



Eugene City Council

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EUGENE CITY COUNCIL AGENDA

May 29, 2019

12:00 p.m. CITY COUNCIL WORK SESSION
Harris Hall, 125 East 8th Avenue
Eugene, Oregon 97401

Meeting of May 29, 2019;
Her Honor Mayor Lucy Vinis Presiding

Councilors

Betty Taylor, President
Mike Clark
Chris Pryor
Jennifer Yeh

Emily Semple, Vice President
Greg Evans
Claire Syrett
Alan Zelenka

12:00 p.m. EUGENE CITY COUNCIL WORK SESSION

1. EXECUTIVE SESSION

Pursuant to ORS 192.660(2)(e) and ORS 192.660 (2)(f)

2. WORK SESSION: Review of 2018 Implementation of Bond Measure to Fix Streets and 2019 Pavement Management Report

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EUGENE CITY COUNCIL AGENDA ITEM SUMMARY



Work Session: Review of 2018 Implementation of Bond Measure to Fix Streets and 2019 Pavement Management Report

Meeting Date: May 29, 2019
Department: Public Works
www.eugene-or.gov

Agenda Item Number: 2
Staff Contact: Jenifer Willer
Contact Telephone Number: 541-682-6036

ISSUE STATEMENT

Staff will present the citizen Street Repair Review Panel 2018 Annual Report to the City Council. This report is one of two documents prepared in compliance with the City Council resolution placing Measure 20-197, the 2012 bond measure to fix streets, on the ballot. In addition to the Street Repair Review Panel's annual report, the independent accountant's report by Isler CPA is also included. Staff will also present the 2019 Pavement Management Report.

BACKGROUND

Following considerable study and discussion, including forming a Council Committee on Transportation Funding and convening an ad hoc citizen Street Maintenance Task Force, Council on July 28, 2008, approved Resolution 4953, calling a city election on a measure authorizing the issuance of \$35.9 million of general obligation bonds to fund street preservation projects. Eugene voters on November 4, 2008, approved Measure 20-145, the 2008 bond measure to fix streets. Beginning in April 2010 and continuing through February 2014, council received annual reports from the Street Repair Review Panel and the independent accountant regarding implementation of the 2008 bond measure.

On July 9, 2012, council approved Resolution 5063, calling a city election on a measure authorizing the issuance of \$43 million of general obligation bonds to fund street preservation projects, and bicycle and pedestrian projects. In November 2012, Eugene voters overwhelmingly approved Measure 20-197 that continued the City's road repair program for another five years. The 2012 bond measure committed to fixing 76 more streets and provided an average of \$516,000 per year for bicycle and pedestrian projects. The bond measure took effect in 2014 and continued the bond-funded pavement preservation program that was first approved by voters in 2008.

The 2012 bond measure to fix streets continued the requirements related to accountability included in the 2009 measure. The City Council resolution and the information provided to voters specified:

- In order to promote accountability in the use of bond proceeds, the City Manager will contract with an outside auditor to prepare an annual written report on the use of the bond

proceeds. The auditor will ascertain and report on whether the bond proceeds were used for the authorized purposes and in compliance with the restrictions set forth above. The City Manager will provide the report to the Council and make the report publicly available. (Resolution 5063, Section H)

- To further promote accountability and citizen involvement in street preservation projects, the City Manager will convene the citizen street repair review panel. The citizen street repair review panel will prepare an annual report, separate and distinct from the report prepared by the outside auditor, documenting the City's use of the bond proceeds and noting whether the bond proceeds were used in compliance with the terms of this Resolution. The City Manager will provide the SRRP's report to the Council and make the report publicly available. (Resolution 5063, Section I)

PREVIOUS COUNCIL DIRECTION

At the [March 14, 2018, City Council Work Session](#), City Council approved adding six additional streets to the list of bond funded streets.

COUNCIL OPTIONS

This work session is informational regarding the SRRP and PMS Reports; no action is requested.

CITY MANAGER'S RECOMMENDATION

This work session is informational; no action is requested.

SUGGESTED MOTION

This work session is informational; no action is requested.

ATTACHMENTS

- A. Citizen Street Repair Review Panel 2018 Report, including Auditor's Report
- B. 2019 Pavement Management Report

FOR MORE INFORMATION

Staff Contact: Jenifer Willer, Principal Civil Engineer
Telephone: 541-682-6036
Staff E-Mail: JWiller@eugene-or.us



Eugene Public Works
Street Repair Review Panel

GO Bonds
Fixing Eugene's Streets

Memorandum

Date: March 6, 2019
To: Jon Ruiz, City Manager
From: Street Repair Review Panel
Subject: 2018 Report of the Street Repair Review Panel

It is our pleasure to present the 2018 annual report of the Street Repair Review Panel, focusing on the fifth year of the five-year 2012 bond measure to fix streets. This year's report was written in response to the accountability provisions in Measure 20-197, the 2012 bond measure to fix streets.

The panel met three times over a four-month period in preparation of this report, which included a physical inspection of the completed projects. We reviewed and accepted the report prepared by the City's external auditor (Appendix D) regarding the City's use of the bond proceeds through December 31, 2018.

Based on this limited review and all materials presented to us, we unanimously conclude that the bond proceeds were used for the authorized purposes and in compliance with the limitations and restrictions outlined in Council Resolution 5063. We are also providing a detailed report, prepared at our request and with our approval, from the Public Works staff on the bond projects constructed in 2018.

Highlights from our review of the 2018 street bond projects include the following:

- **Progress** – 2018 was another successful year of completing projects. Additionally, Eugene's voters passed a third 5-year bond measure in November 2017 to continue the work to reduce the preservation backlog and to enhance active transportation and safety.
- **Current Conditions** - The 2018 bond funded projects resulted in the reconstruction or resurfacing of 16 streets and totaled more than 13 lane miles. In 2018, the backlog of needed street repairs decreased to \$68.4 million, a drop from \$78.8 million in 2017. Council may recall, the 2007 Pavement Management Report projected the backlog for rehabilitation needs would reach more than \$282 million by 2016 if steps were not taken. In terms of miles, since the implementation of the 2008 bond, more than 158 lane miles of street work has been completed using bond funds. About 20% of the improved street system is in need of some level of treatment at this time.
- **Vision Zero** – In recognition of Council's Vision Zero resolution, the improvements funded through the bond enhance safety for all road users. Specific examples include removing underused vehicle lanes to reduce conflicts and add bike lanes on 7th Place from Bailey Hill to Hwy 99, and the Safe Routes to School Infrastructure project, which built walking and bicycling projects in the areas of Howard Elementary and Gilham Elementary in partnership with the 4J School District.
- **Active Transportation** - The 2012 measure allocated funding for projects guided by the Pedestrian and Bicycle Master Plan, City staff and the Bicycle and Pedestrian Advisory Committee. In 2018, projects included the installation of sidewalk ramps and enhanced pedestrian crossings, improved bicycle lanes, and new school zone signs.
- **Cost Savings** – Due to project savings, project costs over the five years of the bond were lower than originally anticipated, and in 2018 City Council approved six additional streets to the list of bond-funded streets, using the estimated \$3.5 million of remaining bond funds supplemented with local gas taxes, if necessary. We want to highlight the excellent work staff do prioritizing rehabilitation before reconstruction, and developing innovative treatment methods completing more work for less money. Staff have saved a significant amount of money over the course of the three bond measures, allowing more work than originally expected to be completed in each of the bonds.
- **Collaborating with Partners and Leveraging Bond Funds** – Eugene's Pavement Preservation Program coordinates with internal and external stakeholders to schedule and coordinate the street

work with any needed upgrades and repairs to the nearby streets and utility facilities to avoid emergency repairs. The 2018, projects included repairs to the water, wastewater and stormwater systems. We continue to be impressed by staff and their ability to incorporate funds from other sources to cost effectively make repairs on items not covered by the bond funds.

- **Communicating with Citizens and Businesses** – Construction, by nature, is disruptive. City staff work with residents and stakeholders to minimize inconveniences. We continue to encourage the department to coordinate projects and look for new and better ways to proactively coordinate communications and minimize impact to the public, impacted businesses and residents.
- **Climate Recovery Goals** – The City’s paving program is designed to extend the life of city streets before they fall into the reconstruct category. This helps to extend the life of the streets, and when combined with recent paving techniques, greatly reduces the City’s environmental footprint. Prioritizing rehabilitation over reconstruction projects generally results in less mining and production of virgin materials, less waste of construction materials, and fewer heavy construction operations, all of which result in lower costs and fewer greenhouse gas emissions.
 - For example, Eugene is a leader using warm asphalt pavement over hot mixes, using reclaimed asphalt materials, and performing in-place recycling of existing roadbed materials. National research programs estimate that there is a CO₂ savings of 12 pounds per ton of pavement when using warm mix as compared to traditional hot mix asphalt. When combined with reclaimed asphalt pavement and in-place recycling, it is estimated that there were 700 tons less asphalt cement and 9,000 tons less rock than using traditional methods of materials production and construction techniques. That is a reduction of over 600 truck trips on rock delivery alone.
 - These construction techniques are excellent examples of the department’s commitment to sustainability efforts, consistent with the City’s Climate Recovery Ordinance.
- **Understanding the Process for Selecting Projects** – SRRP members often are asked what process is used to select streets for repairs. The streets chosen for bond funding were selected using the criteria listed on page 3 of the attached report. The selection of bicycle and pedestrian projects is guided by the Pedestrian and Bicycle Master Plan (later incorporated into the Eugene 2035 Transportation System Plan), City staff and the Active Transportation Advisory Committee. The memo in Appendix C explains in more detail how these safety improvement projects are selected.
- **Recognizing the Continued Economic Value of Street Bond Projects** – A functioning transportation system is important for the community and economy. The bond is essential to maintaining the City’s infrastructure. Based on the Oregon Department of Transportation Highway Division jobs multiplier model, the bond measure projects completed in 2018 conservatively sustained approximately 100 - 150 full-time equivalent jobs during the period of construction.
- **Bottom Line** – We believe the community is getting a good return for its investment in street repairs, and the bond funds are being used wisely to meet the objectives of Ballot Measure 20-197. An upfront investment in repairing and maintaining Eugene’s streets saves the community significant money.

Public Works staff are doing an excellent job designing and constructing bond measure projects using innovative techniques - creating state of the art practices being adopted by other municipalities across the state. We appreciate the support they have given us in the course of our review. The committee also continues to express its appreciation to the voters and taxpayers of Eugene for their ongoing support of the bond measures that have made our community a better place to live and do business.

Information about the Street Repair Review Panel can be found at www.eugene-or.gov/gobonds. Please feel free to contact any of us for additional information.

SRRP Members:

John Quilter, Chair	John Barofsky	Janet Calvert	Mel Damewood	Allen Hancock
Jim Mender	Matt Roberts	Ollie Snowden	Gary Wildish	Sue Wolling

Citizen Street Repair Review Panel 2018 Report

Implementation Update for Measure 20-197 Bonds to Fix Streets



2018 Report to the Citizen Street Repair Review Panel

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Acknowledgements

SRRP Members:

John Barofsky	John Quilter
Janet Calvert	Matt Roberts
Mel Damewood	Ollie Snowden
Allen Hancock	Gary Wildish
Jim Mender	Sue Wolling

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Sarah Medary	Brian Richardson
Eric Johnson	Lacey Risdal
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Scott Milovich	Tammy Smith
Cathy Mueller	Jenifer Willer

Cover photos from 2018 projects: Completed West Amazon Drive Paving (upper); Completed Paving on Garfield Street (lower)

INTRODUCTION

BACKGROUND

This report has been compiled for use by the Street Repair Review Panel (SRRP). It is intended to provide background on projects included in the 2012 voter-approved Bond Measure 20-197, the schedule for construction of these projects, and the details of bond projects constructed in 2018. The street repair measure approved \$43 million in bonding authority over a five-year period, with construction of bond-funded projects starting in 2014 and completing in 2018.

KEY TERMS

Bond - Bond Measure 20-197, Bonds to Fix Streets, approved by Eugene voters in November 2012.

Inlay – An inlay treatment consisting of removing a specified depth of the existing pavement surface and repaving that same depth with a new pavement surface. This treatment works well where the pavement distress is isolated to the removed portion of the pavement. At times, the inlay treatment needs to be supplemented with an “overlay,” which is when an additional thickness of pavement is placed over the inlaid pavement. An overlay is used when engineering analysis shows that the existing structure does not have sufficient strength to accommodate the projected traffic volume. The term “overlay” is commonly used to describe both the inlay and overlay practices.

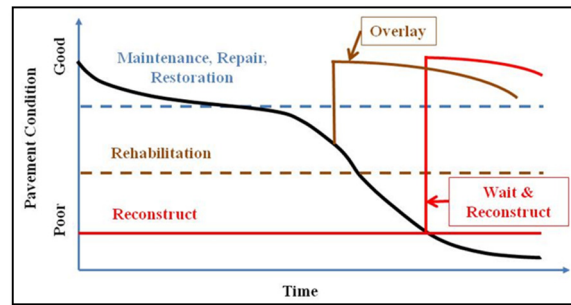
One of the benefits of performing an inlay treatment is that the new pavement surface will match existing adjacent structures and not increase the street cross grade. Another benefit of an inlay is that in the removal of the existing pavement, contractors grind up the old pavement and stockpile the material to be recycled into new pavement.

In-Place Cement Treated Base (ICTB)/ Full Depth Reclamation (FDR) – A reconstruction treatment that utilizes and reuses existing road base materials. The existing surfacing is removed and cement slurry is added to strengthen the existing base. The base is pulverized to a specified depth and allowed to cure for 18-48 hours. Once cured, the roadway is repaved. This treatment works well on roadways where the existing base is primarily aggregate. Two of the benefits of performing an ICTB treatment are the savings in resources from reusing existing materials and the reduction in the duration of impact for the surrounding neighborhood.



FDR on West Amazon Drive

Pavement Preservation Program (PPP) - This is the current capital project program to preserve Eugene's improved street system. A priority for this program is to preserve streets that have not yet degraded to a point where reconstruction is required. Preserving a street through overlay or similar treatment is four to five times more cost effective than waiting to repair a street until after it requires reconstruction. This program was initiated in 2003 and, until passage of the 2008 and 2012 street repair bonds, was predominately funded with local fuel tax revenue and the reimbursement fee component of transportation system development charges.



**Pavement Life Cycle – City of Eugene
Transportation Service Profile Presentation**

Reclaimed Asphalt Pavement (RAP) - Reclaimed asphalt pavement is the grindings from the existing pavement during the inlay process described above. The most common and effective use of this material is to supplement virgin materials used to make new asphalt pavement and reduce the use of costly asphalt binder. In Oregon, it is common to specify up to 30 percent of asphalt pavement can be made up of reclaimed asphalt pavement. Other reclaimed asphalt materials, such as shingles, can also be used to replace virgin asphalt binder in pavements. Reclaimed asphalt materials can be used as base rock. In 2017 the method of reusing RAP on-site as road base was used on several low volume residential streets. See below for more details.

Reconstruction – Once the street has deteriorated to the point that it can no longer be repaired with an inlay or overlay, it is repaired by reconstructing the pavement and underlying base. Traditional reconstruction involves digging up the existing pavement, any existing base rock, and subsurface soils to the depth that will accommodate a new pavement structure. As discussed above, in-place recycling may sometimes be used as an alternative to traditional reconstruction. Reconstruction is the most expensive of the repair options, which is why the City prioritizes preserving streets before they reach the point of needing reconstruction. Reconstruction may be four to five times more expensive than an inlay treatment.

Warm Mix Asphalt - Warm mix asphalt pavement is identical to conventional hot mix asphalt pavement, except that through a special mixing process it is produced at a temperature approximately 50 to 100 degrees cooler than conventional hot mix asphalt. In Eugene, all asphalt concrete producers have retrofitted their plants to produce warm mix asphalt using a water-foaming process. The foaming process allows temperature reductions of approximately 50 degrees. This reduction in temperature has several advantages:



Paving on Woodside Drive

1. It reduces energy consumption to produce asphalt concrete, lowering costs and greenhouse gas emissions.
2. It reduces off-gassing (smoke) of asphalt concrete by keeping the temperature under the boiling point of “light oils” in the liquid asphalt, benefiting construction workers and the public.
3. Because the light oils are not boiled off, the liquid asphalt coating the rock particles is slightly thicker, which slows the aging process of the asphalt.
4. It reduces the oxidation caused during high temperature production that causes premature aging of the asphalt, which should provide a longer life product.

The use of warm mix asphalt pavement is specified for all City of Eugene paving projects.

SRRP MISSION

Per Resolution No. 5063 the SRRP “will prepare an annual report, separate and distinct from the report prepared by the outside auditor, documenting the City’s use of the bond proceeds and noting whether the bond proceeds were used in compliance with the terms of this Resolution.”

CRITERIA FOR PROJECT SELECTION AND SCHEDULING

STREET PROJECTS

Street projects to be financed by the bond were specifically listed in the Bond (see Appendix A). All street projects were identified by the Public Works Maintenance Pavement Management System as priorities for repair. In addition, the following criteria were used to select streets for the bond measure:

1. Citizen input with respect to prioritizing major streets in need of reconstruction.
2. Scientific information about needed street rehabilitation and reconstruction from the pavement management system.
3. Geographic distribution throughout the community to ensure all areas of the City receive a benefit from the bond proceeds.

The City has a longstanding policy to use capital preservation funds on the improved street system. An improved street has been designed for the type of soils and traffic use of the street and includes a storm drainage system. Curb and gutter is the traditional mark of a storm drainage system, but can include roadside swales and planters. The bond measure street list consisted of improved streets in need of preservation as identified in the pavement management system.

The list of the street bond projects, with their estimated repair cost from the Pavement Management System and the year constructed or planned year of construction, is included in Appendix A of this report. In scheduling the street repair projects, the priorities were preserving streets prior to their needing reconstruction, grouping projects by location for cost savings, and coordinating with utility work. The list includes a comparison of programmed costs to actual costs with any difference noted. Differences in total project costs on individual projects may affect the funding available for future projects.

Bicycle and Pedestrian Improvement Projects



Buffered Bike Lane on West Amazon Drive

The 2012 bond measure stated that the City will allocate an annual average of \$516,000 to support bicycle and pedestrian projects, also known as active transportation projects. These projects were not named in the bond measure; rather, the selection of the projects would be guided by the Pedestrian and Bicycle Master Plan, City staff and the Active Transportation Committee. In 2018, the practice continued and improvements were added to several paving projects. These improvements are further described in the project details, below, and included in Appendix C of this report.

Vision Zero

In November of 2015, the Eugene City Council joined a growing number of cities around the country in adopting a Vision Zero Resolution that states “no loss of life or serious injury on our transportation system is acceptable.” Vision Zero is a data-driven approach to educate the community and enable the City to prioritize resources based on evidence of the greatest need and impact.

The City regularly combines Vision Zero principles with ongoing pavement preservation projects. Cost effective intersection enhancements such as countdown pedestrian signals and audible pedestrian signals will continue to be a priority and standard practice on future projects. ODOT has shown that the inclusion of these types of enhancements can significantly reduce fatal and life-changing injury crashes.

ADA Transition Plan

As part of Title II of the Americans with Disabilities Act (ADA) of 1990, the City of Eugene conducted an evaluation of its public rights-of-way, and developed a transition plan that outlines in detail how the organization will ensure safe access to all of its facilities for all individuals. Public Works collected detailed data on over 15,000 ramps and 250 pedestrian signals to develop transition schedules specific to these facilities. The Public Works Director approved the ADA Transition Plan for the Public Rights-of-Way by Administrative Order in July 2015. All capital rehabilitation projects are evaluated for access compliance and potential improvements during scoping and preliminary design.

As part of the 2018 projects, the City constructed and upgraded 431 sidewalk ramps, 228 through capital improvement projects and 203 through private development construction.

Sustainability and Gains through Technical Developments

In 2010, Eugene created the Community Climate and Energy Action Plan (CEAP), joining a growing list of forward-thinking cities around the world that are addressing climate change and energy challenges by planning with vision and creativity. The Climate Recovery Ordinance (CRO), adopted in 2014 and updated in 2016, is our community's next step toward fulfilling these efforts. The 2016 update established the goal of reducing the 2010 levels of community fossil fuel use by 50 percent by the year 2030.



The City of Eugene continually strives to improve the quality, environmental footprint, and cost efficiency of its projects. In 2018, Eugene continued to use warm mix asphalt pavement and increased use of reclaimed binder to meet these sustainability criteria.

Warm mix asphalt continued to be specified for all the paving projects in 2018 in place of conventional hot mix asphalt; approximately 42,000 tons of warm mix asphalt pavement was placed on capital paving projects in 2018. As explained in the Key Terms section of this report, warm mix asphalt provides environmental and human health benefits as well as a potentially longer lasting product. The National Cooperative Highway Research Program (NCHRP) estimates that there is a CO₂ savings of 12 pounds per ton of pavement when using warm mix as compared to traditional hot mix asphalt. The NCHRP also estimates that the use of warm mix asphalt reduces the energy used in the asphalt batch plant by about 30 percent compared to hot mix asphalt.

Nearly 12,000 tons of RAP was used on 2018 capital paving projects, reducing the need for nearly 700 tons of asphalt cement and 9,000 tons of aggregate to be mined, refined, processed and subsequently shipped to the pavement producers. Using warm mix asphalt with typical reclaimed asphalt pavement content resulted in an estimated reduction of 789 MT CO₂e compared to using hot-mix asphalt pavement with no reclaimed pavement on 2018 capital paving projects.

Sunset of the 2012 Bond Measure to Fix Streets

2018 was the fifth and final year of the 2012 road bond measure. It also completed the tenth consecutive year of bond funding to fix city streets. The community's commitment to investing in and maintaining its road and transportation system is evident and impressive.

In 2000, the capital budget didn't include funding for preservation of the street system. At that time it was estimated there was \$53 million in needed street repairs. The City created the Pavement Preservation Program in 2003, utilizing a recently-approved local gas tax to fund the work. Despite the supplemental funding the amount of needed street repairs grew to \$171 million in 2008.

Voters recognized and understood the looming issues. In 2008 they approved a five-year, \$35.9 million road bond. The measure promised to fix 32 streets and committed funds for off-street bike path improvements. Because of economic factors and measured spending, staff were able to utilize unused funding from the bond measure to repair another 10 streets.

Voters approved a second five-year road bond measure in 2012. Staff have utilized the \$43 million to fix 76 streets and fund dozens of improvements for people walking and biking. Because of continued favorable bids and resourceful spending, cost projections showed additional funds available to once again include additional street repairs. Staff will be able to fund an additional five streets in 2019 using the remaining money from the 2012 bond.

