear Planning Members:

Upon review of the materials for the upcoming Planning Board meeting, the neighborhood has the following questions and comments.

Infrastructure:

1.) The sidewalk along Sherwood Street is noted as a future upgraded accommodation for future visitors. Currently, visitors from the peninsula have to cross over to the Baxter Boulevard path from the Eastern Trail or Munjoy Hill/Downtown or other points on the peninsula. Until such time in the future that improvements are made, what is the current "Walkability Score" from different locations to the site? Will the addition of a sidewalk narrow the street creating a "pinch point" at the intersection for larger vehicles such as service trucks, fire engine ladder trucks and buses?

2.) Applicant supports and is "intending" to design a shared path connections under Tukey's Bridge - the key work is "intending" but design is not yet provided in their application and are they responsible for funding?

3.) East Deering has a very old storm water/ sewer system. Has there been an analysis of capacity of current system to support a large scale development and does the East End Treatment Facility have capacity to handle increased use?

- Public safety needs have not been addressed especially that of fire and requirements to service tall buildings due to constraints by the height of the overpass bridge on Sherwood?
- As noted in the staff memo, an "Infrastructure Plan" has not been provided as part of the IDP. When will it be forthcoming from the applicant and reviewed by staff and the Planning Board?

4.) The IDP does not indicate at what phase all operations will relocate to Bean Pot Circle nor does it contain legal Roux Institute ownership details.

Community Engagement:

1.) While the list of forums and roundtables may be impressive, it does not realistically portray the public meeting structure, the aggressive PR outreach for project support, non-responsive answers to questions during public meetings, and resistant to establishing an ongoing dialogue with the immediate neighborhood by establishing a Neighborhood Advisory as did MMC from the beginning of their process.

- IDEALS meetings were very controlled as to format and exchange by IDEALS with unresponsive answers to public questions
- Repeated requests for answers to requests for information and answers to questions are ignored
- IDEALS “expresses support” for a residential parking permit program and other suggestions made
- Applicant reduced overall square footage – not really! The original proposal presented a range of possible heights and square footage. They simply moved the needle within the range.
- IDEALS developed a community engagement framework with community advocacy groups...
- Rather than a shuttle service, IDEALS is focusing on transportation improvements to “reduce Single Occupancy Vehicle trips, as opposed to relocating them. The sheer volume as evidenced by their own analysis defies logic as to being able to mitigate traffic.
- Under the section Transportation Improvement Opportunities it states, “parking will be built over time as part of the development plan, and parking will be introduced incrementally...” Yet, in the next sentence they state the first phase of the development parking demand is expected to be approximately 700 vehicles. How can they increase parking demand to 700 in the first phase without providing parking? And where will they park?
- The suggested methods of neighborhood engagement do not meet the IDP language for “a plan for ongoing community engagement that represents best practices, promotes collaborative problem solving around community concerns, fosters transparency, and identifies mechanisms for neighborhood feedback and institutional accountability.”

Rezoning B-5:

1.) On page 47, Assessment of Growth section of the applicant's submission, it states “the proposed Roux Campus aligns well with the B-5 Mixed-Use zone's purpose statement in the City of Portland's Land Use Code.” The permitted uses in the B-5 zone would allow them to build what they are proposing. **We agree. Why then do they need an IOZ zone change?**

2.) The proposed map zone changes show parcels between Sherwood and Kensington going from current zoning of a R-3 to R-5 and B-5. Currently as an R-3, the zoning is consistent with abutting the neighborhood. Why the proposed changes?

Steve Von Vogt on behalf of

East Deering Neighbors for Responsible Development
Windsor Heights

Portland, ME 04103



Sandra Ste George <stegeorge@gwi.net> Oct 23, 2022, 12:55:54 PM (20 hours ago)

to EastDeering Neighbors, planningboard@portlandmaine.gov, Planning@portlandmaine.gov, Zachary Powell, Andrew Zarro - D4, allison brown, Phillip Hoose, James Pratt, Justin Litchfield, Sandy Comstock, Chris Briley, Michelle Zichella

This is Really Good, Steve.!!

Sandi

Sent from my iPhone

> On Oct 23, 2022, at 6:37 PM, EastDeering Neighbors <ednfrd@gmail.com> wrote:

>

> addition of a



allison brown <abrown125@gmail.com> Oct 23, 2022, 1:23:19 PM (19 hours ago)

to Sandra Ste George, EastDeering Neighbors, planningboard@portlandmaine.gov, Planning@portlandmaine.gov, Zachary Powell, Andrew Zarro - D4, Phillip Hoose, James Pratt, Justin Litchfield, Sandy Comstock, Chris Briley, Michelle Zichella

Excellent, Steve.

One thing I did mention in my letter was that the walking and bike paths they propose are the least expensive improvements they could undertake but will do little to mitigate the huge increase in traffic that we expect.

I hadn't thought about the sewers!

What time is the Ocean house district meeting tomorrow?

Allison

Kellan Simpson <kmsimp1@gmail.com>

Jun 14, 2022, 5:56:18 PM (14 hours ago)

to planningboard@portlandmaine.gov

Two comments

1. Every conversation seems to be focused around cars and building new exits and making wider roads. I hope the board can stop planning around cars for site access and thinking only about cars and traffic. We should be pushing for complete solutions to access the site without cars.
2. Please push for revitalizing the old rail bridge and applying for federal funding to get that done

Maine Rail Transit Coalition: "... to elevate rail transportation to its proper balance in transportation investments, planning and decision-making."

6/14/2022

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Memo

To: City of Portland Maine Planning Board_
Maggie Stanley, Chair

CC: Portland City Councilor Andrew Zarro, Chair
City of Portland Sustainability and Transportation Committee

From: Maine Rail Transit Coalition
Anthony Donovan, Managing Director

DS
AD

Date: June 14, 2022

RE: Zoning Map and Text Amendment; 1 Bean Pot Circle; IDEALS

Chair Stanley and Members of the Portland Planning Board,

The Maine Rail Transit Coalition (MRTC) would like to express our support for the proposed zone change for the development of the IDEALS' Roux campus at the former B and M Bean site. The MRTC is currently engaged in a project to bring a light rail passenger train service on the state-owned railroad adjacent to the development, and therefore has a strong interest in this projects impact on the railway, as well as the potential to benefit the climate, reducing congestion and provide equitable economic benefits to the region.

The developer has presented strategies for reducing the number of vehicle trips and to alleviate the impacts of vehicles on the environment and surrounding community. In addition to its proposed bicycling and pedestrian infrastructure, the strategies include a concept for expanding the Interstate highway to include a new highway interchange into the development and a conceptual idea for a ferry service operating from a pier on the site.

The MRTC advocates for expanding multi-modal systems of mobility, while seeking to discourage expanding highway use and our societal dependency on automobiles. As per the Governors recent Climate Change report, transportation is responsible for 54% of the Greenhouse Gas Emissions contributing to Climate Change.

While the strategy of connecting the development by ferry is innovative and in line with the City of Portland as a working waterfront community, we are genuinely concerned that the strategy of expanding I-295 will only lead to more traffic congestion at great cost. A 2011 state DOT study projected 40,000 vehicles entering the city every morning from the Interstate highways. This will only lead to further expansion and widening of I-295, and more highway congestion and pollution.

We do however appreciate the strategy of innovation to resolve critical transportation issues.

Train Time

DS
AD

6/14/2022

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The state-owned St. Lawrence & Atlantic railroad is an existing transportation infrastructure in place and can be restored for a passenger train service. Reconstruction of the trestle bridge into the city has been evaluated by a number of engineers and can be done, at a reasonable cost. Passenger train service can, and should, be provided on this route into the City.

The IDEALS development has engaged the services of VHB as their transportation consulting firm. VHB is also the go-to firm for the state in all the state rail studies, including a recent report on a passenger train service into downtown Portland from Westbrook. VHB has the ability, and data for determining passenger train benefits, ridership and impacts on congestion.

The MRTC respectfully requests that the Portland Planning Board directs the IDEALS development to include in their traffic impact analysis the potential for a passenger train service to the site on the adjacent state railway.

No less innovative than the idea of a ferry, or expanding bike-ped pathway, and far more innovative than expansion of a highway, the concept of a passenger train service must not be left out of the evaluation of this development.

The proposed IDEALS development has the potential to not only provide an institution of higher learning, jobs, housing and services, but also to address the serious issue of Climate Change.

MRTC would also like to request a meeting with members of the Planning Board, as well as those responsible for transportation components of the project, to provide in-depth input on the proposal for a multi-modal system of transportation using the existing railroad infrastructure.

Sincerely, DocuSigned by:

Anthony Donovan, Director
Maine Rail Transit Coalition



Zachary Powell <zpowell@portlandmaine.gov>

Bean Pot Rd development

HMason Sears <hmasonsears@gmail.com>

Tue, Jun 14, 2022 at 6:36 AM

To: zpowell@portlandmaine.gov

Zach,

i'm writing to express my concerns about the proposed development at the former B&M bean factory.

I am a neighbor (72 veranda st)

My first major concern is the traffic impact to the the Veranda st area. Will the city conduct their own traffic study or have a consultant review the proposed traffic plan? we all know alternative traffic reducing measures such as carpooling, share cars, biking , buse etc are far from a solution to alleviate single rider car trips. A worst case I would imagine is a cold post snow storm day, with limited sidewalks and a lot of cars flooding the area while kids are walking to school..

My second concern is the Institutional overlay zone is not in keeping with other examples of it in the city. it appear that this a commercial for profit development with a "school" as the development vehicle. while I understand some other housing and mixed use is part of a campus, it feels like the city is getting gamed on this.

my final point is more of a overall concern for this type of industrial water front site being converting to non industrial uses (this project does not need a water front location, and could be developed on a none working waterfront location)

while people have grown up with beans being made at the site (not a waterfront activity), I belive there is a good argument for the preservation of this working waterfront. as the pressures of development increase on the commercial st. corridor the city would be well balanced with an outlet for existing waterfront activities. commercial fishing, offshore support, recreation / commercial vessels repair, aquaculture, offshore wind, the list goes on to activities yet to be known but history has shown new water based industries will emerge.

I know the city has had a desire to relocate the commercial barge service loading to the islands from the eastern prom. as it would decrease industrial traffic thru the park, help with parking, (witha little dredging this site could accommodate a barge transfer ramp) I would imagine a public private partnership could be developed to create multi -use site to serve the needs of many diverse industries that could be supported at that site

Thank you,

Mason Sears

Bourque, Michael <mbourque@memic.com>
to planningboard@portlandmaine.gov

Jun 14, 2022, 5:26:33 PM (15 hours ago)

Good afternoon:

My name is Michael Bourque and I live at 137 Noyes Street in Portland. I also serve as the president and CEO of MEMIC, a workers' compensation insurance company with offices on Commercial Street and based here in Portland. At this location, we have about 300 employees.

I am here to offer my support for this incredibly important project for Portland, and for Maine. Already, in a few short years, in small leased space, Roux has started to show its potential. At MEMIC, we have already begun to enjoy this partnership. Last summer, our entire senior leadership team (about 25 people) did a 6-part program called "Leadership in Analytics." That offering, right here locally, helped prepare my mid-career team with exposure to important innovations in the use of data through world class instruction.

Think about multiplying that simple experience by hundreds of Maine-based companies. Think of hundreds of students who can have access to cutting-edge faculty in life sciences and data analytics. Think of the incredible opportunity incubate dozens and dozens of small businesses – some who could become the next Idexx or Jax. Think about being known as the home to ground-breaking research. The opportunity for Portland and for Maine is nothing like we have seen certainly in my 30+ years in Portland.

I walk and run the Back Cove Trail on a nearly-daily basis. I look forward with pride for Portland as I think about passing this incredible development every day. Please support this important project for the Roux Institute, which respects Portland heritage while inspiring --and helping create-- a great future!

Thank you.

Michael P. Bourque, APR, WCP

President and CEO

The MEMIC Group

PO Box 11409

Portland, ME 04104

(o) 207.791.3301 | (m) 207.749.8815

June 14, 2022

Dear Chair Stanley and Members of the Planning Board:

Founded in 1964, Greater Portland Landmarks is a non-profit advocacy organization that works toward the preservation and revitalization of greater Portland's built environment. Our goal is to save greater Portland's historic places through preservation and adaptive use while promoting creative new architecture that enhances historic neighborhoods. We appreciate the opportunity to comment on projects that impact the historic character of the city.

Landmarks is pleased to support IDEALS/The Roux Institute's application to amend the existing Institutional Overlay Zone (IOZ) regulations to permit IDEALS/The Roux Institute at Northeastern University to pursue an IOZ as an identified major City institution, change the underlying zoning of the site from I-M to B-5, and adopt a new IOZ for this property. We think this is a great way to manage the site for its new uses, in conjunction with the applicant's recently approved nomination to the City Council by the Historic Preservation Board as a local landmark. We are excited for the rehabilitation of the Burnham & Morrill Cannery and the applicant's overall reactivation of an important component of the fabric of Portland. Thank you for the opportunity to comment.

Sincerely,



C. Ian Stevenson
Director of Advocacy



Chair Stanley and Members of the Portland Planning Board,

The Portland Bicycle & Pedestrian Advisory Committee (PBPAAC) would like to express our support for the proposed improvements to multi-modal transportation presented by the Roux Institute Institutional Development Plan (IDP). We would also like to request a meeting with members of the Planning Board, as well as those responsible for transportation components of the project, to provide in-depth input on the proposed bicycling and pedestrian infrastructure.

The proposed Roux Institute development has the potential to not only increase Portland's green space and ocean-front trails, but also to extend Portland's existing bicycling network and better connect parts of the city and neighboring communities that are currently best served by car traffic. The potential to connect the Institute to the Back Cove Trail and to the peninsula by creating a path on the east side of Tukey's Bridge would greatly reduce the dangers of bicycling or walking to the Institute.

One of the main concerns of a development this size is the negative impact it may have on traffic in the area. By ensuring, from the beginning, that the campus is designed around bicycling, walking, and public transportation rather than cars, the need to drive to access the campus can be reduced, thus reducing traffic impacts and creating a safer, more vibrant neighborhood.

PBPAAC has had a number of discussions regarding the potential for improved infrastructure since the initial announcement of this project, and we would like to request a walk audit with members of the planning board and project planners to ensure that the needs of pedestrians and bicyclists are met and duly prioritized. We look forward to providing feedback as the project progresses.

Thank you for your consideration,

John Clark

Chair

Portland Bicycle & Pedestrian Advisory Committee

The Portland Bicycle and Pedestrian Advisory Committee is an ad-hoc group of Portland-area residents working to make the city and region a better place to walk, bicycle, and wheelchair. We advocate and educate on bicycle, transit, and pedestrian issues, including handicap accessibility. We work in collaboration with other organizations including the Bicycle Coalition of Maine, Portland Trails, PACTS, the Portland Department of Public Works and the Portland Planning Department.

Edward F. Libby <Ed_Libby@msn.com>
to planningboard@portlandmaine.gov

8:50 AM (1 hour ago)

Let's not sell ourselves short. While the amount of private commercial development seems disproportionate to a premier education facility that was the initial "sell" that the Roux Institute may have given for the site, here is a VERY similar proposal for a VERY similar site with a different developer than IDEALS. Divcowest is offering tremendous public benefits compared to IDEALS. Please take this slowly so that the city gets the most bang for its buck, rather than lining the pockets of a few slick developers who many believe are in the middle of a "bait and switch" foisted on the city of Portland.

The development would also deliver a number of sizeable benefits to the city. The project team is proposing \$54 million in one-time fees, which would incorporate a \$35 million affordable housing fee, a \$4.5 million Bayfront development fee and a \$14.5 million public facilities impact fee.

In addition, the City is looking to gain approximately \$3.1 million in annual revenue along with 4,000 to 5,000 high-earning life science jobs and another 300 jobs that would be created during the construction phase of the project.

See full article here:

<https://news.theregistrars.com/divcowest-woodstock-unveil-grand-plans-for-a-5-building-1-46mm-sqft-life-science-tech-hub-in-burlingame/>

Roux 0 viewsSubscribe ☐

Bonnie Craig <craig.portland@yahoo.com>
to planningboard@portlandmaine.gov

Jul 3, 2022, 3:34:54 PM (yesterday)

I was glad to see that some planning board members were questioning Roux zoning request in the paper.

I am totally against these building heights and all the commercial uses. The traffic is going

To be one great problem for all of us.

Thx

As a long time Portlander and resident of North Deering I've been following the Roux Institute's plans to redevelop the old B&M Baked Beans facility. Since moving to Portland in 2002 I've often wondered what would happen to the building. It was clear the building was slowly decaying and with the coming sea level rise I thought it might end up being abandoned and become an environmental and safety hazard. It certainly didn't seem like a great use of waterfront property in Portland. I was excited to hear that the Roux Institute had purchased the site; it seemed like a best case scenario. I think it's great that the property is going to be used by an institution of higher education focused on cutting edge disciplines that are what Maine needs to keep our economy strong and diverse. There's also the benefit to me personally that it will help revitalize that area and most likely increase property values. I understand that some residents are worried about increased traffic and a change to the view there. Traffic is a valid concern but with two highway access points right there and the already high traffic capacity of Washington Avenue it shouldn't be too hard to address that issue. As to the changing view: it is a change but I'll be happy to see a newer building that I know is full of people working and learning instead of an underutilized piece of Portland's past.

Portland's failure to add housing over the past 20 years has caused a housing shortage that has driven longtime residents out and made it difficult for young people to re-locate here. For a long time Portland has benefitted from being a cultural capital of northern New England and drawn in young people from the surrounding region. Those young people staffed our local service economy and went on to start their own businesses. That influx of young people is one of the bedrock reasons the city has been so dynamic and economically successful. The housing shortage and accompanying high housing costs erode this dynamic and threaten the city's long term health. Therefore the inclusion of apartments and dorms on the Roux campus is a big benefit to the city and helps with a problem the city has been unable to address.

I'm excited to have the Roux Institute here in Portland contributing to and expanding our diverse community. Their redevelopment plans specifically help the city by bringing new high paying jobs, creating housing, and taking care of an old industrial building that could have become a burdensome environmental and safety hazard to the city. I feel lucky that the Institute decided to come here instead of Lewiston or Biddeford. I hope the city will balance the concerns of a minority of residents against the major benefits this project brings to the whole city. Portland should work with the Roux Institute to help them be as successful as possible.

