

1. Agenda 7/20/2016

Documents:

[AGENDA 7_20_2016.PDF](#)

2. Review And Approve Minutes

Review and approve minutes from the previous meeting.

Documents:

[DRAFT MINUTES FROM 6_15_2016.PDF](#)

3. Solid Waste Program Improvements

Documents:

[SOLID WASTE IMPROVEMENTS MEMO.PDF](#)
[MEMO FOR SOLID WASTE WORKSHOP.PDF](#)
[WAGNER LETTER RE PAYT.PDF](#)

4. Ocean Avenue Solar

Documents:

[LANDFILL PRO FORMA_20160707.PDF](#)
[SOLAR MEMO.PDF](#)
[SOLAR FOOTPRINT.PDF](#)

5. Peaks Island Community Solar

Documents:

[PEAKS COMMUNITY SOLAR.PDF](#)
[PEAKS_ISLAND_CSF SITEPLAN 2016.05.19.PDF](#)

6. Energy Benchmarking Ordinance

Documents:

[REFERRING BUILDING ENERGY BENCHMARK TO ENERGY COMM
7.6.2016.PDF](#)

CITY OF PORTLAND, MAINE
Standing Committee on Energy and Sustainability
Councilor Jon Hinck (A/L), Chair
Councilor Spencer Thibodeau (D2), Vice Chair
Councilor Ed Suslovic (D3)

Agenda
July 20, 2016
5:00 PM
Council Chambers

1. Review and approve minutes from June 15, 2016
2. Solid Waste Program Improvements
 - City staff will discuss recommendations for improvements to the City's solid waste management program and seek endorsement from the Committee.
 - Public comment will be taken.
3. Ocean Avenue Solar
 - City staff will present the current proposal for the Ocean Avenue Landfill project and discuss its financial terms.
 - Public comment will be taken.
4. Peaks Island Community Solar
 - A group of Peaks Island residents is interested in creating a community owned solar array located on the Peaks Island Landfill. Staff will present details about the plan and discuss leasing space on the landfill cap for the solar array. Interested residents and the solar developer will be present.
 - Public comment will be taken.
5. Energy Benchmarking Ordinance
 - Councilor Hinck has proposed an ordinance requiring the owners of certain commercial and residential properties to benchmark and disclose energy use. The City Council referred the ordinance to the Energy and Sustainability Committee for review.
 - Public Comment will be taken.
6. Other business
7. Adjourn

CITY OF PORTLAND, MAINE

Standing Committee on Energy and Sustainability

Councilor Jon Hinck (A/L), Chair

Councilor Spencer Thibodeau (D2), Vice Chair

Councilor Ed Suslovic (D3)

Draft Minutes

June 15, 2016

Members Present: Councilor Hinck, Councilor Suslovic, Councilor Thibodeau

Staff Present: Troy Moon, Jeremiah Bartlett, Kathi Earley, Jean Frasier, Tuck O'Brien, William Needelman

1. Review and approve minutes from May 18, 2016

Councilor Hinck requested that the minutes clarify that he is interested in learning more about a pay as you throw option using multiple sized carts.

2. Portland Food Council

Ben Tettlebaum of the Conservation Law Foundation presented draft bylaws and a draft Council resolution for the City Council to support creation of the Portland Food Council. He presented some background on food councils in other jurisdictions. In Maine, every major municipality in Maine except Portland has one. No Maine food council has a direct connection with the local government. The food council would look at food security, urban agriculture, food waste, fisheries and aquaculture. The goal would be to help the City take advantage of opportunities for a sustainable food system. Examples of policies and initiatives to be address would be looking to have 50% of food served in schools be locally sourced, promoting roof top growing, and expanding processing opportunities for greater Portland farmers. Successful food councils have strong connection with local government.

Councilor Thibodeau asked about funding for food councils. Mr. Tettlebaum mentioned that many councils work with volunteer funding and from philanthropic donations. Cities don't always fund them. Councilor Thibodeau also thought the City Council should appoint all members as that is how it normally works with Council created entities.

Councilor Suslovic agreed with Councilor Thibodeau's points about the City Council establishing the Food Council. He also suggested that there should be greater involvement from GPCOG – maybe call it the Greater Portland Food Council to incorporate other entities doing great work.

Councilor Hinck asked whether a Portland Food Council would be able to work on improving the healthy options at the concession stand at the Portland Expo. Mr. Tettlebaum indicated there could be opportunities to work on this issue by working on

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greater procurement of local foods. Councilor Hinck requested clarification about how Food Council members would be nominated and created. Councilor Hinck indicated he would be supportive of moving forward if we can address the questions around how the Food Council members would be appointed

Public Comment in favor of the Food Council by Jim Hanna (Cumberland County Food Security Council), Mary Scott (Portland Food Co-op), Susan Nelson, Daniel Wallace (Coastal Enterprises).

Councilor Suslovic reiterated that there should be involvement by GPCOG in order to have a regional perspective. He requested that this issue come back with revisions on how Food Council members are appointed. He also thought an option would be for the City to be a member of the Food Council.

Councilor Hinck requested that Mr. Tettlebaum consider the issues raised by committee members and return at a future meeting. He indicated the Committee is interested in the concept.

3. Bayside Transportation Master Plan

Jeremiah Bartlett provided an overview of the Bayside Transportation Master Plan that covers the area bounded by I-295, Cumberland Avenue, Washington Avenue, and Forest Avenue. The emphasis is on complete streets and connectivity. There were three public work shops and an open house to discuss the plan with the public. There would be an emphasis on building on projects already in the works.

Councilor Hinck asked how the experience with Spring Street influenced this plan. Mr. Bartlett indicated that the Bayside plan has a much higher level of specificity to it than the Spring St. plan did. This is to take mystery out of the process.

Public Comment: David Holbrook raised issues about Spring St. and better lighting at cross walks.

Councilor Suslovic indicated that he would find it difficult to support the Bayside study if it doesn't address sea level rise, especially since the Bayside area already has impacts. William Needelman reported that there is a separate project to look at adaptation in Bayside. Councilor Suslovic added this is not adequate. The report itself should include discussion since Bayside is ground zero of sea level rise in Portland. Councilor Suslovic also added that he is concerned about adding more bicycle and pedestrian infrastructure if we are unable to take care of the existing infrastructure.

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Councilor Suslovic asked about the possibility of public takings. Jeremiah Bartlett indicated that connecting Pearl Street could result in a taking. Councilor Suslovic also asked about takings for the Franklin Street plan. Mr. Bartlett indicated that there would be some around Oxford St. Given the number of questions raised, Councilor Suslovic would welcome a council workshop.

Councilor Thibodeau emphasized the need to make sure pedestrian signals work and are effective. He also raised concerns about the Bayside Trail crossing Franklin Street. He feels a bridge over Franklin would be better. Mr. Bartlett mentioned that the Franklin Street study would improve the crossing but added that there was a lot of push back about the bridge from the bike/ped community. Councilor Thibodeau thinks having the bridge would advertise our commitment to good infrastructure.

Councilor Hinck asked about the net loss or gain of parking. Jeremiah Bartlett said it would be basically neutral. Councilor Hinck also expressed desire to see some reference to sea level rise in the plan.

Councilor Suslovic suggested further discussion on the study at a Council workshop and then for it to come back to Energy and Sustainability.

