

# REPORT / RECOMMENDATION



**To:** MAYOR AND CITY COUNCIL

**Agenda Item #:** WS. III

**From:** Chad Millner, PE, Director of Engineering  
Brian Olson, PE, Public Works Director

**Action**   
**Discussion**   
**Information**

**Date:** July 7, 2015

**Subject:** 2015 State of the Streets – Street and Sidewalk Maintenance

**Action Requested:**

No action requested. Discussion only.

**Information / Background:**

Staff will provide a presentation about street and sidewalk maintenance described in the attached memo.

**Attachment:**

2015 State of the Streets – Street and Sidewalk Maintenance



**DATE:** July 7, 2015

**TO:** Mayor and City Council

**CC:** Scott Neal – City Manager,

**FROM:** Chad Millner PE – Director of Engineering, Brian Olson PE – Public Works Director

**RE:** **2015 State of the Streets – Street and Sidewalk Maintenance**

### *Introduction*

Per the Comprehensive Plan, “effective transportation planning is critically important for a community such as Edina. Residents must be provided with transportation facilities and services that meet mobility needs in an efficient and safe manner. Transportation facilities need to be planned and constructed (and maintained) so as to limit social, environmental, and aesthetic impacts to the greatest degree feasible. In addition, residents who cannot or choose not to drive, need to have transportation options to meet their daily needs.” What level of service we choose to provide for our streets and sidewalks is directly related to how we maintain and reconstruct our streets and sidewalks.

This report details roadway facilities and describes maintenance schedules and policies that reflect priorities expressed in the Living Streets Policy and Plan and industry standards. The purpose of this memo and work session is to brief the council on the current state of practice of maintenance. There are strategic funding decisions that need to be discussed to maximize service life and minimize costs and limit impacts to residents. All dollar values listed are in 2015 dollars.

### *Maintenance Practices*

#### Streets

As we have discussed at previous work sessions during the “State of the Utilities”, aging infrastructure continues to challenge us to determine the most efficient ways to renew, replace, or rehabilitate. There are 205 miles of streets in Edina. 164 miles are designated as local streets and 41 miles are designated Municipal State Aid (MSA) streets. Many of those streets were originally constructed during the 1950’s and 1960’s and are quickly becoming due for reinvestment.

Over the years, our public works staff has extended the life of streets through the use of mill and overlay, sealcoating, crack sealing, and patching. Staff has prioritized those streets with the greatest need to delay the need for reconstruction. This prioritization has been reactionary based on complaints from residents and based on available budget dollars, not actual need. Over the past 17-years, we have reconstructed 75 miles of streets; 64 miles of local streets and 11 miles of MSA streets. The construction of new streets has provided an opportunity to be more proactive in our maintenance operations and we have been moving more in that direction.

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Streets are designed for anticipated traffic volumes and vehicles loads. An increase in load or volume, outside of the original design assumptions, reduces the service life of the pavement. Streets are designed for approximately a 25-year service life without any maintenance. With specific maintenance operations at key points in the life of a pavement, service life can be extended to at least to 40-years and possibly as long as 60-years.

Service life is based on pavement degradation. Pavements have degradation curves that are well known within the industry. Our research on pavement service life has shown a general understanding of pavement service life but not specific deterioration curves based on specific maintenance operations. The conceptual maintenance degradation curves shown below (Figure 1) were developed using industry standards. The purple curve assumes minimal maintenance and the shortest service life. The green curve assumes strategic investments in maintenance operations and the longest service life.

Street maintenance staff uses these practices to extend pavement service life: crack sealing, seal coating, edge mill and overlay, and full mill and overlay. Seal coating is a process of placing oil and rock to make the pavements more watertight. This is typically done as the first maintenance operation within the first 7-10 years. An edge mill and overlay, mills the edge of the pavement near the concrete curb and gutter and then places a new layer of bituminous pavement across the entire width of the street. This practice renews the pavement and helps the edge continue to be watertight. The final maintenance practice is a full mill and overlay. Milling off of the pavement is completed to a specific depth the entire width of the road sometimes down to the underlying aggregate base materials and re-paved in one or multiple layers of new bituminous pavement. Renewal of the pavement structure does not address the underlying aggregate base.

Our current practices of maintenance and reconstruction have started to influence our estimated average pavement condition index (PCI) for our local streets as shown in the table below.

<b><u>Year of Estimated PCI</u></b>	<b><u>Estimated Average PCI</u></b>
2011	57
2012	51
2013	51
2014	54
2015	57

Please recall pavements between 65 and 45 are considered optimal for maintenance while pavements below 45 should be considered for reconstruction. On our local streets, our seal coat budget is currently \$100,000 annually and we estimate our mill and overlay budget at \$800,000. Both include labor, equipment, and materials.

As shown in Figure 1, there are opportunities for maintenance that will provide longer service life for our street pavements. The benefits of longer street life are reductions in life cycle costs, less frequency reconstruction and less frequent assessments, and a higher average PCI that leads to fewer complaints about the condition of our streets.