Ned Swain
15 South Grafton ST
Portland

Sandy Comstock <sandycomstock3@gmail.com>

Aug 2, 2022, 2:59:11 PM (18 hours ago)

to planningboard@portlandmaine.gov

As a resident of the East Deering neighborhood, I feel that our neighborhood has repeatedly been put in a position of responding to IDEALS' plans, as opposed to working together. It is my hope that IDEALS will engage the neighborhood as required in -IDP, Section 8.5.4 and 8.5.5 requiring "comments from the neighborhood meetings shall provide direction for the content of the IDP" and that the -IOZ requires that the IDP have "a plan for ongoing community engagement that best represents best practices, promotes collaborative problem solving around community issues, fosters transparency, and identifies mechanisms for neighborhood feedback and institutional accountability." Unfortunately, this has not happened.

We would like a more collaborative process of inclusion, transparency and accountability to the neighborhood of which IDEALS hopes to become a part. The Maine Medical Center model set the standard for a great model of partnership with the neighborhood from the beginning of their process with great success for all involved. We would expect nothing less for our neighborhood.

Respectfully,

Sandra Comstock
57 Watson Street
Portland, ME 04103

Tamas Peredy <peredy.tamas@gmail.com>

2:36 AM (6 hours ago)

to planningboard@portlandmaine.gov

My wife and I vehemently oppose the grandiose proposal by IDEALS and the Roux institute. While not opposed in general to development of the Bean Factory property, the size of the project is outrageous compared to the local conditions: traffic, access, environmental impact.

It would destroy the surrounding neighborhoods.

It would cause permanent damage to the waterfront.

It would create dangerous conditions on Washington Avenue and Veranda street.

Please, please reject the proposed development.

Call me for any questions or concerns: [207-233-2388](tel:207-233-2388).

EastDeering Neighbors <ednfrd@gmail.com>

Aug 4, 2022, 2:31:47 PM (18 hours ago)

to Planning@portlandmaine.gov, planningboard@portlandmaine.gov, zpowell@portlandmaine.gov, EastDeering Neighbors

Dear Members of the Portland Planning Board:

As you can see below in the thread of emails, we responded to the request for a meeting by reaching out to Sam Reiche of IDEALS. We asked for a written response to our proposed language for inclusion/consideration in their IDP (Institutional Development Plan - attached) prior to a meeting so we have something of substance to discuss.

Sam responded to our request, stating that "to avoid creating a parallel process, we would prefer to hold off on written response to these requests at this point.." By both email and a phone conversation, we conveyed our frustration with their approach to date, which seems to be creating an adversarial tone to the process.

As a Neighborhood Organization, we ask that the Planning Board direct IDEALS to engage with the EDNRD in accordance with procedures outlined in the IOZ process and exemplified by the Maine Medical Center process and other processes previously carried out under the IOZ framework:

-IDP, Section 8.5.4 and 8.5.5 requires "comments from the neighborhood meetings shall provide direction for the content of the IDP"

-IOZ requires that the IDP have "a plan for ongoing community engagement that best represents best practices, promotes collaborative problem solving around community issues, fosters transparency, and identifies mechanisms for neighborhood feedback and institutional accountability."

We are concerned that this has not happened and that IDEALS persists in piecemeal discussions with selected individuals that are not collaborative but reactive.

We request that the Planning Board direct IDEALS to engage in a well documented and collaborative process that secures neighborhood input in a systematic and public fashion.

Thank you for your consideration.

Steve Von Vogt

East Deering Neighbors for Responsible Development

RESPONSE FROM IDEALS TO E-MAIL SENT 7-18-22

Steve,

Thank you again for your willingness to meet, and for laying out these thoughtful comments. We are in the midst of updating our proposed IDP and Regulatory Framework now and will do our best to address these thoughts and questions in those documents. To avoid creating a process parallel of the City's we would prefer to hold off on written responses to these requests at this point, and also to ensure we are being as thorough as possible. Of course, we will make sure you have our updated documents as soon as they are ready, and it would also be a great help to meet in the meantime to ensure we understand the various points and perspectives. I shared your document with the City too, to ensure they have them for their own review. Would you still be open to meeting, so that we can better understand your comments and be as responsive as possible?

Best,
Sam

Sam Reiche

Initiative for Digital Engineering and Life Sciences (IDEALS)

www.rouxcampusportland.org

Cell: [207-939-6308](tel:207-939-6308)

From: EastDeering Neighbors <ednfrd@gmail.com>

Sent: Monday, July 18, 2022 6:42 PM

To: Sam Reiche <sam.reiche@ideals.org>

Subject: Meet with EDNFRD

Sam,

Please find attached the language developed by the neighborhood for consideration in the development of the IDP. We would appreciate a written response prior to setting up a meeting with you; that way we'll have something substantive to discuss.

Look forward to hearing from you.

Steve

East Deering Neighbors for Responsible Development

Windsor Heights

Portland, ME 04103



Consideration of Inclusion in the IDEALS Institutional Development Plan (IDP)

Scooping meeting, Section 8.5.4 and 8.5.5 requires “comments from neighborhood meetings shall provide direction for the content of the IDP.”

- 1.) **Purpose** statement should include language to establish an overlay zone that protects the values and integrity of established residential neighborhood with a compatible development at medium densities appropriate to the existing neighborhood in meeting the city's Comprehensive Plan.
- 2.) **Permitted Uses** as described in approved overlays for USM and Waynflete as School Uses (Sections 8.10.3 and 8.11.4) and other buildings customarily incidental to an academic institution.
 - Include regulatory standards to define “substantially” supportive uses.
 - Faculty and student housing shall not be considered Residential housing.
 - Prohibited uses to include hotel, retail, commercial and other uses not specific to the function and operation of an academic institution (ample supply for access to all to of these amenities currently exist in our downtown).
 -
- 3.) **Dimensional Requirements** subject to the underlying B-5 zone of 65ft height of buildings except for 85 ft buildings (similar to USM Overlay restriction for height of buildings).
- 4.) **Parking/Transportation** studies shall determine parking and transportation requirements to sufficiently accommodate the short-term and long-term needs of IDEALS high-tech hub and the neighborhood to be considered by the Planning Board including the following:
 - Applicant shall provide 'actual' # of vehicle trips generated by the project and the methodology used including MDOT required trip generation based on trip tables in the 11th edition of Trip Manual.
 - Plan shall provide trip generation data for 'actual' # of internal trips & public traffic into the site.
 - Applicant shall provide Mitigation Plan to improve safety at high crash location of Washington and Veranda Street intersection and along school walking routes in the area.
 - Applicant shall develop a "Trips Model" to define travel routes more accurately.
 - Plan to include data-based evidence of proposed 37% reduction in cars from ITE trip generation and 20% reduction in parking demand and address seasonal impact.

- Applicant shall provide specific off-site improvements to maintain acceptable and safe levels of service and provide data-based detail regarding the far-reaching traffic impacts.

Applicant shall develop a Parking Management Plan which discourages on-street parking (example UNE experience) and seek alternative ways to reduce traffic demand including a second point of access to the site.

- Requirement as to specific details of garage capacity, availability to who, and terms of contractual agreement with privately run operation of garage.

5.) Parking Demand and Capacity shall provide plan for meeting long-term implications rather than building parking demand over time.

- Include projections for all vehicular trips intended to park on-site.

6.) Campus Housing shall require a campus housing analysis as outlined in Section 8.10.10 from USM Overlay requirements

- Contractual agreement with privately operated housing to provide housing for student and faculty (not the public).

7.) Neighborhood Integration and Engagement to include language that IDEALS shall “adhere to ongoing community engagement going community engagement principles” to be identified in the IDP. And IDEALS shall “conduct ongoing community engagement, including the **formation of a Neighborhood Advisory** comprised of members from the East Deering Residents for Responsible Development and the East Deering Neighborhood Association.

- Specific plan in IDP for community engagement principles.
- A process that represents best practices, promotes problem solving around community issues, fosters transparency and identifies mechanisms for neighborhood feedback beyond a web page approach and institutional accountability.

8.) Mitigate site impacts on surrounding neighborhood infrastructure including, but not limited to the older storm/sewer system. Mitigation plan shall include financial obligation to pay for these impacts outside the site.

9.) Shoreline zoning runs through the site; therefore, a **geological study** should be required as to impact of proposed build-out of the site.

10.) Legal contractual documentation of future ownership transfer to Roux as requirement for approval of an IOZ change to meet the IOZ requirement that property owner must be held in right, title, or interest by eligible institution.

- 11.) Clear description and clarifying language** related to IDEALS plan to design on a **“build to suit” basis** and will lease it to IDEALS. They also plan to develop partnerships with the private sector to construct and operate housing, parking, hotel, commercial office, and laboratory buildings to support the primary academic uses – all of which will be on a ground lease basis.
- Specific language as to how the privately operated and leased facilities will guarantee adherence to academic uses supportive of the Roux Institute.
 - Language regarding taxes/payments to the city in lieu of property taxes.

List of clarifying questions:

- 1.) If zoning change granted, how will the city guarantee that the Roux Institute building will be built in the project time frame is projected of 2025 or 2026? The first phase of site development appears to include hotel and retail components but not all the academic/tech facilities.**
- 2.) Clarification on IDEALS paying property taxes which is relevant to the city and taxpayers getting something in return for a tradeoff for expanded uses?**
- 3.) The standards for requesting an IOZ rezoning includes language that “comments from neighborhood meetings shall provide direction for the content” of the IDP. What specific changes has IDEALS made to address neighborhood concerns and provide direction for the content of the IDP?**
- 4.) How does Shoreland Zoning affect the development of the site in terms of the placement of buildings?**
- 5.) Is the B-5 zone restricted to the peninsula and are there design standards for the B-5?**
- 6.) There are lingering questions about the garage, as to where it is to be located, capacity and who will it serve. Can this be clarified?**
- 7.) How will issues of transformation of the East Deering neighborhood as an existing middle- and working-class neighborhood be protected from gentrification similar to what has happened in Portland on the East End and other neighborhoods.**
- 7.) When and where can the public get the detailed documentations and studies required in the IDP and as part of the approval process? The application itself is lacking in detail nor has specific detail been provided by the applicant at neighborhood roundtable forums.**

Bonnie Craig <craig.portland@yahoo.com>
to planning@portlandmaine.gov

Apr 6, 2022, 4:59:10 PM (yesterday)

I live next to payson park and am completely against the rezoning they want. Please don't approve it.

EastDeering Neighbors <ednfrd@gmail.com>

Apr 7, 2022, 10:07:01 AM (22 hours ago)

to Planning@portlandmaine.gov, cdg, mrooms@portlandmaine.gov, azarro@portlandmaine.gov

Dear Portland Planning Department:

As provided for in the standards for the Institutional Overlay Zone (IOZ), comments and concerns expressed by the neighborhood shall provide direction for the direction of the Institutional Development Plan (IDP).

To ensure that neighborhood comments, concerns and feedback are included to provide direction for the IDP, the East Deering Neighborhood for Responsible Development is submitting language we would like to have included in the IDP for the IDEALS Institutional Overlay Zoning request for the former B&M site at 1 Beanpot Circle.

On behalf of the East Deering Neighbors for Responsible Development

Stephen Von Vogt

East Deering Neighbors for Responsible Development
Windsor Heights
Portland, ME 04103

Consideration of Inclusion in the IDEALS Institutional Development Plan (IDP)

Scooping meeting, Section 8.5.4 and 8.5.5 requires “comments from neighborhood meetings shall provide direction for the content of the IDP.”

- 1.) **Purpose** statement should include language to establish an overlay zone that protects the values and integrity of established residential neighborhood with a compatible development at medium densities appropriate to the existing neighborhood in meeting the city's Comprehensive Plan.
- 2.) **Permitted Uses** as described in approved overlays for USM and Waynflete as School Uses (Sections 8.10.3 and 8.11.4) and other buildings customarily incidental to an academic institution.
 - Include regulatory standards to define “substantially” supportive uses.
 - Faculty and student housing shall not be considered Residential housing.
 - Prohibited uses to include hotel, retail, commercial and other uses not specific to the function and operation of an academic institution (ample supply for access to all to of these amenities currently exist in our downtown).
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EastDeering Neighbors <ednfrd@gmail.com>

Jun 8, 2022, 10:40:43 AM (22 hours ago)

to EastDeering Neighbors

To the members of Portland's Planning Board:

On behalf of the East Deering Neighbors for Responsible Development, we ask that you give serious consideration to our concerns and questions in your review of the application submitted by IDEALS. Below is the introduction and summary along with full text in the attached memo outlining our concerns and questions. We respectfully request you to consider our suggested language for inclusion in the IDP and require that the important details be clarified in advance, and not allow the promise of more detail as the project is phased, or at the site plan level. Thank you!

INTRODUCTION:

East Deering with its quiet charm and character is one of the few, if only, remaining working class neighborhoods in the city with its stoic history of a multi-ethnic, working-class suburb to intown Portland. The Burnham & Morrill's (B&M) factory was a major employer for many of the residents with a commitment to our community beyond employment. Yes, we will miss B&M, but fully understand that someday there would be changes to the site.

The neighborhood truly looked forward to welcoming Roux Institute as a new neighbor and working with them to develop a positive addition to the neighborhood. That being said, we have been surprised and disappointed by the posture of public engagement to date. While IDEALS has had many meetings, they tend to be presentations with a "full-court press" to sell us and other neighborhood groups on their proposal as opposed to a collaborative effort, working together to achieve "mutually beneficial public-private cooperation" as is required in the IOZ language.

SUMMARY:

Simply stated, this is a massive commercial development project with a dense, clustered, urban, mixed- use design with Roux Institute as one of the tenants. The threshold question is one of IDEALS eligibility for an IOZ zone change as the applicant, not Roux Institute and legal questions about this relationship and development of the site. Additionally, IDEALS has not met many of the required standards, has not adequately responded to neighborhood concerns as required nor used neighborhood comments from meetings to provide direction for the content of the IDP which is "*bare bones*" that does not support the level of analysis required for approval. And IDEALS has not provided data-based justification for ancillary uses (hotel, retail, coffee shop, grocery store, residential, etc.). Proposed traffic solutions are minimal at best and based on peak traffic not total traffic impact throughout the week and in different seasons. There is a total lack of definitive solutions to the traffic/parking demand. Concerns about height and massing were met with an IDEALS proposed 27% reduction based on flawed assumptions by taking the highest number in the original range of proposed square footage to do calculations, inflating the numbers. Not mentioned is the fact that building heights have only been reduced by only 9%. Finally, the neighborhood has not received a response to our suggested language for inclusion into the IDP. **Clearly, there are a lot of questions that need to be answered and serious consideration given to rezoning and a text amendment. It is unacceptable and insufficient to have a promise that questions will be answered as the project is phased or at the site plan level.**

Thank you for your attention.
Respectfully, on behalf of EDFRD
Stephen Von Vogt

East Deering Neighbors for Responsible Development
Windsor Heights
Portland, ME 04103

INTRODUCTION:

East Deering with its quiet charm and character is one of the few, if only, remaining working class neighborhoods in the city with its stoic history of a multi-ethnic, working class suburb to intown Portland. The Burnham & Morrill's (B&M) factory was a major employer for many of the residents with a commitment to our community beyond employment. Yes, we will miss B&M, but fully understand that some day there would be changes to the site.

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DETAIL ASSOCIATED WITH SUMMARY SECTION:

8.5 Institutional Overlay Zone (IOZ) The IOZ was put in place specific to the city's existing, grandfathered 4 major medical and higher education campuses to address the growing concerns of encroachment into the surrounding neighborhoods as the institutions expanded. It was not designed for instantaneous new institutional uses.

- The IOZ applies to properties within the boundary and which the legal institution holds the right, title or interest. Roux Institute does not meet this standard.
- IDEALS is the applicant, a registered non-profit business (T13-B), with James Broder of Bernstein Shur as the Registered Agent.
- According to their 990 form, Chuck Hewett is paid a salary to provide services to the Non-

profit Business Corporation.

- IDEALS, in the future, will transfer ownership of the campus to Roux Institute. Where is the contractual agreement? Dissolution of said non-profit corporation must distribute its assets to an organization for similar purposes. How do proposed lease-back contractual agreements get transferred?
- IDEALS intends to have long-term leases with the developers for construction, maintaining and managing the buildings.
- Zone change approval is a blank check and IOZ can be amended by applicant at any time and taxation is unclear.

8.5-5 C. Uses. IDEALS has not provided a data-based justification for the ancillary and/or substantially related uses to support the Roux Institute such as hotel, retail, commercial, coffee shop, small grocery store and housing.

- Portland has over 20 hotels and 723 registered Airbnb's far exceeding the demand needed for Roux Institute visiting guests and adjunct professors estimated at 5-10 weekly
- Other local amenities are ample in the neighborhood and downtown who should be supported not competed against
- Increases traffic to the site as a destination described by IDEALS "as a fun place to go"
- Housing is not student/faculty rather proposed as lease-back, privately constructed and operated for market rate units, with no mention of workforce housing

8.5-4 B. I. Transportation and Access. IDEALS has provided a Transportation/Total Trips Mode Share Chart and total vehicle counts showing anticipated additional trips into the site and Veranda and intersection at Veranda and Washington Avenue.

- No methodology provided for Trip Mode Chart nor TDM plan that reduces the impact over time as presented except to say they are working on Metro service, bicycles and water taxis
- No reference to current street capacities nor data-based detail regarding far reaching traffic impacts
- Mitigation plan includes minor changes to single access in and out of site on Sherwood Street with widening of street at Veranda, addition of sidewalks and bike lanes with signage upon exiting site to turn right on Veranda to the Interstate
- Sight distance and blind spot as you approach Kensington Street from Sherwood headed to the Interstate
- Extending turn lane from Veranda to Washington at the intersection – no reference to traffic impact to Washington Avenue which is currently a high traffic connector street
- Crash data shows a # of locations that meet MDOT criteria locations. No mitigation plan to improve safety due to increased traffic.
- No data-based evidence to more accurately define travel routes and reductions in ITE trip generation and parking demand
- No specific information as to garage parking on site except to say there would be some under certain buildings and too expensive for people to park there
- Parking in the neighborhood not addressed similar to UNE problem
- No reference to fire safety with only one entrance and equipment needed for the proposed building heights

Building Heights and Site Coverage is major concern to the neighborhood.