4. West Commercial Street Multi-Modal Transportation Study

William Needelman gave a presentation about the West Commercial Street corridor running from the Veteran's Bridge to High Street. The goal is to complement marine industry and to address any conflicts with bike/ped infrastructure. The study looked to build on the recent improvements implemented by the Maine Port Authority at the International Marine Terminal to update the roadway to meet the growing demands of industrial uses and mixed-use developments. There was robust public engagement that improved the recommendations. The costs referenced a quite high but they reflect paving that is being done now. Staff will need to go back to revise these. In other cases changes would not happen until streets have repairs or rebuilds. Key recommendations include implementing the West Commercial Street trail on the land side. Funding is partially in place for this. There is also a recommendation for a bike lane on the water side. Some people believe this would enhance bike safety while others feel the truck activity would make a bike land imprudent. It would include a center turn lane and improved cross walks. Mr. Needleman indicated that there would be a Council workshop on this plan

Public Comment: Alan Armstrong, suggested a two way bike lane on the land side of Commercial Street. Angelo Ciocca (Nova Seafood) doesn't think there should be a bike lane on the water

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side of Commercial Street for safety reasons. He also thinks a two way bike path on the land side would be prudent. He otherwise thinks the plan is great.

Mr. Needelman confirmed the proposed land side path would accommodate two way bike traffic as designed.

Councilor Suslovic thanked Mr. Needelman for bringing the interested parties together and reaching widespread agreement with the plan. He is very comfortable asking cyclists to use the shared use path on the land side.

Councilor Hinck asked about the implications of sea level rise for this plan. Mr. Needelman replied that this area is higher than Bayside and the Eastern Waterfront. Storm water runoff is a larger concern.

Councilors discussed the need for a workshop. Councilor Hinck felt that if there is a transportation focused workshop anticipated this item could be discussed but it should not take long given the level of comfort with the plan by committee members.

5. Zoning for Solar

Jean Frasier discussed amendments to the zoning codes that would facility solar projects in Portland. Currently none of the existing zones allow solar energy. The desire is to invite solar development while making sure the scale is appropriate for specific parts of the city. Larger facilities would receive higher levels of review. There does not seem to be a lot of precedent for this in other communities. She has looked at the work being done in South Portland.

Councilor Suslovic requested some clarification about what would be allowed. Ms. Frasier indicated that solar would generally be allowed but there would be more review for larger areas. Councilor Suslovic agreed with this approach while retaining sensitivity around specific sites.

Public Comment: Allen Armstrong, in favor of finding ways to encourage solar installations where appropriate. David Holbrook is also in favor of finding ways to encourage solar but cautions to look at possible drawbacks.

Councilor Hinck indicated that he is a little uncomfortable with the number of places solar would not be allowed, cemeteries for example. He does not want to preclude options that might be viable. He also wants to look at solar in historic districts.

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Tuck O'Brien indicated that the goal is to facilitate solar as broadly as possible. The goal of the proposed ordinance is to do the best projects first and set more contentious locations aside for the moment.

Councilor Suslovic supported the proposed restrictions, which he feels are limited and appropriate. These could be looked at in the future if need be.

Councilor Thibodeau also supported the concepts as proposed.

Councilor Hinck generally agrees with the proposals and feels they should move forward. He will continue to push to be more expansive.

6. Reports

- o Work continues on building benchmarking. The City will work with Rapport software to improve reporting on Portland's sustainability efforts.
- o Mr. Moon reported that amending the zoning code is necessary to advance any solar projects in Portland.
- o He also indicated that the Ocean Avenue Landfill project would be ready for further discussion at the next meeting.

7. Other business

Councilors looked at the schedule for the October meeting due to a possible conflict with Councilor Thibodeau's schedule. They decided to keep the current date of October 19 provisionally and review this if necessary.

Councilor Suslovic asked about the agenda for the next meeting and requested that solid waste be covered. Councilors also suggested food for the meetings.

8. Adjourn



Gregory A. Mitchell
Director, Economic Development Department

Executive Department
Jon P. Jennings, City Manager

To: Councilor Hinck and Members of the Energy and Sustainability Committee
From: Troy Moon, Sustainability Coordinator
Mike Murray, Assistant to the City Manager
Re: Improvements to the Solid Waste Program
Date: 7/14/2016

As you know, City staff has been developing plans to improve the solid waste program. During the past two months we have presented recommendations to this committee and held a workshop with the full City Council. Based on these two meetings, we believe there is consensus amongst Council members that staff should move forward with the steps necessary to implement a cart based recycling program. These include drafting an RFP to determine whether a private company can collect recyclables more cost effectively than City forces and drafting an RFP for appropriate collection carts. Staff would also continue to pursue grant funding to defray some of the costs of the recycling carts.

During this meeting we request that the Energy and Sustainability Committee endorse these plans so we can prepare to implement cart based recycling beginning in FY18.

As you know from previous meetings, City staff recommends that the City continue with the current bag based Pay as You Throw (PAYT) program. We noted, however, that some Councilors are interested in exploring other PAYT options. In that light, we offer some further discussion to elaborate on points made in the memo we presented at the Council Workshop.

If the Committee is not prepared to endorse a bag based approach or a cart based approach for Portland PAYT program at this time staff suggests decoupling discussion of the recycling program and the waste collection program in order to move forward expeditiously with cart based recycling.

Municipalities around the country have successfully adopted a variety of PAYT programs using carts, trash bags, stickers, or some combination of these methods. Each made choices based on local conditions, existing

infrastructure, existing programs, staff capacity, and financial situation. Considering these factors has led us to recommend continuing our present program.

Challenges associated with adopting a cart based subscription program

Many communities across the country have PAYT programs allow residents to subscribe to a level of service by choosing between multiple cart sizes. Some cities, such as Seattle, offer as many as five choices, from a micro 12 gallon can to a large, 96 gallon cart. Most restrict offerings to two or three sizes. In these subscription programs, cities generally include the trash fee as part of another, existing utility bill. In many cases, the subscription program applies to single family homes and small multi-family buildings. Large multi-family buildings generally participate in commercial waste collection programs. This is because the occupants of single family homes or small residential buildings typically pay their own utility bills. The property owner often pays the utility bills for larger buildings and applies the costs to occupants through rent payments. This makes it difficult to assign a cart and related PAYT costs to a specific tenant.

In Portland, moving to a cart based subscription program for trash would require significant changes to our existing program.

Currently, our collection crews provide service for many large multi-family buildings. Some have thirty or more units. This is because building density does not offer enough room for commercial dumpsters in certain locations. The tenants in these buildings purchase their own city trash bags and place them out for collection on the appropriate day. It would be impossible to provide each unit in these buildings with a cart. A property owner would need to subscribe for an appropriate number of carts and make them available for tenant use. Consequently, tenants would not be participating in a PAYT program as the landlord would be paying for trash collection. Also, there may not be enough space available these properties to store enough trash and recycling carts between collections. To successfully implement a subscription based service we would need to consider reducing the maximum size of the buildings serviced by our program.

With our current bag-based program residents purchase City trash bags at a limited number of participating retailers. By doing so, they are effectively pre-paying for their trash collection. City staff invoices the retailers for the bags they sold. This approach minimizes administrative costs because there are relatively few accounts to service. It has also proven easy to collect the invoices from the retailers. It also works well for multi-family buildings because each tenant can be responsible for purchasing the bags they need for their personal use. With a subscription model, the City would need to create a billing system that would capture all of the occupants of single family homes as well as the occupants of apartments in multi-family homes. Existing billing systems would not work well. The storm water fee applies to property owners, not to tenants in apartment buildings. The Portland Water District was not willing to distribute our storm water bills and would be unlikely to agree to distributing trash bills. The water bill shares the limitations of the storm water

bill as many multi-family buildings do not have separate water meters for each unit. Servicing thousands of trash accounts would require additional staff to support invoicing, accounts receivable, and collections. This administrative cost would reduce net revenue from the PAYT program and/or require a higher fee to compensate.

