

Streets 101



Eugene's street transportation system is conservatively estimated to represent a \$500 million public asset. This asset is typically described in both lane miles and centerline miles. Currently, Public Works manages Eugene's 1364 lane miles, representing 533 centerline miles, within the city limits.

This report covers the following topics:

- [What types of streets are there in Eugene?](#)
- [What is the condition of Eugene's streets?](#)
- [What types of treatments are used to fix streets?](#)
- [How are street repairs funded in Eugene?](#)
- [Where can I get more information about streets in Eugene?](#)

What Types of Streets are there in Eugene?

Streets can be classified in several different ways, including improvement status, function in the city's transportation system, and pavement type. These classifications are important factors in determining the priorities for spending public funds to fix streets.

Improvement Status

Generally, streets are considered improved or unimproved.



Improved streets are those which have been fully designed for structural adequacy, have storm drainage facilities provided which include curbs and gutters, and have either an asphalt concrete (AC) or a Portland cement concrete (PCC) surface. Typically, these streets were either fully improved when the area was developed and paid for by the developer, or were improved through a local improvement district (LID) and paid for in part, by 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.

Unimproved streets are those with soil, gravel, or asphalt mat surfaces which have typically evolved to their existing state, haven't been structurally designed, and lack drainage facilities, curbs and gutters.



Functional Class

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, each representing a different volume and type of vehicular usage:

- **Major arterial** -- usually four or more lanes; generally provide regional transportation connections; typically carry an average of more than 20,000 vehicles per day.
- **Minor arterial** -- typically two or three lanes; provide significant urban connectivity; carry between 7,500 and 20,000 vehicles per day.
- **Major collector** -- can be found in most residential, commercial, and industrial areas; typically carry between 2,500 and 7,500 vehicles per day.

- **Neighborhood collectors** -- found only in residential neighborhoods and provide a high degree of access to individual properties in a neighborhood; typically carry between 1,500 and 2,500 vehicles per day.
- **Local streets** -- provide access to individual properties along the roadway; narrow, slow-speed, and low-volume service facilities; typically carry fewer than 1,500 vehicles per day.

Pavement Type

Improved streets typically are paved with asphalt, asphalt over concrete, or concrete. Unimproved streets may be paved with asphalt, bituminous surfacing, concrete, gravel, or dirt.

The following chart* 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		Asphalt over Concrete		Concrete						Total	
	Miles	12' Lane Miles	Miles	12' Lane Miles	Miles	12' Lane Miles					Miles	12' Lane Miles
Major Arterial	13.12	59.12	0.03	0.16	1.38	2.84					14.53	62.12
Minor Arterial	60.51	203.74	2.23	7.38	3.73	11.81					66.47	222.93
Major Collector	30.18	92.72	1.16	3.17	2.88	7.91					34.22	103.8
N'hood Collector	23.64	61.34	0.44	1.19	1.58	4.35					25.66	66.88
Local	302.6	740	2.42	5.84	6.19	54.91					326.61	801.1
Total	430.05	1156.92	6.28	18.09	31.16	81.82					467.49	1256.83

UNIMPROVED SYSTEM	Asphalt		Bituminous Surface		Concrete		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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Minor Arterial	1.01	1.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	1.96
Major Collector	2.74	6.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	6.29
N'hood Collector	4.13	8.31	0.23	0.35	0.00	0.00	0.00	0.00	0.00	0.00	4.36	8.66
Local	34.52	57.5	9.14	14.15	0.08	0.08	9.06	13.41	4.46	4.96	57.26	90.1
Total	42.4	74.06	9.37	14.5	0.08	0.08	9.06	13.41	4.46	4.96	65.37	107.01

*from 2012 Pavement Management Report

What is the Condition of Eugene's Streets?

Street data is collected manually by trained staff through detailed inspections. Condition inspections are performed annually on arterials and collectors and on a three-year rotating schedule for residential streets.



