WASHINGTON COUNTY
OREGON

RROMAC MEETING MINUTES
July 21, 2011

The purpose of RROMAC is to study rural road operations and maintenance concerns in Washington County, work with County staff to develop program and funding alternatives and make recommendations to the Board of Commissioners.

Members:	James Burns Robert Ewers Denny Hruby John Malnerich Matt Pihl Doug Riedweg Dave Vanasche Lars Wahlstrom	Staff:	Greg Clemmons Keith Lewis Victoria Saager Dave Schamp Stacia Sheelar Gary Stockhoff
Absent:	Eldon Jossi Wendy Mortensen Gary Virgin	Guests:	Chairman Andy Duyck Calvin Nakao

Welcome

Matt Pihl called the meeting to order at 7:30 a.m. The June minutes were reviewed. Bill Ewers motioned to approve the minutes and it was seconded by Lars Wahlstrom. All were in favor.

ENGINEERING AND CONSTRUCTION SERVICES UPDATE

Gary Stockhoff updated the group on capital projects. David Hill Road extension low bidder was Eagle Elsner at $555k; Hall and Hwy 99 is finishing up paving; 185th Avenue project is moving along; Brookwood is ahead of schedule; Scholls/River roundabout is out for bid. Dave Vanasche asked if there was any consideration given to placing less vegetation in the median area and leaving out the curbs to make this area easier to maintain. Gary said they will use a low growing vegetation that will need less maintenance. Gary also shared the Glencoe bridge project is getting underway and will take over a year to complete and Tom Tushner, Traffic Engineering, has announced his retirement and will be leaving the County on July 29.

DRAFT SERVICE LEVELS

Dave Schultz, Engineering Associate for the Operations and Maintenance Division, shared some information on the new asset management system and software. The software will act as a link between policy guidance and what we do to maintain our assets. Dave provided a Level of Service Policy handout that is attached. This document dovetails with the priority matrix already

established in the Transportation Plan. The focus will be on major assets. It is important to determine the level of service at which the asset should be maintained and risk factors involved. The question was raised if this will create a system that we continue to feed information into and never get anything out in return. That is not the case with this. We already have inventory and condition data and inspection cycles in place for pavements and bridges; need to set inspection frequencies for culverts and other assets.

Dave is looking for committee feedback on this document. It will be discussed at a future meeting in greater detail.

PERFORMANCE STANDARDS

Last month there was a discussion on URMDAC setting performance standards (handout). Is there any interest from RROMAC in commenting or making suggestions on performance measures? It's completely up to RROMAC. The expansion of URMD services being suggested by URMDAC will go to the voters and would allow for safety improvements within URMD on all roads including arterials and collectors. The improvements would be funded by setting a lower pavement condition index standard than the current actual. These standards dovetail nicely into the asset management program. Response to service is very important. How quickly should the county respond to citizen requests/complaints? Looking for feedback.

RROMAC would like staff to bring this issue to the next meeting and come back with a recommendation and include the cost to collect the information and report on it.

UPDATE ON GRAVEL ROAD UPGRADES

Gravel road upgrades are half done. Jackson School, Groveland, Old Pumpkin Ridge, Hahn, Davidson, and Thornburg roads are all being done. The goal for next year is to do Evers and Jacktown.

The LID for Pihl road looks like there may be too many issues so that may not happen.

Dust abatement treatment on the western portion of Dixon Mill Road was done with Magnesium Chloride and it is retaining moisture. The eastern portion was done with Lignin Sulfonate and seems to be doing better.

MISCELLANEOUS

Jim Burns asked about Meek Road and a large amount of dirt being hauled. There were several complaints about the Roloff project off of Hwy 26. Farm Bureau wants to protect farmland and it seems like this was fast tracked. Chairman Duyck asked what we should do with the dirt. Should it go on urban reserve or rural reserve? Today it's Intel, before it was the light rail tunnel. The road department needs places to put dirt; need to resolve this issue as a community. Fill permits now require a signoff from the Soil and Water Conservation District. Chair Duyck

asked, "What is the role of government? The State of Washington tried to require permits to plow your ground and it was reversed; it's always a balancing act".

The Minor Betterment Selection Committee evaluation criteria draft is out for public comment.

Dave Vanasche provided Victoria with a Share the Road sign created by Fisher Implements.

NEXT MONTH

Performance Standards – What exists and can we add on to the existing program?
Dirt Places – Where can we dump dirt?

FUTURE AGENDA ITEMS

Service Levels – Feedback on draft service level document shared at July meeting.

Attachments:
Draft Service Levels Handout

May 10, 2011

Goals and Objectives

How can the citizens of Washington County (WASHCO) measure the performance of the URMD annual maintenance program? Are the citizens of WASHCO getting a good "Bang for their Buck"? How can WASHCO measure customer satisfaction for the maintenance on URMD roads?