We anticipate start-up costs for implementing a cart based recycling program will be:

Carts: 25,000 carts @ \$50	\$1,250,000
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(We are hopeful that we can reduce this cost to \$1,075,000 by securing grant funding.)

Trucks: 3 semi-automated side loaders @ \$280,000	\$840,000
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Total:	\$2,090,000
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Our Finance staff indicates that cart purchases are not eligible for CIP so purchasing carts will be an expense assigned to the general fund. Truck purchases will be eligible for CIP funding.

Moving forward with a cart based trash collection program would require the City to purchase another 25,000 carts and three additional collection trucks. This would double the start-up costs for a total outlay of **\$4,180,000**. The general fund would need to cover \$2,500,000 of this cost.

Cart based collection programs also require ongoing expenses to cover the costs of repairing and replacing carts assigned to residents. During regular operations some carts get damaged or wear out. (Winter operations can take a heavy toll on carts left on the street during snow storms.) This requires staff time to service carts as well as an inventory of spare wheels, lids, and replacement carts. Vendors typically offer a 10 year warranty for carts so we assume that all of the carts will need to be replaced at some time after that. Offering a cart based trash collection program in addition to the cart based recycling program doubles these expenses.

Hybrid Bag/Cart System

During the committee meeting in May, we offered some discussion of the program in Grand Rapids, Michigan. That city has adopted a PAYT program that utilizes both carts and bags. Residents who do not wish to use bags may choose a 32 gallon cart, a 64 gallon cart, or a 96 gallon cart. The cart contains an RDID tag that indicates the property the cart is attached to. Before using their cart, residents must establish and pre-fund an account by logging onto a webpage, using an automated phone system, or visiting City Hall. Once they do so, they may set their cart out for collection on the appropriate day. A computer on the collection vehicle reads the RFID tag and communicates with the billing system to deduct the appropriate amount from the pre-funded account. If the account lacks sufficient funds, the computer disables the cart tipper so the cart cannot be dumped. With this approach, residents pay each time they set out their cart. Residents who do not wish to have a cart continue to use City trash bags. Staff in Grand Rapids report that most residents have chosen to switch to a trash cart and that many multi-family buildings continue to use bags.

If the Council chose to implement a program similar to this, staff would need to closely examine costs in order to establish an appropriate rate per tip that captures fixed operational costs, cart costs, as well as disposal costs.

We look forward to discussing options with the Committee and taking steps toward improvements to Portland's solid waste management program.



Executive Department
Jon P. Jennings, City Manager

To: Mayor Strimling and Members of the Portland City Council
From: Troy Moon, Sustainability Coordinator
Mike Murray, Assistant to the City Manager
Re: Improvements to the Solid Waste and Recycling Program
Date: June 9, 2016

CC: Jon Jennings, City Manager
Anita LaChance, Assistant City Manager
Chris Branch, Director of Public Works

During the past several years, the City has been looking at the way we handle residential waste and recycling. Notable efforts in this area include the creation of the Solid Waste Task Force in 2011, which was chaired by Councilors Cheryl Leeman and John Anton. This group reviewed progress made by the City since the establishment of curbside recycling and recommended a series of policy and program goals designed to increase waste diversion and recycling. In 2015 the City hired Kessler Consulting to review the performance of the City's solid waste performance and make recommendations for improvements and efficiencies. This year the City Council established a goal to implement many of the ideas and recommendations contained in the previous studies. Toward that end, City staff has prepared a recommended approach that could be incorporated into the FY 2018 budget and deployed in July, 2017.

Program Background:

The City's recycling program has relied on 16 - 18 gallon recycling bins as the primary container for curbside recycling since the program began in July, 1999. At that time, the program required residents to sort their paper products from their containers. In doing so, they packed their bins carefully, which reduced opportunities for the wind to blow materials into the street. In 2007, the City adopted single stream recycling. This encouraged participation and made collection more efficient but resulted in loosely packed bins with paper and other light items easily accessible to the elements. Portland residents fully embrace recycling and many households set out multiple bins on recycling day. While this helps the City achieve relatively high recycling rates, it presents more opportunities for wind to scatter items from the open top bins.

The Solid Waste Task Force, which issued a report in 2011, identified the small, open top bins as a barrier to increased recycling. They recommended adopting a cart based recycling program to encourage and enable residents to recycle more::

The Solid Waste Task Force believes that the 18-gallon bins currently used by the City's recycling program are too small to hold a week's worth of recyclables for most households. Many residents are putting out multiple bins but others may be putting recyclables in the trash

once their bin is full. The City should switch to a cart based collection system in order to provide residents with a covered container that can hold more recyclables. (Solid Waste Task Force Report, p.30)

They also recommended a cart based approach as a way to reduce street litter:

The City has provided residents with a 16- or 18- gallon open-top bin for collecting recyclable.. The comprehensive nature of the recycling program allows residents to set out a large range of items for collection. The result is that most bins are very full, with items protruding over the top and exposed to the elements. The bins are also prone to tipping over and spilling their contents onto the street and sidewalk. A windy day coupled with loose recyclables adds considerably to the litter on the street. To alleviate this problem, the City should offer large wheeled carts with covers to residents for their recyclables. The carts offer much more recycling capacity than the traditional bins and cover their contents to protect them from the elements. (pp. 37-38)

In 2015, the City commissioned Kessler Consulting to undertake a review of the solid waste program and to offer recommendations for improvement. They identified moving to a cart based recycling program to increase recycling rates and reduce litter -- just as the Solid Waste Task Force had previously. Kessler went further, however, and noted that a cart based program could increase operational efficiency by reducing the number of trips collectors made back and forth to the curb. In the current program, residents put out multiple bins of various sizes. These include the bins issued by the City as well as homeowner provided bins. A collection crew can empty a single cart and return it to the curb more quickly than multiple bins. (Kessler Report, p.34)

Recommended approach:

Based on the work of the Solid Waste Task Force, Kessler Consulting, interviews with solid waste professionals in greater Portland and across the country, City staff recommends the following approach to improve the City's solid waste program:

Cart based recycling

- Deploy 64 gallon recycling carts for most participants in the City recycling program
- Deploy 96 gallon carts for multi-family units to allow storage and reduce the number of carts at the curb

Semi-automated collection (if financials support in house collection)

- Purchase three semi-automated, side loading collection vehicles
- Retain flexibility to easily service one way streets, dead end streets, and streets with dense parking
- Issue an RFP for private collection to ensure competitiveness

Retain the current bag based Pay As You Throw program

- Widespread familiarity with this approach
- Provides the most effective financial incentive to reduce waste and recycle
- Low administrative costs and overhead

Advantages of Proposed Method:

- **Manageable start-up costs:**

Purchasing carts is one of the largest costs associated with implementing a new solid waste program. Deploying just recycling carts will require an outlay of approximately \$1.25 million as opposed to \$2.5 million if we choose to move forward with carts for both trash and recycling. Carts are not appropriate items for the capital improvement budget so this expense would be carried by the operating budget. Staff has searched for grants to help defray the costs of recycling carts and has identified funders to which we could apply. We have not identified any possible funding sources for trash carts. If we choose to maintain an in-house service, replacing collection vehicles is also a significant expense. Moving forward with recycling only would allow us to replace only three vehicles during the upcoming CIP. Replacement vehicles for the remaining fleet could be programmed into future years.