As Eugene embarks on the third five-year bond measure, the amount of needed street repairs is now estimated at \$68.4 million, a significant decrease from 2008. Staff will continue look to maximize and leverage funding from the road bond measure, striving to produce high-quality work and complete streets for people in Eugene.

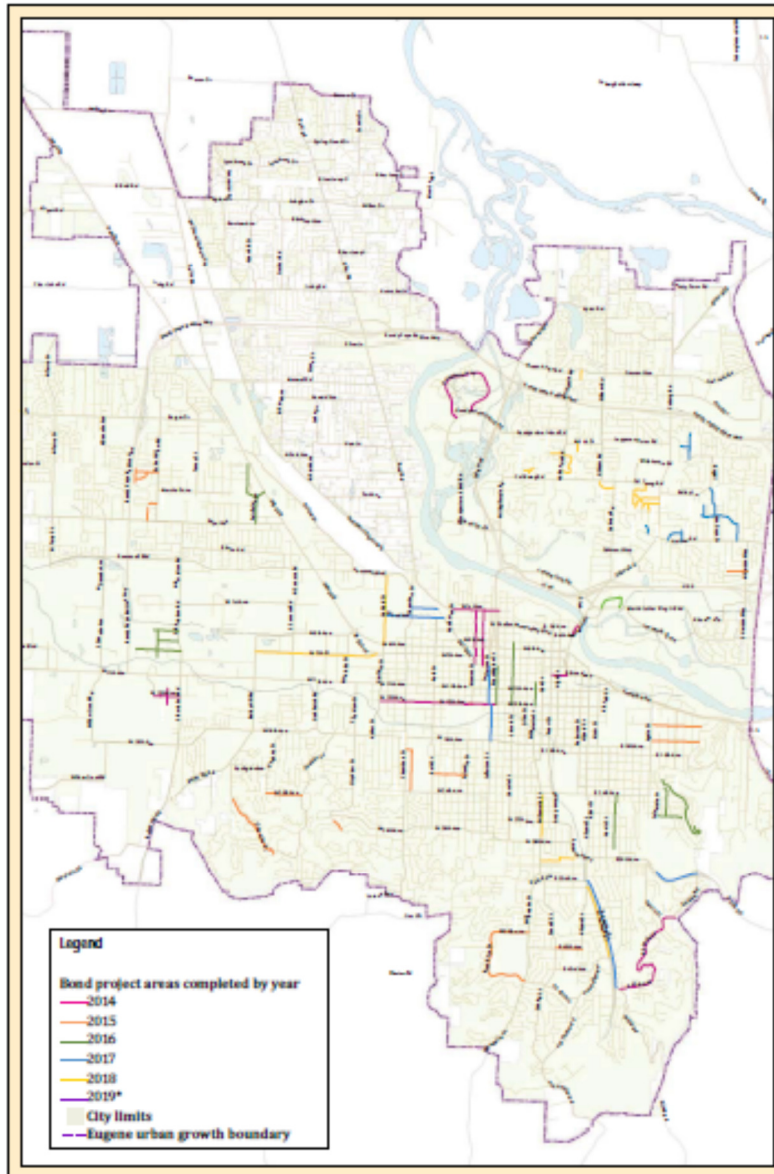


Paving on Carmel Avenue



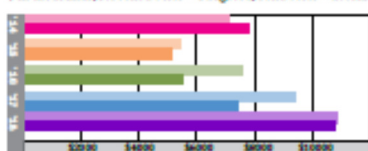
Report on the 2012 Street Repair Bond

In 2012, voters approved a bond for \$43 million to continue addressing the backlog of road repairs needed throughout the city. The bond also specified that \$2.5 million of the total be used for pedestrian and bicycle infrastructure and safety improvements.



Budgeted vs. actual road project costs

\$ in thousands, screened color = budgeted, solid color = actual



During construction years 2014–2018, of the \$40.2 million budgeted for street repair, only \$35.7 million was needed to complete work on the projects specified in the 2012 Bond Measure Request.

* At the end of the five-year period, substantial savings on many projects allowed additional street repairs to be funded in the 2019 construction season.

Learn more at eugene-or.gov/gobonds

New practices save money and the environment

Since 2008, Eugene has been using a new **warm mix asphalt** that uses less energy to produce, reduces emissions of greenhouse gasses, and allows paving work to be continued for a longer season.

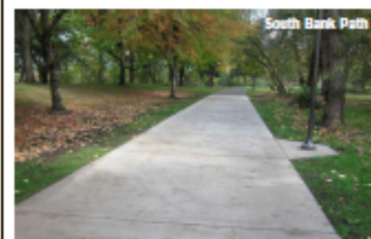
Public Works has also required reclaimed **asphalt shingles** be used as a binder in asphalt mixes, reducing the amount of these shingles entering the waste stream.

In-place recycling is done by large equipment that can break up, grind and mix existing base rock with cement and water to produce a new base for roadways. This reduces the amount of truck traffic and virgin materials needed to rebuild a roadway.



How are streets chosen?

Selecting streets for treatment involves analysis, testing, and staff knowledge of the road conditions and traffic demands. Ideally, streets are repaired using an overlay process before the underlying structure is compromised. Preserving with an overlay adds 15 to 20 years to the life of the street, and is significantly less costly than reconstruction.



Bicycle and pedestrian projects

Eugene has approximately 45 miles of shared use paths used by bicyclists, pedestrians, runners and skaters. In addition to structural repair of these concrete and asphalt paths, improvements include lighting, new connectors, and enhanced crosswalks and crossing devices. These projects are paid for with a combination of state and federal grants, local gas tax and bond funds.

Funding Status and Forecast

In 2012, project costs were estimated for each street for the purpose of selecting streets to be included in the bond measure. These cost estimates were based on the overall surface condition of each street as described in the City's Pavement Management System. A unit cost was assigned to each street based on whether the street rehabilitation treatment was assumed to be a reconstruct or an overlay. Approximately 18 months prior to construction, more detailed pavement testing is conducted to determine specific treatments to each street based on the existing pavement structure, subgrade soil conditions and traffic loading. Actual rehabilitation treatments may be different than the original assumptions, requiring more, less or a combination of rehabilitation techniques.

For the streets scheduled for 2018 construction, the 2012 estimated cost with inflation was \$9,568,000. As of January 3, 2019, although not all project contracts have been closed out, the projected actual cost for the 2018 bond projects is \$7,108,000; a net difference of \$2,460,000 below the costs projected in 2012. Willamette Street was scheduled for construction in 2018 but because of the size and complexity of the partially federally funded project it has been approved for 2019 construction.

We have continued to see a steady increase in construction costs but not to the degree that we originally projected resulting in a large remaining balance. As noted above, in 2018 City Council approved five additional streets to be repaired with remaining bond funds, all of which will be constructed in 2019.

Details on an annual project-by-project basis are provided in the following pages and summarized in Appendix A. Estimated costs for the five additional 2019 streets have also been added to Appendix A.

The 2012 bond measure also allocated an average of \$516,000 for pedestrian and bicycle improvements each year. In 2018, the project expenditures on all pedestrian and bicycle improvements funded by the bond were estimated at \$194,000. Accounting for expenditures to date, approximately \$50,000 is available for use on the additional five streets approved for construction in 2019.

Additional Streets Approved for 2019 Construction		
Ward	Street Name	Limits
7	JERRY STREET	Richard Ave to Royal Ave
7	LOUIS STREET	Hawthorne Ave to Drwy 715
7	RICHARD AVE	Fairfield Ave to Hwy 99
6	BARGER DR	100' east of Altimont to Primrose St
3	VILLARD ST	Franklin Blvd to 203' north of 15th Ave
1	19TH AVE	Jefferson St to Tyler St

2018 Bond Construction Projects

The following pages are reports on individual projects. The total costs for each project listed are estimated as not all of the 2018 construction-related costs have been finalized as of January 3, 2019.



Completed 2017 Paving on Jefferson Street

7TH PLACE PAVING

Project Description: This project consisted of rehabilitation of a street in the West Eugene Community Organization neighborhood in Council Ward 8:

- 7th Place from Bailey Hill Road to the 7th Ave (Hwy 99)

Treatment Methodology:

- 7th Place was reconstructed by removing the existing asphalt pavement, reconditioning the existing aggregate base using in place recycled millings as the base course, and repaving with 8 inches of asphalt. The intersection of 7th Place and Seneca Street was rehabilitated by removing and replacing 4 inches of the existing pavement.

Costs: Total project costs, from all funding sources, are estimated at \$2,158,584.

Preliminary Estimate based on Pavement	
Management System (PMS) Surface Evaluation =	\$3,417,367
Total Projected/Actual Paving Bond Funds Used =	\$1,747,367
Difference =	\$1,669,633

Additional Sources of Funding: Stormwater utility funds, wastewater utility funds, EWEB funds, Signal Improvement funds

Bicycling and Pedestrian Improvement funds were used for the addition of bike lanes.

Project Photo:



Completed Paving on 7th Place

30TH AVENUE AND MILL STREET PAVING

Project Description: This project consisted of rehabilitation of two streets in the Southeast Neighbors neighborhood in Council Ward 2:

- 30th Avenue from Willamette Street to Ferry Street
- Mill Street from 30th Avenue (North) to 30th Avenue (South)

Treatment Methodology:

- 30th Avenue and Mill Street were reconstructed using the FDR process to construct 12 inches of ICTB and were paved with 4 inches of asphalt.

Costs: Total project costs, from all funding sources, are estimated at \$924,255.

Preliminary Estimate based on Pavement Management System (PMS) Surface Evaluation =	\$486,000
Total Projected/Actual Paving Bond Funds Used =	\$745,948
Difference =	-\$259,948

During design it was found that the existing roadway could not be rehabilitated and required reconstruction resulting in a significant cost overrun.

Additional Sources of Funding: Stormwater and Wastewater utility funds, EWEB funds

Project Photo:



Completed 30th Ave Paving

GARFIELD STREET PAVING

Project Description: This project consisted of rehabilitation of a street in the Trainsong Neighbors Neighborhood in Council Ward 7:

- Garfield Street from Roosevelt Boulevard to 6th Avenue

Treatment Methodology:

- Garfield Street was rehabilitated by removing the existing asphalt, reconditioning the existing aggregate base material, and repaving with 8 inches of asphalt.
- The project included the improvements at 4 railroad crossings.

Costs: Total project costs, from all funding sources, are estimated at \$1,345,393.

Preliminary Estimate based on Pavement Management System (PMS) Surface Evaluation	
=	\$1,891,000
Total Projected/Actual Paving Bond Funds Used =	\$1,114,949
Difference =	\$776,051

Additional Sources of Funding: Stormwater and Wastewater utility funds, EWEB funds, Public Works Maintenance operations funds

Project Photo:



Completed Paving on Garfield Street

LARKSPUR AVENUE, LARKSPUR LOOP, PIPER LANE, ROLAND WAY, TULIP STREET, AND CARMEL AVENUE PAVING

Project Description: This project consisted of rehabilitation of six streets in the Cal Young Neighborhood Association neighborhood in Council Ward 5.

- Larkspur Avenue from Norkenzie Road to 640 feet West of Norkenzie Road
- Larkspur Loop from Norkenzie Road (North) to Norkenzie Road (South)
- Piper Lane from Chasa Street to Fir Acres Drive (Including CDS)
- Roland Way from Oakway Road to Cal Young Road
- Tulip Street from Crescent Avenue to Holly Avenue
- Carmel Avenue from Minda Drive to 400 feet South of Minda Drive

Treatment Methodology:

- Larkspur Avenue, Larkspur Loop, Piper Lane, Roland Way, Tulip Street, and Carmel Avenue were reconstructed utilizing the FDR process at a depth of 14 inches and were repaved with a 4 inch asphalt pavement surface.

Costs: Total project costs, from all funding sources, are estimated at \$1,046,324.

Preliminary Estimate based on Pavement Management System (PMS) Surface Evaluation =	\$1,044,000
Total Projected/Actual Bond Funds Used =	\$960,065
Difference =	\$83,935

Additional Sources of Funding: Stormwater and Wastewater utility funds

Project Photos:



Completed Paving on Larkspur Ave

WOODSIDE DRIVE, SHARON WAY, BUFF WAY, CORYDON STREET, AND FORRESTER WAY PAVING

Project Description: This project consisted of rehabilitation of five streets in the Cal Young Neighborhood Association neighborhood in Council Ward 4:

- Woodside Drive from Cal Young Road to Sharon Way
- Sharon Way from Coburg Road to East Side of 1023 Sharon Way Driveway
- Buff Way from Woodside Drive to Forrester Way
- Cordon Street from Forrester Way to Tandy Turn
- Forrester Way from Coburg Road to West Side of 1033 Forrester Way Driveway

Treatment Methodology:

- Woodside Drive, Sharon Way, Buff Way, Corydon Street, and Forrester Way were reconstructed using the FDR process and were repaved with 4 inches of asphalt pavement surface.

Costs: Total project costs, from all funding sources, are estimated at \$1,266,166.

Preliminary Estimate based on Pavement Management System (PMS) Surface Evaluation =	\$1,267,000
Total Projected/Actual Paving Bond Funds Used =	\$1,127,679
Difference =	\$139,321

Additional Sources of Funding: Stormwater and Wastewater utility funds, EWEB funds.

Project Photos:



Completed Paving on Woodside Drive

WEST AMAZON DRIVE

Project Description: This project reconstructed a street in the Southeast Neighbors neighborhood in Council Ward 2:

- West Amazon Drive from Hilyard Street to Fox Hollow Road

Treatment Methodology:

- West Amazon Drive was reconstructed using the FDR process and repaved with 9 inches of asphalt pavement surface.

Costs: Total project costs, from all funding sources, are estimated at \$1,518,970.

Preliminary Estimate based on Pavement Management System (PMS) Surface Evaluation =	\$1,463,000
Total Projected/Actual Paving Bond Funds Used =	\$1,412,489
<hr/>	
Difference =	\$50,511

Additional Sources of Funding: Stormwater and Wastewater utility funds, EWEB funds

Bicycling and Pedestrian Improvement funds were used for the addition of buffered bike lanes and curb extensions that align with the future Amazon Creek bridge crossings.

Project Photos:



Completed Paving on W. Amazon Drive

5-Year Street Bond Project List - Costs and Forecast

Project Map #	Street name	From	To	Ward(s)	Proposed Treatment	Programmed Cost (2012) plus inflation	Projected/ Actual Cost	Difference
Construction Year 2014								
1	1st Avenue (C)	Washington St	Van Buren St	7	Overlay	\$ 544,000	\$ 2,154,000	\$ (95,000)
55	Madison Street (L)	1st Ave	8th Ave	1, 7	Reconstruction	\$ 969,000		
58	Monroe Street (L)	1st Ave	Blair Blvd	1, 7	PCC panel replacement	\$ 546,000	\$ 2,109,000	\$ 283,000
8	13th Avenue (C/A)	Washington St	Garfield St	1	Reconstruction/Overlay	\$ 2,392,000		
9	13th Avenue (C)	Bertelsen Rd	Commerce St	8	Reconstruction/Overlay	\$ 169,000	\$ 410,000	\$ 78,000
44	Interior Street (L)	north end	south end	8	Reconstruction/Overlay	\$ 319,000		
21	43rd Avenue (C)	North Shasta Lp	Dillard Rd	2	Pavement Removal and Replacement	\$ 165,000	\$ 1,319,000	\$ (618,000)
40	Firland Blvd (C)	Spring Blvd	Agate St	2	Reconstruction	\$ 97,000		
59	North Shasta Loop (C)	Firland Blvd	North Shasta Lp	2	Reconstruction/Overlay	\$ 439,000	\$ 854,000	\$ (482,000)
25	Broadway (C)	Mill St	Pearl St	1, 3	Overlay	\$ 184,000		
33	Coburg Road (A)	south end of Ferry Street Bridge	north end of viaduct	3, 7	Pavement Removal and Replacement	\$ 188,000	\$ 925,000	\$ 178,000
43	Goodpasture Loop (C)	Goodpasture Island Road		5	Overlay	\$ 1,103,000		

Construction Year 2014 Totals = \$ 7,115,000 \$ 7,771,000 \$ (656,000)

Construction Year 2015								
10	15th Avenue (L)	Fairmount Blvd	Agate St	3	Reconstruct	\$ 1,020,000	\$ 1,908,000	\$ (235,000)
11	17th Avenue (L)	Fairmount Blvd	Agate St	3	Reconstruct	\$ 653,000		
12	19th Avenue (L)	Fillmore St	Chambers St	1	Pavement Rem/Overlay	\$ 85,000	\$ 701,000	\$ 162,000
13	22nd Avenue (L)	Friendly St	Polk St	1	Pavement Rem/Overlay	\$ 181,000		
39	Fillmore Street (L)	19th Ave	24th Ave	1	Pavement Rem/Overlay	\$ 597,000	\$ 958,000	\$ (23,000)
14	25th Avenue (C)	Hawkins Ln	Brittany St	8	Overlay	\$ 231,000		
32	City View Street (L)	28th Ave	29th Ave	8	Reconstruct	\$ 278,000	\$ 836,000	\$ 63,000
67	Timberline Drive (C)	Warren St	Wintercreek Dr	8	Reconstruction/Overlay	\$ 426,000		
19	39th Avenue (C)	Willamette St	100' East of Densmore	2	Overlay	\$ 215,000	\$ 627,000	\$ 199,000
20	40th Avenue (C)	Hilyard St	Donald St	2	Overlay	\$ 169,000		
24	Brae Burn Drive (C)	39th Ave	Willamette St	2	Overlay	\$ 515,000	\$ 75,000	\$ 157,000
22	Avalon Street (L)	Echo Hollow Rd	Juhl St	6	Reconstruct	\$ 298,000		
30	Cascade Drive (L)	Avalon St	Juhl St	6	Reconstruct	\$ 170,000	\$ 232,000	\$ 157,000
37	Elizabeth Street (L)	Knoop Ave	Royal Ave	6	Overlay	\$ 120,000		
48	Juhl Street (L)	north side of address 1424	south end	6	Reconstruct	\$ 160,000	\$ 78,000	
49	Knoop Avenue (L)	Echo Hollow Rd	Elizabeth St	6	Overlay	\$ 78,000		
56	Mahlon Avenue (L)	Garden Way	Honeysuckle Ln	4	Pavement Rem/Overlay	\$ 232,000	\$ 75,000	\$ 157,000

Construction Year 2015 Totals = \$ 5,428,000 \$ 5,105,000 \$ 323,000

Construction Year 2016								
4	5th Avenue (L)	Bertelsen Rd	west end	8	Reconstruct	\$ 664,000	\$ 992,000	\$ 931,000
5	6th Avenue (L)	Bertelsen Rd	Commercial St	8	Overlay	\$ 166,000		
6	7th Avenue (L)	Bertelsen Rd	Oscar St	8	Reconstruct	\$ 863,000	\$ 1,068,000	\$ 598,000
34	Commercial Street (L)	5th Ave	south end	8	Overlay	\$ 230,000		
15	27th Avenue (L)	Columbia St	south end	3	Overlay	\$ 117,000	\$ 347,000	\$ 331,000
28	Capital Drive (L)	Spring Blvd	50' north of Crest De Ruta	3	Reconstruct	\$ 418,000		
62	Potter Street (L)	24th Ave	29th Ave	3	Reconstruct	\$ 847,000	\$ 1,430,000	\$ 111,000
66	Spring Boulevard (L)	Fairmount Blvd	Capital Dr	3	Overlay	\$ 150,000		
70	Van Ness Street (L)	23rd Ave	27th Ave	3	Overlay	\$ 134,000	\$ 1,210,000	\$ (67,000)
31	Centennial Loop (L)	MLK Jr Blvd		4	Reconstruct	\$ 678,000		
38	Fairfield Avenue (C)	Hwy 99	Royal Ave	7	Reconstruct	\$ 701,000	\$ 434,000	\$ 179,000
46	Jacobs Drive (L)	Hwy 99	Fairfield Ave	6, 7	Reconstruct	\$ 840,000		
53	Lincoln Street (L)	5th Ave	13th Ave	7	Overlay	\$ 392,000	\$ 613,000	
71	Washington Street (A)	8th Ave	13th Ave	1	Reconstruct	\$ 751,000		
75	Willamette Street (L)	10th Ave	13th Ave	1	Reconstruct	\$ 613,000	\$ 434,000	\$ 179,000

Construction Year 2016 Totals = \$ 7,564,000 \$ 5,481,000 \$ 2,083,000

Construction Year 2017								
2	1st Avenue (L)	west end	Blair Blvd	7	Reconstruct	\$ 548,000	\$ 1,347,670	\$ 455,330
3	2nd Avenue (C)	Garfield St	Blair Blvd	7	Reconstruct	\$ 1,255,000		
16	30th Avenue (A)	Spring Blvd overpass	Agate St	2, 3	Reconstruct	\$ 2,871,000	\$ 525,887	\$ 2,345,113
36	East Amazon Drive (A)	Hilyard St	Dillard Rd	2	Reconstruct	\$ 1,322,000		
23	Best Lane (L)	Willakenzie Rd	Kentwood Dr	4	Overlay	\$ 157,000	\$ 351,303	\$ (117,303)
45	Ione Avenue (L)	Best Ln	Adkins St	4	Overlay	\$ 77,000		
47	Jefferson Street (C)	8th Ave	18th Ave	1	Reconstruct	\$ 1,237,000	\$ 2,586,800	\$ (1,349,800)
27	Calvin Street (L)	Western Dr	Harlow Rd	4	Reconstruct	\$ 273,000		
52	Leigh Street (L)	Western Dr	north end	4	Reconstruct	\$ 184,000	\$ 1,056,754	\$ 859,246
54	Lydick Way (L)	Tomahawk Ln	Harlow Rd	4	Overlay	\$ 87,000		
60	Pioneer Court (L)	Pioneer Pike	north end	4	Reconstruct	\$ 112,000	\$ 714,000	
64	Satre Street (C)	Bailey Ln	Western Dr	4	Overlay	\$ 714,000		
68	Tomahawk Lane (L)	Harlow Rd	580' north of Harlow	4	Overlay	\$ 92,000	\$ 454,000	
73	Western Drive (L)	Calvin St	west end	4	Reconstruct	\$ 454,000		