An overall condition index (OCI) score generated through the inspections provides the data used to determine the appropriate level of treatment and the financial implication of various response strategies. Additional benefits of the pavement management system include a street inventory and condition trends, which are possible due to the compilation of 24 years of street condition information.

Some of the factors considered when establishing the OCI for a particular section of street include type and extent of cracking, brittleness of the asphalt surface (indicated by raveling), rutting, signs of flooding, and condition of the underlying road bed (this latter information typically comes from advanced testing procedures such as core sampling or deflection testing).



Pavement Inspectors				City of Eugene --- Public Works Maintenance										ACP & BST Route Form					
Rutting 1= 1/4" to 1/2" in depth 2= 1/2" to 3/4" in depth 3= > 3/4" in depth		Corrugation 1= 1-25% of area 2= 26% to 75% 3= > 76%		Alligatoring 1= 1-24% of area 2= 25-49% 3= 50-74% 4= > 75%		Raveling/Flushing 1= localized 2= wheel path 3= entire lane		Longitude Cracking 1= 1-99' /station 2= 100-199' 3= > 200'		Xverse Cracking 1= 1-4 /station 2= 5-9 3= > 9		Patches 1= 1-5% of area 2= 6-25% 3= > 25		Crack Seal 1= 100-200'/station 2= 200-300' 3= > 300'		Page O F		Rout No. /	
Prev. OCI	Street	From	To	Length	Drain LT/RT	Other	Rut	Corrugation Value plus +/- Test Roots 2' TO 4'	Alligator Value plus +/- <10% area HL SPL PUM	Raveling Flushing SLT MOD SEV	Long Cracking Value plus +/- <10' per 100' <1/4' 1/4' SPL	Transverse Cracking <1/4' 1/4' SPL	Patch <1/4'	Utility Cut Crack 0 1 2	GB Crack Seal 0 1 2	Crack Seal 0 = no 1,2,3 = yes 4 = failed			
98	ALDERBROOK	WS ARROWHEAD	ES MERRYVALE	451	3535														
98	ALEXANDRA	126' EAST OF DAHLIA	190' WEST OF DAHLIA	316	3535														
100	ALTURA	SS STONEHAVEN	160' N OF ARROWHEAD	131	3535														
100	ALTURA	SS WILLOW SPRING	SS WATERSTONE	220	3535														
96	ALTURA	WS ALTURA	WEST END (CDS)	122	3535														
100	ALTURA	SS WATERSTONE	SS STONEHAVEN	202	3535														
100	ALTURA	160' N OF ARROWHEAD	108' N OF CARTHAGE	350	3535														
96	ALTURA	127' S OF KINGSBURY	SS CHIMNEY ROCK	860	3535														

While the OCI rating of streets is an important factor in determining the repair needs for a street, other contextual factors such as the functional class and whether a street is improved or unimproved also must be considered. For example, an unimproved local street may have a very low OCI but may not be a priority for repairs because of low traffic volumes and the likelihood that surface repairs will quickly deteriorate due to underlying problems in the road bed. Conversely, a major or minor arterial with a moderate OCI may be a high priority for repairs because of high levels of traffic and significant disruption to the traveling public if deterioration is allowed to continue to a point where treatments such as reconstruction are required.

What Types of Treatments are Used to Fix Streets?

A variety of treatments are used to repair city streets. The following is a listing of treatments used in Eugene, generally arranged in order of simplest to most complex:



Pothole patching – Public Works crews fill individual potholes, generally giving highest priority to potholes judged to be hazardous (3 inches or deeper).

Crack sealing -- Hot tar or asphalt is injected into cracks and paving seams. Public Works Maintenance crews used 35 tons of crack sealant in 2009.



Slurry seal -- A thin (usually 1/2 inch or less) coat of liquid asphalt with a fine aggregate additive such as sand is applied to the street surface to fill surface voids. This treatment is most effective on low-volume (local), asphalt-paved streets. Typically this work is contracted out.



