



**Department of Public Works**

Commissioner of Public Works

Jeffrey S. Polenske, P.E.  
City Engineer

October 25, 2018

To the Honorable  
Finance and Personnel Committee  
Common Council  
City of Milwaukee

*Re: Common Council File #180001 – Communication from the Department of Public Works related to the proposed 2019 budget*

Dear Committee Members:

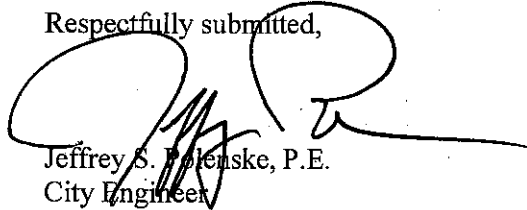
The budget hearings generated a number of follow-up questions and requests. The questions and requests for DPW are listed below:

1	DPW-Infra-Transp Srv	How much does an alley cost?
2	DPW-Sewers	Provide the list of groups that will help with DS disconnection.
3	DPW-Sewers	Need more Downspout program information - Want to sent to small businesses .
4	DPW-Sewers	Provide a listing of the MPS schools identified for Green Solutions contribution funds in 2019.
5	DPW-Sanitation	What is the breakdown of the number of carts replaced in cash of the last three years.
6	DPW-Sanitation	What is the breakdown of the cost to service each litter cart/can that is deployed on major streets?
7	DPW-Sanitation	What is the breakdown of the expected costs for expanding the Organics Collection Pilot Program?
8	DPW-Sanitation	How much funding would be required in 2019 to begin replacing garbage carts on a 10-year cycle?
9	DPW-Forestry	What has Forestry done or will be doing to address high Urban Forestry Specialist attrition?
10	DPW-Forestry	What would be the effect of hiring 10 apprentices instead of UFS?
11	DPW-Forestry	What could we do to offset the \$620,000 that the UFS will cost- snow and ice changes?
12	DPW-Forestry	What is the cost benefit of a 10-year pruning cycle?
13	DPW-Forestry	Provide service reduction impacts.
14	DPW-Forestry	Provide a list of Forestry awards and accolades.
15	DPW-Infra-Transp Srv	Provide a list of paving projects proposed for 2019.
16	DPW-Infra-Transp Srv	Send pictures of speed tables to the committee.
17	DPW-Infra-Transp Srv	Look at it in phases and give us a cost estimate for traffic calming (North Ave: 3 - 60).
18	DPW-Infra-Transp Ops	What was the saving from the LED traffic signals?

19	DPW-Parking	List of where the most tickets have been given out - by address.
20	DPW-Parking	How much are the actual citations? How many are paid without going to collections?
21	DPW-Water	Spreadsheet - what would it take to do 5,000 lead services per year and where would the funding come from?
22	DPW-Admin Services	Provide a Compete Milwaukee fact sheet including information unsubsidized employment and demographics.

Responses to items 1-14 are enclosed. The responses to the remaining items will be provided in a second communication.

Respectfully submitted,



Jeffrey S. Polenske, P.E.  
City Engineer

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Enclosure

## 2019 Budget Hearing DPW –Infrastructure Services and Sewer Fund Follow-up

1. How much does an alley cost?

\$120,000 per alley

2. Provide the list of groups that will help with down spout disconnection.

Conversation has been initiated with Keep Greater Milwaukee Beautiful to engage community groups who can be trained and eventually hired as contractors to perform the work. The following groups have been suggested:

Keep Greater Milwaukee Beautiful  
Milwaukee Christian Center  
Ground Works Milwaukee  
Milwaukee Community Service Corp  
WestCare  
Walnut Way  
Northcott Neighborhood House

3. Additional information needed on the downspout program in order to send to small businesses.

Additional information will be provided once the program is fully developed. At this time, the department is in the early stages of finalizing the program.

4. Provide a listing of the MPS schools identified for Green Solutions contribution funds in 2019.

There are four schools identified for Green Solutions contribution funds in 2019:

Burdick School  
Hawley Environmental School  
Longfellow School  
Starms Discovery School

The department will be working with ECO to identify additional schools for 2019.