- B-5 underlying zone is intended for on-peninsula not off-peninsula
- Height restriction precedent has been set in other IOZ plans

- Height and massing remain out of scale in relationship to the surrounding neighborhood and calculations for reductions is based on flawed assumptions
- No study or discussion on the transformation and gentrification effect on the larger East Deering neighborhood which will be profound

Storm/sewer system site impacts on surrounding neighborhood requiring upgrade

- Will there be required financial obligation by IDEALS?

IDEALS IDP Concerns

James Pratt <jrpratt@hotmail.com>

Thu, Mar 31, 2022 at 4:14 PM

To: "azarro@portlandmaine.gov" <azarro@portlandmaine.gov>

Hi Andrew,

I wanted to let you know my thoughts on the current Roux campus IDP. I live on Kendall Street, which is the neighborhood just north of the Roux site. I have attended multiple meetings IDEALS has hosted to voice my concern over the proposed building scale/heights. Our neighborhood (and a portion of the Roux site) is zoned R3. Portland's zone purpose statement for R3 is to provide medium density development characterized by single family homes on individual lots. Structure height is limited to 35' in an R3 zone. Roux is currently proposing all of their buildings to be among the tallest in the state of Maine next to our neighborhood.

At the last meeting, I asked them to comment on building heights based on their own rendering (see image below) that is included in their IDP and has been submitted to the city. I was told that this rendering no longer represents what they are doing, so it wasn't really worth discussing. You will notice they conveniently left the houses in our neighborhood off of the rendering.

It is also a little unclear to me how the second required neighborhood meeting is next week when we have been told what is in their IDP and what has been submitted to the city is not accurate. We also haven't seen anything else from IDEALS to comment on.

I have reviewed the IDP and feel it is incomplete, as it appears to be missing many required items. One such item is that areas of major concern are not listed. IDEALS' IDP says the feedback from the first neighborhood meeting was 'very positive' and lists items discussed at that meeting. The document then says roundtable meetings also occurred but does not list the comments/concerns neighbors mentioned at those meetings.

I am not against the Roux campus being located at this location, but I am asking for the campus to respect the context of the neighborhood. Both USM and UNE fit into the context of their neighborhoods in a more appropriate way.



Thanks for your time,
James Pratt
2 Kendall Street

IDEALS and traffic

2 messages

Chris Briley <cbriley@briburn.com>

Thu, Mar 31, 2022 at 2:28 PM

To: "azarro@portlandmaine.gov" <azarro@portlandmaine.gov>

Cc: "ednfrd@gmail.com" <ednfrd@gmail.com>

Hi Andrew

Thanks for taking the time to hear from us, the East Deering Neighborhood, regarding the new IDEALS development on the B&M Beans site. As you probably already know, traffic is a major concern, and tops the list for Jen, my partner, and me as we live on Veranda St. between Sherwood and Washington. So we will have probably 99% of all the traffic that goes to their site pass in front of our house.

On this subject, we need your assistance in protecting the neighborhood from the traffic that this development will most certainly create. As you can see in their IDP (attached) on pg. 13 of their document, over the next 20 years, they plan to eventually cram 1,755,000 square feet of building on that site and service ALL of it through little Sherwood St. which is currently a 2 lane neighborhood road. (for perspective, the Maine Mall is just over 1,000,000 sq.ft.). Complicating matters is that nearly all of that traffic leaving the site will be turning left to get to the interstate. And 80% of that traffic will be then turning left onto Washington to head south on 295. It's a Fairy tale and they know it.

I really want them to address and solve the problem. They pay it lip service, and say they will start with their first phase and see how it goes, but their first step is getting approval from the city for an overlay zone that will allow them to build at their incredible 20 year density day one. Seeing how it goes is an unacceptable plan for the neighborhood.

Feel free to reach out anytime to chat if you'd like.

Chris

CHRISTOPHER BRILEY, CPHC, LEED AP

Maine Licensed Architect

Certified Passive House Consultant

Author: [Pretty Good House](#)

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O: 207-774-8482 | M: 207-286-6774 | [BRIBURN.com](#)

Proposed Roux project

hoose@gwi.net <hoose@gwi.net>

Fri, Apr 1, 2022 at 10:56 AM

To: azarro@portlandmaine.gov

Cc: EastDeering Neighbors <ednfrd@gmail.com>

Good Morning Andrew,

My name is Phil Hoose. I live at 60 Watson St. in the Windsor Terrace neighborhood of East Deering. I am writing to express concern about the scope and size of the proposed Roux project as it has been presented to various audiences. Roux seeks permission to build a towering hotel, a parking garage, a shopping plaza and several other buildings to support campus activities.

I do not think IDEALS has seriously considered the traffic such a colossal project would bring. The intersection of Washington Ave. and Veranda is already one of the most dangerous intersections in Portland. At present, there is but one skimpy street—Sherwood St—to handle all the traffic that would inch to and from the proposed Roux site. Even if they secured the permissions to construct new roadways to accommodate the new traffic, that would mean years of living in a construction zone, with all the clamor and blockage and dust of major construction.

I'm also concerned about a 200' tall building that would rise from the campus. Visual blockage, glare, altered wind patterns, and impact on migrating birds are but a few issues. I hope that the City Council and Planning board will consider these concerns and dramatically reduce the scope and scale of the Roux submission. Your help will be greatly appreciated

Regards,

Phil Hoose

IDEALS Project

jimboats1@yahoo.com <jimboats1@yahoo.com>

Fri, Apr 1, 2022 at 7:55 PM

To: azarro@portlandmaine.gov

Cc: EastDeering Neighbors <ednfrd@gmail.com>

I live on Watson Street in the East Deering neighborhood of Portland. The massive size of the planned IDEALS project appears to be out-of-scale for the site, which is adjacent to a residential neighborhood. The height of the projected buildings, some of which may reach 200 feet tall, will have a major impact on nearby homes by blocking sunlight and causing major shadowing, as well as changes in wind patterns and velocity. Even if they were to cap the height at 100' the buildings would still be out of place at that site. There are also concerns regarding an extreme increase in traffic in an area that is already plagued by a very dangerous exit off of I-295 at the intersection of Washington and Veranda Streets. The intersection of Kensington and Veranda Streets is also treacherous due to the lack of visibility caused by the crest of the hill on the rail overpass for cars heading north on Veranda. Cars on Veranda Street already drive well over the speed limit on this narrow street. Adding large numbers of vehicles to this mix presents a danger to the public.

The B&M site has been used for more than 150 years and there is also concern that there may be environmental issues resulting from removing structures, including piers that are on wooden pilings which may be contaminated with chemical preservatives such as creosote, which can be released into the intertidal zone if the pilings are removed. The site may also contain chemicals and environmentally damaging substances in the soil due to the use of the site as a manufacturing location for 150 years.

I believe that Portland has a responsibility to protect the interests of its residents and not bow to the pressures of developers who will not have to deal with the consequences of their projects.

Sincerely,

James Maxner

Sent from my iPad

IDEALS/Roux**Justin Litchfield** <justinlitchfield26@gmail.com>

Sun, Apr 3, 2022 at 3:26 PM

To: azarro@portlandmaine.gov

Bcc: ednfrd@gmail.com

Hi Andrew,

I live in East Deering and sent you a list of concerns a while back. Thank you for getting back to me. I wasn't sure how to proceed at the time but since I've joined the East Deering Neighbors for Responsible Development and have been asked to send you a list of concerns again to have some questions and concerns on record as an individual but also as part of our group.

First off, IDEALS is not an educational institution in any way shape or form, they are a development company. There needs to be a distinction between the Roux Institute and the developer IDEALS. Most everyone I've talked to is happy about the Roux Institute, however many are unhappy with how IDEALS is going about trying to develop this site. By calling it the Roux Campus, it's hard for people to see IDEALS for what they are, a development company that is out to make money. In general I have no problem with developers, in fact I'm pro development as long as it is done responsibly. It's obvious that IDEALS has no intention of doing this responsibly and have flat out ignored the concerns of the local area residents.

The scale of what they are proposing is clearly not responsible. If they were to build everything they proposed, they are estimating that it would be around 1.8 million square feet. I understand the need for increased density and additional housing in Portland, but this is not the right location for that level of density. For comparison purposes, the Maine Mall is about 1 million square feet, so this would be about double the square footage of the Maine Mall crammed into this small area with only one way in and out. Washington Avenue is already a very busy intersection and Veranda Street as well as Sherwood Street can not handle this level of traffic.

To appease our traffic concerns, at the last neighborhood roundtable, they proposed eliminating green space on Veranda street to make the street wider. While it's only a small strip of grass, IDEALS has again and again claimed they need to have such tall buildings because of the green space. Eliminating this small strip of grass is not going to alleviate any traffic concerns that IDEALS will be creating with their proposed development and eliminate the only greenery on Veranda Street.

I know IDEALS is applying for the IOZ in order to circumvent zoning height restrictions. This is unprecedented as no other development company has ever been able to apply for the IOZ. As I'm sure you're aware, IOZ applicants are supposed to be a major educational or medical institution, of which IDEALS is neither. At one of their meetings they discussed handing the campus over to Roux in the future. Why is that the route that IDEALS is taking? Why don't they do that now so that Roux can apply for the IOZ? I won't speculate why I think that may be the case, but I don't trust it's for a reason that will benefit Portland or Maine. Approving the IOZ for a development company would set a very dangerous precedent for Portland and for what purpose? To benefit a development company?

At a recent meeting with the City of Portland, we were informed that although the language in the requirements for the IOZ state that buildings must be ancillary to the educational institute, apparently there isn't any specific percentage of requirement (Which is confusing to me since the lack of a specific percentage allowable would then imply the required percentage be 100%, especially considering the very definition of ancillary). IDEALS is using this knowledge to develop non-ancillary buildings and has been very honest about how the bars, restaurants, and the hotel would be open to the public and at one meeting Chuck Hewitt said only 60-70% of the campus would be for educational purposes. If the verbiage says it needs to be ancillary, then it needs to be ancillary. Otherwise, what is to stop a future developer from applying for the IOZ by claiming some small percentage of an educational institute? Let's stick to the requirements and require that IOZ applicants not be developers and buildings must be 100% ancillary.

As I'm sure you're aware, one of the many purposes of the IDP/IOZ is to allow planning in a responsible way. There is very clear language in the zoning rules regarding the intent of the IOZ, for example, "to ensure that institutional change and growth both compliments and, as appropriate, integrates adjacent or surrounding neighborhoods, through carefully planned transitions." We brought up concerns about transitions and those concerns have not been addressed in an appropriate manner. IDEALS said that the Maine Yacht center is "nearly 50 feet at its peak." First of all, that is deceptive as the grade of the land slopes quite a bit on one side, the ocean side. On the side visible from our neighborhood, it's closer to 35 feet than it is to 50 feet. Secondly, going from 50 feet to 210 feet or even 150 feet is not a carefully planned

transition. The IDP/IOZ requires "appropriate transitions with the existing or future scale and character of the neighboring urban fabric". Nothing to this scale exists anywhere in our neighborhood and is closer to the type of density that we see in the most dense parts of downtown Portland. Perhaps IDEALS purchased the wrong land to develop their Mega Campus?

When asked about the hotel, IDEALS said it's necessary to create a culture of collaboration and therefore it's necessary to have a hotel. That's false. It's convenient for them to have a hotel for the few visitors they will have, but at the cost of convenience for our neighborhood. They also included in their IDP application that they will open the hotel up to the general public. That tells you everything you need to know, the hotel is not for educational purposes. I can only imagine what they will fetch per night for one of these hotel rooms. If it were up to me, I'd agree to a hotel under one condition, it not be open to the public. I can almost guarantee they would remove the hotel if that was the condition. What percentage of the hotel will be used for students versus the public? I'd also like to see the data to back that up. So far they haven't been able to provide data to back up many of their claims, which makes me wonder how they are answering questions without data to back it up?

So far we have asked about shadow studies, wind studies, traffic data, data about percentage of students who drive their own vehicles versus those that take other modes of transportation and there has been zero data to back up any of what they are telling us. For comparison purposes, all of this information can easily be found in Maine Medical Center's IDP. We tried to discuss "appropriate transitions" that are required by the IOZ, from our neighborhood to their site and again, we were brushed off. They said those weren't the final renderings. It doesn't matter what the building looks like in a rendering, we are talking about building heights of 35 feet and how they plan to transition from 35 feet to 210 feet. They couldn't answer the question because there isn't a plan to have an appropriate transition to go from a small residential neighborhood to some of the tallest buildings in the state of Maine.

Every concern we have had has been brushed off. While they claim to be transparent and working with us, they have made zero adjustments to their plans. They haven't lowered building heights, they haven't reduced proposed square footage. What have they done? They talked about removing a strip of grass on Veranda street to make the street wider and make parking expensive. That is not going to make the traffic problems go away.

With the level of density that IDEALS is proposing, we are not just talking about the proposed 4500 students and professors. We are also talking about all the necessary traffic to support a hotel, restaurant and a bar. Vendors, visitors, tourists, shipments of supplies, increased garbage/recycling pick ups, food delivery, etc all coming and going multiple times a day in a neighborhood who does not have the infrastructure to support that level of density.

The specific questions I would like IDEALS to answer.

What changes have IDEALS made to alleviate the concerns of local area residents?

What percentage of the hotel will be for visitors of the Roux versus the general public?

Why is it necessary for the hotel to be opened to the general public?

What percentage of Roux's students drive versus other modes of transportation?

It was mentioned there were wind and shadow studies, can IDEALS provide the conclusions of those studies and the data used to make those conclusions?

What is holding IDEALS back from transferring the property to the Roux Institute now and why does it need to be in the future?

Where is the analysis of transition areas between the institution and adjoining neighborhoods as required by the IDP?

At one of the neighborhood round tables, it was mentioned that there were drawings that show what the proposed buildings would look like from different areas of our neighborhood and that those would be provided to us, where are those drawings?

It's obvious to myself and many others that the IDEALS development plan is incomplete and ignores the concerns of local area residents. By denying the IOZ request, we get to see what they can do with building heights of 65 feet. In keeping with current zoning height restrictions, I think we will see a much more appropriate level of density for this section of Portland and I think we can keep these developers honest. Even with building heights restricted at 65 feet, IDEALS will still be able to develop a sizable campus, not only accommodating their current student enrollment but their future projected enrollment as well. As the campus grows and develops within the confines of current zoning, IDEALS will have a valuable opportunity to build trust with neighbors and perhaps in the future after seeing what IDEALS can do responsibly, I would be more open to allowing reasonable increases to existing building heights.

Thank you,

Justin Litchfield
2 Kendall St

Roux Institute Madness

Gabriel Ben Carling <gbencarling@gmail.com>

Sun, Apr 3, 2022 at 7:17 PM

To: azarro@portlandmaine.gov

Cc: EastDeering Neighbors <ednfrd@gmail.com>

Good Evening Mr. Zarro,

I hope that you are able to read this email before your meeting with IDEALS tomorrow. From what I have seen so far, you are a valued part of the community and your voice is a force for good. I believe you are already concerned about the scale of this proposed development and their backhanded tactics. I would like to add my own voice, as a resident of the portion of Sherwood Street that will be the sole access road to the site.

We just moved here in August and so far we love our new and welcoming community of East Deering. We've met a few of our neighbors and there are plenty of great people here. We were especially drawn to how quiet this neighborhood is in spite of the proximity to I-295. The roadway is elevated and you don't really notice the noise. There is very little traffic on our road—I imagined our future children playing street hockey, shouting "car" every so often like I did growing up.

To the contrary, when IDEALS looked at this neighborhood, I think they saw an area ripe for exploitation. There are many renters, many immigrants, and less-income folks in this area compared with a lot of Portland, that I imagine being filled with WASPish busybodies that make development near impossible. They figure anyone renting now will likely be gone in five years, or otherwise will be less invested in the future of our neighborhood. They figure a place that looks less moneyed will be easier to work with or against—or even more offensively, they may think that this area NEEDS improvement, which they want to bring personally. (I admit, it is hard to know their intentions when their prodigious assets are being used in a full-court press of Public Relations)

When we bring up issues such as building height, traffic patterns, or scale of development, IDEALS presents a resounding "We'll see how things go in the next five years" as if our concerns won't exist in the future.

Take the traffic for example. Our little Sherwood St and the underpass below 295 are fixed, immovable boundaries. We have no reason to believe that the situation will be any different in 25 years. Meanwhile, IDEALS is planning on putting eventually 4500 students here, who can't ALL live on campus, and the hundreds of support personnel and university staff to keep a place like that running—all going back and forth on two lanes in a thickly settled neighborhood. And that's just the University. IDEALS also plans one (maybe two!) hotels, shopping, even a brewery, and outdoor sporting facilities. They talk about the green space and the public waterfront as benefitting the community, but realistically that will just draw in more vehicle traffic.

I do not find it responsible to move forward on development at this scale without a longterm plan for traffic in and out of the campus. I understand the permits only require five years, but I think a move to require a more longterm plan is warranted. They will build a campus—in skyscraper form—to accomodate all those businesses and that student population. Why build something on that scale if that ingress can't possibly support that size?!

As far as the building height—let's be frank. What they are proposing is none other than a new building that will become the quintessential Portland landmark, or even a symbol of Maine. This campus will be extremely visible to one of the highest volume roadways in the state of Maine. And right there, they plan on building the tallest building in Maine (without a steeple) at 210'. ([Tallest Buildings in Maine](#)) Whatever goes there will be a recognizable landmark to any Mainer, and most tourists to Maine as well. IDEALS may act humble and friendly at times, but they're really after the reputation and caché that this campus may afford them.

Now don't get me wrong, I'm all about the collective benefit, and I believe that the Roux campus is a net positive to the community. They seem committed to bringing Mainers to this campus and starting businesses in Maine. I'd rather it be them, than a fancy condo with bile-inducing modern aesthetic. But who will really benefit from this project? Venture Capitalists will make a killing if they can raise businesses here in the Bio/Tech industries if they can compete with Silicon Valley industry-wise while paying wages and property at a Maine price. Many of these start-ups I'm sure will be great for Maine, but this campus represents a business-making venture, while technically itself maintaining non-profit status. I believe local-owned businesses, as you can surely attest, treat their workers better than others, and best of all are the owner-operated variety. But this seems bigger than that—like they're trying to mold the next tech billionaire, like the original donors for the Roux Institute.