- **Meet target Pavement Condition Index (PCI).**
  Target average PCI of 75 (with 90% at or above 65) for all roads within URMD.

- **Control administrative costs.**
  Keep administrative costs at or below 10% of the annual URMD budget. Administrative costs include contract development, bidding, contract administration, testing and inspection. They do not include design or permitting elements.

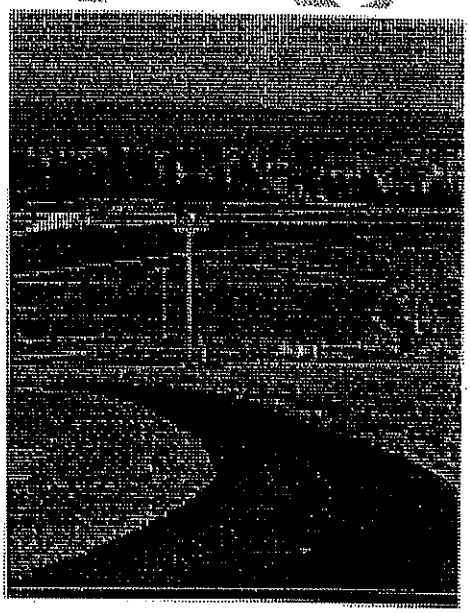
- **Implement cost efficient maintenance operations.**
  1. Consolidate maintenance activities geographically.
  2. Monitor, identify and correct failures. Determine cause, report and modify practices.

- **Monitor Work Program progress and completion.**
  1. Report Work Program progress to URMDAC quarterly.
  2. Provide reconciliation report to URMDAC no later than 90 days after fiscal year end.

- **Review requests for service and provide timely follow-up.**
  1. Track requests by type and report to URMDAC quarterly.
  2. Respond to requests within 7-days.
  3. Complete requests within 30-days.

- **Evaluate customer satisfaction.**
  1. Include contact information and encourage feedback as a part of the initial work notification.
  2. Include contact information and encourage feedback as a part of the Annual Report notification mailing.
  3. Execute a customer satisfaction survey on an annual basis. Survey should include streets where work was done that construction season, within the previous 2 years and randomly throughout the District. URMDAC shall review and approve survey before implementation.

Target Service Levels For Transportation Assets



Prepared by:

Department of Land Use and Transportation

Operations and Maintenance Division
Engineering & Construction Management Division

TABLE OF CONTENTS

BACKGROUND

The maintenance of Washington County's transportation-related assets is the responsibility of the Operations & Maintenance Division and the Engineering & Construction Management Division. These two divisions manage and maintain a complex network of public works infrastructure which serves approximately 500,000 county residents.

The major assets that represent the foundation of the transportation system include:

1. Bridges	4. Gravel Roads	7. Traffic Signs	10. Street Lighting
2. Culverts	5. Roadside Ditches	8. Intelligent Transportation Systems	11. Landscaped Areas
3. Paved Roads	6. Traffic Signals	9. Pavement Markings	12. Right-of-Way Corridor

In addition to performing routine and scheduled maintenance on these assets, the department also performs minor improvements, occasional reconstructions and round-the-clock coverage for handling emergencies and other critical service responses.

PURPOSE

According to the 2020 Transportation Plan, the maintenance policy of the Department of Land Use and Transportation is to protect public safety and personal property, make effective use of available funds, and preserve the public and private investments in the transportation system. In addition, the department also strives to preserve and protect the natural environment as it relates to the transportation infrastructure. The purpose of this document is to augment the *Road Maintenance Priority Matrix* by establishing target service levels for certain transportation assets managed and maintained by Washington County. The assets listed here are considered to be the Department's "major" assets which form the backbone of the transportation system.

In order to maximize the effectiveness of resources, the following "Target Service Levels" provide guidelines for the Department to use when establishing the annual road maintenance work program, responding to emergencies and service requests, selecting projects, and developing budgets. The target service levels established in this document will supplement the priority matrix to improve the process for selecting maintenance activities that occur on the county's road and bridge system.

PRIORITY MATRIX

The primary tool used for selecting road maintenance activities has been the *Road Maintenance Priority Matrix*[1] shown in Table 1. This guideline has been in place since adoption of the 1988 transportation plan but it only focuses on the functional classification of the roadway for the selection process.

Table 1: Road Maintenance Priority Matrix

Activity	Arterial	Collector	Rural Resource Route	Neighborhood Route	Local Road
Mandated	1	1	1	1	1
Emergencies	1	1	1	1	1
Hazards	1	1	1	1	1
General Maintenance	2	3	4	5	8
Minor Improvements	6	7	11	13	14
Reconstruction	9	10	12	15	16

[1] Policy 21 of the Washington County 2020 Transportation Plan (Oct 2002)

DEFINITIONS

Asset Types

1. **Bridge:** A structure that typically consists of vertical supports and horizontal members connecting at least two road segments that allows safe and efficient passage of a vehicle or pedestrian over an obstacle such as a body of water, a road, or a railway. In some instances, large culverts are considered bridges.