## 2019 Budget Hearing (Oct 15, 2018) DPW Operations – Sanitation Section Follow-ups

RJM 10/19/2018

### Sanitation

Requested Information via Kathy Brengosz email of 10/19/2018

1. Breakdown of the number of carts replaced in each of the last 3 years
2. Breakdown of the cost to service each litter cart/can that is deployed on major streets
3. Breakdown of the expected costs for expanding the Organics Collection Pilot Program
4. How much funding would be required in 2019 to begin replacing garbage carts on a 10 year cycle.

1. Here is a breakdown of the number of carts issued or replaced in the last 3 years:

2015: 18,869 new and 1,322 used

2016: 19,192 new and 2,246 used

2017: 17,870 new and 2,772 used

2. Sanitation estimates that the cost to service each litter cart/can averages approximately \$500 per year. This does not include the equipment purchase or maintenance cost of the containers themselves. It includes the cost of labor (wages & fringe benefits), packer truck equipment use, and solid waste disposal. The unit cost of a 95-gallon domed plastic litter cart is currently \$195.
3. For the expected costs of incrementally expanding the Organics Collection Pilot Program in 2019, a budget of approximately \$25,000 dedicated to purchasing 65-gallon organics carts would accommodate an expansion to an additional 500 households. To double the program to 1,000 households in total represents a level that we are confident our collection and processing system has capacity to expand to in 2019. Furthermore, the total program would still be within the ability of our existing staff and administrative resources to handle without further dedicated resources being allocated to Sanitation's budget at this time. The additional cost to service an additional 500 households is estimated at \$82,500 per year for collection and processing of the organics. Of this, \$76,500 would be reimbursed through subscription fees and the balance would be expected savings realized due to associated reduction in landfill disposal costs.
4. To begin replacing garbage collection carts on a 10-year cycle in 2019 would require approximately \$1,884,663 based on current cart inventory and contracted cart purchase price. Note: Sanitation recommends budgeting to replace carts on a 15-year cycle which would equate to \$1,256,442 in 2019.

Alderwoman Coggs

1. *What has Forestry done or will be doing to address high Urban Forestry Specialist attrition?*

**Recruitment and Retention efforts to date:**

Forestry Career Ladder - In 2016 a Forestry Career Ladder jointly developed by Forestry management, field personnel and DER was implemented. Forestry's career ladder provides for annual merit based increments and pay percentage incentives for employees obtaining and maintaining professional credentials. Since the adoption of this plan, a high percentage of forestry employees have earned professional credentials. The success of the career ladder in increasing Arborist skills and professional credentials provides for a much more valuable employee, not only to Milwaukee Forestry but also to prospective employers. Consequently our success in employee development may be indirectly contributing to higher Urban Forestry Specialist attrition.

Arborist Apprenticeship - In 2018, Forestry transitioned its longstanding Arborist training model to the nation's first Arborist Apprenticeship training program recognized by the U.S. Department of Labor. Arborist Apprenticeship provides 7,000 hours of highly structured paid related instruction and on-the-job training over the course of 3 ½ years. It is hoped that the longer training program and ability to earn a Journey Worker Arborist credential will encourage apprentices to complete the program and continue their career with the City.

**On-going Recruitment and Retention efforts**

Forestry Compensation Study - DPW has requested DER to conduct a broad compensation study for all Forestry positions to ensure that the City's compensation is competitive with market rates. We believe that below market compensation is a significant factor influencing Urban Forestry Specialist recruitment and retention success.

Organizational Realignment – Millennials entering the workforce today place a higher value on work-life balance than is currently afforded to Urban Forestry Specialists who are first responders for snow and ice operations and emergency storm call out. Required tree related elements for Arborist Apprenticeship affords an opportunity to restructure Forestry's future workforce to a highly skilled Tree Care Division staffed by Urban Forestry Specialists and a skilled laborer/first responder workforce performing snow and ice responsibilities in the winter months and landscape responsibilities during the spring, summer and fall.