- **No impact on winter operations (in house option):**

Solid waste staff participates in winter operations as plow truck drivers. In our recommended option, we retain staff and avoid the cost of hiring equipment operators to assist with winter operations. A fully privatized waste collection program would add \$133,000 of annual costs to winter operations.

- **Opportunity to grow a cart program strategically:**

There are a number of areas in Portland that could prove challenging to a cart based collection program. On the peninsula there are many narrow streets with parking on both sides. During the winter months the streets become further narrowed by snow banks, making it difficult to navigate trucks and challenging for the staff to access the curb. In the most densely populated neighborhoods there is limited space on the esplanade for residents to place their trash and recycling. Adopting cart based recycling provides an opportunity to understand and overcome the challenges this presents before adding a second cart for trash. We may find it necessary to take measures such as changing parking restrictions will be necessary to expand the program to include trash carts. An incremental approach will allow us to make significant improvements to the program and take a thoughtful approach to future improvements.

- **Addresses the cause of litter from the program:**

In the summer of 2015, Dr. Travis Wagner of the University of Southern Maine conducted a study to quantify the extent to which the open top recycling bins contribute to street litter in the City of Portland. Over the course of six weeks, researchers went into two recycling routes -- one on the peninsula and one off the peninsula -- and collected all litter larger than 1" that could be attributed to recycling bins. Each week they collected over 20,000 pieces of litter per 1,000 households. This amount of litter detracts from the appearance of City neighborhoods, creates additional work for crews assigned to collect it, and impacts the environment. It also undermines the efforts of the residents who separated their material expecting it to be recycled. Providing a wheeled cart with a lid addresses all of these concerns. Birds, rodents and other animals do attack trash bags set at the curb but the amount of litter attributable to this is much smaller than from the open top recycling bins.

Why semi-automated collection? (in house option)

- **Ability to Handle All City Streets**

City staff recommends semi-automated recycling collection using trucks that can load from either side. This approach allows the truck crews to access and dump carts on either side of dense urban streets, on one way streets, and on dead end streets. Fully automated trucks struggle in these situations because in dense neighborhoods with on street parking carts may not be accessible to the arm. Further, automated collection requires that residents set their carts out with two or three feet between carts so the automated arm can reach each cart. In certain neighborhoods there may not be enough room on the esplanade to allow this. On one way streets, automated trucks are only able to pick up carts on one side of the street. This necessitates a pass by a second truck, such as a rear loader or a dual side loader, to collect the carts the automated truck can't reach. The same holds for dead end streets that do not have turn-arounds. Portland has many streets like this that require the crew to back down. As with one way streets, fully automated trucks are only able to access one side of one way streets.

- **Fleet Flexibility**

Our current collection program relies on rear loading rubbish packers. The trucks that collect recyclables are identical to the ones that collect trash. This allows a great deal of flexibility in the program. If a truck collecting trash breaks down, a truck normally assigned to recycling can come back after dumping its load and finish the trash route. The semi-automated side loading truck allows the operation to retain this flexibility while improving efficiency. Workers are able to tip carts but they can also load bagged trash and many bulky household items. In an emergency response situation, the semi-automated side loaders could be dispatch to clean up debris along with the rear loaders. Fully automated trucks can only collect carts.

- **Crew efficiency**

Under the recommended scenario, we would specify trucks with low entry cabs similar to the ones we currently operate. With side loading trucks, the loading hopper sits directly behind the cab. The truck driver can stop the truck, step out of the cab to load the truck, and get back in the cab very quickly. This would allow the vehicle to operate with a single crew member in low density neighborhoods. In dense neighborhoods a second crew member could come along to assist. Being able to operate with a single crew member would allow the City to reduce the use of temporary help. With the existing rear load trucks, collection requires two person crews as it is not practical for the driver of the truck to walk to the rear of the vehicle at each stop. The Public Works Department used side loading recycling trucks with one person crews for several years before the adoption of single stream recycling and found them to be effective.

Discussion of Pay As You Throw Options

During previous meetings, City Councilors have requested information about the various types of Pay As You Throw Programs used by cities across the country. Several models exist and each has advantages and disadvantages. Most charge residents based on the volume of waste they dispose. Weight based programs are rare.

- **Bag based collections**

The City of Portland has had this type of program since establishing pay as you throw in 1999. Residents purchase official trash bags at a variety of retail stores. By doing so, they are pre-paying for the cost of waste disposal by purchasing the trash bag. The City receives the funds by invoicing the retailers who sell the bags. There are relatively few retail accounts to invoice, which reduces the administrative burden on the City. Revenue collection is also straightforward because the retailers have proven credit worthy. Collection crews can easily identify non-compliant households and only pick up trash set at the curb in the correct trash bags. This ensures that only those who have paid the fee receive service. Currently, City staff manages the inventory of City trash bags, distribute them to retailers and handle the accounting. There are now vendors who handle these roles. Staff recommends working with one of these vendors in order to allow the solid waste supervisory staff to focus on the waste and recycling collection operation instead of bag distribution.

- **Multiple Cart Sizes**

In this type of program, the municipality provides residents with the opportunity to select a trash cart of a certain size based on the amount of trash they think they will generate. Typically, the choices are approximately 32 gallon, 64 gallon, and 96 gallon in size. Cities use a variety of methods to invoice program participants based on the cart they choose.

Annual billing -- Some communities charge an annual fee to each property owner based on the size of the cart(s) used by the residents who live at the property, often as a line item on a tax bill. This type of program provides the weakest form of pay as you throw because the fee is not directly associated with the amount of waste set out each week. It also only provides an opportunity to adjust container size once per year. The administrative burden, however, is relatively low.

Monthly Billing -- In this type of program, residents select a cart and pay a monthly fee based on its size. This provides more opportunity to adjust cart size than with an annual billing but it still does not provide as much incentive to reduce waste as a bag based program. The administrative burden and for a monthly billing is high as staff or a third party would need to issue thousands of bills per month and process the returning payments. There would also be a need to pursue delinquent accounts.

Charge Per Tip -- A few cities have begun to institute a cart based program that charges residents only when they set their cart out for collection. This program uses “smart” RFID technology and truck mounted computers to monitor when residents set their cart(s) are and charges them appropriately. This type of program offers a strong incentive to reduce waste because residents pay for collection service only when they use it. Cities with this type of program often require residents to pre-pay for their waste collection. Residents pay using a credit card on a dedicated website. The computer on board the truck reads the account information from each cart before tipping it to confirm payment. If the resident’s account lacks sufficient balance to cover the fee, the tipping arm will not activate to dump the cart. The City of Grand Rapids, Michigan is well known for this type of program.

Programs offering residents multiple cart sizes must maintain inventories of the various sizes in order to respond to requests for a different cart size or to replace lost and damaged carts. They must also have staff resources available to respond to the request.