For this reason, this campus is considered to be "sustainable." Not in terms of the community or the environment per se, but in paying for itself. The hotels, shops, and businesses are meant to offset the costs of building the campus in the first place. If I know the word "sustainable" in a business sense, they want the campus to make them a profit--while their stated purpose would lead us to believe they are selflessly driven to support the community.

I'm tired of hearing "We're taking these issues seriously" without any real action or change of plan on their part. They keep their cards close to the vest, clearly keeping information hidden from the community, with several examples of actions that inhibit community involvement--like you had mentioned the meetings always HAPPEN to occur during council meetings. Or invitations ACCIDENTALLY go out at the last minute.

We in the community do not have the sort of power to compete with an organization with these kinds of resources. But with our combined voices and pressure, hopefully we can at least get some measure of sanity in this IDP and finally get them to adjust the traffic plan and/or scale of the project. Please help us, and stand your ground at your meeting with these people tomorrow.

A Concerned Resident,

Ben Carling
81 Sherwood St



EastDeering Neighbors <ednfrd@gmail.com>

Roux Project

Karen Gersen <klik22g@gmail.com>
To: azarro@portlandmaine.gov

Sun, Apr 3, 2022 at 10:06 PM

Hi Andrew,

I reside in the East Deering neighborhood and am writing to express some of my concerns regarding the development of the historic B&M factory site.

Along with many of my neighbors, I was very excited to hear that the Roux Institute was going to become part of our neighborhood. However, as the developer's plans have unfolded, I have become increasingly concerned and unsatisfied with the information that has been provided to us by IDEAL.

What I initially understood to be an educational facility now includes plans for a large hotel and an apartment complex. The proposed height of the hotel would make it one of the tallest buildings in the state. I certainly understand and support the value of development but, I am concerned that the scope of the project is incompatible with our neighborhood. In addition, Sherwood St. provides the only means of access to the B&M site. This hardly seems an adequate route. I am also quite concerned about the increase of traffic on the roads and in and out of our neighborhood. The area is already struggling with traffic congestion at the Washington Ave and Veranda St. intersection off 295. I would like to see the developer address these issues in a concrete way.

Thank you for taking the time to listen to my concerns.

Karen Gersen
13 Lennox St.
Portland, ME.

Sent from my iPhone



Roux Institute

Sue Hubley <suehubley@gmail.com>

Thu, Mar 31, 2022 at 3:23 PM

To: azarro@portlandmaine.gov

Cc: EastDeering Neighbors <ednfrd@gmail.com>

Dear Mr. Zarro:

I live at 32 Berwick Street. The only things between my street and the proposed Roux Institute are the Maine Yacht Center and state-owned unused railroad tracks.

I feel strongly that the scale of the Roux development, as proposed, will be overwhelming for our neighborhood. As you know, IDEALS' plans include space for classes and labs, ultimately for 4,500 students (not to mention faculty and staff); a business incubator, residences, a hotel, grocery store, restaurant and coffee shop — with at least one high-rise — as well as recreational green space and parking. All this will be crammed onto a piece of land boxed in by water, Tukey's Bridge and I-295, a busy marina, short, residential Sherwood Street, and busy Veranda Street. Access will be only available on one street, Sherwood. It's hard to see what they could do to create additional access.

The traffic is already difficult on Veranda Street, especially at the intersection with Washington Ave., where many vehicles navigate in a steady stream between I-295, our neighborhood, and Washington Ave.

IDEALS seems to be counting on the attractions of its campus to cut down on students and employees leaving the campus, but that idea doesn't strike me as realistic. The developer also seems to think that encouraging walking and biking will cut down on car use. I don't think that's realistic, either. Both seem to me like solutions that sound good on paper, but whose effect would be minimal.

I'm also extremely concerned about the environmental impact of a development that huge. I hope that aspect will be examined very closely. I contacted Maine Audubon, and they are monitoring the project but had not formulated a position yet when I contacted them. A possible concern they mentioned was birds being killed by colliding with the glass in the buildings. A personal concern of mine is the ospreys' nest on the tracks just before the old trestle. That's one of my favorite walks in the neighborhood. The Audubon staffer said that these and ospreys in general have proven to be pretty tolerant of human activity, but I hope the city and IDEALS will be mindful of the wildlife and wild vegetation around them.

Thank you!

Susan Hubley
32 Berwick Street
Portland ME 04103
207-572-0247
suehubley@gmail.com

IDEALS Roux Institute**Sandy Comstock** <sandycomstock3@gmail.com>

Sat, Apr 2, 2022 at 7:28 AM

To: azarro@portlandmaine.gov

Cc: EastDeering Neighbors <ednfrd@gmail.com>

I have loved living in the Windsor Heights neighborhood of Portland for thirty years.

Like many of my neighbors, I am happy to have the Roux Institute graduate school move into the former site of the B&M Bean Factory. However, I would like to add my name to those who have voiced their concerns about the massive scale and scope of this project and the serious traffic issues which will accompany it.

The extraordinary size of this project adjacent to a small residential neighborhood is very concerning: the square footage of this projected development is equivalent to that of the Maine Mall and the height of the buildings could well exceed the tallest buildings on the peninsula. It cannot help but have a dramatic and damaging impact on ALL of the surrounding East Deering neighborhoods.

Additionally, Exit 8 off of I-295 is already at capacity and dangerous with traffic veering across lanes on Tukey's Bridge to exit the highway. The intersection of Washington and Veranda Streets is equally treacherous with southbound traffic racing to get through the light to access the highway. I, like many others, have narrowly missed being hit at this intersection. I am also deeply concerned for the safety of the elementary school children walking to and from school on Washington, Sherwood, Veranda and all of our other neighborhood streets with this massively increased traffic.

IDEALS has shared with us that driving cars to the site will be discouraged by making parking on the Roux site expensive and encouraging public transportation, ride sharing and cycling. I believe it is unrealistic to hope that Roux Institute students (projected to increase from 2,000 to 5,000 students in 20 years), faculty, visitors and those connected to the incubator businesses, along with the on-site hotel and restaurant guests and employees, will take public transportation, ride share or ride bikes to this site, especially in the winter months. In reality, most will try to find free street parking in a small neighborhood which barely has room for its own residents' parking. IDEALS is even encouraging more traffic to the area by calling it a green space destination for all of Portland to visit.

It seems to me that IDEALS is trying to fit a square peg into a round hole and a more reasonable and scaled down plan could work for all involved.

Thank you for your concern about this important issue.

Sandy Comstock

Concerns about Roux traffic and campus scale

Andrew Wallace <andrewtwallace72@gmail.com>

Mon, Apr 4, 2022 at 10:34 AM

To: azarro@portlandmaine.gov

Bcc: ednfrd@gmail.com

Good morning Andrew - I hope you are doing well and look forward to maybe meeting you in person soon (we're both on the PPL Board - but Zoom doesn't quite feel the same).

I am reaching out today as a resident of East Deering, specifically Kensington Heights. I have concerns about the potential traffic impact of the new Roux Institute. I support the concept of the school and venture as an academic/entrepreneurial hub, but worry about the other elements which would potentially bring a lot more traffic into a very small neighborhood which already deals with a flawed off ramp at Washington Ave.

I am dubious that mid career professionals who will likely attend Roux are typical public bus riders, or 4 season bike riders, or water ferry riders or walkers, which are some of the proposed mitigation approaches to what will likely be a considerable amount of traffic. I know these are trendy, well interventions and important ways to be responsible commuters, but these approaches often just make people feel good and score points on reports and proposals, but don't often yield appreciable benefits. The other approach of intentionally limiting parking or making it cost prohibitive will lead to spill over into our quiet neighborhood.

I hope you can ask the planners of this project some more pointed questions.

I wonder also about egress from the site. Does Roux intend to buy an additional parcel that would change even further the neighborhood's landscape?

Does the City of Portland plan to remove street parking for long time businesses along Veranda Street? Will any roads need to be widened? Does Maine DOT support an extra off ramp? Would Roux want that, or is that a deal breaker?

I worry that Portland continues to be over-developed, and wonder how projects like the one behind Presumpscot School are approved without real (my perception of that - maybe there was a good design) consideration of extra traffic on Sherwood Street - to the trails which are now blocked to the public and to the wooded spaces which are now razed. I am sad to say that don't have a lot of faith in our processes, and hope you as Councilor can help be sure all voices are heard on this topic.

Unfortunately I am unable to attend the IDEALS meetings typically because I teach on Weds nights when most events happen.

I hope you can share with me your thoughts or experiences w the folks at Roux. I sincerely hope there is a way to make this work for everyone.

Thank you - Andy Wallace 46 Watson Street

IDEALS/Roux Institute

Vicki Fisk <vickifiskshop@gmail.com>

Tue, Apr 5, 2022 at 11:41 PM

To: azarro@portlandmaine.gov, EastDeering Neighbors <ednfrd@gmail.com>

April 5, 2022

Dear Councillor Zarro

We have all been dazzled with the development plans presented by IDEALS on behalf of "The Roux Institute". Graduate level education programs, apartment complex, restaurants, hotel, walking trails, bike lanes, kayak rental, water taxis, public access, Green Space, sustainability, etc are akin to promises of a chicken in every pot, and one might think we illustrate the NIMBY acronym to point out the obvious concerns.

At the most recent neighborhood meeting, as I understood it, The Roux Institute shared that there are 450 students currently enrolled in their graduate program and they expect to have 40 students in their 2022 Portland graduating class. However they estimate a very aggressive enrollment of 1700 to 2000 "when they open" their campus, hopefully in 2025, growing to 5000-7000 students over the next 20 years. Learning is done onsite, yet the majority of the students have jobs, and internships offsite.

No estimates were given regarding the additional number of faculty & support staff for the education facility, hotel guests & management, restaurants, etc.

However based on 7k students it is reasonable that the staff required to support the educational and commercial ventures will swell this number considerably. While references were made to a provision for public transportation in our opinion, bus routes will not serve the needs for working students or support staff.

For comparison, consider the population of Freeport, Maine (2020 estimate of 8700 people) as an example of the proposed population living/working on the B & M site, all of whom have needs to leave this setting to venture offsite. To leave, they will be required to travel only via Sherwood Street, a 2 way neighborhood street for which IDEALS has proposed an additional turning lane, and bike paths. This is the only egress for the equivalent of the town of Freeport. With no emergency services onsite, the traffic pattern could have significant safety concerns especially in the event of a fire or need for an emergency transport.

Once out onto Veranda St, a left turn against opposing traffic will require the driver to engage in the already congested Washington Ave/ Bates St/ Veranda St light where intersection gridlock is a valid concern. A right turn towards Falmouth will bring the driver to a new traffic light at a yet to be proven new traffic pattern due to the replacement Veranda St/295 bridge. Since southbound 295 traffic here will be released en masse in accordance with a new traffic light, it has the potential of causing a snarl up as traffic attempts to merge or exit at the shared lane between this entry point and the other entry at Washington Ave can affect traffic flow.

Per IDEALS, a traffic study has not yet been completed, but the conceptual drawing they presented showed "no Parking" on Veranda St, a shared turning lane, and bike paths. Veranda St is already heavily traveled, and congested and we are concerned that gridlock at the existing traffic light will ensue, potentially causing traffic to back up onto 295, and related safety issues for motorists.

It is ludicrous that the development plans have proceeded without a reasonable plan for safely managing traffic. Reopening the 295 exit ramp that had served B & M will help access TO this "village" but the only exit from "the village" remains to be via Sherwood/Veranda. We cannot understand why a "village" of this many people can have only 1 egress, whereas a multiunit is required to have 2.

Does the city of Portland have a minimum standard for egress, and a maximum recommendation for traffic control at sensitive streets? If these standards can't be met, then how can a project of this magnitude proceed? Will the Fire and Emergency Services Department be satisfied with the traffic impact and accessibility? What role does the State of Maine play in any project that could strain traffic flow on 295/ Route 1? IDEALS stated that they have consulted both the city and state but did not disclose their findings during our previous meeting.

If it is deemed at the end of Phase 1 that the traffic impact is considerable, and to ameliorate the situation it is required that streets be widened, eminent domain will be a possibility. If so, would the cost be borne by Portland taxpayers to compensate the property owners and to build the street improvements?

The scope of the development of the B & M site is such that housing needs will not be met. This city already has an affordable housing shortage. Where are the students and support staff for ancillary business going to live?

I am not knowledgeable about zoning changes, but know enough to realize that by starting the approval process by seeking a zoning change many of the concerns we have may be moot. A zoning change could circumvent addressing the real challenges associated with developing this portion of the city. Please help us understand the ramifications of a zoning change.

We would also benefit from understanding tax ramifications. What aspects of the development proposal by IDEALS for Roux Institute will be tax exempt?

While the concept of an advanced learning facility is attractive, the associated commercial & retail businesses components are unnecessary. The city of Portland has numerous hotels and restaurants "on the peninsula" to adequately serve the influx of people associated with the Roux Institute. Perhaps the ultimate goal of the investors is to develop the B & M site commercially, using the educational component of the Roux Institute as a front.

In closing, we thank you for conveying our concerns. We ask that you not be impressed with the dazzle of trendy plans and instead focus on the impact a project of this scope will have for the adjacent residential neighborhoods, current commuters, and Portland taxpayers so that it does not become the Boondoggle of 2022.

Sincerely

Victoria Fisk & Thomas Carter

3 Chester St

James Pratt <jrpratt@hotmail.com>
to planningboard@portlandmaine.gov

Apr 1, 2022, 11:33:24 AM (6 days ago)

I wanted to provide some comments on the current Roux campus IDP. I live on Kendall Street, which is the neighborhood just north of the Roux site. I have attended multiple meetings IDEALS has hosted to voice my concern over the proposed building scale/heights. Our neighborhood (and a portion of the Roux site) is zoned R3. Portland's zone purpose statement for R3 is to provide medium density development characterized by single family homes on individual lots. Structure height is limited to 35' in an R3 zone. Roux is currently proposing all of their buildings to be among the tallest in the state of Maine next to our neighborhood.

The rendering (see image below) that is included in their IDP and has been submitted to the city shows how out of scale these building heights are to the surrounding neighborhood context. You will notice they conveniently left the houses in our neighborhood off of the rendering.

I have also reviewed the IDP and feel it is incomplete, as it appears to be missing many required items. One such item is that areas of major concern are not listed. IDEALS' IDP says the feedback from the first neighborhood meeting was 'very positive' and lists items discussed at that meeting. The document then says roundtable meetings also occurred but does not list the comments/concerns neighbors mentioned at those meetings.

I am not against the Roux campus being located at this location, but I am asking for the campus to respect the context of the neighborhood. Both USM and UNE fit into the context of their neighborhoods in a more appropriate way.



Thanks for your time,
James Pratt
2 Kendall Street

B&M Bakery Beans Property

 Assigned to...Subscribe ☐

1 view



paul S <pjstone73@gmail.com>
to planningboard@portlandmaine.gov

Apr 25, 2022, 1:31:33 PM (21 hours ago)

Planning Board,

I am writing you concerning the Roux project at the former B&M Bakery Beans property. A zoning change should not be given for construction of what would be Maine's tallest building. A building of that height would be very much out of place in that area and also create a negative impact on the surrounding neighborhood. Please vote against this zoning change!

Thank you.
Joyce & Paul Stone

Justin Litchfield <justinlitchfield26@gmail.com>

Apr 11, 2022, 12:23:28 PM (21 hours ago)

to planningboard@portlandmaine.gov, mgrooms@portlandmaine.gov

Hi,

I am writing to express some serious concerns over the IDEALS/Roux project being planned at the B&M site.

As I know they recently submitted the IDP I'd like to start there.

The IDP requires that applicants be an educational or medical institution, of which IDEALS is neither as they are a development company. I understand they are developing the Roux Campus on behalf of the educational institute, but there are several components of their proposed project which are not ancillary to the educational components. As far as I know, it is unprecedented for a development company to apply for an Institutional Overlay Zone and I'm concerned about the future ramification this would have for future developers. They have said they will hand over the property to the Roux Institute in the future, but this is a red flag for me. Why isn't Roux applying for the IOZ instead of IDEALS? Another major concern, how is IDEALS going to get an approval if they are going to hand the property over in five years anyway and then become a defunct organization?

Applicants are not only supposed to be a medical or educational institution, but be a major one. IDEALS is not an educational institution, and Roux itself isn't what I would consider a "major" institution. Currently they have about 450 students enrolled. I understand they are piggy backing off of Northeastern which is a major educational institution, but Roux itself is not and Northeastern isn't an institution that exists in Maine.

In addition to those issues, there are several components of the IDP that are missing. At neighborhood meetings and roundtables, we have requested these items several times and several times we have been blown off. This is not how this process is supposed to work. Specifically the items required by the IDP and still missing are an analysis of wind studies, shadow studies, and neighborhood transitions.

At the last neighborhood meeting, I brought up these missing items and was told by their lawyer Mary, that they had no idea these items were required by the IDP. Chuck also informed me that the planning board has received the IDP and told them it was "complete". Can the planning board clarify that for me? I'm wondering if he meant that the submission was completed and not that the actual document itself is complete?

The document submitted by IDEALS is not a very thorough document, and personally I don't feel it is acceptable as many items are missing or briefly mentioned. The length of the document is very telling as to its lack of thoroughness, IDEALS IDP is only 32 pages, in comparison Maine Medical Centers IDP is 124 pages.

Many of our questions have gone unanswered and before IDEALS' IDP gets a nod of approval, these items need to not only be complete but much more thorough.

If someone could get back to me in regards to the comment Chuck made about the IDP being complete and clarify if the document is in fact complete I would greatly appreciate that.

I have several other concerns about this project but I'd like to start with clarification about the completeness of the document before proceeding.

Thank you,

Justin Litchfield

Cynthia Loebenstein <cloebenstein@yahoo.com>
to planningboard@portlandmaine.gov

11:48 AM (14 minutes ago)

June 13, 2022

Re: Roux Institute Planning Board Workshop

Dear Planning Board, City Staff, City Councilors:

We are writing in support of the zoning map and text amendment application to facilitate the creation of an Institutional Development Plan (IDP) and Institutional Overlay Zone (IOZ) for the Roux Institute Portland campus, to be located at 1 Bean Pot Circle. We believe there is great value in submitting a long-term plan in the form of an Institutional Overlay Zone.