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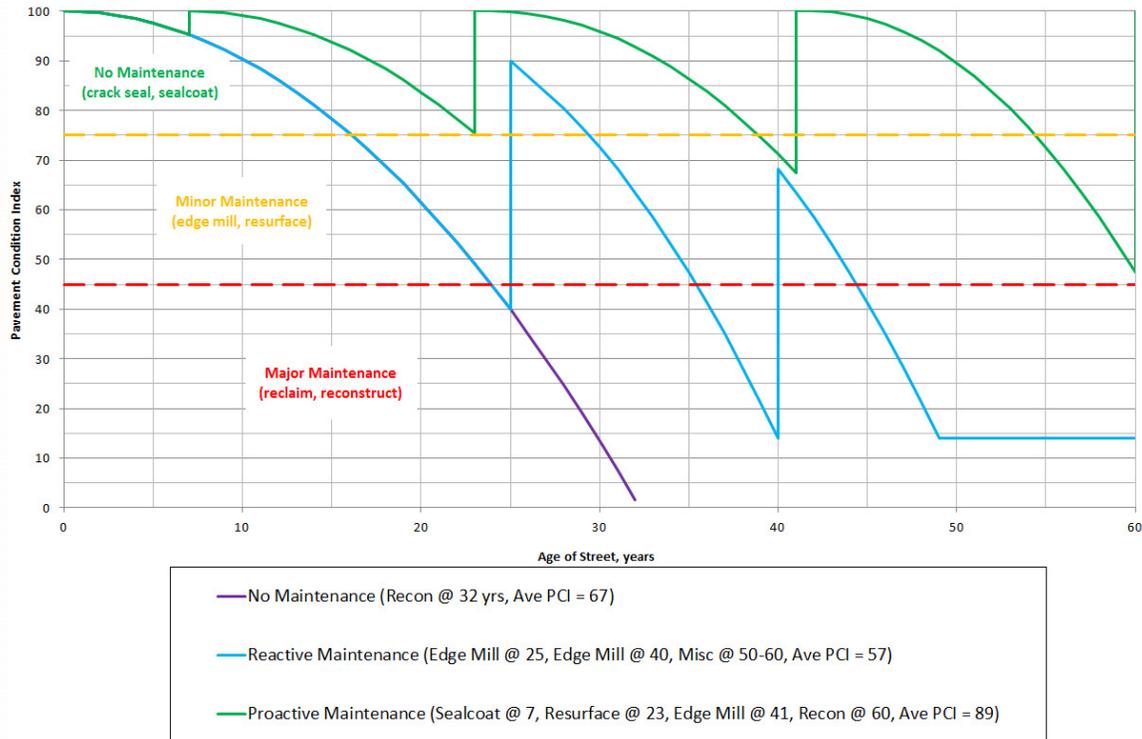


Figure 1. Pavement Service Life and Maintenance Practices

Based on the green degradation curve shown in Figure 1, which is a proactive maintenance practice, there are some concerns with our maintenance funding. The seal coat budget should be satisfactory and meet our needs. The mill and overlay budget is underfunded. We are estimating a need of approximately \$1,000,000 annually to be proactive in our maintenance practices. This is a deficit of \$200,000 annually.

Each year we strategically maintain our streets with the available budget. As our streets become due for maintenance, the need for additional funding increases. With continued deficits, our maintenance will fall behind. We are not at critical point yet as most of our streets were reconstructed within the last 17-years.

Our increased use of asset management software is allowing us to build our own pavement degradation curves specific to Edina. This will continue to make our operations more efficient.

There will be opportunities for the council to consider increases in maintenance funding for our local streets. Options we have identified that need further analysis are diverting more general fund revenue, increasing franchise fees, or street improvement districts (this would require legislative action and has been discussed for many years at the state legislature).

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Maintenance practices and budgets directly reflect expectations for our expected level of service. Some communities have a goal PCI. Maintenance practices can be adjusted based on the level of service expectations. If our goal is a low PCI, our maintenance funding need will be reduced but service life will be reduced, reconstruction will be needed sooner and complaints may increase. If we have a higher goal PCI, our maintenance funding needs will increase but service life will be extended, reconstruction will occur less frequently and complaints will decrease.

Figure 2 shows conceptually where the optimal point is on the funding versus condition curve. Too little maintenance and it drives our streets towards reconstruction, too much maintenance and we are over spending on maintenance. The goal is to find the optimal point to maintain a high PCI value with the least amount of capital.