- **Weight Based PAYT -- Cart Based**

There are currently very few examples of weight based pay as you throw programs in the United States. Some cities, including Minneapolis and Seattle have conducted pilot programs with this type of program but chose not to move forward with full scale deployment. The City of Milwaukee also looked careful at a weight based program but chose not to move forward with it. Weight based programs offer a number of challenges that make them difficult to implement. The program requires a cart based program incorporating RFID data gathering as well as scales attached to the cart lifter on the truck. Per conversations with a local hauler, the scales available for fully automated collection may not offer a satisfactory level of accuracy. Scales attached to tippers on semi-automated trucks offer a higher level of accuracy. However, requiring the scale to register a weight reading before tipping slows down the collection offering operation. In our program adding an additional 5 seconds per tip would add well over an hour to each collection route. Equipping trucks with scales also increases upfront purchase costs and adds a potentially expensive ongoing maintenance cost to regularly service and maintain the scales to ensure accurate readings. Weight based programs present administrative hurdles as well. Each collection cart must be assigned to a distinct account with accurate billing information for the user. City staff or a contracted 3rd party administrator must track weights recorded for each tip. They must then issue an invoice to the account for the amount owed. They must also track receipts and work to collect the funds. Unlike a bag based program, where the City only invoices a small number of retailers, a weight based program would involve servicing thousands of individual accounts.

Recommendation: Based on our analysis of the various forms of pay as you throw programs, staff recommends retaining the existing bag based system. It strongly incentivizes waste reduction and recycling, residents are very familiar with it, and the administrative costs to administer it are lower than other options.

Conclusion:

The City of Portland has operated a successful solid waste program for many years. Our residential recycling rate is amongst the highest in the ecomaine region and residents have fully embraced recycling. We have opportunities, however, to improve the program in ways that can move our recycling rate from its current level of 37% to 50% and beyond. We also have opportunities to improve the environmental performance of our program by eliminating the litter that spills from our small, open top recycling bins. We are pleased to offer our recommendations for program improvement to the City Council and look forward to discussion and feedback.



July 15, 2016

Troy Moon
Sustainability Coordinator
City of Portland
Portland, ME

Dear Troy,

While I strongly advocate the adoption of carts to replace the small, open-top bins for recycling, the purpose of this letter is to provide specifics as to the superiority of the city's current use of bags for the PAYT program over the carts alternative. I have highlighted some key points below for you to consider:

- Illegal/Undesirable Disposal: Using carts for trash will entice the inclusion of non-desirable/illegal wastes such as electronic waste, HHW, and yard waste. This is a function of the larger, rigid capacity and the ability to "hide" these wastes on the bottom, out of sight. Electronic wastes, CFLs, and thermostats are of particular concern because these items contain mercury and their disposal violates state law. The use of carts also likely will see an increase in yard waste given the limited options to homeowners. Disposing of yard waste is undesirable due to the hierarchical preference (the state's waste management hierarchy) for composting.
- Storage Constraints: A large percentage of Portland's housing stock is comparatively older and smaller such that outdoor storage space is constrained. While the replacement of the recycling bin with a cart will increase the footprint needed, doubling the footprint needed for two carts is problematic.

Standard container dimensions:

- 18-gal bin: $16''_D \times 17''_W \times 16''_H = 272 \text{ in}^2 \text{ footprint}$
- 45-gal cart are: $28''_D \times 23''_W \times 40''_H = 644 \text{ in}^2 \text{ footprint}$

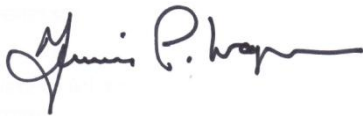
- Equity: With trash bags, households have greater control over their trash costs. If, for example, a resident is on vacation or simply generates little trash, they can set out their bag less than weekly. Thus, they only pay for what they throw. With carts, the typical approach is to charge a customer a monthly fee based on the volume of their cart (e.g., San Jose, CA). Thus, there is no financial benefit or incentive to produce less trash since they would have to pay the full amount regardless if trash was set out.

The more equitable approach is to adopt variable-based pricing scheme where customers pay for the actual weight disposed of each week. However, the administrative costs and oversight demands are a potential nightmare with regards to billing, collection, compliance, enforcement, and equipment needs.

- The Nudge Factor: Nudging in recycling involves the application of physical choice architecture to incentivize or disincentivize recycling. Based on research, providing a cart for trash that is the same size or larger than a recycling container inherently incentivizes the generation of trash because of failure to provide a visual “yield sign” to the generation of trash. Portland’s current bags have smaller volumes than carts so that recycling is incentivized. To be sure, the city’s current use of 18-gallon bins is the opposite physical choice architecture and, if adopted, the use of carts to replace the bins will result in increased volumes collected based on the nudge factor.
- The Ick Factor: People have varying degrees of tolerance regarding the unpleasantness—smell and sight—of trash. The so called “ick factor” is a known barrier for some to recycle and to participate in food waste/organics collection. The ick factor could be an issue for customers who choose not to or to occasionally contain their waste prior to placement into the cart. In this scenario, the inside of the cart will become dirty and odiferous from putrescible organic and liquid waste likely prompting customer complaints. For customers to control this, they likely will use plastic bags to contain the waste negating any environmental benefits from reducing plastic bags.

- Contribution to Litter: In a 2003 study by the Florida Center for Solid and Hazardous Waste Management, the collection of unbagged trash was a significant contributor to roadside litter with Styrofoam being especially problematic. Although their focus was dumpsters rather than carts, my own published research on the contribution of litter from recycling bins demonstrates the problem with unbagged material. Thus, there if carts are used for unbagged trash, the amount of litter will increase.
- Replacement/Maintenance Costs: Some carts will become damaged, worn-out, and/or stolen over time. Given a likely replacement cost of \$50-\$60 each, there will be significant customer complaints. While the city could choose to cover the capital costs of replacement, this introduces a moral hazard in which residents will be more carless about city carts because they do not bear the costs.

Sincerely,

A handwritten signature in black ink, appearing to read "Travis P. Wagner".

Travis Wagner
Professor
Department of Environmental Science and Policy
106 Bailey Hall
University of Southern Maine
Gorham, ME 04038

40 Year Lifecycle Cash Flow Analysis - Portland & South Portland Landfill Solar

July 7, 2016

Assumptions (black fixed, blue variable)

Solar kW	920.7	REC Income	\$	25
Solar kwp	1307	REC Term		10
Solar kWh	1,203,355	REC Exp		2%
Derate	0.50%	O&M (\$/kW)		\$5
PPA Rate	0.1056	Loan Term		20
PPA Escalator	2.5%	Loan Rate		3.00%
Market Rate	0.0856	Buyout Amount	\$	1,598,423
Market Escalator	2.68%	Inverter (\$/watt)	\$	0.10

Market Rates	Supply	T&D	Total
CMP SGS	20%	0.06443	0.059564
CMP MGS	80%	0.0692	0.006815
Weighted Average			0.0856108