There has been a significant amount of public involvement to date, with six neighborhood meetings and substantial changes made to the zoning plan in response to the public feedback. The City clearly is doing its job in listening to the abutting neighbors.

However, it is the location of the Roux Institute campus at the former Burham & Morrill site, that is ideal for Portland; buffered on all sides by a railroad track and the Maine Yacht Center, Interstate 295 and Casco Bay. This is a rare opportunity for a world-class institution to be located so close to an urban center, in a park-like environment.

The new campus plan is consistent with the City's Comprehensive Plan, provides on-site housing and other features that contribute to making the campus self-sustaining. As a result, there will be new jobs generated at all levels of the economy.

As residents who are passionate about our Portland Parks System, we are also very excited at the addition of new open space and new public waterfront opportunities.

Thank you,

Cynthia Loebenstein and Thomas Burns
164 Concord Street
Portland, Maine 04103

George Rheault <george.rheault@gmail.com>

11:50 AM (12 minutes ago)

to Planning Board, Christine Grimando, zpowell@portlandmaine.gov, Abigail Reed, jmy

1.) - Redlon Woods development versus IDEALS/Roux development

How does the Planning Board justify to the neighbors of the proposed ROUX INSTITUTE campus the disparate treatment such neighbors have received from the City with respect to the massive and elaborate rezoning proposal now before the Board when compared to the COMPLETE BLOCKADE of an as-of-right subdivision application, initially filed in late summer 2020, to create 3 modest home lots in the "Redlon Woods" neighborhood (project address is "0 Caroline Street" and the applicant there is Coastal Oaks)?

Who gave planning staff the cover to throw every bureaucratic trick in the book at the Caroline Street application and prevented it from even getting a workshop in front of the Planning Board for over 2 years so that the Redlon Woods neighbors could force the developer to sell the land to the City as part of a Land Bank transaction?

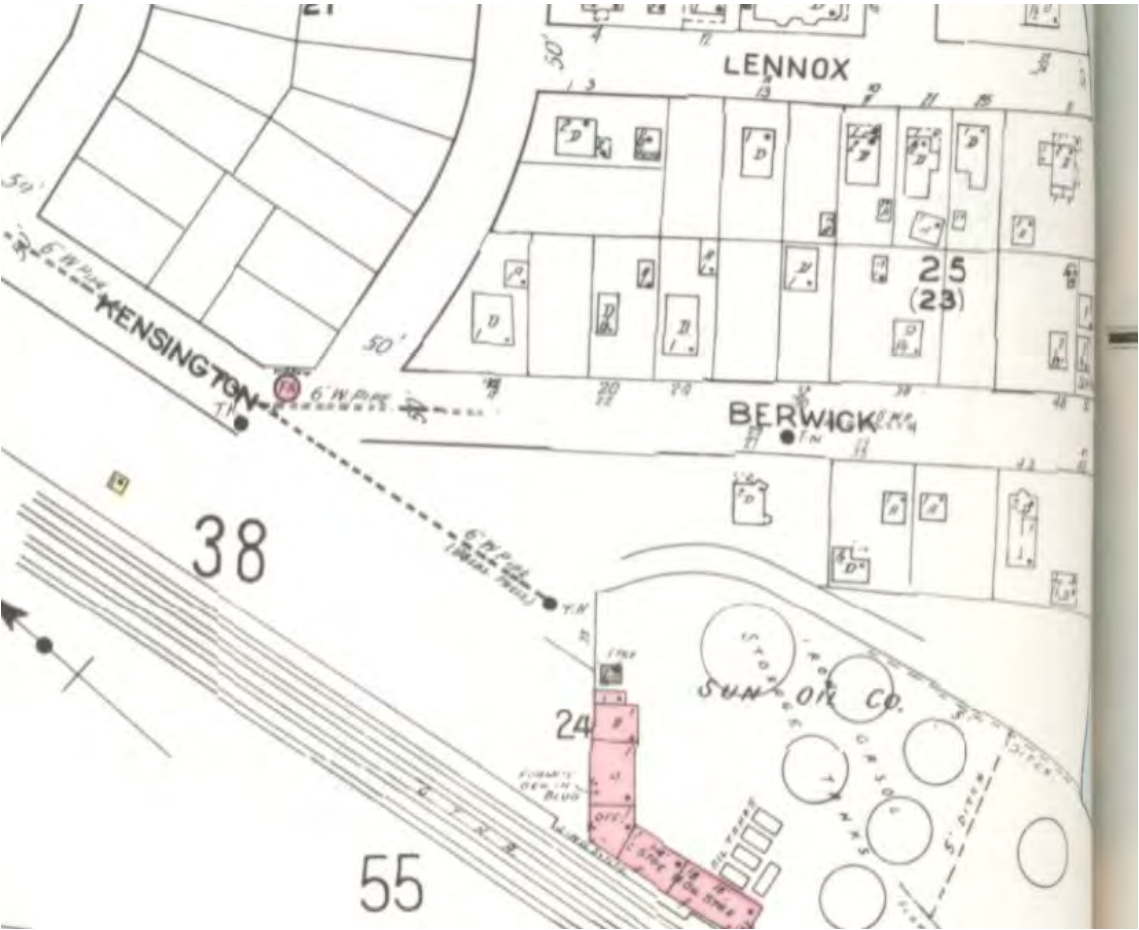
Why is the planning staff doing its best to HELP the Northeastern University development when it did everything to STOP the small modest housing opportunity in Redlon Woods? Why are neighborhoods being treated so differently in the planning process? If our planning staff are acting in such a nakedly political fashion, how can we trust anything they are doing - on this application or anywhere else?

2.) - Possible Soils Contamination from Adjacent Parcel

The 1954 edition of the Sanborn Fire Insurance Maps (see image and link below) shows a VERY large oil storage operation just on the other side of the tracks from the former B&M industrial campus. The oil tanks show up in some historical images as well: See: [East Deering Bypass, Portland, 1953 - Maine Memory Network](#) and [View of Burnham and Morrill Company Building, Portland - Negative, Glass-plate \(pastperfectonline.com\)](#)

When did this oil storage operation cease operation and what was done to the site to create its current use (boat yard)? Is there still environmental contamination from this parcel that could impact what is done on the B&M side of the railroad tracks? Do Phase 1 environmental reports exist for the B&M site and will these be made public as part of the IOZ process?

[Image 42 of Sanborn Fire Insurance Map from Portland, Cumberland County, Maine. | Library of Congress \(loc.gov\)](#)





Zachary Powell <zpowell@portlandmaine.gov>

Bean Pot Rd development

HMason Sears <hmasonsears@gmail.com>

Tue, Jun 14, 2022 at 6:36 AM

To: zpowell@portlandmaine.gov

Zach,

i'm writing to express my concerns about the proposed development at the former B&M bean factory.

I am a neighbor (72 veranda st)

My first major concern is the traffic impact to the the Veranda st area. Will the city conduct their own traffic study or have a consultant review the proposed traffic plan? we all know alternative traffic reducing measures such as carpooling, share cars, biking , buse etc are far from a solution to alleviate single rider car trips. A worst case I would imagine is a cold post snow storm day, with limited sidewalks and a lot of cars flooding the area while kids are walking to school..

My second concern is the Institutional overlay zone is not in keeping with other examples of it in the city. it appear that this a commercial for profit development with a "school" as the development vehicle. while I understand some other housing and mixed use is part of a campus, it feels like the city is getting gamed on this.

my final point is more of a overall concern for this type of industrial water front site being converting to non industrial uses (this project does not need a water front location, and could be developed on a none working waterfront location)

while people have grown up with beans being made at the site (not a waterfront activity), I belive there is a good argument for the preservation of this working waterfront. as the pressures of development increase on the commercial st. corridor the city would be well balanced with an outlet for existing waterfront activities. commercial fishing, offshore support, recreation / commercial vessels repair, aquaculture, offshore wind, the list goes on to activities yet to be known but history has shown new water based industries will emerge.

I know the city has had a desire to relocate the commercial barge service loading to the islands from the eastern prom. as it would decrease industrial traffic thru the park, help with parking, (witha little dredging this site could accommodate a barge transfer ramp) I would imagine a public private partnership could be developed to create multi -use site to serve the needs of many diverse industries that could be supported at that site

Thank you,

Mason Sears

Category	Sub-Category	Requirements	Sub-requirements	Provided? (If so, Page of Content)	City Staff Notes	Response to City	City Follow-Up	Response to City	City Follow-Up
1. Context Information	a. The institution's adopted mission, vision, or purpose statement	1. A neighborhood context plan		Provided on Page 5	Consideration may want to be made in the transportation section on adding a map demonstrating how the 15-minute walk & bike shed would expand with non-motorized connections under & across Tukey's bridge, as well as Howe's sidewalk.	This content was added to the Transportation Section, page 27	Update color for 15 Minute Bike Shed Zone to provide more distinction between Zone and the base map. Once completed, no further action needed.	The reference figure has been updated accordingly.	Complete. No further action needed.
		2. An inventory of current employees and services		Provided on Page 4			Complete. No further action needed.	—	Complete. No further action needed.
	b. A summary of relevant baseline data on the institution, including:	3. A current census of the number of people using the institution (e.g., employees, enrollment, patients), with an indication of maximums and minimums (over time)		Provided on Page 4			Complete. No further action needed.	—	Complete. No further action needed.
		4. An inventory and/or plan of all existing property holding within the main campus and within the City of Portland, including an indication of function, land use links between off-campus properties and the main campus (e.g., remote parking)		Provided on Page 6	References to the transportation section on what public transit options are being considered may make sense here.		Additional content describing service frequency and quality provided on Page 28. No further action needed.	—	Complete. No further action needed.
		5. An inventory and/or plan of existing facilities, including data on use, floor area, and any existing functional connections between facilities		Partially Provided on Pages 4 & 6	Content on the existing facilities for the Rouse Institution have been provided. Additional information on the size of the existing buildings at 1 Bean Pot Circle and their previous use would complete the content requirements.	This content was added to Site Context Section, page 6	Staff recommended the addition of the previous uses for the building under the applicable land use Code classification of Food & Seafood Processing, Packing, and Distribution in Site. With this addition, no further action is needed.	This content was added to the title of the table on page 6.	Complete. No further action needed.
	c. A summary of the baseline characteristics of the existing campus and context of the institution, based on identified study areas, including:	1. A summary of existing resources, such as historic, open space, and natural resources.		Provided on Pages 6-8			Complete. No further action needed.	—	Complete. No further action needed.
		2. A summary of the existing transportation system, including vehicular, pedestrian, transit, bicycle and parking supply, demand, and utilization		Partially Provided on Page 13	A map showing the current transportation system has been included on Page 13. Elements relating to the current vehicular, pedestrian, transit, and bicycle demand and utilization has not been provided nor the existing parking supply at the site. Additionally, information on the current mode split from the Campus Survey should be included.	A description of existing parking was added to the Site Context Section, page 6. Information on current bike, pedestrian and transit demand has been added to the Transportation Section, pages 27 and 28. Current campus mode split information added to Mode Split Section, page 26.	Provide source of data for Tukey's Bridge usage. Once provided, no further action needed.	This content was added to page 27.	Complete. No further action needed.
		3. A summary of existing public infrastructure supporting the institution, including demand, utilization and any capacity issues.		Partially Provided on Page 29	Staff recommends: 1. Relocating this page to Section 1 of the IDP, where other data on existing conditions, and; 2. Providing confirmation that there is not any capacity issues currently for any of the listed types of infrastructure (Water, Wastewater, Stormwater, Electricity, Telephones & Data, Natural Gas)	Utility Section was moved to page 7 and information regarding utility capacity and historic demand was added.	Formatting/corrections identified on Page 7. Sentence should be added confirming that there are no issues to future expansion at the site based on projected demand.	This content was added on page 7.	Complete. No further action needed.
		4. Relevant municipal plans, projects, and studies that may influence the IDP study area and opportunities for integrating institutional growth.		Partially Provided on Pages 9-10	Information on connections to the Comprehensive Plan & One Climate Future have been provided. An additional page referencing relevant transportation plans, projects, and studies in and around the site should be included as well.	Information on 1-295 Corridor Update, I-195/Naranda Project, and Martin's Point Study have all been added to the Municipal Plan Content on page 11	Complete. No further action needed.	—	Complete. No further action needed.
	d. A summary of public involvement in the development of the IDP, including major areas of public concern.			Provided on Page 33			Complete. No further action needed.	—	Complete. No further action needed.
2. Assessment of future institutional growth and change	a. A description of institutional needs and areas of future institutional growth and change, with:	1. A projected census of users (e.g., enrollment/employment/patients)/visitor figures and anticipated variations (over time)		Partially Provided on Pages 13 and 24	Information on the projected number of students and square footage dedicated to users has been provided for the Near, Medium, and Long Term. Information from the transportation memorandum should be integrated to include the anticipated number of visitors to the site and this may want to correspond with the number of anticipated residents across each of the phases to address internal trip capture.	Detailed trip information by mode is provided in the Transportation Appendix	Estimated number of visitors only provided for full buildout. Estimates do not need to be broken out by mode/user type for each phase.	This content was revised Appendix A (see Table 2-4).	Complete. No further action needed.
		2. Institutional objectives for property both within and outside the IOZ boundary (e.g., acquisition and/or disposition), including an indication of any functional and use connection for sites outside the IOZ boundary to the main campus		Provided on Page 4	The sentence stating that all operations would be at the subject property may want to be placed in a more prominent location.		No action needed.	—	Complete. No further action needed.
	b. A description of institutional needs and areas of future institutional growth and change, with:	3. A development plan addressing anticipated or potential institutional needs and physical improvements, including the proposed boundary of the IOZ and any phasing of the development.		Partially Provided throughout IDP	Elements of this are provided throughout the document, but should be shown in one plan/map that includes: • The IOZ boundary • Proposed buildings and on-site improvements in the Near, Medium, and Long Term • Potential connections for motorized and non-motorized modes of transportation on- and off-site • Potential roadway improvements in and around the site	Development Plans for Near, Mid and Long Term have been added as page 15, and additional narrative has been included on page 14. Please refer to the Table on Street Use for descriptions of anticipated uses for each phase.	Labels should be provided for off-ramp in legend. Potential potential opportunities referenced on Page 27 and in Appendix C for Shared Use Path Connection should be shown in the same manner as potential connection points. Once provided, no further action needed.	The figures on Page 15 and legend have been updated accordingly.	Complete. No further action needed.
		4. A transportation, access, and circulation plan, representing the synthesis of the analysis, and including a proposed program or set of guidelines to address access, circulation, and safety		Partially Provided on Pages 25-27	Some of this information was included as part of the transportation memorandum and content on this can be easily translated into this document. Content on anticipated supply should be clarified and included in the IDP.	Addressed in Parking Demand and Capacity Section, page 28. Detailed parking calculations are provided in the Transportation Appendix	Discussion of projected impacts to on-street parking should be discussed. Given previous discussions at meetings, a sentence stating that there is actively pursuing strategies with the City to deter on-street parking by campus visitors should be included. Once provided, no further action needed.	This content was added to Appendix C Parking Demand Section.	Complete. No further action needed.
		5. Transportation and access, with:		Partially provided on Pages 26-27	Content on projected changes to motorized vehicular facilities, capacity, and safety were included as part of the transportation memorandum and content on this can be easily translated into the IDP graphically. Some information relating to anticipated improvements to access and facilities for pedestrian, transit, and bicycles was also included. Information on the capacity and safety of these pedestrian, transit, and bicycle routes should be included in the IDP.	Addressed in Parking Demand and Capacity Section, page 28.	Complete. No further action needed.	—	Complete. No further action needed.
	c. A description of institutional needs and areas of future institutional growth and change, with:	6. An analysis of the projected changes in parking demand, supply, and impacts to the off-street and on-street parking capacity, including an explanation of the proposed parking plan.		Partially Provided on Page 25	Some of this information was included as part of the transportation memorandum and content on this can be easily translated into this document. Content on anticipated supply should be clarified and included in the IDP.	Addressed in Parking Demand and Capacity Section, page 28. Detailed parking calculations are provided in the Transportation Appendix	Discussion of projected impacts to on-street parking should be discussed. Given previous discussions at meetings, a sentence stating that there is actively pursuing strategies with the City to deter on-street parking by campus visitors should be included. Once provided, no further action needed.	This content was added to Appendix C Parking Demand Section.	Complete. No further action needed.
		7. An analysis of the projected changes in vehicular, pedestrian, transit, and bicycle access routes and facilities, their capacity, and safety.		Partially provided on Pages 26-27	Content on projected changes to motorized vehicular facilities, capacity, and safety were included as part of the transportation memorandum and content on this can be easily translated into the IDP graphically. Some information relating to anticipated improvements to access and facilities for pedestrian, transit, and bicycles was also included. Information on the capacity and safety of these pedestrian, transit, and bicycle routes should be included in the IDP.	Addressed in Parking Demand and Capacity Section, page 28.	Complete. No further action needed.	—	Complete. No further action needed.
		8. A transportation, access, and circulation plan, representing the synthesis of the analysis, and including a proposed program or set of guidelines to address access, circulation, and safety		Partially Provided on Pages 25-27	Potential strategies to address negative impacts can be found on Pages 26-27. Guidelines or thresholds to address deficiencies will need to be established and can look towards other application processes (e.g., TMAP) to guide when revision is necessary. Building from the existing map on page 27, additional high-level annotations for the suite of facility improvements should be included to more easily translate the primary narrative content in this section. Finally, identification of the role of phasing and TMAP submissions should be included to address this content requirement and as mentioned before, may benefit through connection with guidelines & monitoring activities.	Map on page 30 has been updated to include additional improvement measures. Information regarding TMAP monitoring and mitigation is included on page 27.	Small updates required to map on Page 30. Once complete, no further action is needed.	The figure on Page 30 has been updated accordingly.	Complete. No further action needed.
		9. An analysis of potential cumulative impacts on natural resources and open spaces.		Not provided	References have been included for the provision of new open space at the site. However, an assessment of impacts to the existing natural habitats and sensitive areas of the site should be provided or demonstrate how removal of existing trees & the pier will not negatively impact those resources or mitigate the impact to these resources.	This content has been added to the Coastal & Natural Resources Section, page 8.	Complete. No further action needed.	—	Complete. No further action needed.
3. Assessment of future institutional growth and change	d. A description of institutional needs and areas of future institutional growth and change, with:	10. An analysis of projected energy consumption, hazardous materials, generation, noise generation, and similar issues as relevant.		Partially Provided on Page 30	The majority of these issues have been addressed on Page 30. However, additional information relating to the anticipated energy consumption and that will relate to the proposed Sustainability Compact and One Climate Future will satisfy the submission requirements.	This content has been added to page 32, Safety & Environment	Small edit suggestion on Page 32. Once resolved, no further action needed.	The suggested edit was incorporated on Page 32.	Complete. No further action needed.
		11. An environmental plan, representing the synthesis of the analysis, and including a proposed program or set of guidelines for future preservation, enhancement, conservation, and/or mitigation.		Partially provided on Page 30	Points where updates/mitigation will need to be provided should be included and could be informed by monitoring reports. Given that this action discusses open space as well, this would also serve as an ideal location to repeat or reference the proposed content for the Regulatory Framework needed to open space intent and provision.	This content has been added to the Coastal & Natural Resources Section, page 8 and the Safety & Environment page 32	Complete. No further action needed.	—	Complete. No further action needed.
		12. An analysis of projected public utility demand and the capacity of associated infrastructure.		Partially Provided on Page 29	Projected utility demand and the relationship between the existing capacity of the infrastructure on-site should be provided. This may include references to proposed sustainable practices from the Compact that may address or eliminate deficiencies.	Utility demand information has been added to page 7 and information related to Energy Consumption Mitigation and the Sustainability Charter has been added to page 32, Safety & Environment.	As mentioned for T.C.S., a sentence should be added confirming that there are no anticipated barriers to future utility improvements to meet anticipated utility demand. Once provided, no further action needed.	This content was added on page 7.	Complete. No further action needed.
	e. Infrastructure, with:	13. An analysis of projected public safety needs and projected impacts to the capacity of these services.		Not provided	As a campus that in the long term will create a new neighborhood, an assessment on the accessibility to the site for emergency vehicles, safety needs related to the campus design and generally to the staff, and capacity of City emergency services should be addressed. On a related note to this, a number of public speakers have mentioned the concerns about Shemond Street creating access issues for the site. It may be wise to think about potential emergency services that could be provided on-site to address these concerns.	Public safety narratives have been added to page 32, Safety & Environment.	Complete. No further action needed.	—	Complete. No further action needed.
		14. An infrastructural plan, representing the synthesis of the analysis, and including a proposed program or set of guidelines to support sustainable growth.		Partially provided on Page 28	Points where updates/mitigation will need to be provided should be included and could be informed by monitoring reports.	Included in Transportation Appendix with reference to	Complete for Transportation elements. Anticipated points for utility capacity improvements should be added and could more generally group types of improvements together by development phase. Once provided, no further action needed.	This comment was addressed on page 7.	Complete. No further action needed.
		15. An analysis of projected impacts to neighboring properties and public spaces, including potential shading, wind, and lighting impacts, impacts of height and massing, and impacts to historic resources.		Partially provided on Pages 8, 12, 14, 30, 37-40, and 42	As previously discussed, compiling this information into a centralized location that walks through the elements that informed the design of the site will make it a significant part of this requirement. Some additional language confirming that the concept campus plans as now do or not present wind or lighting impacts would also help finish the thought for this section.	Narratives relating to shadow, wind, lighting, height and massing are included on page 30, Safety & Environment. Narratives related to historic resources is included on page 8.	Complete. No further action needed.	—	Complete. No further action needed.
	f. Design, with:	16. An analysis of transition areas between the institution and adjoining neighborhoods, including identification of key character defining components of the surrounding context.		Provided on Page 28			No action needed.	—	Complete. No further action needed.
		17. An analysis of existing Crime Prevention Through Environmental Design issues and identification of how these principles would be addressed as part of the proposed campus development.		Partially Provided on Page 28	Identification of Potential or Anticipated CPTEP issues should be included, along with notations for any anticipated changes based on phasing.	Narratives relating to phasing and CPTEP has been added to page 33, Transitions.	Complete. No further action needed.	—	Complete. No further action needed.
		18. A conceptual built environment plan, representing the synthesis of the analysis, and including a set of guidelines for urban design, landscape, open space, and streetscape		Partially provided on Pages 13-15 and 28	Integration of the content of the Access and Circulation Map and the Potential Open Space Breaks and Buffer Map will help address this issue. Multi-modal connections off-site should also be mentioned as how they support compatible transitions to and from the site (e.g. Mitigation on Naranda Street, other bike & pedestrian facilities will facilitate smooth transitions).	Development Plans for Near, Mid and Long Term have been added as page 15, and include notations regarding site circulation an multi-modal connections.	Minor comment added about alignments being added for shared use path improvement referenced in Mid-Term phase in Appendix C. Once provided, no further action needed.	The alignments have been added to the figure on Page 15.	Complete. No further action needed.