Alderman Murphy

1. *Details to fill vacancies. What fees, if any, could be increased to offset the position reductions?*
  - a. Urban Forestry Specialist Vacancy Details:

- i. Forestry currently has 10 Urban Forestry Specialist vacancies. Forestry would seek to hire and train a second cohort of Urban Forestry Arborist Apprentices in late spring 2019 to fill these vacancies.
- b. Fee offset:
  - i. Sewer Maintenance Fund. The Sewer Maintenance Fund makes an annual transfer to the general fund for all tree care costs, including pruning services.
  - ii. City Code Section 116-55 **Overhanging Branches** does not include a special charge for being found in violation of this code section, unlike tall weeds and grass and sidewalk snow violations where special charges are assessed for the violation. A \$50.00 special charge is currently assessed only when the property owner fails to abate an encroachment violation and abatement work is performed by a City contractor.
  - iii. Similarly, City Code Section 116-53 "**Hazardous Trees and Storage of Cut Elm Wood Prohibited**, does not include a special charge for being found in violation of this code section. A \$50.00 special charge is currently assessed only when the property owner fails to abate a hazardous tree and abatement work is performed by a City contractor. Staff time required to enforce this ordinance is significant and growing with peaking EAB ash mortality, and currently not assessed though special charges.
  - iv. Pre-construction clearance pruning. Street and Utility construction work in public rights of way often requires increased branch clearance over streets for large excavators, raised dump trucks and other special equipment. Forestry has historically performed preconstruction pruning to prevent the trees from becoming damaged. The average number of trees pruned annually (2013-2018) for pre-construction is 1,028 trees. Average pre-construction pruning labor costs for 2013-2018 is \$50,845.

2. *What is the cost benefit of a 10-year pruning cycle*

As a ten-year pruning cycle is well outside the bounds of what would be considered professional tree care for a municipal street tree population, the Forestry Section is not aware of any published studies or other work documenting the cost benefits of a 10-year pruning schedule. However, strong conclusions regarding the cost-effectiveness of a 10-year pruning frequency can be drawn from a couple of published Milwaukee pruning studies and relevant experiential data maintained by Milwaukee Forestry.

A timed pruning study was completed for Milwaukee by David Griffith and Associates in 1993. This comprehensive study evaluated total cycle pruning and request pruning costs for Milwaukee's street tree population following 5-year, 6-year, and staggered 3-6 yr and 4-8 yr pruning cycles. The results of this study found that a staggered 3-6 yr pruning cycle was most cost effective for Milwaukee. Findings of this study mirrored a study conducted in Santa Maria, CA which concluded that pruning trees on a request basis was 50% less efficient and costs twice

as much as trees pruned in cycle, because of the increased time and cost associated with inspections and travel time. This study also concluded that cycle pruning on a staggered 4-8 cycle would not service larger trees frequently enough to remove hazardous branches.

A published pruning study conducted in 1994 by the University of Wisconsin evaluated total pruning time, waste wood stack time (reflects biomass volume removed for chipping), waste wood yield and average diameter growth rates for various diameter classes of Milwaukee's top 4 tree species; Norway Maple, Green Ash, Honey Locust and Little-leaf Linden. This study found that pruning time increased by 6-minutes and wood waste stack time increased 1.5 minutes for every one-inch increase in tree diameter.

Experiential pruning data from Milwaukee's lengthening pruning cycle provides some strong indicators of pruning costs impacts under a 10-year pruning schedule. Since 2006, the average time required to cycle prune a tree has increased from 1.69 worker-hours per tree to 2.5 worker-hours per tree in 2017. The increase is attributed to an increase in average tree diameter and increased biomass (dead and living branch wood) that accumulates in the tree during longer pruning intervals. As the pruning cycle lengthens and trees increase in size, it simply takes more time to prune each tree, which in effect extends the time needed to complete all trees scheduled for pruning in the cycle.

Perhaps one of the best indicators that Milwaukee's pruning cycle is misaligned with the needs of our street tree population is the frequency at which trees need to be serviced on an emergency basis. The number of tree damage storm incidents has increased exponentially as the pruning cycle has been extended, from an average of 1,200 incidents in 2002 under a 3-6 staggered pruning cycle, to 5,700 incidents in 2016 and 2017 at an 8-year pruning cycle. The reason for this increase is not due to more severe storm events, but rather due to the fact that trees add growth annually, and added branch and leaf growth creates greater resistance to wind loading in the canopy of the trees during storm conditions, creating a wind-sail affect that causes excessive branch movement to the point of breakage. During pruning visits, dead and weakly attached branches are removed, and the interior of the crown is opened up to allow wind to move through the canopy with minimal branch movement. A pruning cycle frequency of 10-years would be too infrequent to maintain an open branch structure, and the number of storm damaged tree incidents would be expected to continue to climb. An analysis of the number of tree related claims filed with the City Clerk's office over time would also be expected to show a similar trend.