Construction Year 2017 Totals = \$ 9,383,000 \$ 7,413,456 \$ 1,969,544

Construction Year 2018								
7	7th Place (C)	Hwy 99 (7th Ave)	Bailey Hill Rd	1, 7, 8	Reconstruct	\$ 3,417,000	\$ 1,747,367	\$ 1,669,633
17/18	30th Avenue (L)	Willamette Street	Ferry Street	2	Reconstruct	\$ 437,000		
57	Mill Street (L)	30th Avenue		2	Reconstruct	\$ 49,000	\$ 1,127,679	\$ 139,321
26	Buff Way (L)	Woodside Dr	Forrester Wy	4	Reconstruct	\$ 179,000		
35	Corydon Street (L)	Forrester Wy	Tandy Turn	4	Reconstruct	\$ 41,000	\$ 376,000	
65	Sharon Way (L)	Coburg Rd	east side of driveway 1023	4	Reconstruct	\$ 376,000		
41	Forrester Way (L)	Coburg Rd	west side of driveway 1033	4	Reconstruct	\$ 248,000	\$ 423,000	
76	Woodside Drive (L)	Cal Young Rd	Sharon Wy	4	Reconstruct	\$ 423,000		
50	Larkspur Avenue (L)	Norkenzie Rd	604' west	5	Reconstruct	\$ 211,000	\$ 960,065	\$ 83,935
51	Larkspur Loop (L)	Norkenzie Rd		5	Reconstruct	\$ 171,000		
29	Carmel Avenue (L)	Minda Dr	400' south	5	Reconstruct	\$ 132,000	\$ 196,000	
61	Piper Lane (L)	Chasa St	Fir Acres Dr	5	Reconstruct	\$ 196,000		
63	Roland Way (L)	Oakway Rd	Cal Young Rd	5	Reconstruct	\$ 216,000	\$ 118,000	
69	Tulip Street (L)	Crescent Ave	Holly Ave	5	Reconstruct	\$ 118,000		

Project Map #	Street name	From	To	Ward(s)	Proposed Treatment	Programmed Cost (2012) plus inflation	Projected / Actual Cost	Difference
42	Garfield Street (C)	Roosevelt Blvd	6th Ave	7	Reconstruct	\$ 1,891,000	\$ 1,114,949	\$ 776,051
72	West Amazon Drive (A)	Hilyard St	Fox Hollow Rd	2	Reconstruct	\$ 1,463,000	\$ 1,412,489	\$ 50,511
74	Willamette Street*	24th Ave	29th Ave	1, 2	Reconstruct	\$ 1,232,000	\$ 3,900,000	\$ (2,668,000)

Willamette Street	East Ave	East Ave
*Willamette Street will be constructed in 2019; the total shown is a projection		

Additional Streets Authorized for Construction in 2019 (estimated costs)

Additional Streets Authorized for Construction in 2015 (Estimated Costs)						
Jerry Street	Richard Ave	Royal Ave	7	Reconstruct	\$ 100,000	\$ 397,000
Louis Street	Hawthorne Ave	Drwy 715	7	Reconstruct	\$ 127,000	
Richard Avenue	Fairfield Ave	Hwy 99	7	Reconstruct	\$ 200,000	\$ 30,000
Barger Drive	Primrose St	100' E of Altimont St	6	Overlay	\$ 1,600,000	
Villard Street	Franklin Blvd	203' N of 15th Ave	3	Overlay	\$ 500,000	
W 19th Ave	Jefferson St	Tyler St	1	Reconstruct	\$ 830,000	
					\$ 1,307,500	
fuel tax funds will be used to supplement any project expenses that exceed the available Bond funds						\$ 370,500

(x) Street Classification Key: (L) = Local; (C) = Collector; (A) = Arterial

Projected Construction Year 2019 Totals =	\$ 3.357.000	\$ 3.727.500	\$0.00
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Total Programmed Costs = \$ 40,290,000 \$ 40,506,453 \$ (216,453)

Projects			Average Annual Allocation \$516,000	Projected/ Actual Cost	Difference
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Construction Year 2014

2014 Pedestrian & Bicycle Repairs				\$	410,000	
Acorn Park Sidewalks				\$	128,000	
1st, Madison, Monroe				\$	92,000	
13th Avenue (Washington to Garfield)				\$	25,000	
Goodpasture Island Loop Pedestrian Signals				\$	29,000	
Roosevelt Blvd Pedestrian Signals and Sidewalk Infill				\$	58,000	
Construction Year 2014 Pedestrian & Bicycle Repairs Total =				\$	742,000	\$ (226,000)

Construction Year 2015

2015 Pedestrian & Bicycle Improvement Project				\$ 349,000	
15th and 17th Avenues Markings				\$ 38,000	
Fillmore and Friendly Streets Markings				\$ 10,000	
Donald Street Crossing				\$ 19,000	
Garden Way and Willakenzie Markings				\$ 20,000	
Valley River Way Pedestrian Signal Upgrades				\$ 20,000	
South Willamette Street Improvements				\$ 12,700	
Tugman Bridge and Sidewalk Improvements				\$ 12,500	
Construction Year 2015 Pedestrian & Bicycle Repairs Total =				\$ 481,200	\$ 34,800

Construction Year 2016

Construction Year 2016					
2016 Pedestrian & Bicycle Improvement Project				\$ 683,000	
Fairfield Avenue Sidewalk Infill				\$ 44,000	
Willamette Street Markings & Sidewalk Improvements				\$ 71,000	
Lincoln Ave Bike Buffer				\$ 12,000	
Construction Year 2016 Pedestrian & Bicycle Repairs Total =				\$ 810,000	\$ (294,000)

Construction Year 2017

2017 Pedestrian & Bicycle Improvement Project				\$ 290,531	
1st & 2nd Ave Paving Bike Legends				\$ 1,042	
3rd Ave Paving Sharrow Markings				\$ 2,969	
Jefferson St Paving Signage				\$ 3,364	
Construction Year 2017 Pedestrian & Bicycle Repairs Total =				\$ 297,906	\$ 218,094

Construction Year 2018

7th Place bike lanes				\$ 6,514	
West Amazon Curb extensions				\$ 51,230	
4J Safe Routes to School				\$ 113,462	
Commercial Street Bridge Counter				\$ 12,500	
Match for Electronic Bike Lockers				\$ 10,700	
		Construction Year 2018	Pedestrian & Bicycle Repairs Total =	\$ 194,406	\$ 321,594

Additional Streets Authorized for Construction in 2019 (estimated costs)

Barger Drive separated bike lanes					\$	54,488
Construction Year 2019 Pedestrian & Bicycle Repairs Total =						\$ 54,488

Total Pedestrian and Bicycle Improvement Project Costs =	\$ 2,580,000	\$ 2,580,000	\$0.00
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Summary of Bond Costs

Total Street Projects in 2012 Dollars with inflation = \$ 40,290,000

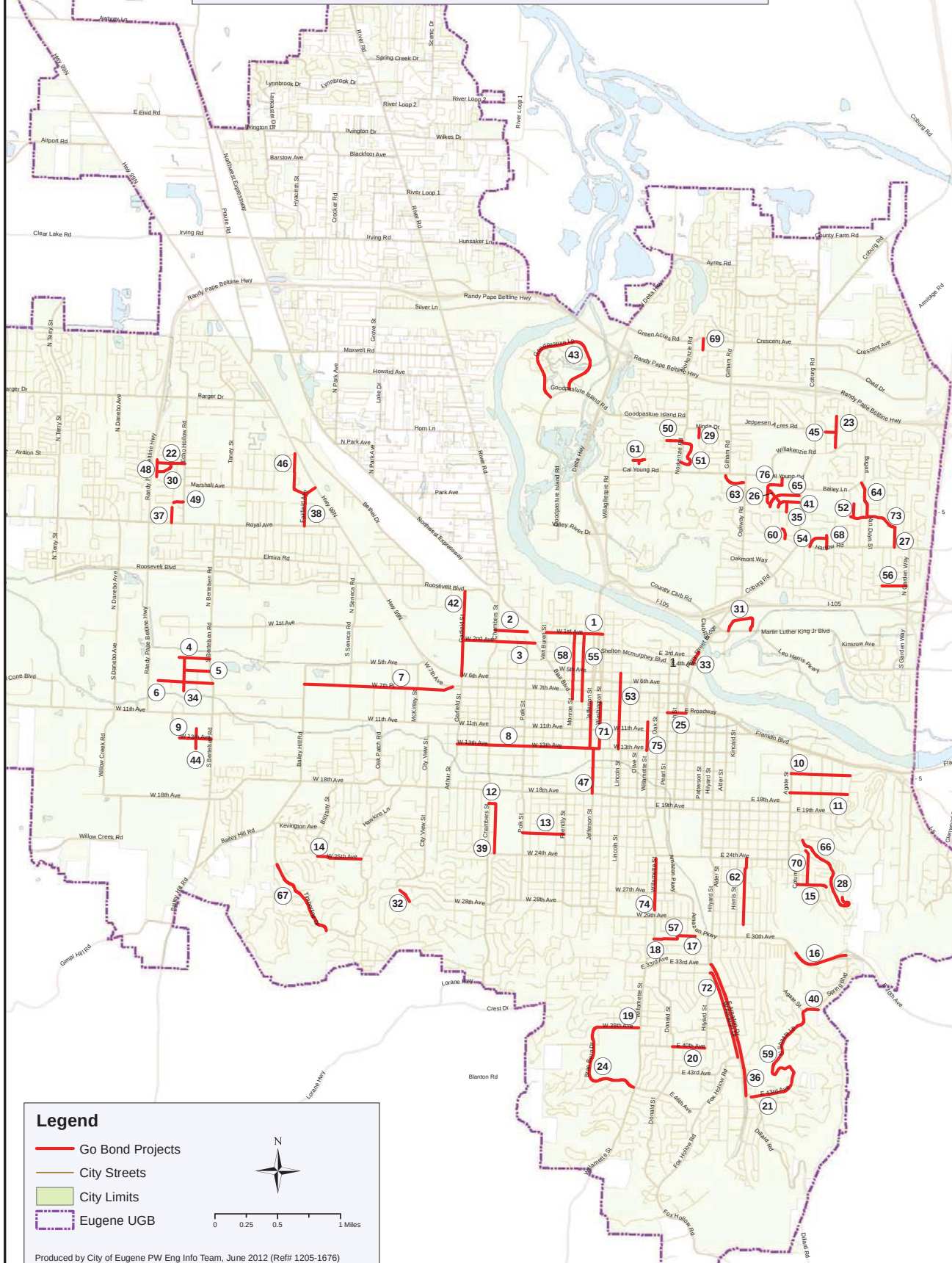
Total Pedestrian & Bicyclist Improvements = \$ 2,580,000

Bond Issuance Costs = \$ 130,000

Total Bond Costs = \$ 43,000,000

Eugene Street Preservation Projects

Project Map for 2012 Bond Measure to Fix Streets



See accompanying index for specific project information

May 29, 2019, Work Session - Item 2

Map #	Street Name	Limits
45	IONE AVE	BEST LN - ADKINS ST
46	JACOBS DR	HWY 99N - FAIRFIELD AVE
47	JEFFERSON ST	8TH AVE - 18TH AVE
48	JUHL ST	NS ADDR 1424 - SOUTH END
49	KNOOP AVE	ECHO HOLLOW RD - ELIZABETH ST
50	LARKSPUR AVE	NORKENZIE RD - 640 FEET WEST OF NORKENZIE RD
51	LARKSPUR LOOP	NORKENZIE RD (N) - NORKENZIE RD (S)
52	LEIGH ST	NORTH END - WESTERN DR
53	LINCOLN ST	5TH AVE - 13TH AVE
54	LYDICK WAY	TOMAHAWK LN - HARLOW RD
55	MADISON ST	1ST AVE - 8TH AVE
56	MAHLON AVE	GARDEN WAY - HONEYSUCKLE LN
57	MILL ST	30TH AVE (NORTH) - 30TH AVE (SOUTH)
58	MONROE ST	1ST AVE - BLAIR BLVD
59	NORTH SHASTA LOOP	FIRLAND - 43RD AVE
60	PIONEER CT	PIONEER PIKE - NORTH END
61	PIPER LN	CHASA ST - FIR ACRES DR (INCL CUL-DE-SAC)
62	POTTER ST	24TH AVE - 29TH AVE
63	ROLAND WAY	OAKWAY RD - CAL YOUNG RD
64	SATRE ST	BAILEY LN - WESTERN DR
65	SHARON WAY	COBURG RD - ES DRWY 1023
66	SPRING BLVD	FAIRMOUNT BLVD - CAPITAL DR
67	TIMBERLINE DR	WARREN ST - WINTERCREEK DR
68	TOMAHAWK LN	HARLOW RD - 580' NORTH OF HARLOW RD
69	TULIP ST	CRESCENT AVE - HOLLY AVE
70	VAN NESS ST	23RD AVE - 27TH AVE
71	WASHINGTON ST	8TH AVE - 13TH AVE
72	WEST AMAZON DR	ES HILYARD - SS FOX HOLLOW
73	WESTERN DR	CALVIN ST - WEST END/MONROE MIDDLE SCHOOL
74	WILLAMETTE ST	24TH AVE - 29TH AVE
75	WILLAMETTE ST	10TH AVE - 13TH AVE
76	WOODSIDE DR	CAL YOUNG RD - SHARON WAY

Project List for 2012 Bond Measure to Fix Streets

Map #	Street Name	Limits
1	01ST AVE	WASHINGTON ST - VAN BUREN ST
2	01ST AVE	BLAIR BLVD - WEST END
3	02ND AVE	BLAIR BLVD - GARFIELD ST
4	05TH AVE	BERTELSEN RD - WEST END
5	06TH AVE	BERTELSEN RD - COMMERCIAL ST
6	07TH AVE	BERTELSEN RD - OSCAR ST
7	07TH PL	7TH AVE/HWY 99 - BAILEY HILL RD
8	13TH AVE	WASHINGTON ST - GARFIELD ST
9	13TH AVE	BERTELSEN RD - COMMERCE ST
10	15TH AVE	FAIRMOUNT BLVD - AGATE ST
11	17TH AVE	FAIRMOUNT BLVD - AGATE ST
12	19TH AVE	FILLMORE ST - CHAMBERS ST
13	22ND AVE	FRIENDLY ST - POLK ST
14	25TH AVE	HAWKINS LN - BRITTANY ST
15	27TH AVE	COLUMBIA ST - SPRING BLVD
16	30TH AVE	SPRING OVERPASS - AGATE ST
17	30TH AVE	MILL ST (WEST) - FERRY ST (EAST)
18	30TH AVE	MILL ST - WILLAMETTE ST
19	39TH AVE	WILLAMETTE ST - 100' EAST OF DENSMORE RD
20	40TH AVE	HILYARD ST - DONALD ST
21	43RD AVE	N SHASTA - DILLARD RD
22	AVALON ST	ECHO HOLLOW RD - JUHL ST
23	BEST LN	WILLAKENZIE RD - KENTWOOD DR
24	BRAE BURN DR	39TH AVE - WILLAMETTE ST
25	BROADWAY	MILL ST - PEARL ST
26	BUFF WAY	WOODSIDE DR - FORRESTER WAY
27	CALVIN ST	WESTERN DR - HARLOW RD
28	CAPITAL DR	SPRING BLVD - 50' N OF CRESTA DE RUTA ST
29	CARMEL AVE	MINDA DR - 400' SOUTH OF MINDA DR
30	CASCADE DR	AVALON ST - JUHL ST
31	CENTENNIAL LP	MLK, JR BLVD (EAST) - MLK, JR BLVD/CLUB RD
32	CITY VIEW ST	28TH AVE - 29TH AVE
33	COBURG RD	SS FERRY ST BRIDGE - 50' S OF EWEB ON/OFF RAMP
34	COMMERCIAL ST	5TH AVE - SOUTH END
35	CORYDON ST	FORRESTER WAY - TANDY TURN
36	EAST AMAZON DR	HILYARD ST - DILLARD RD
37	ELIZABETH ST	KNOOP AVE - ROYAL AVE
38	FAIRFIELD AVE	WS HWY 99 - ROYAL AVE
39	FILLMORE ST	19TH AVE - 24TH AVE
40	FIRLAND BLVD	SPRING BLVD - AGATE ST
41	FORRESTER WAY	COBURG RD - WS DRWY 1033
42	GARFIELD ST	ROOSEVELT - 6TH AVE
43	GOODPASTURE LOOP	GOODPASTURE IS RD (EAST INTERSECTION) - GOODPASTURE IS RD (WEST INTERSECTION)
44	INTERIOR ST	NORTH END OF CUL DE SAC - SOUTH END OF IMPROVED SECTION



December 2018

Street Repair Review Panel,

This memo summarizes walking and bicycling projects built in 2018 using Pavement Bond Measure (PBM) funds and offers a look ahead to projects anticipated for construction in 2019.

Background

The 2012 Pavement Bond Measure includes the following language, "...Council determined that an annual average of \$516,000 should be allocated over a period of five years to support bicycle and pedestrian projects guided by the Pedestrian and Bicycle Master Plan, City staff, and the Bicycle and Pedestrian Advisory Committee (BPAC)." Transportation Planning staff works with the Active Transportation Committee (formerly BPAC) to develop a list of bicycle and pedestrian projects for review. The projects include additions to pavement projects and stand-alone improvements for people who walk and bike.

Where do the Walking and Biking Projects Come From?

Staff uses the Transportation System Plan (TSP) to identify network improvements for walking and bicycling. The TSP is the city's transportation policy document and long-term vision for transportation improvements.

For pavement preservation projects city staff consult the TSP to determine what network improvements should be made based on long-term system needs. Pavement projects present an opportunity to implement some improvements, such as bike lane striping, because striping will be entirely replaced as part of the pavement project.

There are also projects developed based on community input (ATC, etc.), coordination with 4j and Bethel Safe Routes to School programs, and through site investigations by city staff. The Vision Zero Action Plan is also used to evaluate project locations to improve safety outcomes for people walking and bicycling.

How Were PBM Walking/Biking Funds Spent in 2018?

Some of the walking and bicycling projects occur on streets where there is a pavement project while others do not. Projects developed in 2018 are listed below. Pictures for some projects are located at the end of this memo.

Projects Occurring with Pavement Projects

- 7th Place (HWY 99 to Bailey Hill Rd): bike lanes were added to 7th Place from Bailey Hill Road to HWY 99. The project narrowed existing travel lanes to make room for the bike lanes. See PIC #1.
- West Amazon (Fox Hollow to Hilyard): buffered bike lanes were added for northbound travel. Curb extensions were added on West Amazon Drive in alignment with where future bridges across Amazon Creek will be installed in 2019/2020.

Discretionary Projects

- 4j Safe Routes to School Infrastructure: the 2013 Eugene School District 4J bond measure included money for safe routes to school projects at or near 4j schools. In 2018, the City of Eugene partnered with 4J to develop the following walking and bicycling projects for Howard Elementary and Gilham Elementary. An IGA was developed to outline the terms of the cost sharing.

- Sidewalk infill on the east side of Park Avenue from Hatton Avenue to Howard Avenue (see PIC #2);
- A crosswalk across Park Avenue at Hatton Avenue;
- Speed cushions on Park Avenue from Kelly Lane to Howard Avenue;
- Sidewalk infill on Grove Street from Howard Avenue to Maxwell Road (coordinated with Lane County Public Works);
- A pedestrian crossing island and crosswalk across Gilham Road at Elkhorn Drive; and,
- The addition of two crosswalks on Honeywood Street near Gilham Elementary.
- Commercial Street Bridge Automatic Counter: walking and bicycling counters were added to the Fern Ridge Path just east of the new Commerce Street Bridge. Counters will be added to all new path segments if none are located nearby.
- Funding Match for Electronic Bicycle Lockers: an ODOT grant was acquired for purchase of electronic bike lockers for long-term bicycle parking in downtown Eugene. There are 24 lockers: 4 at the Diamond Express Stop, 8 at Amtrak, 12 at LTD Eugene Station.

What Projects are you Exploring for 2019?

The 2017 Pavement Bond Measure included an increase in spending for walking and bicycling projects from an annual average of \$516,000 per year to \$1,000,000 per year. Through discussions with staff and the Active Transportation Committee, it has been decided that about half of the money should be spent on shared use path maintenance with the other half used for discretionary walking and bicycling projects throughout Eugene. Currently, scoping is underway to light and repave the West Bank Path. Discretionary projects are likely to include a pedestrian crossing of Chad Drive at Shadow View, and contributions to pavement preservation projects. For example, funding will be added to the Alder Street repaving (24th Avenue to 27th Avenue) to develop a neighborhood greenway that prioritizes walking and bicycling.

If you have any questions about planning for walking and bicycling projects, or use of PBM funds to deliver these projects, please contact me: RDunbar@eugene-or.gov, (541) 682-5727.

Sincerely,
 Reed Dunbar, AICP
 Associate Transportation Planner (Bicycle and Pedestrian Planner)

PIC #1: Bike Lanes were added to 7th Place



PIC #2: Sidewalk Infill and Crosswalk on N. Park Avenue by Howard Elementary





INDEPENDENT ACCOUNTANT'S REPORT ON APPLYING AGREED-UPON PROCEDURES

To Jon Ruiz, City Manager
City of Eugene
Eugene, Oregon

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We have performed the procedures enumerated below, which were agreed to by the City of Eugene ("City"), solely to assist you in connection with the determination of whether expenditure of the 2012 general obligation bond funds approved for issuance through voter's approval of Ballot Measure 20-197 were expended in accordance with the purposes and limitations outlined in City Council Resolution No. 5063; namely that such expenditures were: a) used only for costs related to street preservation projects, fund bicycle and pedestrian projects and payment of bond issuance costs and not to expand the motor vehicle capacity of the street system; and, b) limited to projects included in Exhibit A to the Resolution unless upon completion of all of the projects listed in Exhibit A the Council adds other street preservation projects to the list in order to utilize unspent bond proceeds. Management is responsible for the accounting records pertaining to the use of the bond proceeds. This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants. The sufficiency of these procedures is solely the responsibility of those parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

The City provided the following documents and information in connection with our agreed-upon procedures testing:

- An Excel spreadsheet detailing all charges allocated and/or invoices received by the City for expenditures related to the use of the bond proceeds
- Copies of Resolution No. 5063 and Ballot Measure 20-197
- Copies of bids and contracts issued by the City for any projects to be completed using the bond proceeds
- Copies of supporting documentation including, but not limited to, invoices, cancelled checks, payroll records, certifications of payments and bank statements; and
- Copies of the City's general ledger detail for the bond fund accounts.

The procedures we performed and the related findings are as follows:

- (1) *Expenditure testing.* From January 1, 2018 through December 31, 2018, total expenditures for the projects funded by the 2012 bond proceeds were \$7,130,935 per the City's general ledger. We tested \$4,534,930 or 63.60% of those expenditures. All tested expenditures were supported by appropriate documentation such as vendor invoices, certifications of payment, payroll records, signed contracts, and photographs of the work in progress. All tested expenditures were recorded in the proper account, fund and period and were spent on street projects included in Exhibit A of City Council Resolution No. 5063 or other street preservation projects approved by City Council, as permitted under Resolution 5063. No exceptions were noted.