Category	Requirements	Provided? (If so, Page of Content)	City Staff Notes	Applicant Response	City Follow-Up	
1. Zoning Boundary of the IOZ	The area to which the regulations apply, as shown on the zoning map, subject to other provisions of this ordinance (i.e. the map amendment to the City's zoning map)	Provided on Page 1	Staff has recommended updates to this section for consistency in the naming of the eligible institution.		No action needed.	
2. Phasing and schedules	Requirements that relate to particular proposed phases	Not provided	Including a schedule of applicable reviews and decision points for multiple items would be useful (e.g., TDM plan adopted during first site plan review, review and approval of open space approach in first site plan review, TMP and site plan reviews throughout).	New TMP section added under transportation.	Complete. No further action needed.	
	A chart showing the schedule or thresholds for submitting an amended IDP (or elements of an IDP, such as a Transportation Demand Management (TDM) plan)	Provided on Page 2	- Minor amendments are reviewed when there is a change in approach. This should be distinguished from a major amendment, since a change in approach could be considered the same as an inconsistency with a master facility plan, transportation plan intent, design plan intent, or environment and infrastructure plan intent. - On a separate note, it is stated that minor amendments can be reviewed simultaneously with site plan reviews. It would make sense to address the schedule for how the review of a major amendment would occur with a corresponding site plan review (e.g., Does the Planning Board determine whether this can occur simultaneously? Does the Planning Board need to approve a major amendment prior to the site plan application being reviewed?)	Modifications made to this section to clarify.	No action needed.	
3. Uses	Clarification, as necessary, on permitted uses	Provided on Pages 2-3	City Staff recommend the removal of structured parking as a use type since off-street parking (Structured or Surface) is already permitted in the B-S zone.	Done	No action needed.	
4. Dimensional Requirements	Graphics, sketches, or standards, including details for transition zones within the IOZ boundary	Partially provided on Pages 4-5	City Staff have provided recommendations on additional information to be provided in this section. Maps should also identify transition zones and corresponding details between areas of the height map, as well as transitions to and from the site.	Map added that contains transitions zones and buffers. New section on transitions added under Dimensional Standards.	IOZ Boundary should be added to map. Once provided, no further action needed.	Complete. No further action needed.
5. Transportation	Elements such as Transportation Demand Management Plan (TDM) trip reduction targets or contribution to area-wide TDM measures	Not provided	References to development of a TDM trip reduction targets at first site plan are included, as well as generic language on mitigation that is proportionate to impacts. Projected targets have been referenced in the transportation memorandum and should be relocated here. Area-wide TDM measures could also be discussed in terms of potential paving improvements to Yuley's Bridge or how improvements are being made in concert with METRO.	Included in new TMP section. Monitoring section moved under TDM transportation section.	Complete. No further action needed.	
	Broad parameters for ensuring pedestrian, vehicular, bicycle and transit access and safety	Not provided	Falling under the existing access and safety section, general statements such as the following could be included to satisfy the Content requirement: - The site and building design shall not prohibit the enhancement of transit service to and from the site - Bicycle, pedestrian, transit, and motorized vehicular facilities proposed to and from the site shall provide sufficient capacity and allow for safe connections for all modes of transportation.	Language added as suggested.	Complete. No further action needed.	
	Parking ratios and management strategies	Not provided	Management strategies have been referenced in the IDP and some or all of this content will need to be located in the Regulatory Framework. Parking ratios should be determined for the site at this time. Consideration by the Applicant to existing parking ratios and exemptions (e.g., 1/4 mile from fixed-route transit) could serve to address this content requirement.	The term "parking ratios" added to parking section, as well as mention of compliance with requirements in effect at the time.	Complete. No further action needed.	
	Thresholds for access improvements	Not provided	Connections should be considered with triggers for TMPs, monitoring, mode share and TDM targets, and other applicable municipal/regional plans/projects	Included in new TMP section.	Complete. No further action needed.	
6. Environment	The approach to the inclusion of open space and preservation of environmentally-sensitive areas	Partially provided on Page 7	- The current environmental section provides a significant number of standards to address the content requirements. Additional information on identifying and protecting environmentally sensitive areas should be included, with considerations for changing sensitivity across phases (e.g., habitat that is identified in between phases). - As the framework for the charter will become public, updates to standard 2 should occur to provide more specificity/ensure alignment.	Reference to wetlands and significant wildlife habitat added. Charter section redrafted.	Complete. No further action needed.	
7. Mitigation Measures	The broad approach to identified mitigation measures, which would be addressed in greater detail in the site plan review process	Provided on Page 7			No action needed.	
	Thresholds for addressing deficiencies	Not provided	Connections should be considered with triggers for TMPs, monitoring, mode share and TDM targets, and other applicable municipal/regional plans/projects	Included in new TMP section.	Complete. No further action needed.	
	Goals for preservation/protection	Partially provided on Page 10	Preservation of the Bean Building and corresponding interpretation on a new pier is discussed. Additional information should be provided on how other environmental issues in and around the site should similarly have corresponding preservation/protection goals.	Reference to wetlands and significant wildlife habitat added.	Complete. No further action needed.	
8. Design	Graphics and standards to clarify building placement and envelope	Partially provided	Staff recommendations for requirements on setbacks, minimum and maximum street wall heights, and building lengths, along with the subarea map and height map will address these content requirements.	Adopted with revisions.	Complete. No further action needed.	
	Guidelines for integration of site features	Provided on Pages 6 and 10	It could be beneficial to identify how the change in topography of the site is being integrated into the design.		No action needed.	
	Required treatments for all edges (both within and abutting the IOZ boundary)	Partially provided on Page 6	The Applicant has done an excellent job in describing how the circulation will relate to treatments on the edge of the site. Including information on treatments off-site that are proposed (i.e., Sherwood Street west of I-295) will satisfy this content requirement.	Language added in bike/ped section.	Complete. No further action needed.	
9. Neighborhood Integration	Guidelines for establishing campus identity	Partially provided on Pages 8-9	City Staff have proposed recommendations to the Design Guidelines to ensure connections with the Design Principles and promote feasible implementation of the requirements. The adoption of these recommendations will satisfy these content requirements.	Guidelines adopted with some revisions. Guideline added at 2.a.2 to address portal in academic building.	Complete. No further action needed.	
	Thresholds and strategies for neighborhood engagement	Provided on Pages 9-10			No action needed.	
	Mitigation of impacts on neighboring properties, including construction impacts	Provided on Page 10	Reference to design standards that are helping to address visual and shadow impacts on neighboring properties would help to easily demonstrate all mitigation together in one section.		No action needed.	
	Buffering requirements	Not provided	Based on the existing conditions and the proposed design of the site, ground-level separation of buildings from the edge of the site could turn into a Regulatory Framework requirement that easily demonstrates how the intent of the content requirement is being met.	Buffering map and transition section added.	IOZ Boundary should be added to map. Once provided, no further action needed.	Complete. No further action needed.
	Objectives for pedestrian linkages and safety	Not provided	Falling under the existing access and safety section, general statements such as the following could be included to satisfy the Content requirement: - The site and building design shall provide meaningful connections to bicycle and pedestrian facilities on- and off-site - Bicycle and pedestrian facilities proposed to and from the site shall provide sufficient capacity and allow for safe connections for all modes of transportation. Updates should align with updates to the Broad parameters for ensuring pedestrian, vehicular, bicycle and transit access and safety content requirement under Transportation as well.	Language added in bike/ped section.	Complete. No further action needed.	
10. Monitoring	Other requirements that address community concerns	Provided on Page 10	Reference to snow ban parking and provision of parking for nearby residents which is a consideration in the review of a residential parking permit program. The Applicant should consider inclusion of standards that address/mitigate any other issues raised in public comments.		No action needed.	
	A schedule for regular monitoring reports on IDP implementation in accordance with the IDP	Provided on Page 2	There may be a benefit to putting the frequency of monitoring reports into a table for ease of viewing for the IDP and TDM Plan.		No action needed.	

Review of Connection between Design Principles & Regulatory Framework	
Applicant IDP Design Principle	Regulatory Framework Guidelines
Connected to the Waterfront, Portland & the World	
Engage the Waterfront	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.a.ii.: New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security of public safety purposes. Sec. 8.5.7.H.2.d.ii.: Surface parking lots shall be located to the maximum extent practicable toward the rear or side of a building not occupied by a principal entry to a building facing a street, public right-of-way, major pedestrian access routes, open spaces, and/or the waterfront.
Promote visual and physical connectivity	Sec. 8.5.7.H.2.a.ii.: New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security of public safety purposes. Sec. 8.5.7.H.2.d.i.: Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service and emergency vehicles at each development phase. Sec. 8.5.7.H.2.d.ii.: Surface parking lots shall be located to the maximum extent practicable toward the rear or side of a building not occupied by a principal entry to a building facing a street, public right-of-way, major pedestrian access routes, open spaces, and/or the waterfront.
Encourage connections to the waterfront through diverse spaces	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.a.ii.: New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security of public safety purposes.

	Sec. 8.5.7.H.2.e.i.: Open space will be publicly accessible to provide multiple functions for recreation, social gathering and buffers that integrate within the overall composition and experience of the campus at each development phase.
Create a holistically built environment	Sec. 8.5.7.H.2.b.i.: The overall composition and experience of the campus will be considered for cohesive identity from approaches along I-295 and views from the East Deering Neighborhood. Sec. 8.5.7.H.2.c.i.: Buildings, site development, circulation, and open space will respect the B&M Cannery Building, a designated historic landmark. Sec. 8.5.7.H.2.e.i.: Public open space will contribute to the overall composition and character of the campus that are integrated into each development phase to function as recreational, ecological restoration and/or public gathering spaces.
Restore, repurpose, and revitalize the Bean Building	Sec. 8.5.7.H.2.c.i.: Buildings, site development, circulation, and open space will respect the B&M Cannery Building, a designated historic landmark.
Create an iconic architectural expression	Sec. 8.5.7.H.2.b.i.: The overall composition and experience of the campus will be considered for cohesive identity from approaches along I-295 and views from the East Deering Neighborhood. Sec. 8.5.7.H.2.h.i.: Building façade materials will be of high quality, durable to the marine climate and contribute to an attractive public realm. The first 35 feet of building height shall complement the pedestrian character in materiality, transparency, and detailing.
Places to Gather	
Welcome the surrounding neighborhood	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.a.ii.: New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security of public safety purposes. Sec. 8.5.7.H.2.d.i.: Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service and emergency vehicles at each development phase.

	Sec. 8.5.7.H.2.i.i.: Building entrances will include prominent facades and be oriented toward, located adjacent to, or accessible from rights-of-way, major pedestrian access routes, or open spaces.
Foster community with shared spaces and interaction	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.a.ii.: New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security of public safety purposes. Sec. 8.5.7.H.2.d.i.: Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service and emergency vehicles at each development phase. Sec. 8.5.7.H.2.e.i.: Public open space will contribute to the overall composition and character of the campus that are integrated into each development phase to function as recreational, ecological restoration and/or public gathering spaces. Sec. 8.5.7.H.2.h.i.: Building façade materials will be of high quality, durable to the marine climate and contribute to an attractive public realm. The first 35 feet of building height shall complement the pedestrian character in materiality, transparency, and detailing. Sec. 8.5.7.H.2.i.i.: Building entrances will include prominent facades and be oriented toward, located adjacent to, or accessible from rights-of-way, major pedestrian access routes, or open spaces.
Build a strong association with the City of Portland	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.b.i.: The overall composition and experience of the campus will be considered for cohesive identity from approaches along I-295 and views from the East Deering Neighborhood. Sec. 8.5.7.H.2.d.i.: Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service and emergency vehicles at each development phase.
Develop purpose-driven spaces that yield regular connections	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction.

	Sec. 8.5.7.H.2.a.ii.: New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security of public safety purposes. Sec. 8.5.7.H.2.c.i.: Buildings, site development, circulation, and open space will respect the B&M Cannery Building, a designated historic landmark. Sec. 8.5.7.H.2.e.i.: Public open space will contribute to the overall composition and character of the campus that are integrated into each development phase to function as recreational, ecological restoration and/or public gathering spaces. Sec. 8.5.7.H.2.h.i.: Building façade materials will be of high quality, durable to the marine climate and contribute to an attractive public realm. The first 35 feet of building height shall complement the pedestrian character in materiality, transparency, and detailing. Sec. 8.5.7.H.2.i.i.: Building entrances will include prominent facades and be oriented toward, located adjacent to, or accessible from rights-of-way, major pedestrian access routes, or open spaces.
Provide public open space	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.e.i.: Public open space will contribute to the overall composition and character of the campus that are integrated into each development phase to function as recreational, ecological restoration and/or public gathering spaces.
Provide spaces where neighbors can work and read while enjoying the campus's environment	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.a.ii.: New principal buildings on the waterfront shall include a publicly accessible entrance to interior public space (if provided) from the waterfront side and upland side of the building along an

	anticipated desire line. Said interior public space, if provided, may be closed to the public during special events, outside normal operation hours, and when necessary for security of public safety purposes. Sec. 8.5.7.H.2.e.i.: Public open space will contribute to the overall composition and character of the campus that are integrated into each development phase to function as recreational, ecological restoration and/or public gathering spaces.
A Sustainable & Resilient Campus	
Employ sustainability benchmarking for environmental stewardship	Sec. 8.5.7.H.2.f.i.: Buildings and site development will incorporate sustainable technologies in building design, orientation, energy production and sensitivity to natural resources at each development phase. Sec. 8.5.7.H.2.g.i.: Buildings and site development will incorporate resilience strategies to account for flooding, severe weather events and integration of publicly accessible spaces at each development phase. Sec. 8.5.7.H.2.j.i.: Buildings and side development will endeavor to minimize potential negative impacts related to shadows, wind, noise, heat, glare, lighting, contaminants, and the environment.
Incorporate state-of-the-art features, systems, and techniques	Sec. 8.5.7.F.2.: A Sustainability and Resilience Charter will be created by the Roux Institute for the campus. The Charter shall contain sustainability goals related to development categories such as energy, water, transportation, equity, and resilience and may be revised over time in response to evolving technology and industry standards. The Charter will require all development on the campus to utilize critical components of industry standard benchmarking systems such as LEED, SITES, WELL , ILFI, and Passive House. The Charter will be submitted to the Planning Authority prior to submission of the first site plan application. Proposed site plans shall be consistent with the goals outlined in the Charter.
Minimize energy consumption campus-wide	Sec. 8.5.7.H.2.d.i.: Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service and emergency vehicles at each development phase. Sec. 8.5.7.H.2.f.i.: Buildings and site development will incorporate sustainable technologies in building design, orientation, energy production and sensitivity to natural resources at each development phase.
Build for resilience; prepare for extreme weather and climate change	Sec. 8.5.7.H.2.g.i.: Buildings and site development will incorporate resilience strategies to account for flooding, severe weather events and integration of publicly accessible spaces at each development phase.