CO2 Emission Reduction Factor	1.09	1,311,657
		655.83

Pro Forma

	Solar kWh	PPA Rate	PPA Cost	Market Rate	Market Cost	Net Energy Cost	Rec Income	Total Income	O&M	Interest	Principal	Inverter Replacement	Total Expenses	Annual	Cumulative
1	1,203,355	\$0.1056	\$127,087	\$0.0856	\$103,020	-\$24,067		-\$24,067					\$0	-\$24,067	-\$24,067
2	1,197,338	\$0.1083	\$129,613	\$0.0879	\$105,252	-\$24,361		-\$24,361					\$0	-\$24,361	-\$48,428
3	1,191,351	\$0.1110	\$132,189	\$0.0903	\$107,533	-\$24,657		-\$24,657					\$0	-\$24,657	-\$73,085
4	1,185,395	\$0.1137	\$134,816	\$0.0927	\$109,862	-\$24,954		-\$24,954					\$0	-\$24,954	-\$98,039
5	1,179,468	\$0.1166	\$137,496	\$0.0952	\$112,243	-\$25,253		-\$25,253					\$0	-\$25,253	-\$123,292
6	1,173,570	\$0.1195	\$140,229	\$0.0977	\$114,675	-\$25,554		-\$25,554					\$0	-\$25,554	-\$148,846
7	1,167,703			\$0.1003	\$117,159	\$117,159	\$28,609	\$145,768	-\$4,604	-\$47,953	-\$59,486		-\$112,043	\$33,725	-\$115,121
8	1,161,864			\$0.1030	\$119,697	\$119,697	\$28,466	\$148,163	-\$4,604	-\$46,168	-\$61,271		-\$112,043	\$36,120	-\$79,000
9	1,156,055			\$0.1058	\$122,291	\$122,291	\$28,323	\$150,614	-\$4,604	-\$44,330	-\$63,109		-\$112,043	\$38,572	-\$40,429
10	1,150,274			\$0.1086	\$124,940	\$124,940	\$28,182	\$153,122	-\$4,604	-\$42,437	-\$65,002		-\$112,043	\$41,079	\$651
11	1,144,523			\$0.1115	\$127,647	\$127,647	\$0	\$127,647	-\$4,604	-\$40,487	-\$66,953		-\$112,043	\$15,605	\$16,255
12	1,138,800			\$0.1145	\$130,413	\$130,413	\$0	\$130,413	-\$4,604	-\$38,478	-\$68,961		-\$112,043	\$18,370	\$34,626
13	1,133,106			\$0.1176	\$133,238	\$133,238	\$0	\$133,238	-\$4,604	-\$36,409	-\$71,030		-\$112,043	\$21,196	\$55,821
14	1,127,441			\$0.1207	\$136,125	\$136,125	\$0	\$136,125	-\$4,604	-\$34,278	-\$73,161		-\$112,043	\$24,083	\$79,904
15	1,121,804			\$0.1240	\$139,074	\$139,074	\$0	\$139,074	-\$4,604	-\$32,083	-\$75,356		-\$112,043	\$27,032	\$106,936
16	1,116,195			\$0.1273	\$142,088	\$142,088	\$0	\$142,088	-\$4,604	-\$29,823	-\$77,616		-\$112,043	\$30,045	\$136,981
17	1,110,614			\$0.1307	\$145,166	\$145,166	\$0	\$145,166	-\$4,604	-\$27,494	-\$79,945		-\$112,043	\$33,124	\$170,104
18	1,105,061			\$0.1342	\$148,311	\$148,311	\$0	\$148,311	-\$4,604	-\$25,096	-\$82,343		-\$112,043	\$36,269	\$206,373
19	1,099,535			\$0.1378	\$151,525	\$151,525	\$0	\$151,525	-\$4,604	-\$22,626	-\$84,813		-\$112,043	\$39,482	\$245,855
20	1,094,038			\$0.1415	\$154,808	\$154,808	\$0	\$154,808	-\$4,604	-\$20,081	-\$87,358	-\$92,070	-\$204,113	-\$49,305	\$196,550
21	1,088,567			\$0.1453	\$158,162	\$158,162	\$0	\$158,162	-\$4,604	-\$17,461	-\$89,979		-\$112,043	\$46,119	\$242,669
22	1,083,125			\$0.1492	\$161,588	\$161,588	\$0	\$161,588	-\$4,604	-\$14,761	-\$92,678		-\$112,043	\$49,546	\$292,215
23	1,077,709			\$0.1532	\$165,089	\$165,089	\$0	\$165,089	-\$4,604	-\$11,981	-\$95,458		-\$112,043	\$53,047	\$345,261
24	1,072,320			\$0.1573	\$168,666	\$168,666	\$0	\$168,666	-\$4,604	-\$9,117	-\$98,322		-\$112,043	\$56,624	\$401,885
25	1,066,959			\$0.1615	\$172,320	\$172,320	\$0	\$172,320	-\$4,604	-\$6,167	-\$101,272		-\$112,043	\$60,278	\$462,163
26	1,061,624			\$0.1658	\$176,054	\$176,054	\$0	\$176,054	-\$4,604	-\$3,129	-\$104,310		-\$112,043	\$64,011	\$526,174
27	1,056,316			\$0.1703	\$179,868	\$179,868	\$0	\$179,868	-\$4,604	\$0	\$0		-\$4,604	\$175,265	\$701,439
28	1,051,034			\$0.1748	\$183,765	\$183,765	\$0	\$183,765	-\$4,604	\$0	\$0		-\$4,604	\$179,162	\$880,601
29	1,045,779			\$0.1795	\$187,747	\$187,747	\$0	\$187,747	-\$4,604	\$0	\$0		-\$4,604	\$183,143	\$1,063,744
30	1,040,550			\$0.1843	\$191,815	\$191,815	\$0	\$191,815	-\$4,604	\$0	\$0		-\$4,604	\$187,211	\$1,250,955
31	1,035,348			\$0.1893	\$195,970	\$195,970	\$0	\$195,970	-\$4,604	\$0	\$0		-\$4,604	\$191,367	\$1,442,322
32	1,030,171			\$0.1944	\$200,216	\$200,216	\$0	\$200,216	-\$4,604	\$0	\$0		-\$4,604	\$195,613	\$1,637,935
33	1,025,020			\$0.1996	\$204,554	\$204,554	\$0	\$204,554	-\$4,604	\$0	\$0		-\$4,604	\$199,951	\$1,837,886
34	1,019,895			\$0.2049	\$208,986	\$208,986	\$0	\$208,986	-\$4,604	\$0	\$0		-\$4,604	\$204,383	\$2,042,268
35	1,014,795			\$0.2104	\$213,514	\$213,514	\$0	\$213,514	-\$4,604	\$0	\$0		-\$4,604	\$208,910	\$2,251,179
36	1,009,721			\$0.2160	\$218,140	\$218,140	\$0	\$218,140	-\$4,604	\$0	\$0		-\$4,604	\$213,536	\$2,464,715
37	1,004,673			\$0.2218	\$222,866	\$222,866	\$0	\$222,866	-\$4,604	\$0	\$0		-\$4,604	\$218,263	\$2,682,978
38	999,649			\$0.2278	\$227,695	\$227,695	\$0	\$227,695	-\$4,604	\$0	\$0		-\$4,604	\$223,091	\$2,906,069
39	994,651			\$0.2339	\$232,628	\$232,628	\$0	\$232,628	-\$4,604	\$0	\$0		-\$4,604	\$228,025	\$3,134,093
40	989,678			\$0.2401	\$237,668	\$237,668	\$0	\$237,668	-\$4,604	\$0	\$0		-\$4,604	\$233,065	\$3,367,158



Gregory A. Mitchell
Director, Economic Development Department

Executive Department
Jon P. Jennings, City Manager

To: Councilor Hinck and Members of the Energy and Sustainability Committee
From: Troy Moon, Sustainability Coordinator
Re: Ocean Avenue Solar
Date: 7/14/2016

During our meeting on July 20 the City Manager will discuss the solar project proposed by Revision Energy for the Ocean Avenue Landfill. The current offer is part of a joint proposal with the City of South Portland, who would build an identical array on their capped landfill should the cities choose to move forward. The City Manager and other staff have been working closely with our counterparts in South Portland and the Revision team during the past year in order to negotiate financial terms that might allow the cities to move forward with landfill solar. We are look forward to discussing the details with the Committee.

In preparation for this discussion I have prepared a summary of the project's evolution.