Chip seal -- This technique uses an asphalt emulsion (liquid oil) into which rock chips are rolled to restore the driving course. This surfacing treatment is not common in the city of Eugene but was used on Riverview Street in east Eugene, using a contracted Lane County road crew.



Concrete panel replacement – Failing panels of concrete roadway are removed, and new concrete panels are formed. This work typically is performed by Public Works Maintenance surface operations crews, usually during cooler and wetter weather that is not conducive to asphalt paving.

Full-depth reclamation – This is a technique, used in 2009 on Riverview Street and Cross Street, in which the road is reconstructed in-place, resulting in a very strong base treated with Portland cement, which is then topped with either a chip seal or a wearing surface of asphalt concrete or concrete. This technique is used to make major repairs on unimproved streets.

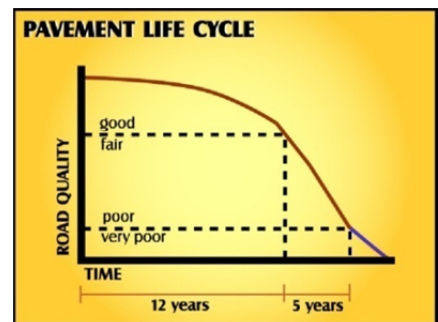


“Whitetopping” – Existing asphalt is overlaid with a thin section of concrete pavement, providing a durable surface for turning trucks and other heavy loads more quickly and at a lower cost than constructing full-depth concrete roadways.



Overlay/Inlay – The top layer of deteriorated asphalt paving is removed, and a new surface layer of asphalt or asphaltic concrete is constructed. This process, often called rehabilitation, may be a thin layer of material (usually 1 to 2 inches thick and limited to travel lanes) or it may be a "full overlay" which typically is thicker in depth and usually runs from curb to curb in width. Thin overlays (often called maintenance overlays) are done either by Public Works Maintenance crews or by a hired contractor. Full overlays are almost always done under contract.

Reconstruction – When improved streets have failed structurally, extensive street repairs are required. This typically involves the excavation of the existing street to the road bed and rebuilding the road bed and surface layers of the street. Reconstruction generally is at least four to five times more costly per lineal foot than rehabilitation and requires the equipment and construction expertise of private contractors.



How are Street Repairs Funded in Eugene?

There are four primary sources of funding used to fix streets in Eugene:

- **Voter-approved bond measures** – Eugene voters in 2008 approved a \$35.9 million bond measure to fix streets, and a subsequent \$43 million measure to continue road repairs was approved by local voters in November 2012.