## Alderman Stamper

*Please provide a list of Forestry awards and accolades:*

### **Awards**

Top Ten U.S. City for Urban Forestry – American Forests, the oldest conservation organization in the U.S. recognized Milwaukee in 2013 as a Top Ten U.S. City for Urban Forestry.

Tree City USA Award – This award is presented by the National Arbor Day Foundation to communities that meet professional standards for municipal tree care. Milwaukee has received this award annually since 1979.

Tree City USA Growth Awards – The Tree City USA Growth Award is by the National Arbor Day Foundation to Tree City communities that demonstrate higher levels of tree care and professional management. Milwaukee is a Sterling Tree City USA, having received a Growth Award for 10 years (9 awards since 2008).

Innovations in Urban Forestry Award (2014) This awarded was presented by the Wisconsin Urban Forest Council and Wisconsin Department of Natural Resources for Milwaukee's progressive work in developing urban wood utilization strategies to reduce landfill waste.

Mayor's Urban Design Award – Green Medians Project (2012)

Innovations in Urban Forestry Award (2010)- This awarded was presented by the Wisconsin Urban Forest Council and Wisconsin Department of Natural Resources for Milwaukee's comprehensive best management practices including use 1<sup>st</sup> national use of Hyperspectral Imagery for Emerald Ash Borer readiness and response planning.

America in Bloom Award – Urban Forestry – Cities over 100,000 in population. 2007

Professional Grounds Maintenance Society - Green Star Honor Award (2007). This award recognized Milwaukee's professional maintenance of boulevard landscapes.

Mayor's Urban Design Award – East Kilbourn Streetscape (2007)

Milwaukee Downtown BID #21 – Green Thumb Award (2003)

International Society of Arboriculture – Gold Leaf Award – Arbor Day Celebration

International Society of Arboriculture – Gold Leaf Award – Greening Milwaukee Schools

### **Host Country/U.S. Cities Visiting Milwaukee Forestry**

2010- Torino, Italy – Professional Municipal Arborist Exchange

2013 -Toledo, OH



2014 - Singapore and Taiwan

2015 - Denver, CO

2018 - Fera Science, LTD. United Kingdom

*Please provide Service Reduction impacts*

Urban Forestry Specialists deliver all trees and boulevard services and constitute ½ of the City's snow and ice driver workforce.

The loss of 11 Urban Forestry Specialist and 1 Urban Forestry Crew Leader represents 9% of Forestry's field Arborist workforce.

The loss of these positions reduce Forestry's capacity to prune trees, remove dead and hazardous trees, grind stumps, plant replacement trees, mow and perform litter pick-up on boulevards, and plant and maintain boulevard landscaping.

Lengthening the pruning cycle to 10-years will further increase the per-tree worker hours and costs to prune each street tree, as more biomass (live and dead branches) will have accumulated in the tree between longer pruning intervals. This time increase will reduce the number of street trees that can be pruned annually.

Increased live and dead branch accumulation in trees between longer pruning intervals would be expected to increase the number of tree-related storm damage incidents, and increase the number of trees that would need to be serviced on an emergency overtime basis by Urban Forestry Specialists.

Pruning of the City's street trees will become less efficient as a greater percentage of work will need to be performed on a request basis to clear trees blocking street lights, traffic signals and signs, remove low hanging branches or trunk sprouts obstructing pedestrian and vehicular traffic, and branches growing into buildings and houses.

An increasing percentage of Urban Forestry Specialists responding to public safety hazards will make it more difficult to remain on schedule for non-safety sensitive work such as tree planting, stump grinding, boulevard mowing and litter pick-up, and boulevard beautification and maintenance.

The loss of these positions will result in a reduced number of Urban Forestry Specialists available for scheduling and response to emergency operations.