- (2) We reviewed bids and contracts related to two of five new construction projects during 2018. The bidding and contracting process for the two projects complied with the City's procurement policies and procedures.
- (3) We recalculated the amount of unspent bond proceeds and compared that amount to the actual amount of bond proceeds remaining. The following is a summary of the 2012 bond proceeds and project expenditures from inception of the Street Bond project to December 31, 2018:

	From Issuance to 12/31/2014	From 1/1/2015 12/31/2015	From 1/1/2016 12/31/2016	From 1/1/2017 12/31/2017	From 1/1/2018 12/31/2018	Total
Bond proceeds	\$ 8,500,000	6,289,700	6,690,000	8,750,000	6,280,000	\$ 36,509,700
Project expenditures	8,445,638	6,355,849	6,378,148	8,386,719	7,130,935	36,697,289

As of December 31, 2018, the City had \$200,000 outstanding on the line of credit facility. From January 1, 2018 through December 31, 2018, the City received \$6,280,000 in bond proceeds and was charged interest of \$14,305; the City repaid \$7,094,305 during the same period. At December 31, 2018, the City had \$6,490,300 in authorized borrowing remaining on the bonds (\$43,000,000 authorized less \$36,509,700 in proceeds received to date).

Based on our limited testing, we noted that the City followed the purpose and limitation of the City Council Resolution 5063.

We were not engaged to and did not conduct an audit, the objective of which would be the expression of an opinion on the financial records. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you.

This report is intended solely for the information and use of the City Manager of the City of Eugene, and is not intended to be and should not be used by anyone other than the City Manager.

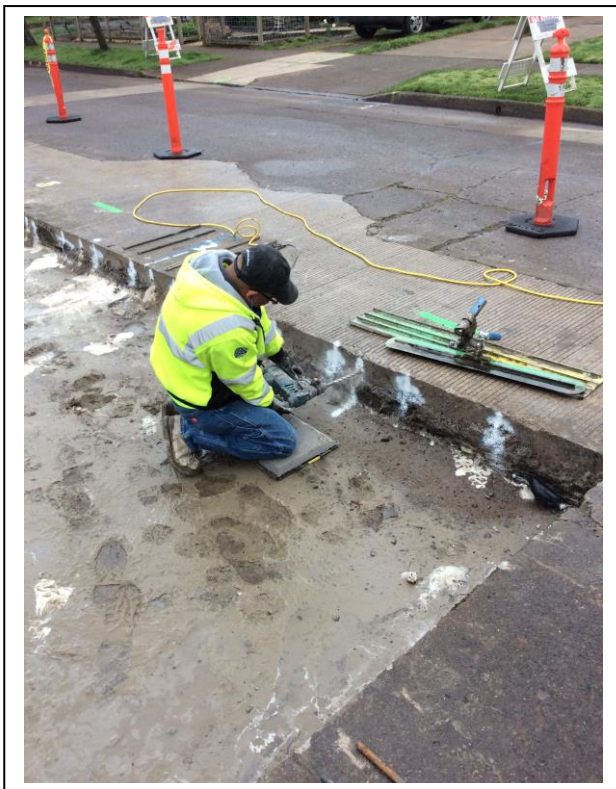
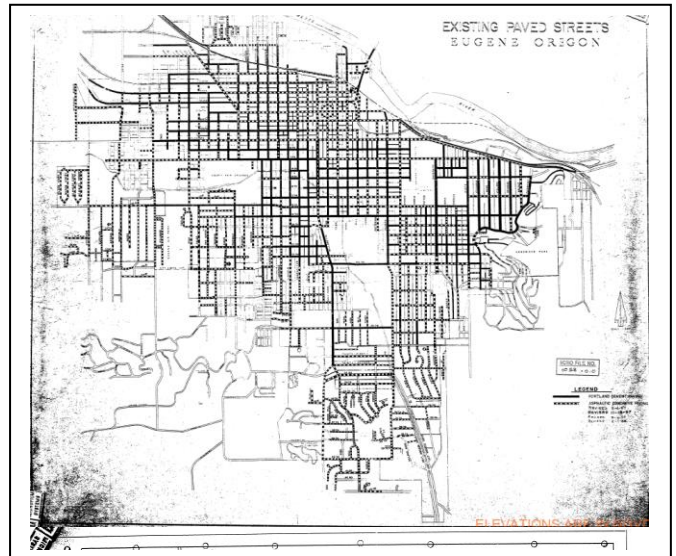
Isler CPA



Eugene, Oregon
February 4, 2019

2019 PAVEMENT MANAGEMENT REPORT

An Update on Asphalt Pavement Conditions and Programs
(2018 Rating & Inventory Data)



Prepared by:
Public Works Maintenance
Surface Technical Team
1820 Roosevelt Blvd.
Eugene, OR 97402



Cover Photos (top left – clockwise): GO BONDS, Maintenance Surface Operations Staff, Map of City of Eugene Paved Streets circa 1957, Concrete Panel Replacement.

EXECUTIVE SUMMARY

The annual Pavement Management Report is generated to provide updated information and data regarding the City of Eugene's transportation system including improved streets, unimproved streets and off-street shared-use paths. This report provides surface descriptions and associated mileage, reviews current treatment programs and costs, and projects future treatment needs based on several funding scenarios.

The transportation system is a significant public asset which requires continued maintenance and management. The asset is described in lane miles and/or centerline miles. Currently, Public Works manages 1371 lane miles (553 centerline miles) of streets and approximately 46 centerline miles of off-street shared-use paths within the City limits. This report includes a breakdown of the street transportation system in terms of pavement type, level of improvement, and functional classification.

Street, improved alley, and off-street shared-use path condition data is collected by Public Works Maintenance staff through on-site inspections. Utilizing this data, a Pavement Condition Index (PCI) score is generated. Formulas and methodology within the software help establish resourceful treatment recommendations and identify the financial implications of various response strategies. The Pavement Management System (PMS) also provides a detailed street inventory and condition trends using street condition data collected since 1987.

A local gas tax was established in 2003 for a Pavement Preservation Program (PPP) because street repair funding was not adequate to keep pace with rehabilitation needs. Even with the local gas tax in place, it was reported in 2007, the anticipated backlog for rehabilitation needs would reach more than \$282 million by 2016 (2007 Pavement Management Report). In 2008, a \$35.9 million five-year bond measure was approved by voters, and an additional five-year bond for \$43 million was approved by voters in 2012. The 2017 Bond measure (\$51.2 M) addresses 91 street projects with 5 million going toward pedestrian and bicycle infrastructure improvements. With these funding sources, more than 204 streets in Eugene have been or are identified to be repaired by 2023. The revenues from the local gas tax and the bond measures have helped reduce the backlog of street repair projects over the last 16 years. The current calculated backlog for repairs on improved asphalt streets at the end of 2018 is \$68.4 million, in 2017 the reported backlog was \$79.8 million.

In addition to funding from the current street repair bond ending in 2023 and rising constructions costs, other factors contribute to current and future backlogs:

- Since the beginning of the Pavement Preservation Program (PPP) in 2002 the primary focus for preservation has been arterial and collector streets. These formerly rehabilitated streets are now showing signs of deterioration beyond what can be addressed using standard maintenance practices.
- It is anticipated that costs will continue to increase at a steady rate. Changes in costs for construction materials and labor will affect long-term backlog estimates.

EXECUTIVE SUMMARY – (continued)

- New construction techniques such as in-place recycling (also known as in-place cement treated base, ICTB) which strengthens existing roadbed materials for reuse and lowers impacts to the environment have been successfully used in place of conventional reconstruction techniques and resulted in additional cost savings.
- In 2018, Public Works hired a third party consultant to review pavement data, confirming accuracy.

The backlog estimate does not take into account the repair needs for concrete streets, unimproved streets, sidewalks, off-street shared-used paths, or other elements of the transportation system.

The report utilizes three funding scenarios to project treatment needs and costs over a 10-year period. The analyses uses bi-annually updated costs provided by Public Works Engineering, which are adjusted to include a 2 percent inflation factor. Following is a summary of the analyses:

- Based on the projected funding (Table 3, pg. 14), a \$192 million backlog is projected in 10 years. Last year the projected backlog was \$182 million. In 2023 bond funding will end, decreasing pavement preservation from an average of \$11.9 million to \$3.2 million.
- Based on current and projected funding of \$3.2 million, an additional \$6.4 million is needed annually to prevent arterial and collector streets from falling into the reconstruct range and to eliminate the reconstruct backlog for arterial and collector streets in 10 years.
- In addition to the above mentioned need, \$4.6 million annually is also needed to prevent residential streets from falling into the reconstruct category, and to eliminate the residential reconstruct backlog in 10 years.

SCOPE OF REPORT

This report is comprised of four primary sections:

Street Inventory: The street inventory is discussed, including improvement status and functional classification definitions.

Pavement Management System (PMS): A brief history and description of the Pavement Management System used by the City, the selection process and conversion to Paver system is discussed. Included in this section are: the rating methodology, pavement inspection frequency, pavement conditions described by the Pavement Condition Index (PCI), and specific distress definitions and the resulting reports.

Pavement Preservation Program (PPP): The Pavement Preservation Program is highlighted in this report, including Maintenance and Engineering division roles, treatment types and estimated unit costs, project prioritization, sustainable construction, current treatment costs, projected funding, historical and projected funding graphs, unimproved streets, and off-street shared-use paths.

Projects: This section includes completed and future project lists and maps, including a map of the projects identified in the 2017 bond measure.

EUGENE'S STREET INVENTORY

The City of Eugene has jurisdictional responsibility for many types and classifications of transportation facilities. Many factors such as age, development type, traffic loads, use, and future transportation needs affect the maintenance and rehabilitation planning for the system. The section inventory component of the PMS allows a reporting of both centerline miles (intersection to intersection) and lane miles of each section of the system. While commonly used in reporting distance, centerline miles do not relate equally across streets of different widths or number of lanes. For this report, comparisons typically are shown both in centerline and 12 foot-wide lane miles unless otherwise noted.

Improvement Status

For purposes of establishing budget allocations and rehabilitation priorities, and performing maintenance activities based on established maintenance policies, the City of Eugene divides the street inventory into two distinct categories:

Improved Streets are streets which are engineered for structural adequacy, have storm drainage facilities which include curbs and gutters, and have either an asphalt concrete (AC) or a Portland cement concrete (PCC) surface. Improved streets are either fully improved at the time of development, at the developer's expense or were improved through a local improvement district (LID) and paid for in part by the abutting property owners. In some cases, a street may have been fully improved while under state or county jurisdiction and then surrendered to the City. Improved streets receive the highest level of ongoing maintenance and are eligible for rehabilitation funding through Eugene's Capital Improvement Program (CIP) and (PPP).

Unimproved Streets are streets with soil, gravel, or asphalt mat surfaces, have not been structurally designed, and no curbs or gutters. Typically, an unimproved street must be fully improved through a LID, and funded in part by the abutting property owners before a higher level of service will be provided (see “City of Eugene Street Maintenance Policy and Procedure Manual” for levels of maintenance service). These streets receive a low level of ongoing maintenance, limited primarily to emergency pothole patching (three inches or greater in depth), and minimal roadside ditch maintenance. To address the deterioration of these streets, Public Works is currently allocating \$375,000 annually from the Road Fund for the Enhanced Street Repair Program. Since 2008, 119 unimproved streets, totaling 48 lane miles, have been resurfaced as a temporary treatment. In addition, several unimproved streets have been upgraded to engineered street standards through assessment projects.

The following table (Table 1) categorizes Eugene’s Improved and Unimproved Street System in centerline miles and 12-foot lane-miles by pavement type and by functional class.

IMPROVED SYSTEM	Asphalt (ACP)		Asphalt over Concrete (APC)		Concrete (PCC)		Gravel		Undeveloped		Total	
	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles
Major Arterial	13.87	63.79	0.03	0.18	6.48	8.64	0	0	0	0	20.38	72.61
Minor Arterial	63.12	213.39	2.27	7.51	3.6	12.35	0	0	0	0	68.99	233.25
Major Collector	30.08	92.56	1.15	2.72	3.25	8.96	0	0	0	0	34.48	104.24
Neighborhood Collector	24.96	62.88	0.45	1.23	1.66	4.7	0	0	0	0	27.07	68.81
Residential	314.04	725.33	2.06	5.32	21.15	53.89	0	0	0	0	337.25	784.54
Total	446.07	1157.95	5.96	16.96	36.14	88.54	0	0	0	0	488.17	1263.45

UNIMPROVED SYSTEM	Asphalt (ACP)		Bituminous Surface-Oil Mats (BST)		Concrete (PCC)		Gravel		Undeveloped		Total	
	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles
Major Arterial	0	0	0	0	0	0	0	0	0	0	0	0
Minor Arterial	1.69	3.15	0	0	0	0	0	0	0	0	1.69	3.15
Major Collector	2.47	5.40	0	0	0	0	0	0	0	0	2.47	5.40
Neighborhood Collector	3.86	7.71	0.27	0.62	0	0	0	0	0	0	4.13	8.33
Residential	40.27	66.29	3.69	6.05	0.03	0.03	8.64	12.59	4.46	5.96	57.09	90.92
Total	48.29	82.55	3.96	6.67	0.03	0.03	8.64	12.59	4.46	5.96	65.38	107.8

Table 1 *Miles and Lane Miles of Street System by Classification and Pavement Type*

*Note: 2018 ODOT Right-of-Way transfers not included.

Functional Classifications

The quantity and associated vehicle weight of traffic using streets is a critical factor affecting the rate at which pavement and roadbeds deteriorate. Eugene divides streets into five categories called functional classifications (FC), each representing a different volume and type of vehicular usage. The Paver terminology for functional classification/section rank is identified as follows:

Major Arterial (FC-1) - (A): Major Arterials are usually four or more lanes and generally connect various parts of the region with one another within the city and with the “outside world”. They serve as major access routes to regional destinations such as downtowns, universities, airports, and similar major focal points within the urban area. Major Arterials typically carry an average of more than 20,000 vehicles per day. Major Arterials receive high priority maintenance.

Minor Arterial (FC 2) - (B): Minor Arterials are typically two or three lanes. These streets provide the next level of urban connectivity below major arterials. In most cases, their main role tends to be serving intra-city mobility. Minor Arterials carry between 7,500 and 20,000 vehicles per day. Minor Arterials receive priority maintenance.

Major Collector (FC-3) - (C): Major Collectors can be found in residential, commercial, and industrial areas. They typically carry between 2,500 and 7,500 vehicles per day. Major Collectors have a higher priority for maintenance than local streets.

Neighborhood Collector (FC-4) - (D): Neighborhood Collectors are found only in residential neighborhoods and provide a high degree of access to individual properties in a neighborhood. They typically carry between 1,500 and 2,500 vehicles per day.

Local (FC-5 - (E): Local streets provide access to individual properties along the roadway. They are narrow, slow-speed, and low-volume service facilities. They typically carry fewer than 1,500 vehicles per day and receive low priority maintenance. Local streets are also referred to as Residential streets.

The following graph (Fig.1) illustrates both centerline miles and lane miles by improvement type and functional classes.

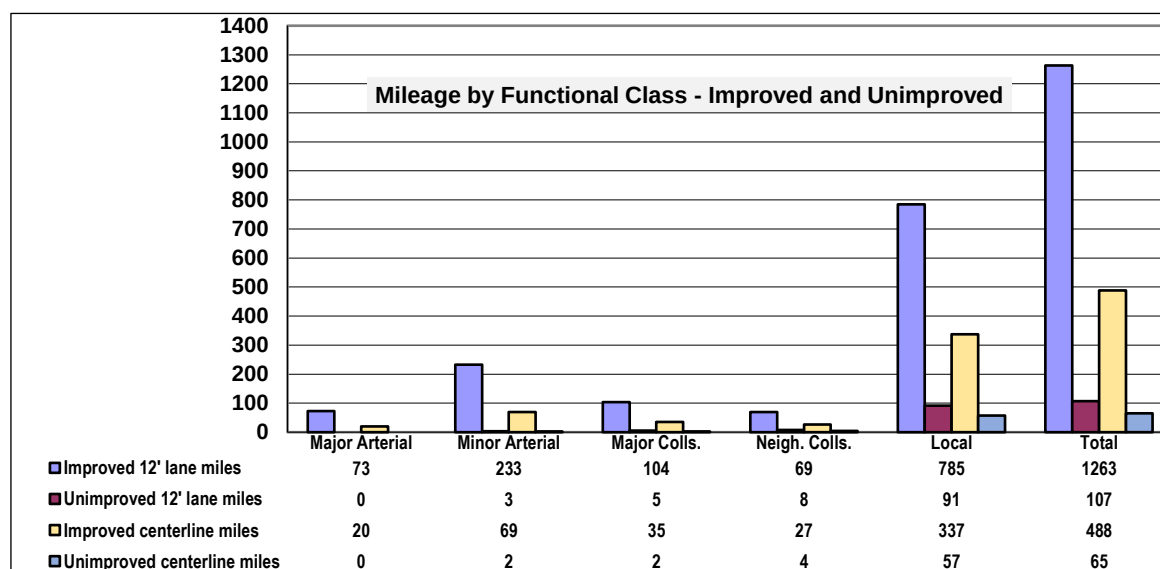


Figure 1 Mileage by Functional Class – Improved and Unimproved

PAVEMENT MANAGEMENT SYSTEM

Public Works has used Paver since 2013 as its pavement management system. Pavement Management System (PMS) programs analyze collected rating data and process the data to provide reports on the current and projected conditions of the street system. In addition, the program is used to evaluate the effectiveness of planning and funding priorities and provides guidance in the decision-making process. A primary goal, through judicious maintenance, is to prevent pavement failures in the most efficient means based on selected parameters.

Pavement Inspection Frequency

Two predominant work efforts required to maintain the PMS are; updating the street inventory, and performing the annual inspection of surface conditions.

City streets are divided into sections based on their Functional Classification (FC), pavement type, and geometric design. Sections are the basic unit for evaluating streets and surface conditions. A section is defined as a portion of a street with a beginning and ending description. Changes in geometric features are used as a guide for determining sections. Examples of geometric differences are the surface type, section width, surface age, and extent of past rehabilitations. Public Works currently manages over 6100 street sections.

Field inspections are conducted by pavement raters who walk each street section evaluating the pavement surface for signs of distress. Arterial and collector streets are inspected annually, residential streets are inspected on a three-year cycle, and off-street shared-use path and improved alley inspections are completed on a two-year cycle.

This year, staff inspected 171 miles of arterial and collector streets, 117 miles of local streets in the West Eugene and Downtown areas, plus 14 miles of improved alleys throughout the city.

Pavement Condition Index (PCI), Deduct Values, and Distresses

Pavement distresses are dependent on pavement type and are rated by severity and extent. Paver provides a numerical value (PCI) calculated internally based on deduct values for the distresses rated per street section.

A street with a PCI of 100 represents a new or recently rehabilitated street. This PCI value is the basis used to analyze the surface treatment needs. Distress data are collected using Tablets and then uploaded to the pavement management software. Paver method rates severities and all their extents for up to 20 different distresses. As the condition of a street's surface begins to deteriorate, the PCI decreases. Asphalt distresses typically observed are alligating, longitudinal and transverse cracks, rutting, and raveling. Distresses in concrete streets typically observed and rated include cracks per panel, raveling, joint spalling, faulting, and crack sealing. Descriptions of some common distresses are shown below:

Alligator Cracking: When the asphalt begins to crack in all direction it is called alligator cracking.



Longitudinal Cracking/Transverse Cracking: These are cracks that run parallel to the roadway centerline (longitudinal) and perpendicular to the roadway center line (transverse). These distresses usually divide the piece into different sections and which are caused by repeated traffic loading. The low-severity cracks are not considered serious to the overall function and safety of the road. Medium to high-severity cracks are usually caused by heavy traffic loads and environmental factors and can become very serious distresses. The picture below shows longitudinal cracking.



Rutting: When the traffic of the street becomes heavy for long periods of times the asphalt begins to sink into the wheel path of the vehicles causing a rut. When there is a rut it is usually along the length of the road and is one to two feet wide and there are almost always two ruts, one for each wheel path of the vehicle. The severity of the rut is rated on the average rut depth from $\frac{1}{4}$ " to more than $\frac{3}{4}$ " in depth.



Joint Spalling: Spalling is the deterioration of the edges of a concrete slab within two feet (0.6m) of the joint. The edges get chipped off concrete slabs causing spalling. Spalling is caused by heavy traffic loads and environmental factors.



Raveling: The roads, mainly asphalt, over time become worn out and rough not smooth as when they were first put in, often due to age and the effects of UV rays. Raveling measures the severity of the roughness and coarseness of the top layer of the street.



Faulting: Faulting is the difference in elevation across the slab. One side may be leaning up more over the other side. Causes are soft foundations, heavy traffic, poor construction, and environmental damage.



How Pavement Management System Information is Used

The primary purpose of maintaining a PMS is to collect and analyze information relating to street system condition and deterioration trends. With this vital information, public works managers ensure the most cost-effective maintenance or rehabilitation strategies are identified and performed at the optimum time.

Each year the PMS is used to generate several reports requested by other agencies as well as statistical data requested within our own agency. The following is a sample of reports produced with PMS data:

- Pavement Preservation Project List
- Crack Seal Program
- Five-Year Surface List – five-year moratorium for street cutting
- ODOT Oregon Mileage Report
- City of Eugene Public Infrastructure Table
- Annual Insurance Marketing Report
- Transportation Service Profile
- HB2017 - Keep Oregon Moving

PAVEMENT PRESERVATION PROGRAM

Street preservation and rehabilitation, capital improvements, off-street shared-use path projects, and maintenance efforts make up Eugene's Pavement Preservation Program (PPP). Additionally, Public Works budgets funding for Maintenance Operations to repair portions of the unimproved street system through the Enhanced Street Repair Program. Both PW Maintenance and PW Engineering divisions have important roles within the PPP.

PW Maintenance Roles

Public Works Maintenance Surface Technical team conducts the pavement rating, budget and street life analysis, resulting in a list of proposed projects provided to Engineering for field testing and final grouping. Operations staff provides preventative maintenance of all City streets (including concrete streets) and off-street shared-use paths. Preventative maintenance extends the life of the transportation asset and is of highest priority. Improved asphalt streets receive the highest level of maintenance. Preventative maintenance helps prevent a street's PCI from dropping into a more costly treatment category.

PW Engineering Roles

Public Works Engineering receives projects proposed for preservation from the Maintenance Division three years in advance of planned construction. Engineering performs field investigations to confirm treatment needs and reviews historic data on construction and maintenance of streets. Streets are then prioritized for detailed pavement testing and design recommendations based on the available funding and the assessed condition of the streets. Pavement testing and design reports identify whether a street needs to be reconstructed or rehabilitated (overlaid) and the range of treatment options available. If a street requires a full reconstruct, it is typically deferred until funding is identified.