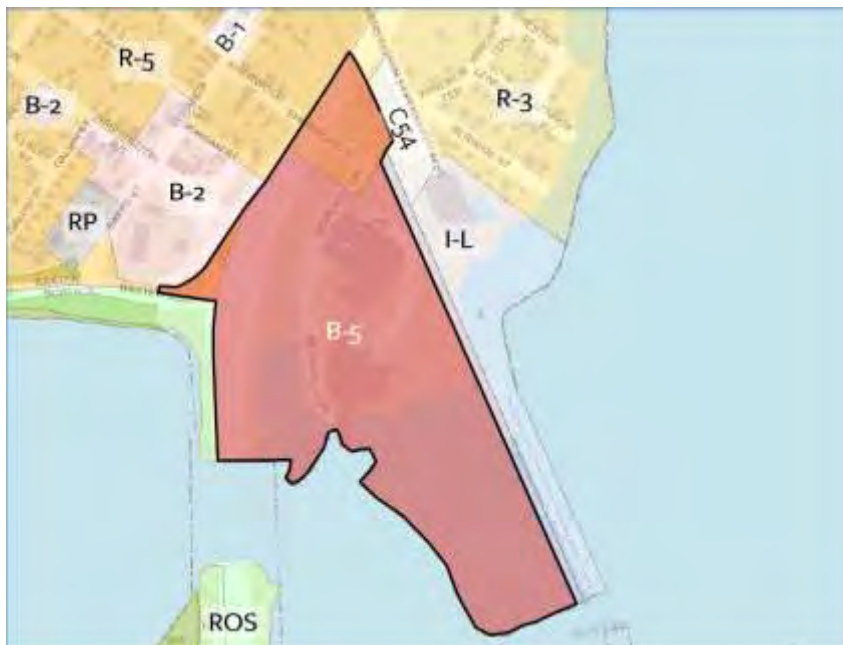
Maximize green space through appropriate building height	Sec. 8.5.7.H.2.e.i.: Public open space will contribute to the overall composition and character of the campus that are integrated into each development phase to function as recreational, ecological restoration and/or public gathering spaces. Sec. 8.5.7.H.2.h.i.: Building façade materials will be of high quality, durable to the marine climate and contribute to an attractive public realm. The first 35 feet of building height shall complement the pedestrian character in materiality, transparency, and detailing.
Integrated Landscape	
Enhance access through TDM and multi-modal support	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.d.i.: Prioritize the bicycle and pedestrian circulation network on campus while providing connectivity for auto, public transit, service and emergency vehicles at each development phase. Sec. 8.5.7.H.2.d.ii.: Surface parking lots shall be located to the maximum extent practicable toward the rear or side of a building not occupied by a principal entry to a building facing a street, public right-of-way, major pedestrian access routes, open spaces, and/or the waterfront. Sec. 8.5.7.H.2.i.i.: Building entrances will include prominent facades and be oriented toward, located adjacent to, or accessible from rights-of-way, major pedestrian access routes, or open spaces.
Contribute to Portland's open space network	Sec. 8.5.7.H.2.a.i.: The waterfront will be accessible to the public and provide a variety of open spaces throughout all phases of development that foster social interaction. Sec. 8.5.7.H.2.e.i.: Public open space will contribute to the overall composition and character of the campus that are integrated into each development phase to function as recreational, ecological restoration and/or public gathering spaces.

Proposed Area for B-5 Rezoning

Current Zoning



Proposed Zoning



Parcel Descriptions

1 Bean Pot Circle (447 A001001)

43 Sherwood Street (429 E001001)

Portion of City Right of Way for Sherwood Street

BEGINNING at the northwestern boundary of the right-of-way at $43^{\circ}40'50.2146''$, $-70^{\circ}15'17.3577''$ heading 50.9 feet South to the southeastern boundary of the right-of-way at $43^{\circ}40'49.757''$, $-70^{\circ}15'17.642''$

THENCE, heading 211.6 feet Southeast to 43.68015774, -70.25424215

THENCE, heading 50 feet North to the northeasterly portion of the right-of-way at $43^{\circ}40'48.9732''$, $-70^{\circ}15'14.8842''$

THENCE, heading Northwest 0.16 feet to the northern portion of the right of way at $43^{\circ}40'48.9739''$, $-70^{\circ}15'14.8846''$

THENCE, heading Northwest 220.9 feet along the northern boundary of the right to the POINT OF BEGINNING.

Part of 430 X002 (Maine DOT Rail Right of Way)

BEGINNING at the northwestern boundary of the parcel identified as 430 X002 at $43^{\circ}40'52.303''$, $-70^{\circ}15'15.4643''$ heading 118.3 feet South to the southwestern boundary of the parcel at $43^{\circ}40'51.3268''$, $-70^{\circ}15'16.3494''$

THENCE, heading Southeast 261.5 feet to the southeastern boundary of the parcel at $43^{\circ}40'48.9732''$, $-70^{\circ}15'14.8842''$

THENCE, heading North 116.5 to the northeastern boundary of the parcel at $43^{\circ}40'49.9201''$, $-70^{\circ}15'13.984''$

THENCE, heading 264.7 feet Northwest along the northern boundary of the parcel to the POINT OF BEGINNING.

Part of 440 X001 (Maine DOT I-295 Right of Way)

BEGINNING at the northeastern boundary of the parcel identified as 440 X001 at $43^{\circ}40'41.8436''$, $-70^{\circ}15'21.3506''$ heading 474.75 feet South to $43^{\circ}40'37.3379''$, $-70^{\circ}15'21.1662''$

THENCE, heading 30 feet East to the eastern boundary of the property at $43^{\circ}40'37.3509''$, $-70^{\circ}15'20.7584''$

THENCE, heading 40 feet South along the eastern boundary of the property to $43^{\circ}40'36.9555''$, $-70^{\circ}15'20.7344''$

THENCE, heading West 225.2 feet to a point at $43^{\circ}40'36.9496''$, $-70^{\circ}15'23.7992''$

THENCE, heading North 494.7 feet to a point at $43^{\circ}40'41.8309''$, $-70^{\circ}15'24.0729''$

THENCE, heading East 200 feet along the northern boundary of the property to the POINT OF BEGINNING.

Part of 429 X001 (Maine DOT I-295 Right of Way)

BEGINNING at the northeastern boundary of the property at 43°40'52.302", -70°15'15.463" heading 151.8 feet Northwest to 43°40'53.6688", -70°15'16.3156"

THENCE, heading Southwest 700.2 feet to 43°40'47.889", -70°15'21.556"

THENCE, heading South 101.2 feet to 43°40'47.123", -70°15'22.428"

THENCE, heading South 196.8 feet to 43°40'45.494", -70°15'23.844"

THENCE, along a tangent curve to the South having a radius of 291.58 feet through a central angle of 50°, an arc length of 259.6 feet

THENCE, heading West 43.2 feet to the southwestern boundary of the property at 43°40'44.055", -70°15'27.081"

THENCE, heading South 27.4 along the southwestern boundary of the property to 43°40'43.789", -70°15'27.142"

THENCE, heading East 239.4 feet to 43°40'43.398", -70°15'23.926"

THENCE, along a tangent curve to the South having a radius of 994.11 feet through a central angle of 9°, an arc length of 159.5 feet

THENCE, heading 200 feet East along the southern boundary of the property to the eastern boundary of the property at 43°40'41.8445", -70°15'21.3512"

THENCE, heading 19.5 feet North along the eastern boundary of the property to 43°40'42.0359", -70°15'21.3524"

THENCE, heading 99.6 feet Northeast along the eastern boundary of the property to 43°40'42.9296", -70°15'20.7859" -

THENCE, heading 91.70 feet Northwest along the eastern boundary of the property to 43°40'43.6806", -70°15'21.4843" -

THENCE, heading 62.61 feet Northwest along the eastern boundary of the property to 43°40'44.2897", -70°15'21.6299" -

THENCE, heading 132.29 feet North along the eastern boundary of the property to 43°40'45.5674", -70°15'21.2537" -

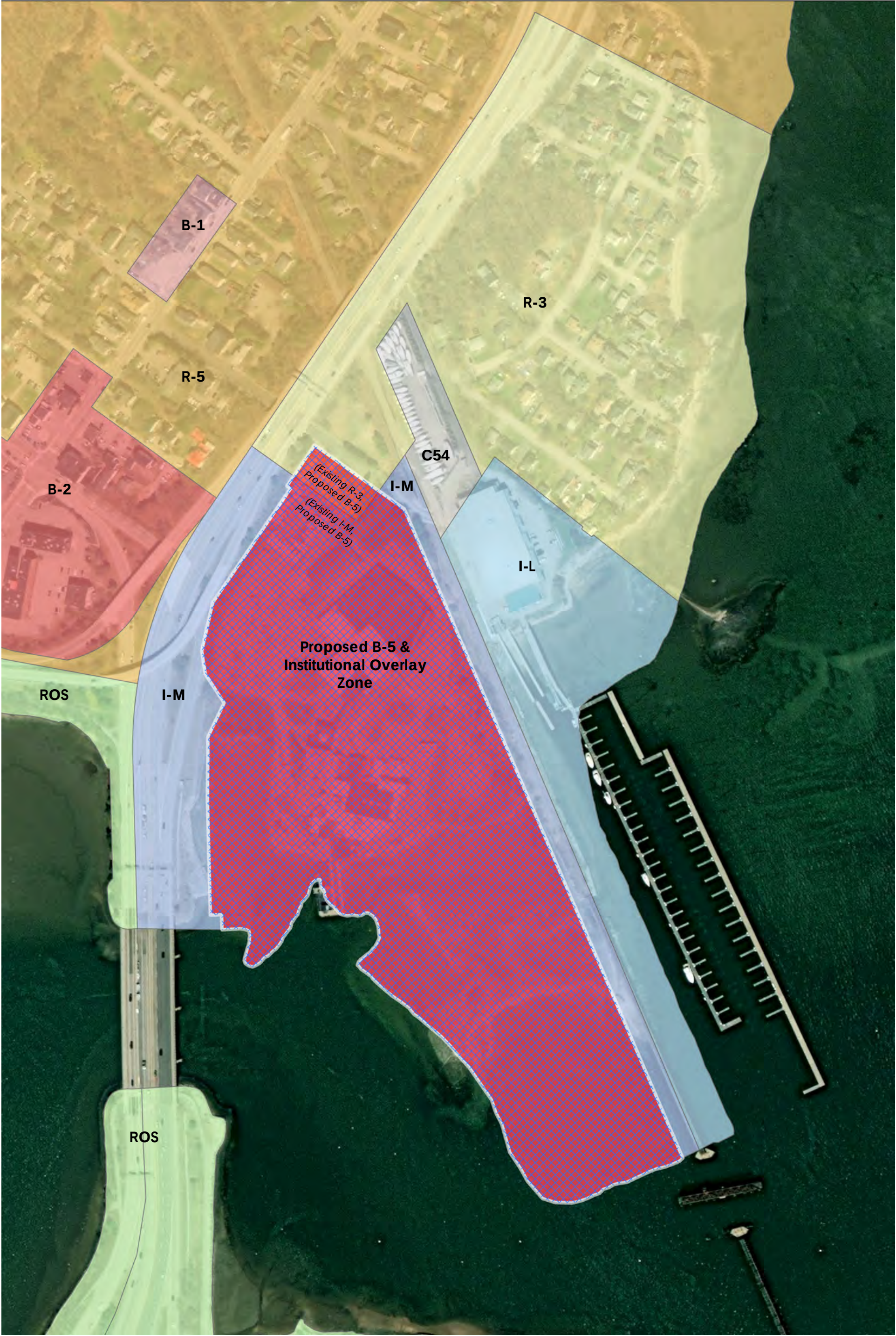
THENCE, heading 367.86 feet Northeast along the eastern boundary of the property to 43°40'48.6", -70°15'18.4965"

THENCE, heading 11.81 feet West along the property boundary to 43°40'48.6642", -70°15'18.6299"

THENCE, heading 132 feet Northeast along the property boundary to 43°40'49.7557", -70°15'17.6402"

THENCE, heading 50.6 feet Northeast along the property boundary to 43°40'50.2142", -70°15'17.3578"

THENCE, heading 135.61 feet Northeast along the property boundary to the POINT OF BEGINNING.



To: Maggie Stanley, Chair, Portland Planning Board

From: Mike Tremblay, Director of Transit Development, Greater Portland METRO

Date: November 16, 2022

Subject: METRO Service to Roux Institute Campus

Dear Ms. Stanley,

Over the better part of 2022, METRO has been meeting with representatives of the Roux Institute, including Sam Reiche from IDEALS and Jenn Conley from VHB, who is coordinating their transportation plan. METRO has also participated in multiagency transportation planning meetings including MaineDOT and City of Portland staff. The Roux team has shown immense interest in accommodating METRO on their new campus site.

At METRO, we see ourselves as a potential partner to the Roux Institute and a significant part of the transportation solution for this site. METRO is eager to continue working with the Roux team to determine a workable outcome for providing the site with frequent and reliable public transit.

To date, METRO and the Roux team have primarily discussed two potential outcomes for serving the site:

The first, and easiest to implement, involves using the Route 7 bus to serve the site, including deviations into the site for some or all trips. The Route 7 service runs between downtown Portland and Falmouth Village via Veranda Street. Currently, Route 7 stops at the intersection of Veranda and Sherwood streets; these stops could be used, and potentially improved, to serve Roux students and faculty. Deviating into the Roux site with the Route 7 is less desirable for METRO, and may require additional operational support in order to maintain desired headways, but is also a very realistic possibility.

The second option, as suggested by the Roux team, would be to serve the Roux site with a dedicated route, which terminates on campus, and provides direct access between the Roux campus and downtown. METRO does not have the capacity to add a new route without significant tradeoffs elsewhere in the system. The Roux team has expressed interest in entering into a contract to provide funding for such a route, though we are still working through what that contract would look like. METRO is meeting with the Roux team in the near future, where this topic will be discussed further.



As you are aware, METRO is not a City agency; we are a transit district comprising of Portland and five other municipalities, governed by a Board of Directors on which four Portland representatives sit. While we are always eager to work with our member municipalities and development teams to determine how we can best serve a new location, this is not always immediately possible within our budgetary means. As any public agency with a constrained budget, we must take care to approach growth in a careful, calculated manner that is sustainable in both the short- and long-term. For this reason, any new service providing access to the Roux site must be accompanied by new funding.

In addition to evaluating options for service to the site, METRO and Northeastern University are setting up a pass program that would allow for students and faculty to board any bus in the METRO, South Portland, and Biddeford Saco Old Orchard Beach network at no charge. This would be a significant incentive to use transit instead of driving. Pass programs have been very successful where they are already in place for Portland Public School students, USM students and faculty, Maine Medical Center staff, and others.

Finally, the Roux team has indicated a willingness to provide amenities to METRO passengers and bus operators should bus service be provided onsite. These amenities may include seating and shelters, real-time arrival information, restrooms for bus operators, etc. The details of these accommodations will be determined during the site plan process and as the plan to serve this site with bus service becomes clearer.

We are looking forward to further advancing our discussions with the Roux team in the coming weeks and months.

Please feel free to reach out to me if you have any questions. My email address is mtremblay@gpmetro.org.

Thank you,

Mike Tremblay, Director of Transit Development
Greater Portland METRO

CC:

Portland Planning Board

Kevin Kraft, Director of Planning & Urban Development, City of Portland





Kevin Kraft <kkraft@portlandmaine.gov>

IDEALS/Roux

1 message

Jen Thompson <jlt@portlandmaine.gov>
To: Kevin Kraft <kkraft@portlandmaine.gov>

Thu, Nov 17, 2022 at 3:03 PM

Hi Kevin - thank you for the question about the sufficiency of this applicant's proof of standing. After a review of application materials (in particular the MOU between IDEALS and Roux) I can offer these thoughts: The "right, title, and interest" (RTI) requirement relates to whether an applicant has sufficient standing to apply for the approval they seek. The general rule is that an applicant must be a person who can demonstrate that they have a "legally cognizable expectation" of having the power to use the property that is the subject of their application in the ways that would be authorized by the permit/approval they seek.

Here, and as you outline in your email, IDEALS has submitted an application for a zone change that would add Roux/Northeastern as an eligible institution for the purposes of establishing an IOZ. In general, ownership of property is, in and of itself, sufficient RTI to apply for a change in the zoning applicable to that property or for land use and development approvals. Here, in addition to demonstrating IDEALS' ownership of the property, IDEALS has provided an MOU with Roux in which Roux's planned operation of the property in a manner consistent with the IOZ zoning is documented as is its control of the property under a lease agreement with IDEALS. In my view IDEALS has submitted sufficient evidence of RTI to have standing to request the zone change.

Of course, if you or the Board have any questions or concerns about this, please do follow up with our office.

Best,
Jen
Jen Thompson
Acting Corporation Counsel
City of Portland, Maine
207.874.8480
jlt@portlandmaine.gov



On Thu, Nov 17, 2022 at 6:13 AM Connect Portland <info@connectportland.com> wrote:

Pay ATTENTION, if you have not been engaged, get involved! We welcome Roux Institute to East Deering. However, they have not addressed the profound impact of height, traffic, parking and a mitigation plan to address these concerns which will affect not only East Deering but every driver who uses Washington Avenue and access to I295.