Project History:

City issues RFP for solar projects	June, 2015
City receives one proposal – Revision Energy	August, 2015
City receives Land Bank approval for Ocean Ave site	December, 2015
South Portland requests to join the Portland project	December, 2015
Cities of Portland and South Portland request joint proposal from Revision	January, 2016
Discussion of LD1649, Solar Bill in ME Legislature	Spring, 2016
Revision offers revised project proposal	July, 2016

Evolution of negotiations:

1 st Joint Proposal			Current Joint Proposal		
PPA Rate	Year 7 Buyout	ROI	PPA Rate	Year 7 Buyout	ROI
\$0.1245	\$1,570,000	17 years	\$0.1056	\$1,598,423	10 Years

The scenarios above assume the cities would buy their arrays at the beginning of year 7 with a 20 year bond at 3% interest. The City of Portland would also responsible for installing a power line from the array to Ocean Avenue at an anticipated cost of \$50,000.

Power Generation

The arrays proposed for the landfills would each generate 1.2 million kWh of electricity each year. In Portland, this would produce approximately 3.5% of the electricity consumed by City and School operations each year.

Ocean Avenue Landfill

Acreage





Gregory A. Mitchell
Director, Economic Development Department

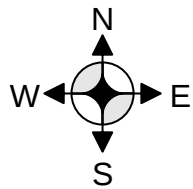
Executive Department
Jon P. Jennings, City Manager

To: Councilor Hinck and Members of the Energy and Sustainability Committee
From: Troy Moon, Sustainability Coordinator
Re: Peaks Island Community Solar
Date: 7/14/2016

A group of Peaks Island residents associated with the Peaks Environmental Action Team are interested in creating a community solar installation on the Peaks Island Landfill. If approved, this installation would be owned by the individual residents who wish to participate in solar power. The City would lease space to this group but does not propose to have an ownership stake in the solar array. The owners of the array would be required to indemnify the City and assume all costs and risks associated with the project development and permitting from the City and from the Maine DEP. They could also be asked to make a modest lease payment. City staff has visited the site with the solar developer (Revision Energy) and with the potential owners. The landfill cap appears to be suitable for a modestly sized array. The City does not currently use the space on the landfill and has no future plans to do so. We are obligated to perform basic maintenance, including mowing. The proposed use would not interfere with that obligation.

Community solar projects allow individuals whose property is not suitable for solar panels to participate in solar energy. This includes renters, people whose roof is shaded, or whose property is not otherwise suitable for solar panels. Maine's net metering policy allows up to nine individuals to own a remote solar array and assign a proportionate share of the electricity it produces to their own electricity bill. Such projects have become increasingly common in Maine with installations in Bar Harbor, Freeport, Brunswick, South China, Wayne, and Rockland. The installation in Bar Harbor is also on municipally owned property.

I have included a number of background documents for your review. Michael Goldman is reviewing a draft lease agreement that we will provide at the meeting.



103.35 kW_{DC} Photovoltaic System

Annual Production Estimate: 138,877 kWh



142 Presumpscot Street
Portland, ME 04103
(207) 221-6342

Customer Name:

Peaks Island CSF
255 Brackett Ave
Peaks Island, ME 04108

System Type:

Photovoltaic Array

Existing Utility Pole, Single Phase

Line Extension, 300' (Overhead)

New Service 400A, 240/120 V ac

Project Design Notes –

DC System: 103.35 kW_{DC} Photovoltaic Array
(390) 265-watt Modules
Module Type: Q.CELL Q.PRO BFR-G4.1 265
Dimensions: 65.75" x 39.37" x 1.26"

AC System: 77 kW_{AC}
(10) 7.7kW Grid-tied Inverters
Inverter Type: SMA SB 7700TL-US-22
String Layout: 4 strings of 13 per inverter

Racking System: Ground Mount, Ballasted
Array Tilt: 35° Array Azimuth: 180°
Row Spacing: 20.0'
Array Layout: 5 Rows, 2 x 39 (Portrait)
Array Area: 155' x 175' Grid required

Designed by: LB

Date: May 19, 2016

SITE PLAN

SHEET A02

© Copyright ReVision Energy

This diagram is provided as a service and is based on the understanding of the information supplied. It is subject to change based on actual conditions, applicable edition of the National Electric Code, and local governmental authorities.

ETHAN K. STRIMLING (MAYOR)
BELINDA S. RAY (1)
SPENCER R. THIBODEAU (2)
EDWARD J. SUSLOVIC (3)
JUSTIN COSTA (4)

CITY OF PORTLAND
IN THE CITY COUNCIL

DAVID H. BRENERMAN (5)
JILL C. DUSON (A/L)
JON HINCK (A/L)
NICHOLAS M. MAVODONES, JR (A/L)

ORDER REFERRING
THE BUILDING ENERGY USE BENCHMARKING ORDINANCE
TO THE ENERGY AND SUSTAINABILITY COMMITTEE

ORDERED, that the City Council hereby refers the Building Energy Use Benchmarking Ordinance as attached hereto to the Energy and Sustainability Committee; and

BE IT FURTHER ORDERED, that the Energy and Sustainability Committee review the Building Energy Use Benchmarking Ordinance and provide its final recommendation on this issue to the City Council.

City of Portland

A [DRAFT] ORDINANCE

Building Energy Use Disclosure Ordinance

DEFINITIONS (1) “Benchmarking information” shall mean information generated by the Benchmarking Tool, as herein defined including descriptive information about the physical property and its operational characteristics.

The information shall include, but need not be limited to: (a) Property address; (b) Primary use type; (c) Gross floor area (d) Site Energy Use Intensity (EUI) as defined in this section; (e) Weather normalized source EUI; (f) Annual greenhouse gas emissions; (g) The energy performance score that compares the energy use of the building to that of similar buildings, where available; and (h) Compliance or noncompliance with this Ordinance.

(2) “Benchmarking Tool” shall mean the Internet-based tool developed and maintained by the U.S. Environmental Protection Agency to track and assess the relative energy performance of buildings nationwide.

(3) “Covered Property” shall mean a parcel, as described in public records or as determined by the Department, containing any of the following: (a) One or more non-residential building(s) where such building(s) singly or together contain more than 20,000, less than 50,00 square feet (“Non-Residential Covered Property”); and (b) One or more residential building(s) that singly or together contain 50 or more residential Dwelling Units whether they are rental Dwelling Units or Dwelling Units owned as condominiums, cooperatives or otherwise (“Residential Covered Property”).

(4) “Department” means the City of Portland Planning & Urban Development.

(5) “Dwelling Unit” shall mean a single residential unit consisting of one or more habitable rooms, occupied or arranged to be occupied as a residential unit separate from all other residential units within a building, and used primarily for residential purposes and not primarily for professional or commercial purposes.

(6) “Energy” shall mean electricity, natural gas, steam, hot or chilled water, heating oil, or other product for use in a building, or renewable on-site electricity generation, for purposes of providing heating, cooling, lighting, water heating, or for powering or fueling other end-uses in the building and related facilities.

(7) “Energy Performance Score” shall mean the numeric rating generated by the ENERGY STAR Portfolio Manager tool or equivalent tool adopted by the department that compares the energy usage of the building to that of similar buildings.

(8) “ENERGY STAR” shall mean the U.S. Environmental Protection Agency program related to improving energy efficiency in buildings and products.

(9) “ENERGY STAR Portfolio Manager” shall mean the tool developed and maintained by the U.S. Environmental Protection Agency to track and assess the relative energy performance of buildings nationwide.