Public Works Engineering is responsible for capital project management including design, stakeholder coordination and communication, contract administration, and construction management. Public Works Maintenance receives updated construction costs from Engineering and utilizes this data for analysis and reporting of projected backlogs. Reports are based on a system-wide approach, not at the project level performed by Engineering.

Treatment Types

Treatments reflected in the backlog analysis are limited to three types: slurry seal, overlay, and reconstruct.

Slurry Seal: The slurry seal option allows for a cost-effective treatment to seal the surface and restore the skid resistance of local streets, which do not carry high traffic loads. This treatment is not used on streets which require strengthening or reconstruction. Typical slurry seal costs include street cleaning, removal of vegetation, minor base repairs (dig-outs), sealing of cracks, and application of an emulsified asphalt-aggregate mixture to the entire paved surface. Associated costs include replacement of striping and pavement markings, and other work needed to return the street to normal operation.

Overlay: Typical overlay rehabilitation costs include milling of existing pavement to a moderate depth to remove existing cracking and increase the strength of the structural section. Isolated areas of severely distressed pavement are removed and replaced including a new aggregate base. Associated costs include replacement of striping and pavement markings, adjustment of manholes, and other work needed to return the street to normal operation.

Reconstruct: Typical street reconstruction costs include removal of the existing pavement and base structural section and replacement with a new structural section which will meet a 20-year design life. Isolated areas of curb and gutter are replaced where they would not be suitable to contain new paving or have severe drainage problems.

The following table (Table 2) identifies the estimated costs for the various treatment types including costs to upgrade curb ramps to comply with The American with Disabilities Act (ADA). The slurry seal treatment is exempt from ADA requirements. Construction costs are updated on a bi-annual basis.

Treatment – Functional Class Improved System	12' Lane Mile Cost			
	Updated Eng. 2006 cost	Updated Eng. 2011 cost	Updated Eng. 2016 cost	Updated Eng. 2018 Cost
Overlay - FC 1 & 2	\$215,000.00	\$243,000.00	\$336,000.00	\$409,000.00
Overlay - FC 3 & 4	\$184,000.00	\$214,000.00	\$311,000.00	\$312,000.00
Overlay - FC 5	\$169,000.00	\$195,000.00	\$255,000.00	\$269,000.00
Re-Const - FC 1 & 2	\$765,000.00	\$724,000.00	\$892,000.00	\$959,000.00
Re-Const - FC 3 & 4	\$677,000.00	\$679,000.00	\$884,000.00	\$902,000.00
Re-Const - FC 5	\$505,000.00	\$505,000.00	\$649,000.00	\$681,000.00
Slurry Seal - FC 5	\$19,000.00	\$25,000.00	\$44,000.00	\$49,000.00

Table 2 12' Lane Mile Cost by Treatment and Functional Class

The following graph (Fig.2) identifies the trigger points (PCI) for each treatment based on Functional Class.

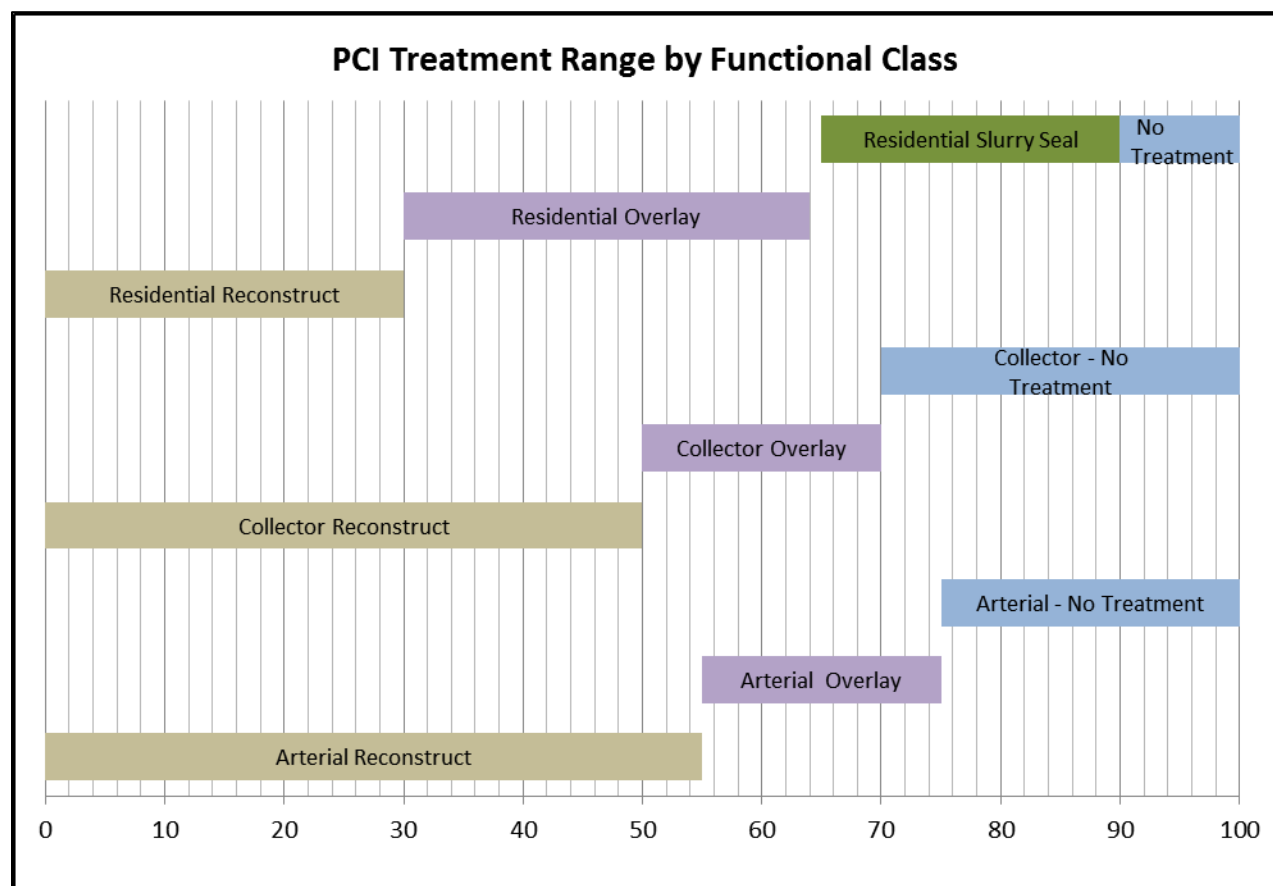


Figure 2 PCI Treatment Range by Functional Class

Project Prioritization Methodology

Selecting streets or street sections for treatment is done through a process involving analysis, testing, and staff experience. Using the data produced by Paver, and combining this information with estimated revenues allows staff to approximate backlogs and group potential street sections for consideration for treatment under the Pavement Preservation Program.

As a means of optimizing funding, streets are not prioritized on a “worst first” basis. Rather, Public Works’ main objective is to keep street sections from slipping into reconstruct, a more costly category, see 12’ Lane Mile chart above. By overlaying a street before it significantly deteriorates, 15 to 20 years of useful life can be added, resulting in substantial cost savings. Once a street has deteriorated to the point that it must be reconstructed, the opportunity for an overlay is lost. As a result, streets that are categorized as overlay projects receive the highest priority for corrective treatment. Street Bond Measures have been the exception, additional criteria such as citizen input and equitable geographic distribution of projects throughout the community are also considered.

Sustainable Construction

Since 2008, Eugene has been in the forefront of sustainable construction and paving practices, some of which include paving with warm mix asphalt (WMA), using reclaimed asphalt pavement (RAP), and full depth reclamation (FDR). Production of warm mix asphalt is a “green” solution for the environment with noticeably reduced energy consumption and greenhouse gas emissions. Exposure to fuel emissions, fumes, and odors are reduced for asphalt producers, construction workers, and the public. Benefits of paving with WMA are the ability to extend the paving season in colder weather, longer haul distances, and better road performance. Warm mix asphalt is identical to conventional hot mix asphalt, except that through a special mixing process it is produced at a temperature approximately 50 to 100 degrees cooler than conventional hot mix asphalt. This mixing process for asphalt has many benefits, it aids in compaction during paving, helps prevent premature aging, and slows the aging process of asphalt. In Eugene, all asphalt producers have retrofitted their plants to produce warm mix asphalt.

Council set goals in 2011 for waste reduction by requiring that the volume of material placed in landfills be reduced. In addition to using WMA, Public Works conducted two pilot projects specifying that reclaimed asphalt shingles (RAS) be used as a binder in the asphalt mix, thereby keeping this material from entering the waste stream. The City continues to use warm mix asphalt and in-place recycling techniques to improve the quality, environmental footprint, and cost efficiency of the street bond projects. Key terms in sustainable construction practices:

In-Place Recycling: A process in which a large piece of equipment called a reclaimer pulverizes and mixes the existing base rock and a portion of subgrade soils with dry cement and water to create a cement-treated base. This process greatly reduces the use of virgin materials and trucking that are needed using conventional remove-and-replace construction techniques.

Full Depth Reclamation: When applicable, partial or full-depth reclamation (FDR) is used as a cost and time-saving alternative to traditional reconstruction. Associated costs include replacement of striping and pavement markings, adjustment of manholes, and other work needed to return the street to normal operation.

Crack Seal: Placing specialized materials into cracks in unique configurations to keep water and other matter out of the crack and the underlying pavement layers. Crack sealing can be used for two different reasons in pavement maintenance. One is a treatment to seal the cracks in order to prevent moisture intrusion into the pavement. The other is preparatory work for other treatments, such as overlays, and slurry seals.

Reclaimed Asphalt Pavement (RAP): The term given to removed and/or reprocessed pavement materials containing asphalt and aggregates. These materials are generated when asphalt pavements are removed for reconstruction, resurfacing, or to obtain access to buried utilities. When properly crushed and screened, RAP consists of high-quality, well-graded aggregates coated by asphalt cement that can be reused as a substitute for a portion of virgin materials in asphalt and aggregate base.

Recycled Asphalt Shingles (RAS): A primary reason for the high potential value of recycled shingles is that they contain ingredients that hot mix asphalt (HMA) producers purchase to enhance their paving mixtures including asphalt cement (or AC “binder”) and mineral aggregate. Asphalt shingles also contain a fibrous mat made from organic felt (cellulose) or fiberglass that can also be valuable as fiber in some asphalt paving mixes.

Current Treatment Costs

This chart (Fig.3) provides detail of the current cost for treatment of the entire improved system excluding concrete streets at the end of the 2018 rating period. The total estimated treatment cost backlog at the end of 2018 is \$68.4 million down from \$79.8 million reported in 2017.

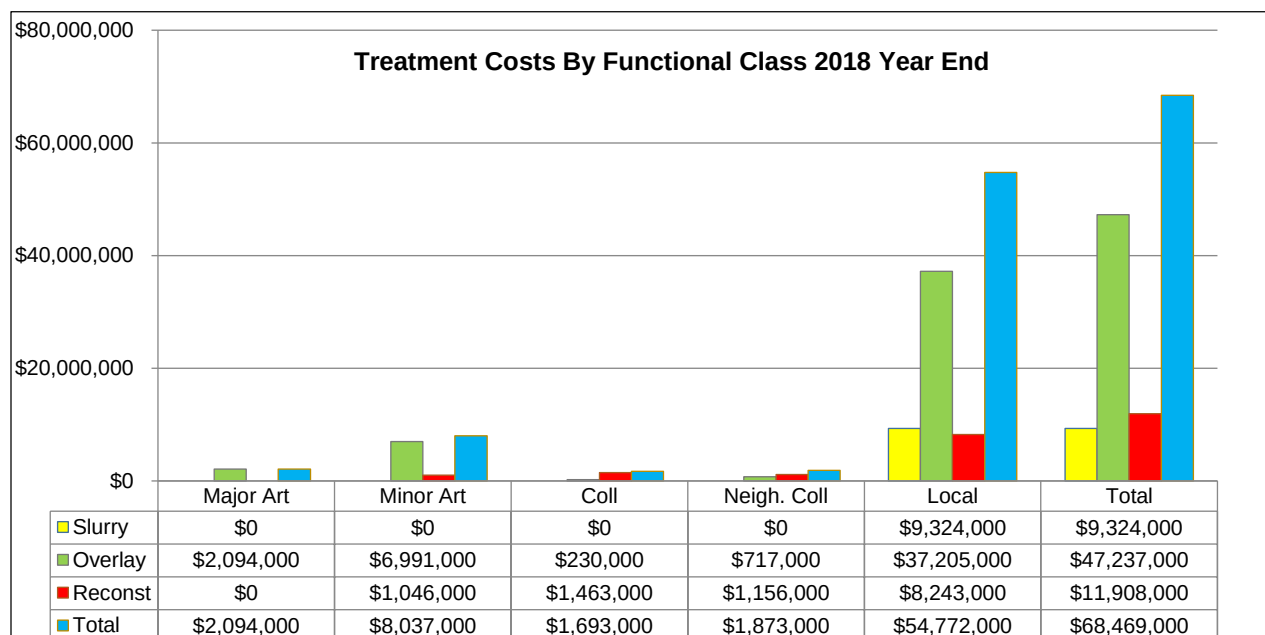


Figure 3 Treatment Costs By Functional Class

Projected Funding for Pavement Preservation Program FY17 through FY24

From the inception of the Pavement Preservation Program (PPP), Eugene has been faced with the challenge of securing adequate, sustainable funding for this program. There are several sources that contribute funding for pavement rehabilitation and reconstruction projects. The primary source of ongoing revenue is the City's local motor vehicle fuel tax ("gas tax"), which is currently levied at 5 cents per gallon. The reimbursement component of Transportation System Development Charges (SDCs) have historically generated close to \$800,000 per year for PPP projects, but have dropped significantly. The cumulative effect of these factors is that PPP annual revenues, which were once projected at \$4.2 million annually, are now projected to level out at approximately \$3.2 million.

**Projected Funding Sources Pavement Preservation Projects
FY17 through FY24**

Fiscal Year	Local Gas Tax Note 1	SDC Note 2	Bond Note 3	Other Note 4	Total Funding
FY17 (actual)	\$3,081,192	\$600,251	\$8,600,000	\$44,962	\$12,326,405
FY18 (actual)	\$3,135,901	\$636,858	\$8,900,000	\$48,671	\$12,721,430
FY19 (est)	\$3,300,000	\$562,000	\$6,220,000	\$60,000	\$10,142,000
FY20 (est)	\$3,100,000	\$98,000	\$9,755,000	\$49,000	\$13,002,000
FY21 (est)	\$3,100,000	\$80,500	\$9,430,000	\$49,000	\$12,659,500
FY22 (est)	\$3,100,000	\$80,500	\$9,720,000	\$49,000	\$12,949,500
FY23 (est)	\$3,100,000	\$80,500	\$9,620,000	\$49,000	\$12,849,500
FY24 (est)	\$3,100,000	\$80,500	\$9,990,000	\$49,000	\$13,219,500

Notes:

- 1) Local Motor Vehicle Fuel Tax (gas tax) revenues are assumed at the 5-cent level throughout the forecast period.
 - 2) SDC reimbursement revenue is projected to maintain low level of activity through the forecasted period.
 - 3) November 2017 voters passed a 3rd 5 year bond. November 2012 voters passed a second five year bond measure starting FY15.
 - 4) "Other" revenue generally includes investment interest, permit fees and other miscellaneous resources.
- The estimate year's does not include reimbursements from other agency. This does not include the Jurisdictional transfer funds for Hwy 99.

Table 3 Projected Funding Sources PPP FY17-FY24

Historical and Projected Funding Outcomes

Based on current funding, a ten year analysis (2018-2028) has been performed using a PMS software program. The program evaluates the deterioration of each section based on individual PCI ratings. It then projects when to apply the necessary treatment at the appropriate time. When possible, the program recommends a less expensive treatment earlier in the degradation curve to prevent the street from falling into an overlay or reconstruct range. In the following four graphs (Figs. 4,5,6,7) this projected evaluation includes historical data to present a more comprehensive view of the street system. The graphs show the impact of past and current funding over a 20-year period (2008 to 2028). Each graph indicates the percentage of streets that fall within a specific treatment range (reconstruct, overlay and no treatment). Plotting the percentages of streets within a treatment range over time visually demonstrates the overall condition of streets within that class. This is useful when deciding how to allocate funds in future years.

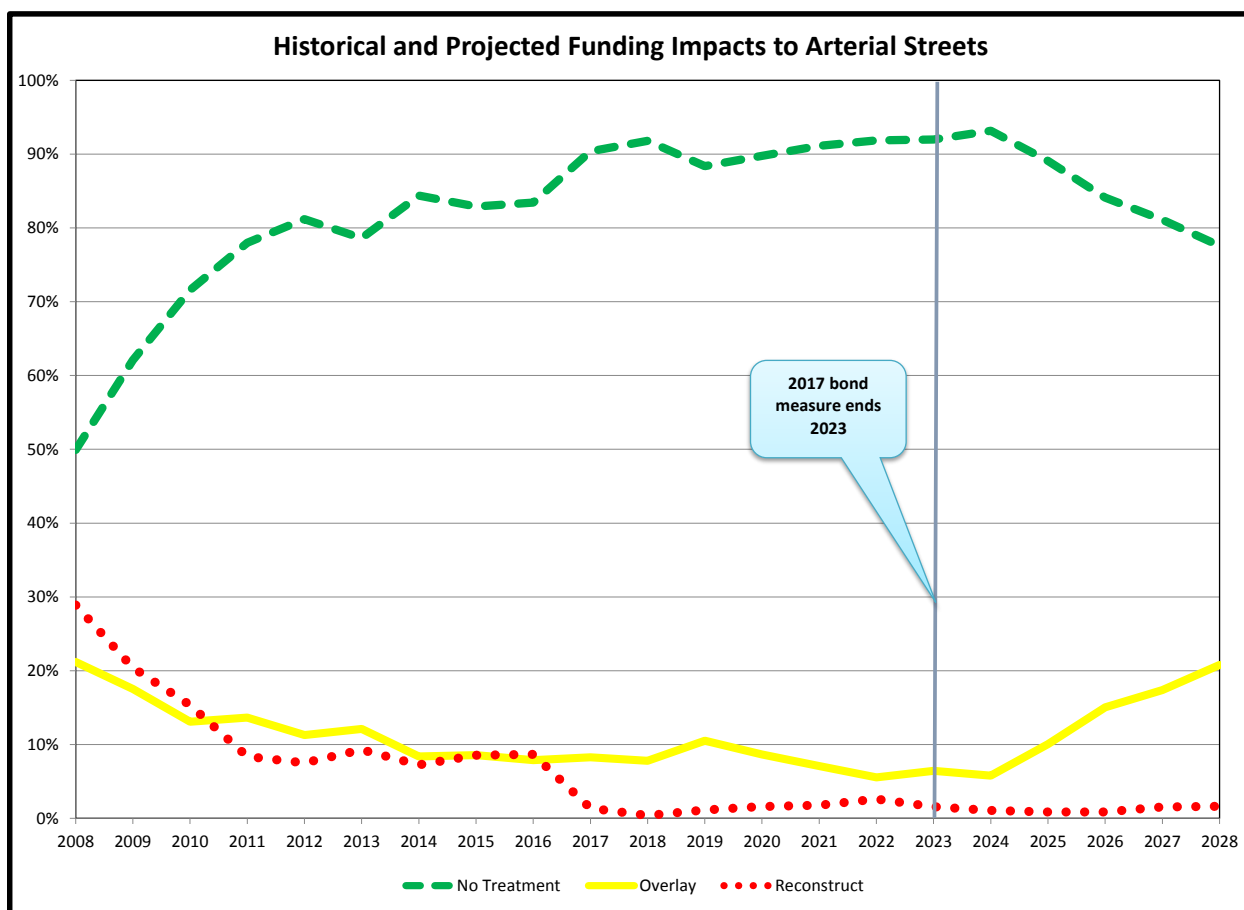


Figure 4 Historical and Projected Funding Impacts to Arterial Streets

Arterial streets have been a major focus of the PPP since 2002; as a result, the percentage of arterial streets within the reconstruct treatment range has steadily declined. Roughly 39 lane-miles are planned for treatment through the 2017 Bond Measure. When the Bond Measure ends in 2023, we see an increase in the overlay range due to streets beginning to deteriorate beyond regular maintenance activities. The projected funding of \$3.2 million is inadequate to prevent overlays at the bottom end of the range from falling into the reconstruct category. The increased cost for reconstruct treatments as well as a decrease in projected funding furthers the potential for overlays falling into the reconstruct category.

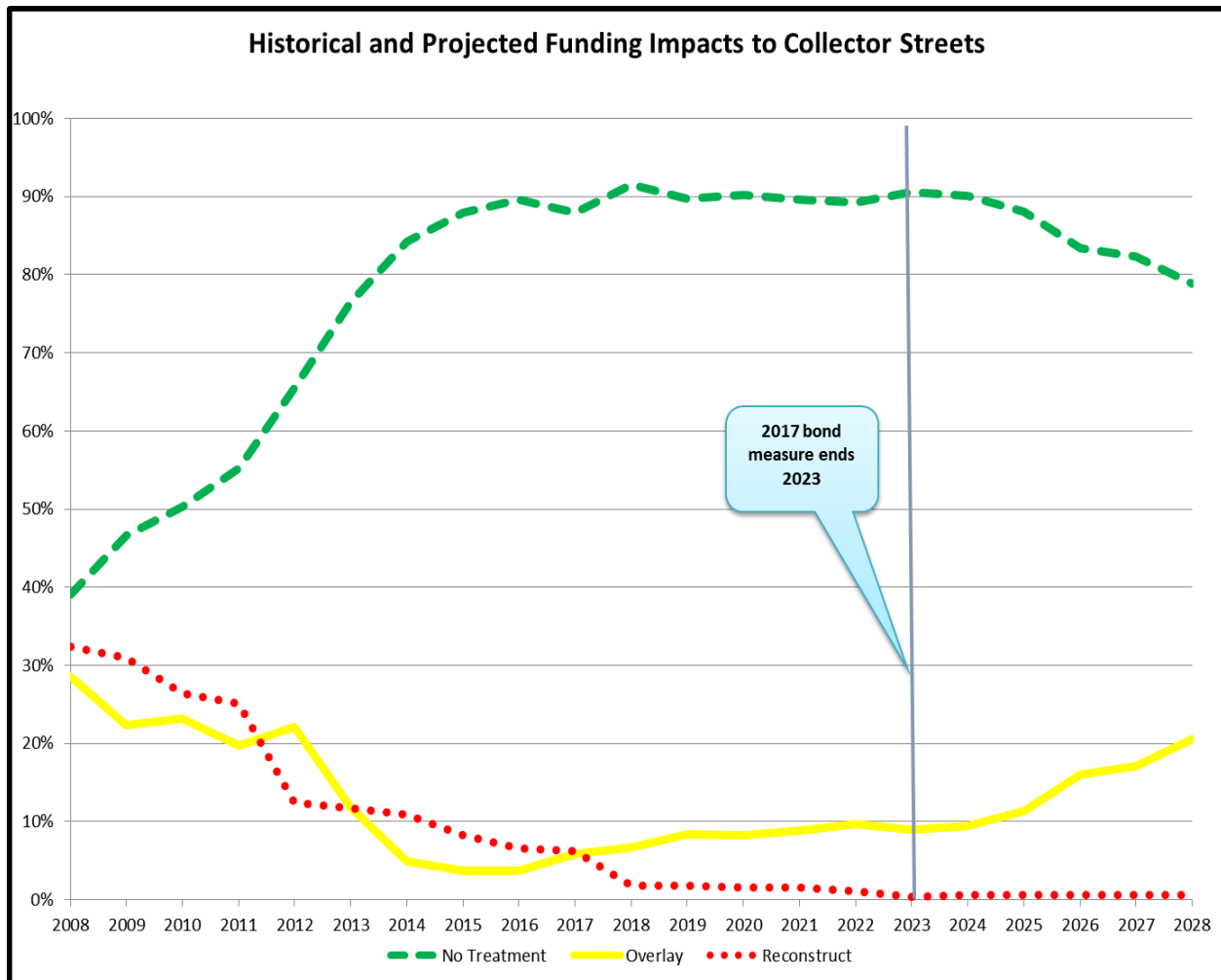


Figure 5 Historical and Projected Funding Impacts to Collector Streets

As a result of completed projects, reconstruction and overlay treatment needs have also decreased since 2008. However, analysis indicates overlay treatment needs are increasing such that by 2028 we will be approaching the overlay treatment needs that were required in 2008. Analysis also indicates a slight increase in reconstruct needs of approximately 11 lane miles after four centerline miles are treated with funds from 2017 bond funding. The previously treated streets in the arterial system will begin to show deterioration beyond regular maintenance activities.