Background: IDEALS, a non-profit corporation in Falmouth, has submitted a zoning and text amendment on behalf of Roux Institute at Northeastern University for the former B&M site. It will be a massive scale development of mixed uses including a 130-room hotel, retail (restaurant, cafe, market, etc.), commercial, housing and academic.

Update: The applicant IDEALS has been moving through the Planning Board review process where discussions have taken place as to the proposed buildings ranging in height from 155 to 170 ft, traffic impacts, building and site design, transportation, parking, campus integration with the neighborhood trail connections, environment and community engagement. *The next Planning Board meeting is scheduled for Tuesday, November 22 at 4pm via Zoom. <http://www.portland.gov/agendas>*
A public hearing will be scheduled in the near future for a Planning Board recommendation to the City Council regarding the proposed zone change. Comments can be submitted to the Planning Board at planning@portlandmaine.gov

The project will be phased over 20 years, but the impact will be immediate in the first phase and in the construction phase, to support a projected student body of 5,100 plus staff and faculty, a 130-room hotel, residential housing of 525- 650 units, and other proposed commercial and retail uses especially the traffic implications for local and commuting public on and around Washington Avenue and I-295.

Required Content for the rezoning (traffic):

- Identify institutional needs to guide the development plan for addressing traffic impact and access in and out of the site
- Demonstrate that traffic and parking impacts have been anticipated with assessment of options to reduce traffic and parking.

Comparison of Campus Mode Shares to City Mode:

<u>Mode</u>	<u>AM</u>	<u>PM</u>	<u>City Wide</u>	<u>Campus</u>
Drive Alone	67%	66%	68%	71%
Transit	10%	10%	3%	18%
Non-motorized	18%	19%	14%	5%
Carpool	5%	5%	8%	6%

Conclusion: Increased traffic is projected to be 71% for the 600 to 1,900 plus vehicles entering Sherwood Street, the single-entry point to the site from all points outside the area. Washington Avenue, I-I-295, Veranda Street and all streets in the surrounding area will be impacted. The most significant impact will be during peak traffic times which current is a "nightmare" for drivers with traffic backup and high crash locations within these travel areas.

The proposed mitigation plan suggests that improved Metro bus service and providing bicycle/pedestrian connectivity will significantly reduce vehicle traffic. While a laudable goal, is not realistic and even if it were plausible, it doesn't come close to solving the 71% increased traffic problem for not only East Deering, but users of Washington Avenue and I-295.

Nor has the issue of cut-through traffic been addressed, an existing and growing problem for the surrounding neighborhoods.

PARKING: Another key point is the expected parking demand of 600 to 1900 spaces, many of which will be forced to park on-street into the neighborhood similar to what happened at USM and UNE due to not enough parking to meet the demand.

The developer to date has NOT come forth with the required analysis for projected parking demand and impacts on the off-street parking and on-street parking, including a parking plan as required for rezoning approval and impacts traffic.

NOTE: If you live anywhere in neighborhoods on and off Washington Avenue or use this roadway to commute to work and back home including Presumpscot Street, visit downtown, access to I-295. etc, - - you will be affected!! Please be aware and voice your concerns about the traffic implications.

###

From: Connect Portland <info@connectportland.com>

Date: Fri, Nov 18, 2022 at 7:56 AM

Subject: 📢ALERT!! Public Hearing Roux Institute, Planning Board

To: David <>

Bit of a surprise that a public hearing has been scheduled for a proposal that appears to be lacking in specific detailed information as to the impacts of this development which the public has a right to know.

Make no mistake this project has profound implications for East Deering, Back Cove and North Deering connections to the roadway system which those of us who live here experience every day trying to get out of our neighborhoods. Let them hear from you!!

Planning Board agenda has been posted and a public hearing has been scheduled for Tuesday, November 22 at their 5:30pm meeting via Zoom Webinar link at <https://portlandmaine-gov.zoom.us/j/89142988957>

If you are unable to attend the meeting, comments may be submitted to planningboard@portlandmaine.gov

Published Agenda below (Item #5, ii) and can also be found on city web site along with link to Zoom Webinar,

<https://www.portlandmaine.gov/602/Agendas-Minutes>

PUBLIC HEARING - 5:30 PM 1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON NOVEMBER 8, 2022 Evening Hearing 170 Anderson Street: Barker, Chann, Murphy, Silk, Smith present; Stanley absent. 134 Park Street: Barker, Chann, Murphy, Silk, Smith present; Stanley absent.

4. REPORTS OF DECISIONS AT THE MEETING HELD ON NOVEMBER 8, 2022 i. Traffic Movement Permit; 170 Anderson Street; Castine 170 LLC, Applicant. Silk moved and Smith seconded a motion to find the plan in conformance with 23 M.R.S. §704-A and Chapter 305 Rules and Regulations pertaining to Traffic Movement Permits. Vote 6-0, Stanley absent. ii. Conditional Use; 134 Park Street; Cathedral Church of St. Luke, Applicant. Silk moved and Smith seconded a motion to find the Conditional Use consistent with the standards of Land Use Code Sections 6.5.2 and 6.5.6. Vote 6-0, Stanley absent.

5. NEW BUSINESS i. Technical Manual Updates (estimated time 5:30 – 6:30 pm) The Planning Board will hold a remote public hearing to consider amendments to Sections 1, 2, 4 and 10 of the City of Portland Technical Manual, focusing on technical standards related to transportation systems and street design, sewer and storm drain design, site landscaping, and street lighting.

ii. Zoning Map and Text Amendment; 1 Bean Pot Circle; IDEALS (The Initiative for Digital Engineering and Life Sciences), Applicant.

(estimated time 6:30 pm) The Planning Board will hold a **remote public hearing** to consider a zoning map and text amendment application to facilitate the creation of an Institutional Development Plan (IDP) and Institutional Overlay Zone (IOZ) for their Portland campus, to be located at 1 Bean Pot Circle. The IOZ, if approved, will include the 13-acre property located at 1 Bean Pot Circle (parcels 447-A-001 and A-002), currently zoned I-M Moderate Impact Industrial. A related text amendment to modify Land Use Code Section 8.5.2 to add the applicant's parcels to the list of eligible IOZ areas has been provided. A project and plan summary are available for viewing on the city's CSS Portal (<https://css.portlandmaine.gov/>) referencing Plan Number ZN-001934-2022

Background: The applicant IDEALS has been moving through the Planning Board review process where discussions have taken place as to the proposed 6 buildings ranging in height from 155 to 170 ft, traffic impacts, building and site design, transportation, parking, campus integration with the neighborhood, trail connections, environment and community engagement.

The project will be phased over 20 years, but the **impact** will be **immediate** in the **first phase** and in the construction phase, to support a projected student body of 5,100 plus staff and faculty, a 130-room hotel, residential housing of 525- 650 units, and other proposed commercial and retail uses especially the traffic implications for local and commuting public on and around Washington Avenue and I-295.

Major Concerns:

- Traffic, traffic, traffic - proposal is lacking specific, detailed solutions to the significant undue adverse impacts on neighborhoods on and around the development, commuter traffic, gridlock, diversion of vehicles into abutting neighborhoods to avoid traffic created congestion and incomplete mitigation plan.
- Proposed targets to reduce single-occupancy vehicle trips are unrealistic goals built on assumptions not founded in factual data or commitment guarantees
- Metro bus service and bicycle/pedestrian pathway connections and minor tweaks to roadway system are insufficient to meet the demand created by the development
- Reluctance by the developer to explore other options such as off-site parking garage and/or off-site satellite lots with shuttle service
- Parking plan on and around the site based on demand created by the development is non-existent and proposed to be established later on

Required as part of the rezoning is the creation of a Regulatory Framework subsection 8-5.5 which "translates the Institutional Development Plan (IDP) into a set of clear and specific zoning requirement for the IOZ Rezoning" to include Transportation Elements such as the Transportation Management Plan

(TDM) that addresses the some of the issues outlined above.

Required Content for the rezoning (traffic):

- Identify institutional needs to guide the development plan for addressing traffic impact and access in and out of the site
- Demonstrate that traffic and parking impacts have been anticipated with assessment of options to reduce traffic and parking.

Comparison of Campus Mode Shares to City Mode:

<u>Mode</u>	<u>AM</u>	<u>PM</u>	<u>City Wide</u>	<u>Campus</u>
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Transit	10%	10%	3%	18%
Non-motorized	18%	19%	14%	5%
Carpool	5%	5%	8%	6%

As stated, Roux Institute at Northeastern University has the potential to be a nice addition to Portland, however, they need to realistically and sincerely respond to serious issues related to its development on the former B&M site beyond that of wanting a showcase site with wonderful views of Casco Bay.

James Cohen <jcohen@verrill-law.com>
to planningboard@portlandmaine.gov

7:28 AM (29 minutes ago)

Chair Stanley and members of the Board:

I write to today to express support in my individual capacity for the Institutional Overlay Zone currently pending before the Board. Passage of this Zone is important to allowing the Roux Institute to establish a campus in Portland, which is critical for Portland's future.

Establishing this Zone is within the Board's discretion and obviously considers a range of high-level issues, from parking, to building height, to traffic, to public access, and to many other issues related to land use. Also of relevance is the benefit to the community of the proposed use. I will start there.

Having the Roux Institute in Portland is a rare opportunity. World class cities need world class institutions of higher education. Portland has UNE, MECA, and USM within its borders, and SMCC, St. Josephs, Bowdoin, and Bates in the region. The Roux Institute fills a niche in high-tech not otherwise met, and it fills this niche in part through an affiliation with Northeastern University, a national university based in Boston known for training and placing students in great jobs. Roux has been substantially capitalized through major grants from Maine-based philanthropists and is already succeeding. Roux also is building a national reputation – I can rarely turn on a national podcast without hearing their ads advertising Portland, Maine and cutting-edge high-tech education.

As the parent of two kids who went through the Portland Public Schools who both went to college out of state and found jobs out of state, I have first-hand experience in the relatively limited job and company pool in this area. Portland has a strong and growing economic base, yes. But for long-term, sustainable success, we need a pipeline of highly educated tech students to encourage businesses to locate and grow in this area. The more the high-tech sector becomes established in our region, the more likely it will be that our children to choose to locate in Portland in order to pursue the careers of their choice. Roux is already becoming part of that pipeline, and with a suitable campus in Portland, can grow to fully meet that mission.

Next, let's turn to the location itself. I have heard no one say that Roux is not a worthy endeavor, and for the reasons noted above, Roux is critical for Portland's future. If there are concerns, it relates to the proposed location and the potential impact on neighbors. That impact certainly exists, but it does not outweigh the benefits or warrant disapproval of the proposed Zone.

As it turns out, I grew up in the Payson Park area, and my mother (a former town planner) continues to live in the house where I grew up on Ocean Avenue. I currently live a few miles away in North Deering, and I regularly walk, bike, and drive past the proposed Veranda Street entrance to the campus. If there is traffic, I will be among the Portland residents directly impacted. And if there are new site amenities, it will benefit me directly. Here are my own observations about why this Zone can work, and why the Board should approve it:

- **Traffic** – I'll start with the hardest issue. As a former city councilor in District 5, I often said that the three most important issues in my district were traffic, traffic, and traffic. Without question, traffic is a big issue. But, I also frequently say that healthy cities are balanced cities, and as such, good planning requires balancing all of the aspects of the site and the proposed use. Here, there is no avoiding the fact that use of this site will add traffic. We have many other uses that generate traffic as well, including other local universities, businesses, government buildings, and retail centers. Yet, we would not trade those uses in order to reduce traffic. Traffic

is a necessary consequence of land use, and as such, we need to accept a reasonable amount of traffic as part of growing our healthy city. From what I have read and reviewed, Roux has worked hard to mitigate traffic impacts by adjusting the size of the campus, the allowed uses, adding trails, and encouraging public transportation and bike access. Given how close the campus is to Inner Washington and downtown, I expect many students to walk and bike rather than drive, or they will take the bus, particularly given the cost of parking downtown. The separate site plan review process offers further opportunities for the Board and the Planning Department to institute controls to reduce the potential impact of traffic. The bottom line for this Zone is whether we, as a community, are willing to absorb additional traffic in this Zone and outside the Zone as part of the overall project. On this, I would say the answer should be "yes."

- **Building Height** – Currently, this location is nearly invisible from the adjacent neighborhood. From Veranda Street, I can hardly tell there are structures there today. And I cannot see the water at all unless I am on Back Cove, and that view would not be impacted by new buildings on the proposed campus. If the campus is built, and the buildings might be slightly visible from inland. But the impact on view from most locations will be limited, if at all. Additionally, Roux has further modified their proposed heights so that they are lower and staggered, which makes sense. I am also guided by my experience in the mid-2000s setting the building height limits for the Eastern Waterfront Zone. As part of that process, we looked at view corridors, balloons to get a sense of height, and vision drawings as part of setting building density and height limits. Some residents expressed concerns about building heights and view impacts. The end result is a relatively dense, new neighborhood with taller buildings. And it works, spectacularly. It can also work on the proposed Roux campus where the building heights and massing are far, far less.
- **Open space** – I have been a huge advocate for open space and pedestrian access over the past 30 years in Portland. I am a former president of Portland Trails, and I remain an advisory trustee. I grew up walking and running on the Boulevard. I continue to walk and run in the area. And in all of my years, the B&M campus has been off-limits, and inaccessible. It still is off limits. The Roux plan changes that, and creates an amenity for the neighborhood and the City as a whole. Not only would the campus provide waterfront access for walkers, but it would also provide access for kayaks and paddleboards. This is not a small thing, and it is a major positive. To understand the value, it is worth a quick tour of recent Portland history. For many years, much of the Portland downtown and Eastern Prom was not directly accessible to the water, and it was not until the late 1990s that the Eastern Prom trail was built giving residents direct access to the waterfront – something that helped propel Portland's current success as a city. Likewise, it was not until the mid-1980s that a trail went all the way around Baxter Boulevard, and that important expansion in public access made a huge difference in the quality of life in Portland. So, to the extent Roux is looking to add more public access to the East Deering waterfront, we should view that as a tremendous positive.
- **Public transit** – I am also a huge advocate for public transit. I currently chair the board of the Northern New England Passenger Rail Authority, and I am a former trustee of the Greater Portland Transit District. As Portland grows, so has traffic. At the same time, our public transit offerings and services have grown. When I was growing up, there was the Number 9 Veranda Street bus that went along Ocean Avenue until it was discontinued in the 1980s. In recent years, bus service has grown in scope and frequency. That growth relies in part on housing density along arterials, and the Roux campus contributes to that density along the Washington Avenue corridor. So, not only will the Roux Campus benefit from accessible bus service, but the bus service itself will benefit from the Roux campus and more ridership. It is a virtuous cycle that will help expand bus frequency and expansion, for all of us.

As a final note, there is no question that change is hard. As a city councilor, I frequently dealt with the challenges of proposed developments in my district, and I listened intently to the input of constituents. This input often made projects better. As mayor in 2006, I helped move forward with an overlay zone for USM that helped establish the Abromson Center and new parking garage, developments that were concerning to neighbors who opposed the plan. That Zone passed on a narrow 5-4 vote of the City Council, but in hindsight, we can confidently state that approval of that zone was the right thing for Portland. Like the USM overlay zone, there are neighborhood impacts and community benefits that must be weighed. In this instance, that greater good lies with approving the overlay zone for the Roux campus.

For these reasons, I urge the Board to move forward with approval with the proposed zone as modified.

Thank you for your consideration and attention to this important matter for our City.

James I. Cohen

kyle knodt <knodt.k@gmail.com>
to planningboard@portlandmaine.gov

7:54 AM (4 minutes ago)

November 21, 2022

Honorable members of the Planning Board:

I am writing to express my support for the proposed Roux Campus on the old B&M property. As an employee of one of the first Roux Institute partner companies and the wife of a Northeastern University graduate, I fully appreciate what the Roux Institute can do for Maine companies, and what Northeastern will do for Portland. With nine campuses in three countries, Northeastern appreciates the importance of adding value to the communities in which it operates.

As a Portland resident I am very excited about the new Roux Campus. I live off the peninsula, so the prospect of a water shuttle and the promise of new public open space and linked trails is just what Portland needs. In fact, one of my oldest friends runs a water taxi which I have used many times, but for me, it requires going all the way down to Commercial Street. A taxi/shuttle connecting the new Roux Campus to downtown Portland and even South Portland would relieve traffic, reduce carbon and be a huge new asset in Portland.

With a clean slate upon which to build a sustainable campus for high tech innovation, the possibilities are endless. I have complete confidence that Northeastern will do right by Portland, and that the Roux Institute, in its future home, will be a source of pride for all of us in Portland.

Thank you for considering my views.

Sincerely,

Kyle Knodt
51 Prospect Street
Portland, Maine

Matt Melink <mattmelink@gmail.com>

Nov 20, 2022, 9:50:50 AM (22 hours ago)

to planningboard@portlandmaine.gov

Dear Planning Board Members,

My name is Matt Melink. I live in Portland with my wife, Danielle, and our 2 month old baby boy. I'm writing to you to support the Roux Institute project on the site of the former B&M property.

First, a bit about ourselves. We moved to Portland from the Midwest in May 2020. My wife accepted a job at the Maine Medical Center and I found a job as a project manager. Together we moved to a new city in a new part of the country. We lived in an apartment on outer Congress for a year and bought our first home in North Deering during the summer of 2021. Upon arriving in Portland, we immediately fell in love with the city, the culture, the quality of life, the nearby beaches, Acadia National Park, and the White Mountains. We love our city and the neighborhoods we've lived in.

We support the Roux Institute project because we believe it will spur more stories like ours by bringing young professionals from all over the country to Southern Maine. These individuals will fall in love with the area and further vitalize the businesses, communities, and nearby cities. Additionally, the project is an opportunity to breathe life into a formerly thriving factory on a prized piece of property. Finally, the project will allow the community to experience the natural and architectural landscape of the site as is developed in phases by the Roux team.

We see the Roux project as a win-win. We hope your team and the nearby community come to that agreement so we can all proceed with the project together.

Thank you,
Matt Melink and Family