(10) “Energy Use Intensity (EUI)” shall mean the kBtUs (1,000 British Thermal Units) used per square foot of gross floor area.

(11) “Gross Square Feet” shall mean the gross floor area of the property.

(12) “Municipal Property” shall mean a property with one or more buildings that is 10,000 gross square feet or more that is owned by the City of Portland.

(13) “Owner” shall mean: (a) An individual or entity having title to a Covered Property; (b) An agent authorized to act on behalf of the owner of a Covered Property; (c) The net lessee in the case of a property subject to a net lease with a term of at least forty-nine years, inclusive of all renewal options; (d) The board of managers or trustees in the case of a condominium; and/or (e) The board of directors or trustees in the case of a cooperative apartment corporation.

(14) “Qualified Benchmarker” is an entity that meets the Department’s qualifications for inputting Benchmarking Information into the Benchmarking Tool.

(15) “Residential Property” shall mean a property containing one or more Dwelling Units.

(16) “Site Energy” shall mean the amount of heat and electricity consumed by a Covered Property or Municipal Property as reflected in utility bills or other documentation of actual energy use.

(17) “Source Energy” shall mean all the energy used in delivering energy to a Covered Property, including power generation and transmission and distribution losses, to perform a specific function, such as but not limited to space conditioning, lighting, or water heating.

(18) “Tenant” shall mean a person or entity leasing, occupying or holding possession of a Covered Property or Municipal Property.

(19) “Utility” shall mean an entity that distributes and sells Energy for Covered Properties or Municipal Properties.

Purpose To encourage efficient use of energy and to reduce the emission of greenhouse gases, this Ordinance requires owners of Covered Properties and Municipal Properties to annually measure and disclose energy usage to the Department. Furthermore, this Ordinance will authorize the Department to collect energy usage data to enable more effective energy and climate protection planning by the City and others and to provide information to the real estate marketplace to enable its members to make decisions that foster better energy performance.

APPLICABILITY (1) This Ordinance is applicable to the following: (a) All Municipal Properties as defined in Section _____ of this Ordinance; and (b) All Covered Properties as defined in Section _____ of this Ordinance.

BENCHMARKING REQUIRED FOR MUNICIPAL PROPERTIES No later than December 31, 2016, and no later than May 1 every year thereafter, the total Energy consumed by each Municipal Property, along with all other descriptive information required by the Benchmarking Tool, shall be entered into the Benchmarking Tool for the previous calendar year.

BENCHMARKING REQUIRED FOR COVERED PROPERTIES (1) Owners shall annually input the total Energy consumed by each Covered Property, along with all other descriptive information required by the

Benchmarking Tool, into the Benchmarking Tool for the previous calendar year. The Owner shall input this information according to the following schedule: (a) A Residential Covered Property by December 1, 2017 and by every May 1 thereafter; (b) A Non-residential Covered Property by May 1, 2018 and by every May 1 thereafter; and (c) A new Covered Property that has not accumulated 12 months of energy use data by the first applicable date following occupancy for inputting Energy use into the Benchmarking Tool shall comply with this Ordinance in the following year.

NOTIFICATION OF COVERED PROPERTIES Between September 1 and December 1 of each year, the City shall notify Owners of Covered Properties of their obligation to input Energy use into the Benchmarking Tool. By January 15 of each year, the City shall post the list of the addresses of Covered Properties on a public website.

QUALIFICATIONS OF BENCHMARKERS The Department may establish certification and/or licensing requirements for the users of Benchmarking Tools.

DISCLOSURE AND PUBLICATION OF BENCHMARKING INFORMATION (1) Owners shall annually provide Benchmarking information to the Department, in such form as established by the Department, by the date provided by the schedule in Section _____. (2) The Department shall make available to the public on the internet Benchmarking Information for the previous calendar year: a) no later than May 31, 2017 and by September 1 of each year thereafter for Municipal Properties; and b) no later than September 1, 2018 and by September 1 of each year thereafter for Covered Properties. Benchmarking Information received by the Department for the first year a Covered Property is required to input the total Energy consumed and other descriptive information as required by the Benchmarking Tool into the Benchmarking Tool pursuant to Section _____ will be not be published except to disclose whether or not the Covered Property is in compliance with this Ordinance. (3) The Department shall make available to the public and update at least annually, the following information: (a) Summary statistics on energy consumption for Municipal Properties and Covered Properties derived from aggregation of Benchmarking information for both; (b) Summary statistics on overall compliance with this Ordinance including an assessment of accuracy; (c) For each Municipal Property and Covered Property: (i) The status of compliance with the requirements of this Ordinance; (ii) Annual summary statistics for the Municipal Property or Covered Property, including EUI, annual greenhouse gas emissions, and an energy performance score where available; and (iii) A comparison of Benchmarking Information across calendar years for any years such Municipal Property or Covered Property has input the total Energy consumed and other descriptive information for such Properties as required by the Benchmarking Tool into the Benchmarking Tool.

PROVISION OF BENCHMARKING INFORMATION BY TENANTS TO THE OWNER (1) Each Tenant located in a Covered Property shall, within 30 days of a request by the Owner and in a form to be determined by the Department, provide all information that cannot otherwise be acquired by the Owner and that is needed to comply with the requirements of this Ordinance. Failure to provide information to an Owner may result in penalties as provided under Section _____. (2) Where the Owner is unable to input the total energy consumed by the Covered Property as well as all other descriptive information for such Covered Property as required by the Benchmarking Tool into the Benchmarking Tool due to the failure of any or all Tenants to report the information required by Section _____, the Owner shall input alternate values as established by the Department prior to the implementation of this Ordinance, into the Benchmarking Tool.

ASSESSING RESULTS By December 31, 2020, the Department shall review the effect of this Ordinance on improving energy performance for Covered Buildings. If energy performance for Covered Buildings has not improved significantly, the Department shall make recommendations to the City Manager as to whether amendments to this Ordinance or other measures are necessary to improve building energy performance for Covered Buildings.

MAINTENANCE OF RECORDS (1) Owners shall maintain records as the Department determines is necessary for carrying out the purposes of this Ordinance, including but not limited to energy bills and other documents received from Tenants and/or Utilities. Such records shall be preserved by Owners for a period of three (3) years. At the request of the Department, such records shall be made available for inspection and audit by the Department. (2) At the time any occupied Covered Building is transferred, the buyer and seller shall arrange for the seller to provide to the buyer all information necessary for the buyer to report Benchmarking information for the entire year in a timely manner. It shall be a violation of this Ordinance for any seller to fail to so provide any such information.

VIOLATIONS It shall be unlawful for any entity or person to fail to comply with the requirements of this Ordinance or misrepresent any material fact in a document required to be prepared or disclosed by this Ordinance.

ENFORCEMENT AND ADMINISTRATION (1) The City Manager or his or her designee shall be the Chief Enforcement Officer of this Ordinance. (2) City Staff may promulgate regulations relative to the administration of the requirements of this Ordinance as necessary. (3) If any person or entity violates any provision of this Ordinance, the following enforcement measures may be taken: (a) For the first violation, a written warning may be issued; and (b) For any subsequent violation, the Department may issue a fine of up to \$150.00 per day pursuant to the provisions of Chapter 1.24 herein.

SEVERABILITY If any provision of this Ordinance shall be held to be invalid by a court of competent jurisdiction, then such provision shall be considered separately and apart from the remaining provisions, which shall remain in full force and effect.

EFFECTIVE DATE The provisions of this Ordinance shall be effective immediately upon passage.