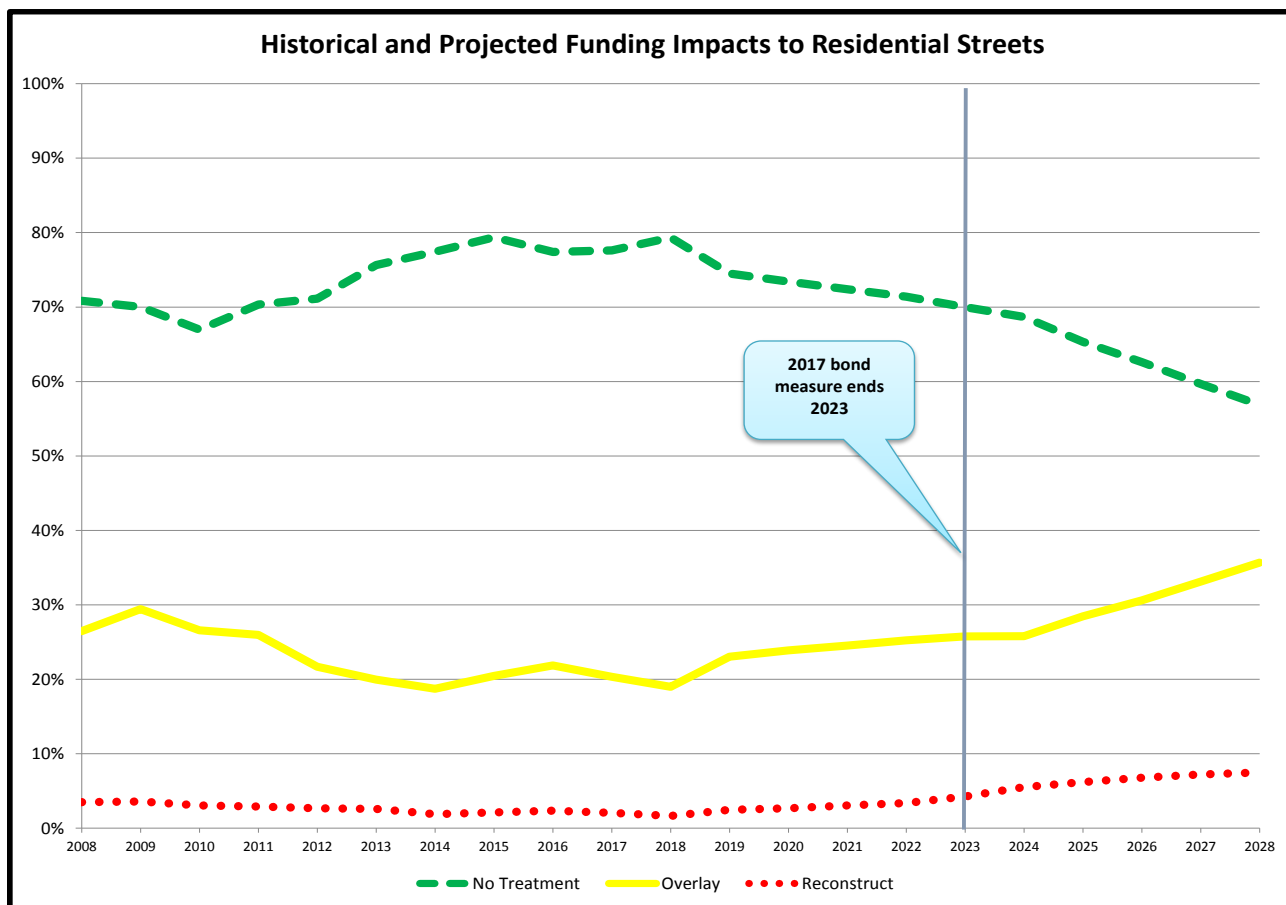


Figure 6 Historical and Projected Funding Impacts to Residential Streets

To date, the primary treatment for residential streets has been slurry seals, which are included in the no treatment category, 207 lane miles (89 centerline miles). Slurry seal treatment may increase the life by five to seven years, and increase the PCI, typically elevating it out of an overlay range. Following this time period, these same streets will typically fall into the mid to low end overlay treatment category.

Residential (Local) streets make up 75 percent of the total street system backlog in 10 years. To date, residential streets have not been adequately funded for preservation. Between the three bond measures, approximately 31 centerline miles have or will receive repair other than a slurry seal treatment, less than 10 percent of the residential street system. The percentage of streets within the overlay treatment range continues to increase along with an increase of reconstruct treatments. Looking back, the percentage of residential streets within the no-treatment range has been dropping and is projected to continue so that by 2028, over 45 percent of residential streets will require treatment which is 57 percent of the \$191 million dollar backlog cost in ten years.

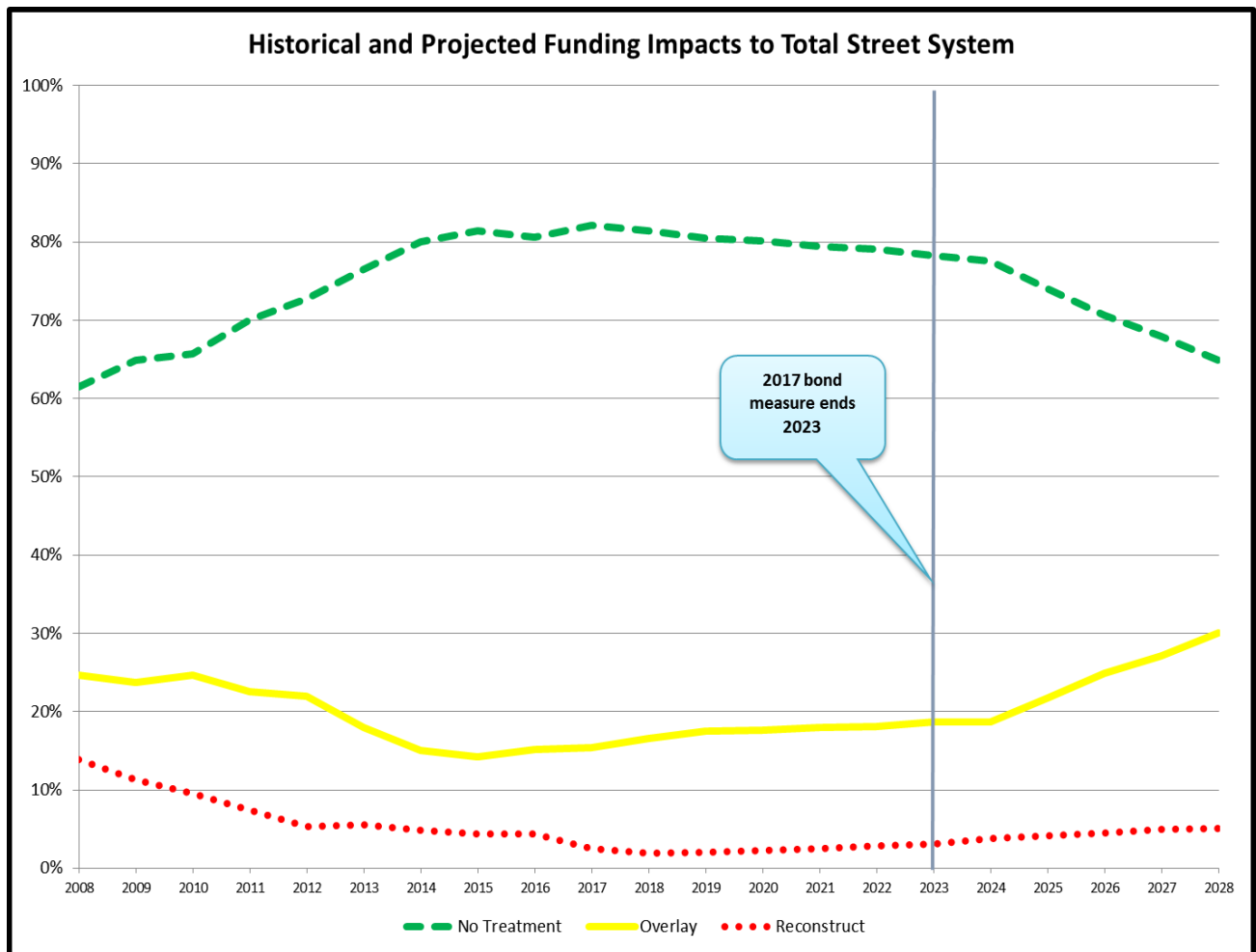


Figure 7 Historical and Projected Funding Impacts to Total Street System

The graph (Fig.7) of the combined arterial, collector and residential streets reflects the recommended treatment needs for the overall street system and indicates the insufficient funding for residential streets. The percentage of streets needing “no treatment” declines, while streets requiring both reconstruction and overlay treatments increase.

The projected \$191 million backlog in 10 years represents a majority of streets in the high-end overlay ranges. Arterial, collector, and residential streets benefitting from past rehabilitations often only require minimal work such as a thin-lift overlay. This treatment is much lower cost than overlay costs used for the current analyses.

Concrete Improved Street System

Of the 555 centerline miles of streets 36 centerline miles (89 lane miles) are concrete. In 2015 staff were able to refine concrete street inventory data so condition inspections could be completed. Unlike asphalt streets, concrete streets require panel counts plus an average width and length of the panel for the calculation of PCIs. Concrete sections are best evaluated when defined as a city block. Historical concrete designs for typical city blocks contained 66 panels, three columns of panels within a block length, or 33 panels with two columns.

Concrete streets, like bike paths, are built for a life of 50 or more years before requiring complete reconstruction. Deterioration of concrete streets occurs within individual panels with many panels not requiring repair. Due to these unique factors for concrete streets, analyses which predict future needs of this system tend to be less accurate than asphalt surfaces. However, like unimproved streets and bike paths, we can provide a current condition of this system.

Past repair of these streets was provided primarily by City maintenance crews which consisted of panel replacements for the most deteriorated panels. Historical construction data indicates that 60 percent of concrete streets in Eugene are over 70 years in age. Based on past maintenance repairs these streets over time may have had a majority of panels replaced.

By the end of the 2017 Bond Measure (2023), approximately 17 lane miles (six centerline miles) of concrete streets will have been rehabilitated from past and current funding sources. Through the new bond measure, an estimated \$5 million will be spent on approximately seven lane miles of concrete streets.

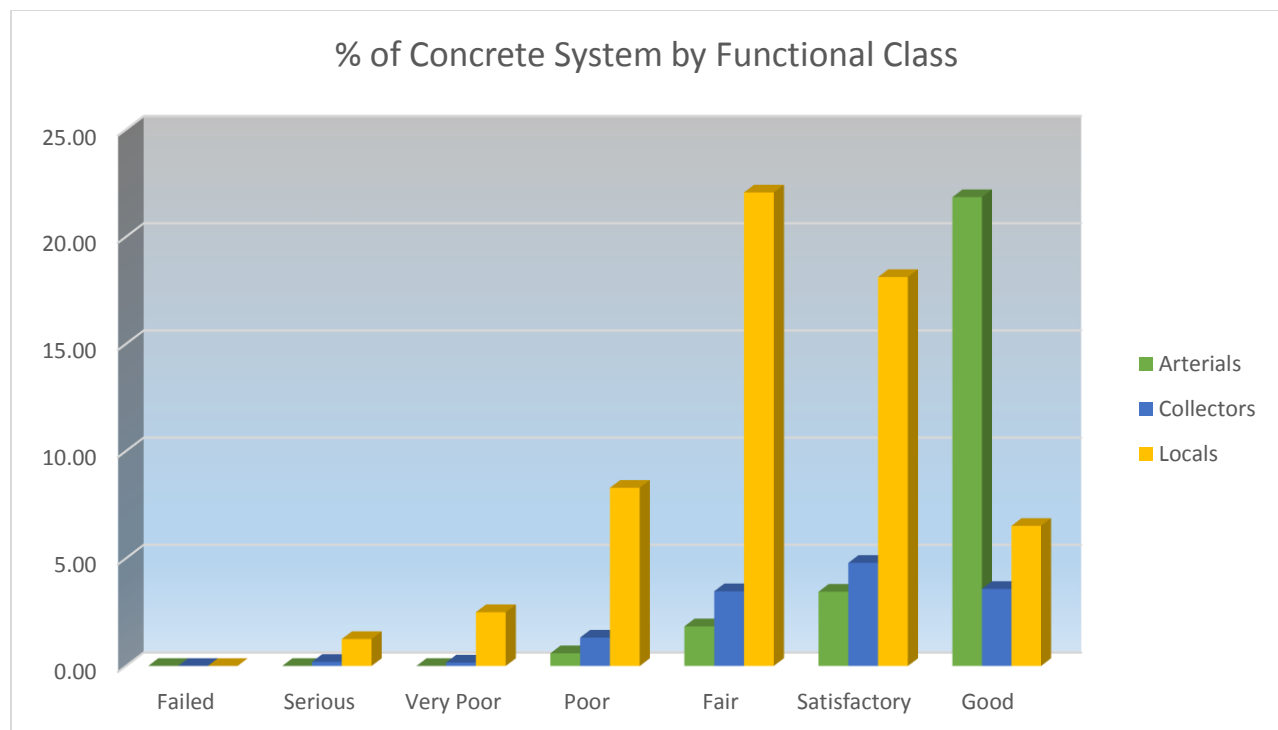


Figure 8 Percentage of Concrete System by Functional Class

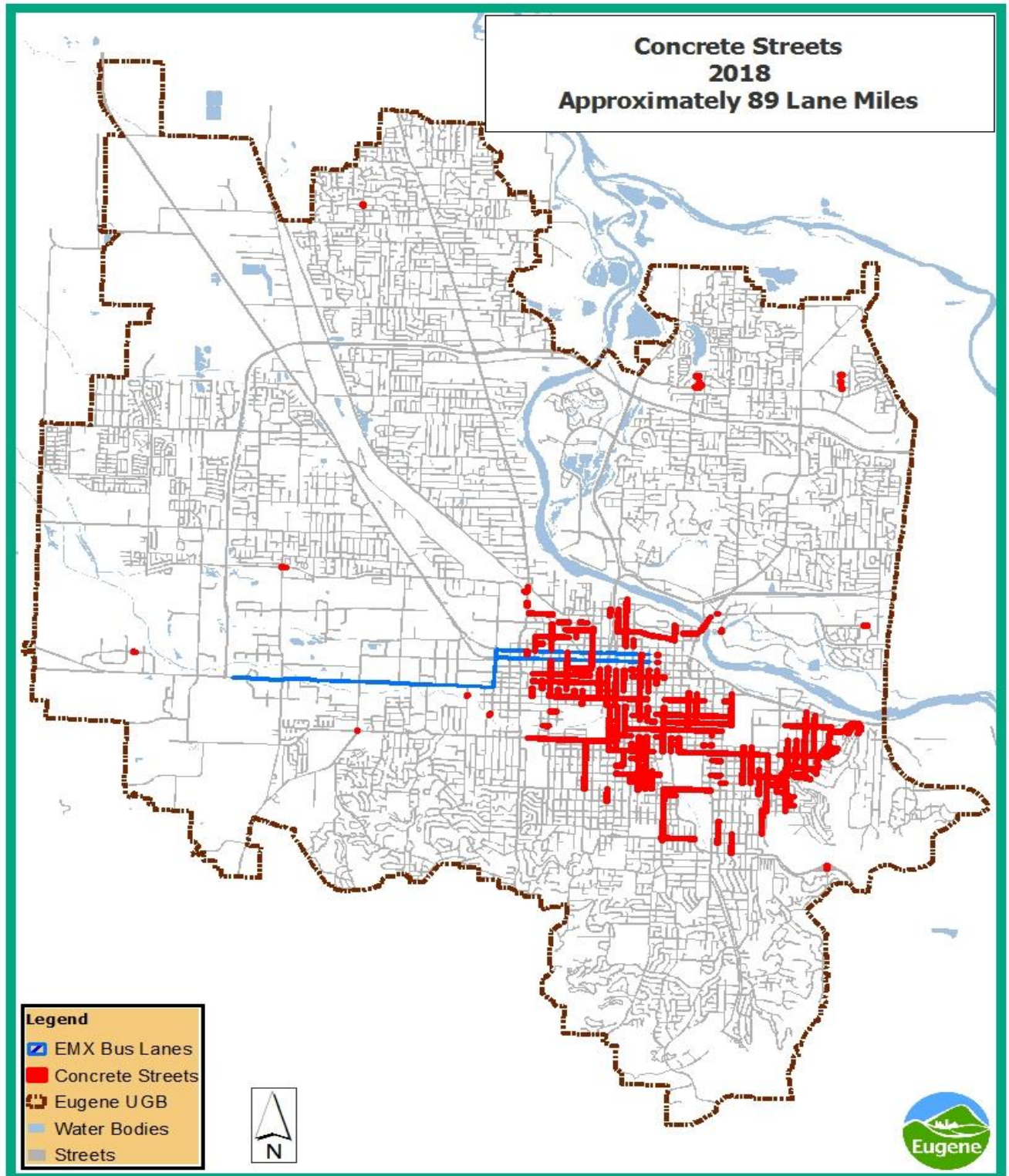


Figure 9 Map of Concrete Streets

Unimproved Street System

The City's transportation system consists of 555 centerline miles of improved and unimproved streets. The unimproved portion of this total includes 53 centerline miles (91 lane miles) of asphalt and bituminous surface streets. The intent of this section is to describe the overall condition of unimproved asphalt streets, highlight potential treatment needs, display associated rehabilitation costs, and indicate the projected backlog repair cost for addressing the street classification. It is important to note that any treatment short of being brought up to full urban street standards should be considered temporary. The estimated cost to improve this classification to meet the urban street standards is approximately \$60 million. In addition, the following backlog figure is separate from the improved street backlog figure.

Based on 2018 rating data of the unimproved street system, there is a backlog of temporary repair projects, totaling an estimated \$3.2 million, up from \$3.10 million reported in 2017. The following charts and graphs indicate that 70 percent of the system falls into a no treatment category, up from 68 percent reported in 2017. Approximately 124 unimproved streets have benefited from full or partial treatment since 2008, though eleven percent of the system falls into the "poor" category. Public Works Maintenance plans to spend \$375,000 annually to address a portion of these streets when funding allows.

2018 Unimproved Asphalt Street Condition and Rehabilitation Report (2018 Rating Data)						
PCI	Lane Miles	% of System	Condition	Rehabilitation Cost	Unit Cost/SQFT *	Treatment **
0-10	0.3	0.3%	Poor	\$63,490	\$3.50	FDR
11-20	3.5	3.9%	Poor	\$610,913	\$2.75	FDR or 2"AC
21-30	6.5	7.3%	Poor	\$724,600	\$1.75	1.5"-2" AC
31-40	6.5	7.3%	Fair	\$720,237	\$1.75	1.5"-2" AC
41-50	5.2	5.9%	Fair	\$580,263	\$1.75	1.5"-2" AC
51-60	1.7	1.9%	Fair	\$184,396	\$1.75	1.5"-2" AC
61-65	2.8	3.2%	Fair	\$314,496	\$1.75	1.5"-2" AC
66-70	3.0	3.4%	Good	\$0	\$0.00	No Treatment
71-80	5.4	6.1%	Good	\$0	\$0.00	No Treatment
81-85	8.6	9.7%	Good	\$0	\$0.00	No Treatment
86-90	11.1	12.5%	Excellent	\$0	\$0.00	No Treatment
91-100	34.5	38.7%	Excellent	\$0	\$0.00	No Treatment
			Total Rehabilitation	\$3,198,395	* Unit cost based on recent project costs	** Example treatments. Actual treatment would need further analysis.
	89.2	100.00%				

Table 4 Unimproved Asphalt Street Condition and Rehabilitation

The following graphs (Fig.10, 11) are a visual representation of the information provided in (Table 4), above.