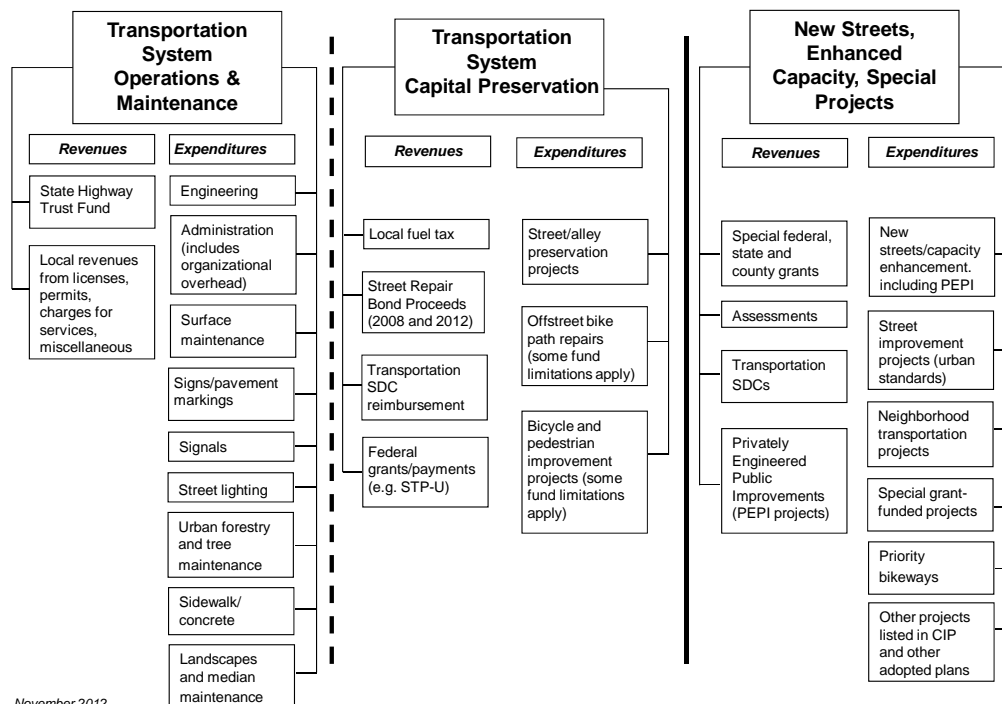


- **State Highway Trust Fund** – Eugene receives a share of Oregon’s 30-cent-per-gallon state gas tax and weight mile tax receipts and state motor vehicle fees such as registration and licensing fees. Currently, Eugene receives about \$8.5 million a year from this source, and these funds are used exclusively for road fund operations and maintenance (O&M).
- **Local gas tax** – Eugene has had a local motor vehicle fuel tax in place since 2003. The current tax of 5 cents per gallon raises about \$3 million per year. The funds are used primarily for capital repairs (long-term repairs typically done under contract).
- **Transportation system development charges** – These are fees paid by new development for impacts on the local transportation system. A portion of transportation SDCs helps fund the pavement preservation program, and the rest of the transportation SDCs are used to fund projects that address the impacts caused by new development.

Additional sources of street repair revenue include the following:

- **Assessments to property owners** – When unimproved streets are brought up to city standards, abutting property owners pay a one-time share of the costs. Examples of assessable street projects include Crest Drive, Maple Street and Elmira Road, and Chad Drive extension.
- **Special grants** – These are funds primarily from federal sources and other government agencies. They typically are dedicated to specific projects; examples include the federal funding that is dedicated to building the new Delta Ponds Bridge and the federal and state funds used to preserve portions of the off-street bike and pedestrian paths.
- **City general fund revenues** – General fund revenues come primarily from local property taxes. A very small amount of General Fund revenue is used to pay for operating and maintaining those portions of the transportation system (such as off-street bike paths) that are not eligible for road funds.

CITY OF EUGENE TRANSPORTATION SYSTEM FUNDING



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[2012 Pavement Management Report](#) – a detailed analysis by the Eugene Public Works Maintenance Division of pavement conditions, updated with 2011 inspection data, and including projections of future backlogs based on various funding scenarios.

[Eugene Street Funding Web Page](#) – A compilation of documents and reports detailing nine years of City Council studies, reports by citizen members of the Eugene Budget Committee, paving reports, financial reports and other documents.

[Bond Measure Web Page](#) – A page created specifically for information relating to the 2008 and 2012 bond measures to fix streets. The page includes a section devoted to documents and other information about the Street Repair Review Panel.

[Paving Preservation Web Page](#) – A list of all the paving preservation completed from 2003 to the present.

[Public Works Maintenance Street Maintenance Web Site](#) – Detailed information about street surface maintenance, including street maintenance policies and procedures.

[Public Works Engineering Web Site](#) – Detailed information about the design and construction of major street repair projects, including documents related to the **[bidding and contracting](#)** of those projects.

[Public Works Projects Web Site](#) – Detailed information about a number of major Public Works projects.

[Report a Pothole](#) – Online pothole reporting service.

[Construction-Related Traffic Advisories](#) – Online weekly updates of street projects affecting travel.

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