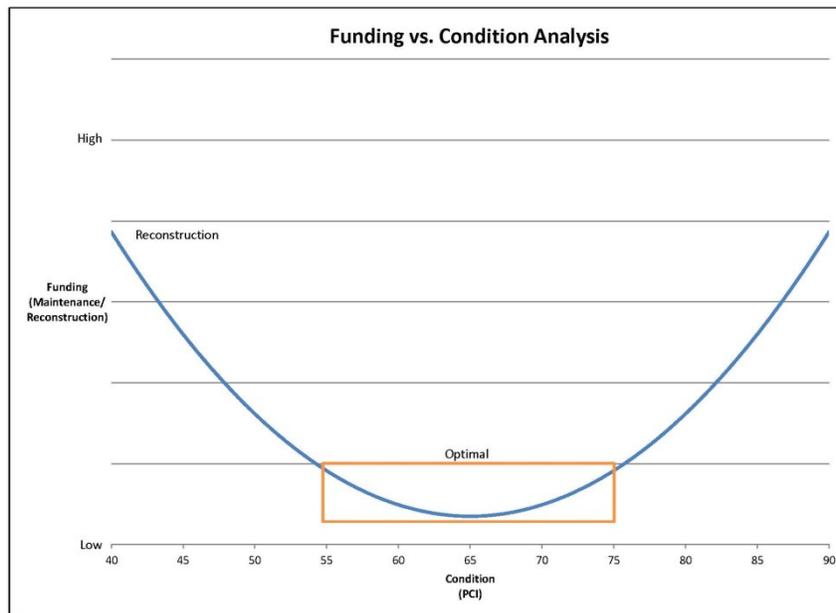


Figure 2. Funding vs. Condition Analysis

The analysis above is for our local street system. Our Municipal State Aid (MSA) streets also have a need for maintenance. The MSA program allocates construction and maintenance funds to cities with populations greater than 5,000. Our allocations are based on population and construction needs. We intend to complete a similar analysis for our MSA system to determine if we are receiving adequate funding to proactively maintain that system.

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## Sidewalks

There are 77 miles of existing sidewalks in Edina. 57 miles are 5-ft wide and maintained by city staff. The remaining 20 miles are 4-ft wide and maintained by the adjacent residents. Our sidewalk snow removal equipment is approximately 5-ft wide and does not fit on 4-ft wide sidewalks. The current level of service to clear snow from the 57 miles of city maintained sidewalks is 2 days. This requires 5 workers with 5 machines. It is an approximately \$325,000 annual expense that includes labor, equipment and materials.

Within the past year, an updated Sidewalk Facilities Map was approved and amended into the Comprehensive Plan. This plan would increase the amount of sidewalks from 77 miles to 118 miles. Based on our current practice, it would add 17 miles to the City's maintenance responsibilities and 24 miles to the resident's responsibilities. The build out of the plan is expected to occur over at least 20-years while taking advantage of the saving realized by combining sidewalk installation with street reconstruction projects.

At build out, the city will have to add 2 additional staff and machines to meet our current level of service of 2 days per snow event. This is estimated to increase our annual operating expense by \$125,000 to \$450,000 per year.

Many times we hear comments from residents about maintaining all the sidewalks in town. There are major concerns with this idea. First, our equipment is too big to maintain the smaller 4-ft wide sidewalks. Research into various types of sidewalk snowplowing equipment finds that they would be undersized and it would increase staff time and effort compared the same amount of the larger 5-ft wide sidewalks. If the city maintained all the sidewalks in town, we would either have to reconstruct all the 4-ft wide sidewalks with a considerable cost and impacts or contract out this work.

Staff recommends continuing to maintain MSA, Active Routes to School and park sidewalks and not increasing our responsibility on residential sidewalks.

## *Accomplishments*

In 2014 the Public Works Department fixed 3,508 potholes, overlaid 3.97 miles and sealcoated 2.0 miles of bituminous streets, and poured approximately 400 cubic yards of concrete to repair our concrete streets. They also completed the following:

- Resurfacing of the east half of Van Valkenburg Park
- 50th France Parking Ramp Improvements
- Implemented Public Stuff (Edina to Go)
- Replaced traffic signal cabinet and installed 1st art wrap at the corner of 66th and Valley View Road

In 2014 and 2015, the Engineering Department lead projects that reconstructed 10.3 miles of local and 1.0 mile of MSA streets, installed 5.1 miles of sidewalk, and installed 1.0 miles of bicycle lane striping.

In addition to the many reconstruction projects, the Engineering department's continuous improvement initiatives led to the following changes:

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- Branded and began implementing the Living Streets Plan.
  - Refined Infrastructure Condition Assessments and Selection Criteria for Neighborhood Street Reconstruction Projects.
  - Increased use of asset management tools
  - Created a new Sidewalk Facilities Map and amended it into the Comprehensive Plan
  - Improved our public right of way management
  - Improvements in neighborhood street reconstruction program resident communications

Last year also saw the roll out of a mobile application “Edina To Go.” This project was led by Communications and Technology Services Department and upon roll out was linked directly to Public Works service requests in the Cityworks asset management software. Now residents have access to an app to request: pothole repair, damaged mailbox or sod, fire hydrant inspections, weed issues, street light out, traffic safety, water leaks and more.

### *Conclusions*

Our transportation systems, specifically streets and sidewalks are vital to Edina’s quality of life. Our decisions have economic, social and environmental impacts. We continue to make recommendations with our mission statement in mind: “Our mission is to provide effective and valued public services, maintain a sound public infrastructure... ..in a manner that sustains and improves the uncommonly high quality of life enjoyed by our residents and businesses.”

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