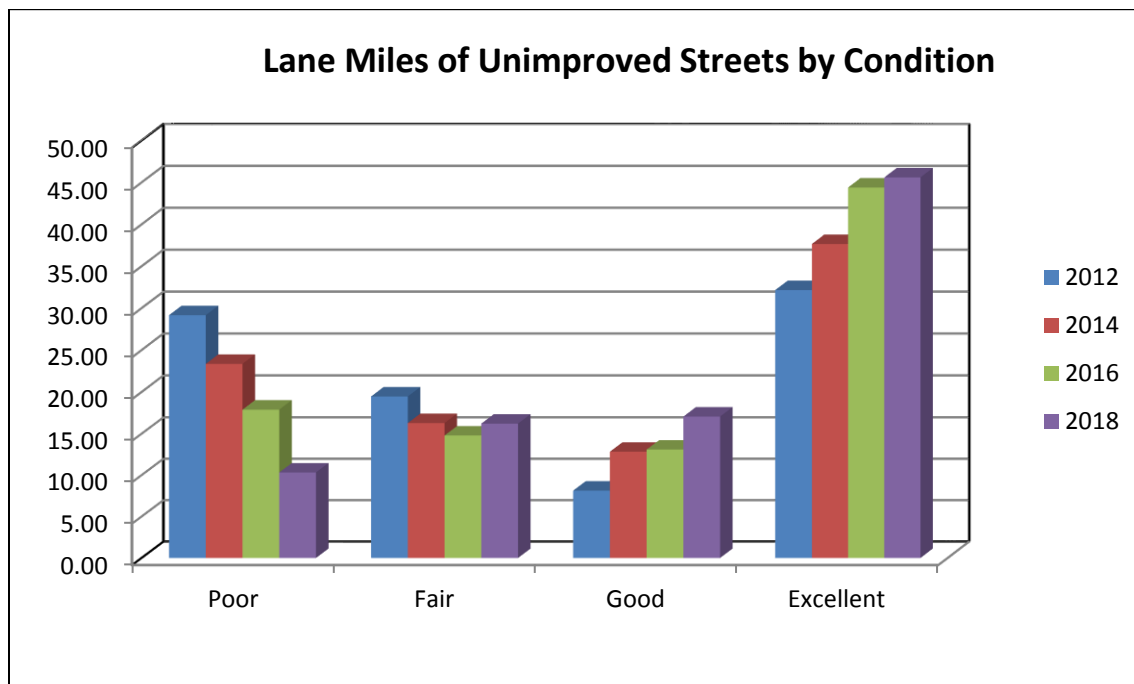


Figure 10 Lane Miles of Unimproved Streets by Condition

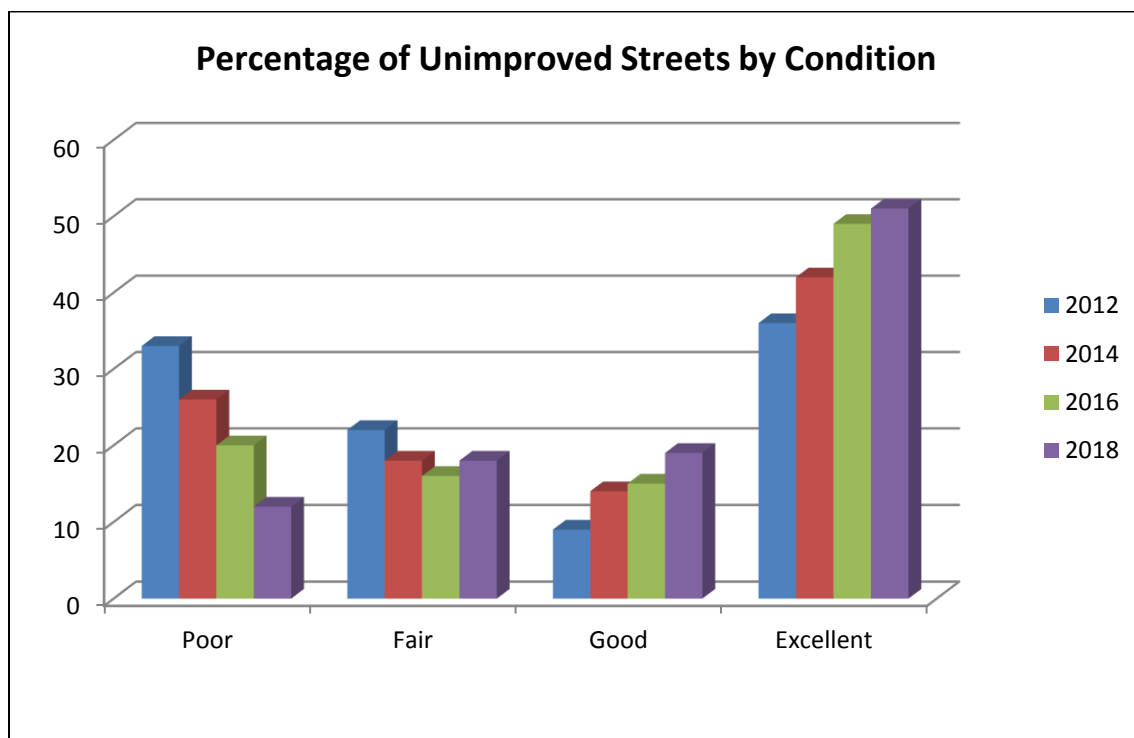


Figure 11 Percentage of Unimproved Streets by Condition

Off-Street Shared-Use Paths

Shared-use paths are utilized by a variety of non-motorized users including; pedestrians, cyclists, skaters, and runners. Shared-use paths are typically wider than an average sidewalk and paved with asphalt or concrete.

There are approximately 46 miles of shared-use paths within UGB, all of which are scheduled to be rated in 2019. In 2017, staff rated 45 miles of shared-use paths. In 2015 approximately 30 miles of shared-use paths were in a PCI condition of 90 or above, however, this number dropped to 23 miles in 2017.

The City standards for shared-use paths require a concrete structure no less than six inches deep and 12 feet wide. Paths designed, constructed or reconstructed to current standards are expected to have a 50-year life. Of the \$51.2 million 2017 bond, \$5 million will go toward safety improvements for pedestrian and bicycle infrastructure.

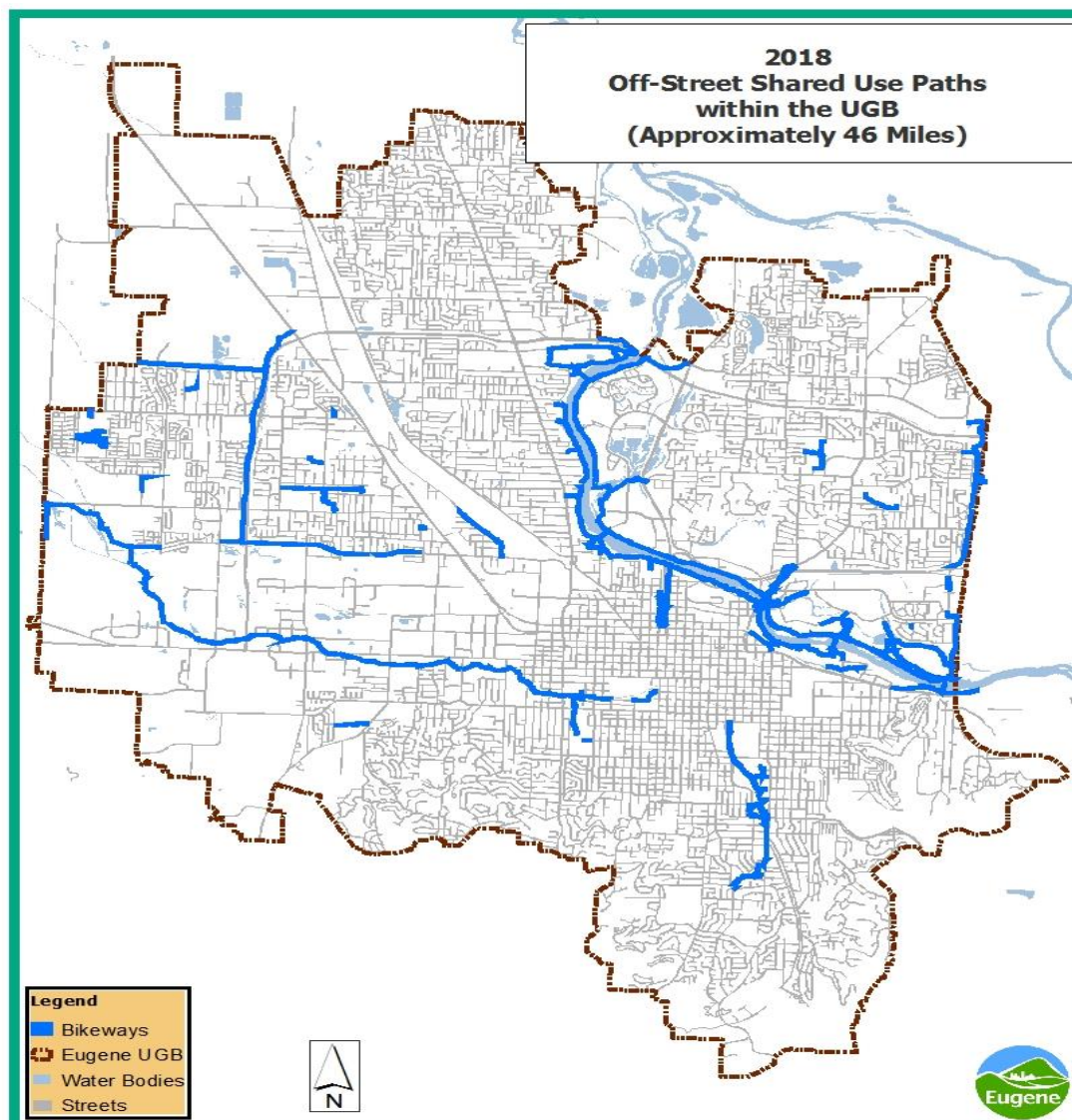


Figure 12 Map of Off-Street Shared Use Paths

The following graphs (Fig 13,14) show the division of surface types and widths within the system as of 2018.

Off-Street Shared-Use Path Surface Type:

Off-Street Shared-Use Path Existing Widths:

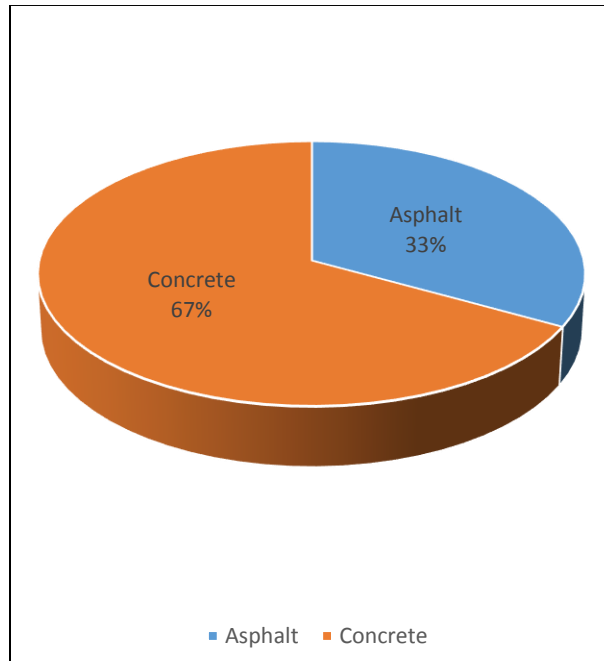


Figure 13 Path Type Percentage

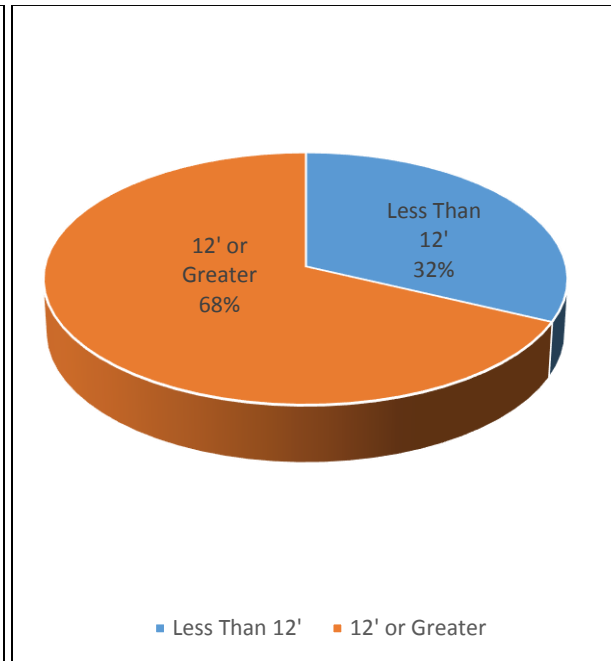


Figure 14 Path Widths Percentage

The following graph (Fig.15) shows the path condition in 2018 for the system.

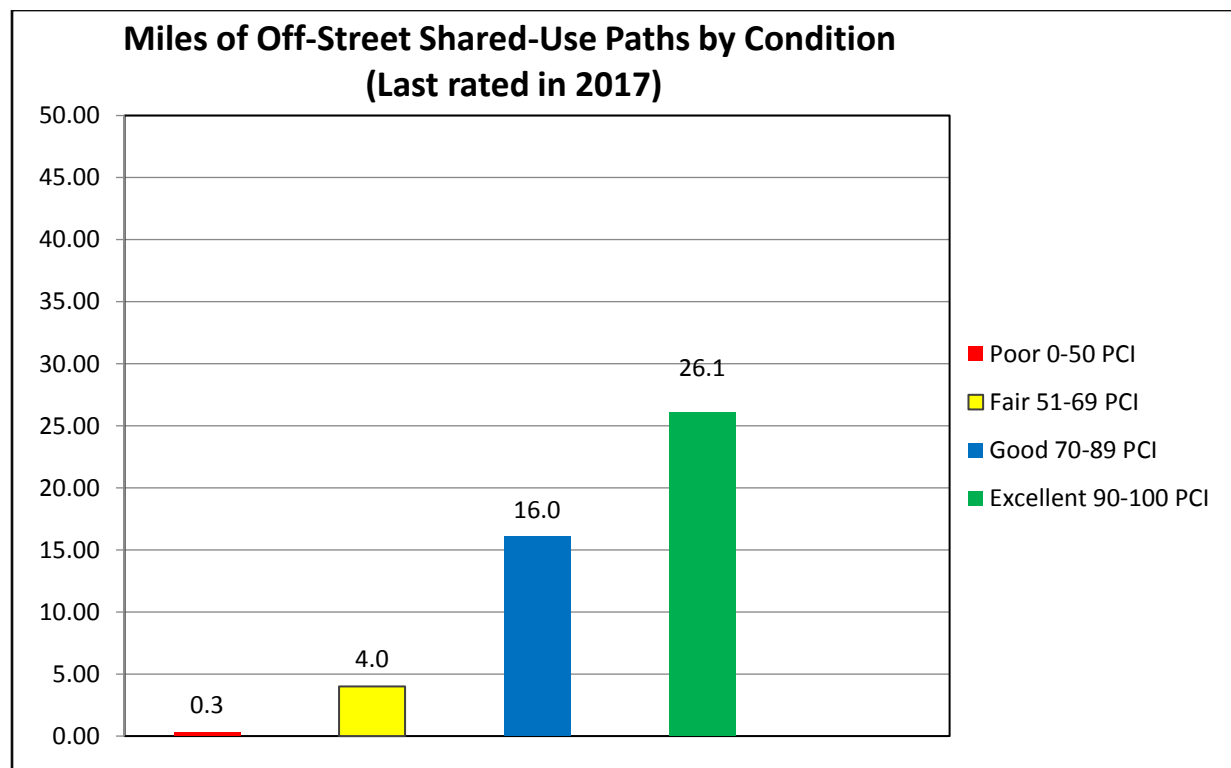


Figure 15 Miles of Paths by Condition

Shared-use path projects have been historically funded by state and federal grants and more recently by voter-approved bond measures. There is currently no long-term funding identified specifically for shared-use paths. The following is a list of completed and current projects, including shared-use paths funded by the bond measures.

Name	Fiscal Year	Funding
Fern Ridge Chambers - City View	2004	STP-U
Garden Way Bike Path	2005	STP-U
Monroe Bikeway	2006	STP-U
N Bank Path Club Rd 3000'W	2006	STP-U
West Bank Trail	2007	Transportation Enhancement (TE) Funds
Delta Ponds Bridge	2007	Various Federal and Local Funds
Amazon: SEHS - 31st Bike Path	2009	PBM
Fern Ridge Path Rehab/Westmoreland Connector	2010	PBM
South Bank Path Rehab	2011	PBM
West Bank Trail Extension	2011	STP-U/TE
Fern Ridge: Chambers - Arthur	2012	ODOT Rapid Readiness Funds
W Bank: Greenway - Copping	2012	PBM
Amazon/Willamette River Path Connectors	2012	State Urban Trail Funds
North Bank Path: DeFazio Bridge to Leisure Ln.	2012	STP-U
Fern Ridge: Terry - Greenhill	2013	STP-U/TE
South Bank Path - Riverplay to DeFazio Bridge	2013	PBM
South Bank Path - Knickerbocker Bridge to Franklin Blvd	2015	N/A
Fern Ridge Path - Commerce to Connector Path	2016	LGT
Jessen Multi-Use Path – BeltLine Hwy to Ohio St.	2018	TE
I-5 @ Beltline Interchange	2015	Other
West Bank Path – Maurie Jacobs to Copping	2019	POS/PBM

Table 5 *List of Shared-Use Path Projects*

Project Funding Abbreviations

PBM – Paving Bond Measure

LGT – Local Gas Tax/SDC/Other

STP-U – Surface Transportation Funds-Urban (Federal)

TE – Transportation Enhancement (Federal)

POS – Parks Bond Measure

Scheduled Street Projects for 2019

2019 Project Name and Limits	Lane Miles	Funding
3rd AVE (High to Pearl)	0.19	PBM
5th AVE (Chambers to Grant)	0.14	PBM
11th AVE (Tyinn to Bailey Hill)	3.02	PBM
19th AVE (Hilyard to Agate)	1.73	PBM
19th AVE (Jefferson to Tyler)	1.29	PBM
Alder ST (24th Ave to 27th Ave)	0.85	PBM
Balfour ST (North End to Terresa)	0.15	PBM
Barger DR (100' E Of Altimon to Primrose)	3.26	PBM
Bedford WAY (Oakway to Fair Oaks Dr)	0.33	PBM
Brookside DR (Brae Burn (North) to SS 999)	0.85	PBM
Brookside DR (Brae Burn (South) to NS Montara Wy)	0.51	PBM
Coburg RD (County Farm Rd to N Game Farm Rd)	3.60	LGT
Elanco + 1 CDS AVE (Norkenzie Rd to North CDS)	0.27	PBM
Fair Oaks DR (Oakway Rd to Fairway Lp)	0.80	PBM
Jerry ST (Richard to Royal)	0.12	PBM
Lariat DR (Oakway Rd to Lariat Dr)	1.24	PBM
Lariat Meadows DR (Lariat to East End)	0.40	PBM
Lariat Mesa (Lariat to East End)	0.16	PBM
Lawrence ST (Drwy 36 to 6th Ave)	1.13	PBM
Louis ST (Hawthorne to Drwy 715)	0.50	PBM
Mill ST (2nd Ave to 4th Ave)	0.40	PBM
Montreal AVE (Balfour to Calgary)	0.25	PBM
Olive ST (5th Ave to 6th Ave)	0.23	PBM
Quebec ST (Calgary to Elanco)	0.35	PBM
Richard AVE (Hwy 99N to Fairfield)	0.48	PBM
Sundance + 1 CDS ST (Sundial to East End)	0.32	PBM
Terresa AVE (Gilham to Montreal)	0.37	PBM
Villard ST (Franklin to Drwy 1460)	0.49	PBM
Willamette ST (23rd Ave to 29th Ave)	0.67	PBM

Table 6 2019 Street Projects

Project Funding Abbreviations

PBM – Paving Bond Measure

LGT – Local Gas Tax

The following map (Fig.16) illustrates the Pavement Projects scheduled for 2019.

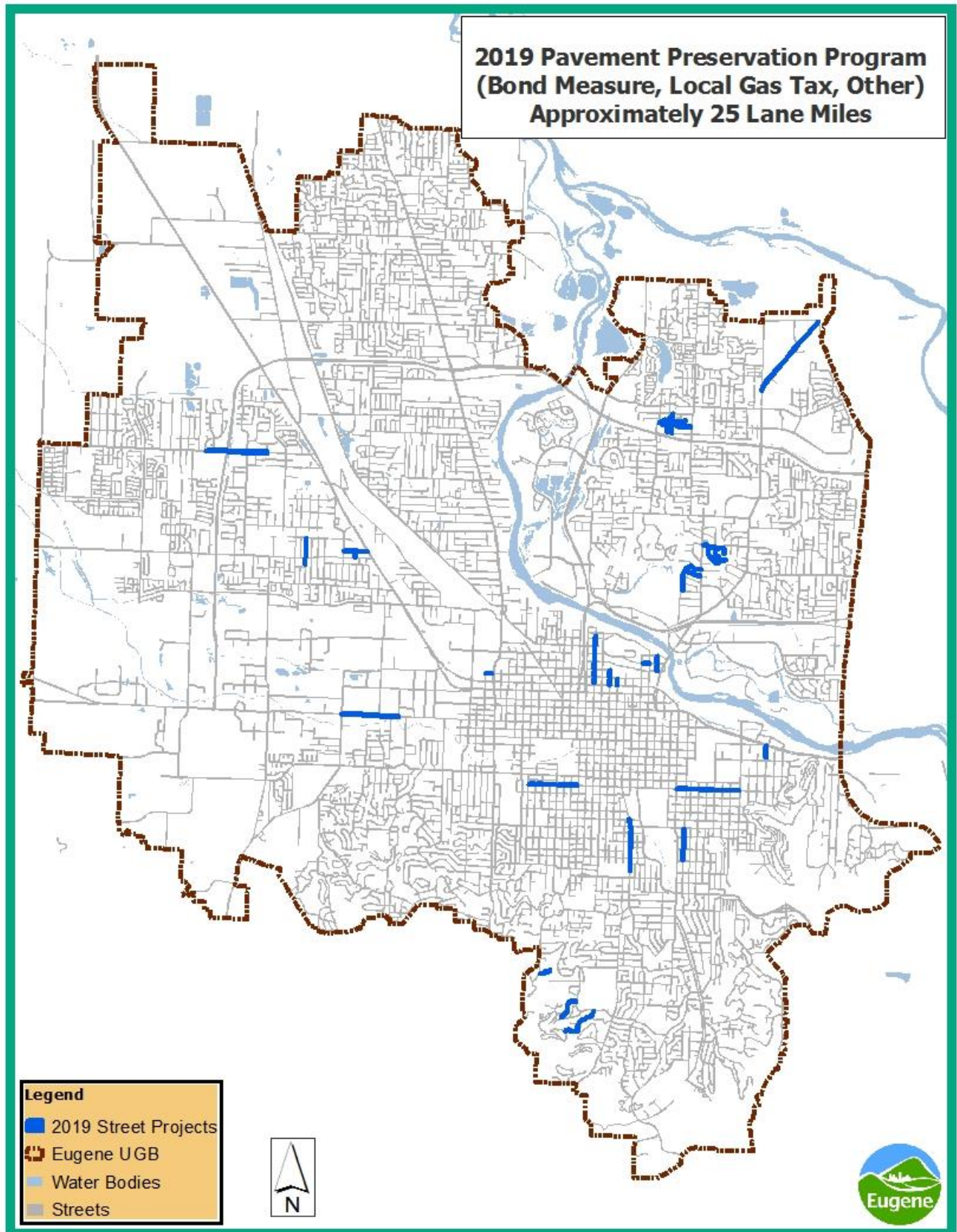


Figure 16 Map of 2019 Street Projects

The following map (Fig.18) illustrates Pavement Preservation Projects since inception of the program 2002 - 2018.

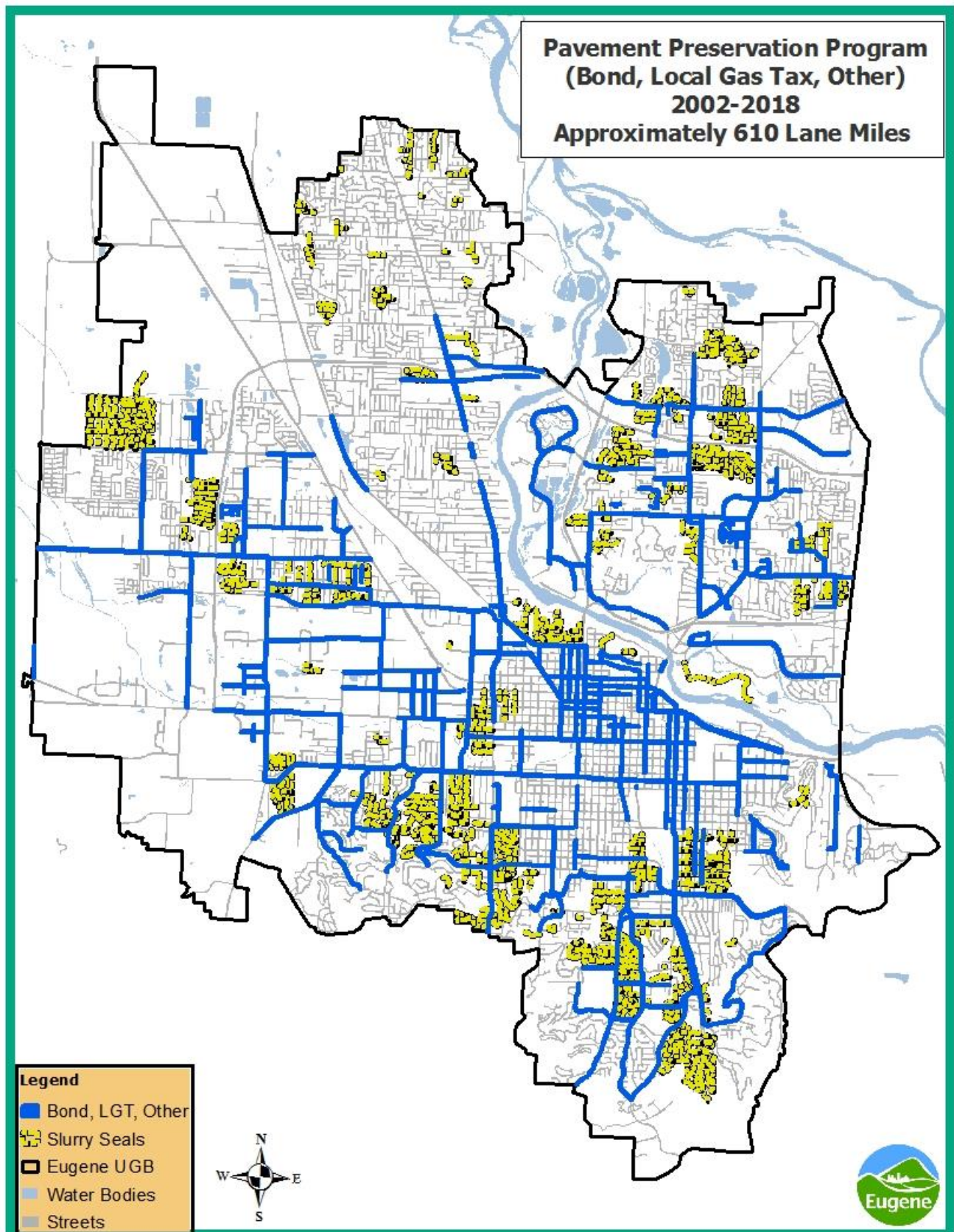


Figure 18 Projects Since PPP Inception

The following map (Fig.19) illustrates the Enhanced Street Repair Program 2008-2018.

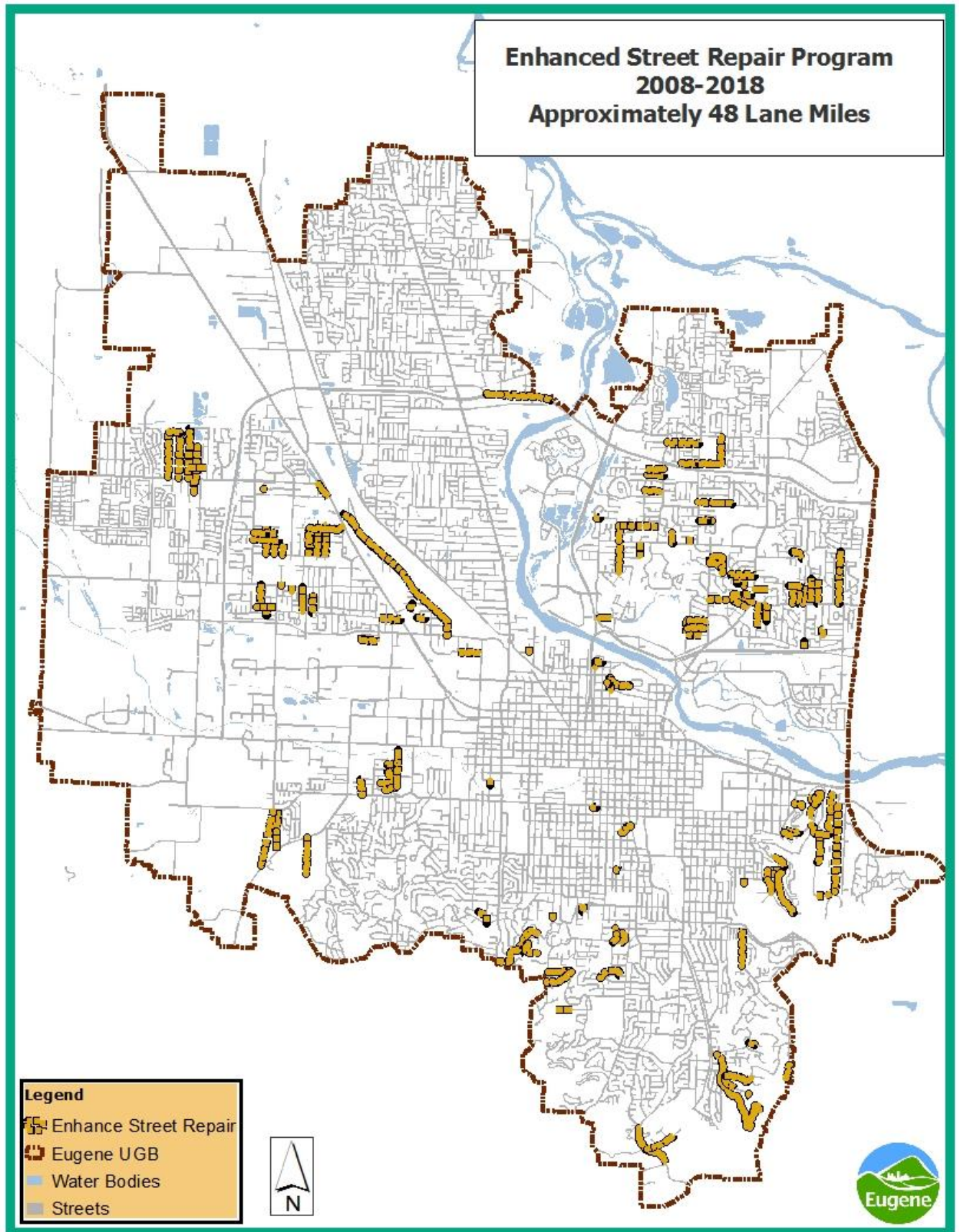


Figure 19 *Enhanced Street Repair Program*

The following map (Fig.20) illustrates Pavement Preservation Projects and Enhanced Street Repair Program since inception of the programs 2002 – 2018.

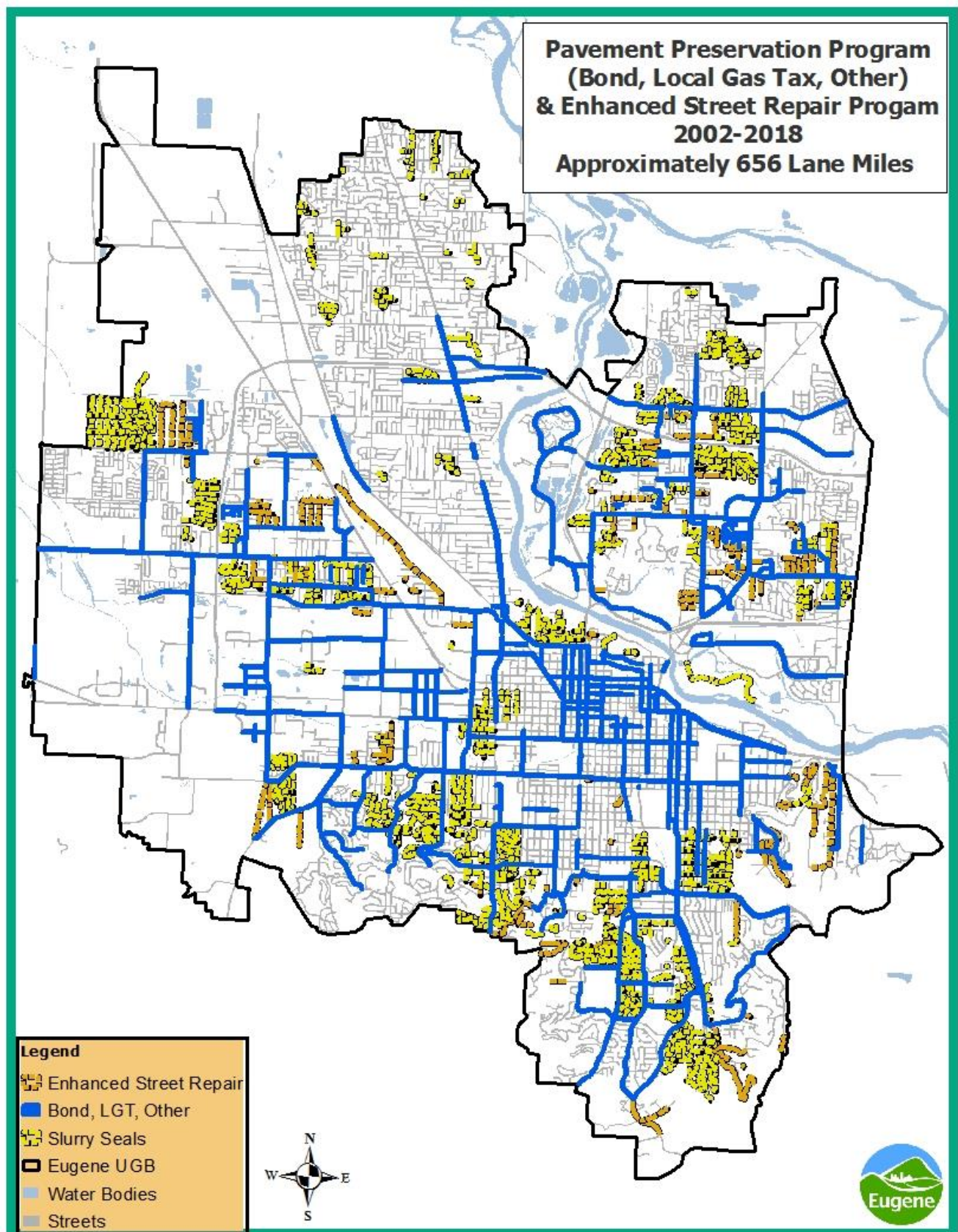


Figure 20 All Projects Since Inception

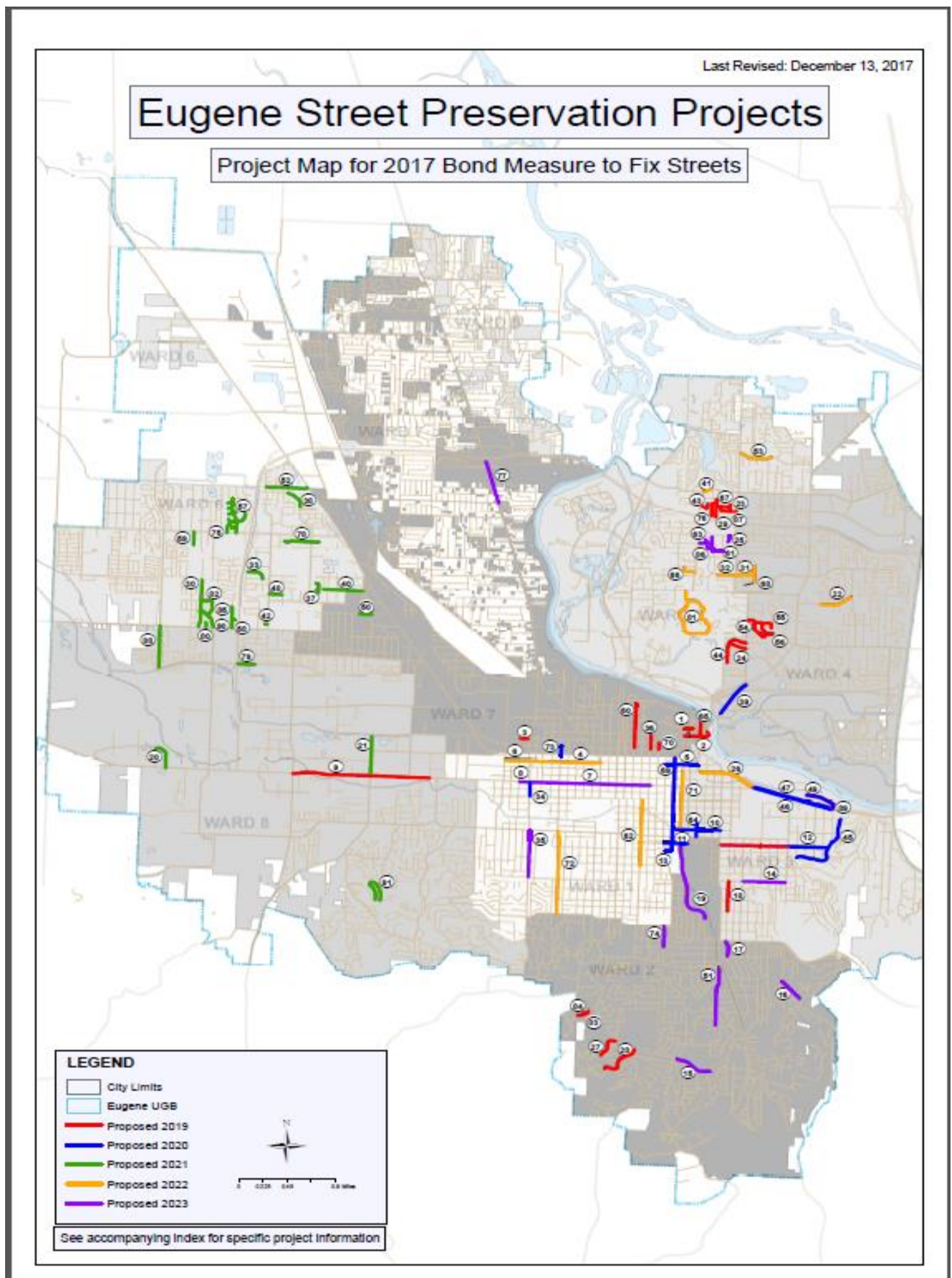


Figure 21 2017 Bond Projects

Project List (Table 7)for 2017 Bond Measure to Fix Streets

MAP #	Street Name	From	To
1	03RD AVENUE	HIGH ST	PEARL ST
2	04TH AVENUE	COBURG RD	PEARL ST
3	05TH AVENUE	CHAMBERS ST	GRANT ST
4	08TH AVENUE	CHAMBERS ST	MONROE ST
5	08TH AVENUE	WILLAMETTE ST	MILL ST
6	08TH AVENUE	GARFIELD ST	CHAMBERS ST
7	11TH AVENUE	CHARNELTON ST	CHAMBERS ST
8	11TH AVENUE	CHAMBERS ST	GRANT ST
9	11TH AVENUE	TYINN ST	BERTELSEN RD
10	17TH AVENUE	HILYARD ST	OAK ST
11	19TH AVENUE	WILLAMETTE ST	HIGH ST
12	19TH AVENUE	HILYARD ST	FAIRMOUNT BLVD
13	20TH AVENUE	WILLAMETTE ST	OAK ST
14	24TH AVENUE	HARRIS ST	AGATE ST
15	46TH AVENUE	FOX HOLLOW RD	DONALD ST
16	AGATE STREET	N 163 BLACK OAK RD	FIRLAND ST
17	ALDER STREET	30TH AVE	32ND AVE
18	ALDER STREET	24TH AVE	27TH AVE
19	AMAZON PARKWAY	19TH AVE	2693 S OF E 24TH
20	ARROWSMITH STREET	TERRY ST	11TH AVE
21	BAILEY HILL ROAD	5TH AVE	11TH AVE
22	BAILEY LANE	BOGART LN	LUELLA ST
23	BALFOUR STREET	TERRA AVE	NORTH END
24	BEDFORD WAY	OAKWAY RD	FAIR OAKS DR
25	BREWER AVENUE	BREWER AVENUE	SOUTH END
26	BROADWAY	MILL ST	11TH AVE
27	BROOKSIDE DRIVE	BRAE BURN DR (NORTH)	ADDR 999
28	BROOKSIDE DRIVE	BRAE BURN DR (SOUTH)	MONTARA WAY
29	CALGARY STREET	HOLLY AVE	ELANCO AVE
30	CANDLELIGHT DRIVE	AVALON	ROYAL
31	CARMEL AVENUE	GILHAM RD	NORWOOD ST
32	CARMEL AVENUE	DIANE ST	GILHAM RD
33	CATALINA STREET	JUHL ST	WILLHI ST
34	CHAMBERS STREET	11TH AVE	13TH AVE
35	CHAMBERS STREET	18TH AVE	24TH AVE
36	CHARNELTON STREET	4TH AVE	6TH AVE
37	CHASE STREET + CDS	500' NORTH OF MARSHALL	NORTH END
38	CLAREY STREET	BEAN ST	1071' S OF BEAN ST
39	COBURG ROAD	FERRY STREET BRIDGE	OAKWAY RD
40	CONCORD STREET	BERNTZEN RD	JACOBS DR
41	CRCENT AVENUE	NORKENZIE RD	ADDRS 1670
42	ECHO HOLLOW CDS	WEST END (CDS) (880-960)	ECHO HOLLOW RD
43	ELANCO AVENUE + 1 CDS (NORTH)	NORKENZIE RD	END OF NORTHERLY CDS
44	FAIR OAKS DRIVE	OAKWAY RD	FAIRWAY LP

MAP #	Street Name	From	To
45	FAIRMOUNT BOULEVARD	15TH AVE	COLUMBIA ST
46	FRANKLIN BOULEVARD EB	WALNUT ST	11TH AVE
47	FRANKLIN BOULEVARD WB	WALNUT ST	11TH AVE
48	FULLER AVENUE	ECHO HOLLOW RD	JAY ST
49	GARDEN AVENUE	MOSS ST	WALNUT ST
50	HAWTHORNE AVENUE	WEST END	FAIRFIELD AVE
51	HILYARD STREET	W AMAZON DR	40TH AVE
52	JESSEN DRIVE	ELIZABETH ST	HWY 99
53	LAKEVIEW DRIVE	207' E OF SARAH LN	GILHAM RD
54	LARIAT DRIVE	OAKWAY RD	LARIAT DR
55	LARIAT MEADOWS DRIVE	LARIAT DR	EAST END
56	LARIAT MESA	LARIAT DR	EAST END
57	LAURELHURST DRIVE + 5 CDS	MELROSE LP	BARGER DR
58	LAURELHURST DRIVE + SHEFFIELD CT CDS	HARRIET AVE	ROYAL AVE
59	LAVETA LANE	BARGER DR	SOUTH END
60	LAWRENCE STREET	DRWY 36	6TH AVE
61	LEMMING AVENUE	TARPON ST	SHILO ST
62	LINCOLN STREET	13TH AVE	22ND AVE
63	LINNEA AVENUE + 1 CDS	NORKENZIE RD	TARPON ST
64	MILL STREET	16TH AVE	18TH AVE
65	MILL STREET	2ND AVE	4TH AVE
66	MONTEREY AVENUE	NORKENZIE RD	LARKSPUR AVE
67	MONTREAL AVENUE	CALGARY ST	BALFOUR ST
68	NORWOOD STREET	MONTEREY ST	MARLOW ST
69	OAK STREET	7TH AVE	20TH AVE
70	OLIVE STREET	5TH AVE	6TH AVE
71	PEARL STREET	BROADWAY	17TH AVE (AMAZON BRIDGE)
72	POLK STREET	18TH AVE	28TH AVE
73	POLK STREET	67' N OF 6TH AVE	72' S OF 7TH AVE
74	PORTLAND ST	29TH AVE	31ST AVE
75	PRIMROSE STREET + 1 CDS	BARGER RD	100' N OF PARKER PL (S)
76	QUEBEC STREET	CALGARY ST	ELANCO ST
77	RIVER ROAD	MAXWELL RD	BELTLINE RD
78	ROBIN AVENUE	200' EAST OF RUSKIN ST	396' EAST OF TANEY ST
79	ROOSEVELT BLVD	BELTLINE	APPROX 800' EAST OF BELTLINE
80	ROYAL AVENUE CUL DE SAC	ROYAL AVE	N END CDS
81	SPYGLASS DRIVE	CAL YOUNG RD	LOOP AROUND BACK TO SPYGLASS DR
82	STAGECOACH ROAD	CANDLELIGHT DR	SURREY LN
83	SUNDANCE STREET	SUNDIAL RD	EAST END
84	SUNDANCE STREET CDS	NORTH END	SUNDANCE ST
85	SURRY LANE	STAGECOACH	WELCOME WY
86	TARPON STREET + CUL-DE-SAC	BREWER AVE	LEMMING AVE
87	TERRA AVENUE	MONTREAL AVE	GILHAM RD
88	TERRY STREET	ROYAL AVE	ROOSEVELT BLVD
89	WALNUT STREET	FRANKLIN BLVD	GARDEN AVE
90	WELCOME WAY	CANDLELIGHT DR	ROYAL AVE
91	WINDSOR CIRCLE EAST/WT	WILSHIRE LN	WILSHIRE LN

Table 7 List of 2017 Bond Projects