2. **Culvert:** A structure underneath the roadway used to pass storm water through a roadway fill section.

3. **Pavement**: The hard driving surface of a road that carries the vehicular traffic. The surface can be made of bituminous material (asphalt or chip seal) or Portland cement concrete.

4. **Gravel Road**: A road that has crushed aggregate material as the driving surface.

5. **Roadside Ditch:** An open channel adjacent to the roadway used for the collection and conveyance of storm runoff.

6. **Traffic Signal:** An electronic device positioned at intersections and pedestrian crossings to control competing flows of traffic.

7. **Traffic Sign:** A mounted placard which is typically placed on poles or mast arms and located in the right-of-way for the purpose of providing regulatory, guidance, and directional information to the traveling public.

8. **Intelligent Transportation Systems (ITS):** A broad range of diverse technologies which, when applied to our current transportation system, can help improve safety, reduce congestion, enhance mobility, minimize environmental impacts, save energy, and promote economic productivity. ITS technologies are varied and include field devices and equipment information processing, communications, control, and electronics.

9. **Pavement Markings:** White or yellow lineal stripes and white legends on the roadway consisting of paint, thermoplastic, or some other durable material used to delineate traffic lanes and inform motorists, bicyclists and/or pedestrians of lane changes, passing lanes, turns, cross walks, and curves.

10. **Street Lights:** A raised source of light on the edge of a road, typically on a metal or wood pole, which is turned on or lit at night to illuminate the roadway and adjacent surfaces.

11. **Landscaped Area:** A region in the right-of-way with ornamental trees, shrubs, ground cover intended to provide erosion control, environmental mitigation, traffic calming, and aesthetic value to the extent that it can be managed and maintained to the Board-adopted level of service.

12. **Right-of-Way Corridor:** A public area used to place transportation and utility assets for the benefit and ease of moving vehicles, personnel, and commodities.

Functional Classifications of Roads

1. **Arterial:** Interconnects and supplements the highway system while providing general mobility throughout the region

2. **Collector:** Provides access and circulation between residential, commercial, industrial and agricultural areas.

3. **Neighborhood Route:** Provides connectivity to the collector and arterial systems through residential areas

4. **Rural Resource Route:** Rural local roads serving active commercial operations such as rock quarries, timber harvests, farms and nurseries.

5. **Local:** Provides direct access to residential parcels in both the urban and rural areas. In the rural area, local roads often serve other parcel types related to agricultural, forestry, and quarry operations.

RISK FACTORS

Certain inherent risks are involved when it comes to public transportation infrastructure. The goal of Washington County is to minimize the

Washington County, as well as the users of the system, is exposed to some level of risk when the public infrastructure is used. The goal of the managing agency is to reduce the exposure of risk both to the end users as well as to the agency. Factors to consider when managing risk include:

Factor	Issues	Stakeholder
Economics		
	Travel Delay	End Users
	Maintenance	Agency
Legal		
	Liability due to damage claims	Agency
	Law Suits / Litigation	End Users & Agency
Community		
	Poor Mobility/Connectivity	End Users
	Quality of Life	End Users
	Nuisances	End Users
Health / Safety		
	Injury / Loss of life	End Users
	Property Damage	End Users
	Vehicle Damage	End Users
Environment		
	Destruction / Degradation of Habitat	End Users
	Pollution	End Users
	Regulatory Violations	Agency
Reputation		
	Loss of Trust	Agency
	Loss of Partners / Allies	Agency

The management of these risks includes the following strategies:

Avoid: Do not own the asset or perform the activity that presents the risk
Transfer: Shift the risk to a third party either through insurance or through a performance contract.
Mitigate: Implement design or operating measures that reduce the likelihood or severity of occurrence.
Accept: Self Insure or otherwise assume the likely consequences of occurrence.

When dealing with risk, it is important to take into consideration the consequences of failure. For each asset class, "failure" can occur in a number of ways with varying degrees of severity. Understanding that failures of assets will occur, the challenge for the agency is to keep those failures to a minimum in order to reduce the likelihood of a catastrophic failure that can injure a person, damage personal property, or harm the environment.

Risk Assessment Matrix

Impact to Community if Event Occurs	Likelihood of Event Occurring			
	Unlikely/Rarely (1)	Could Happen (2)	Likely (3)	Certain (4)
Extreme (4)	4	8	12	16
High (3)	3	6	9	12
Medium(2)	2	4	6	8
Low (1)	1	2	3	4

FAILURE MODES

There are two failure modes for any given transportation asset. A **Functional** failure is when the asset continues to operate but stops performing the way it was designed or intended. This failure can be short-lived with the asset being restored to full capacity with the use of limited resources. For example, a roadside ditch may be full of sediment and debris which in turn reduces its capacity during a heavy rain event. Water may overtop the ditch temporarily closing the road. This type of failure can create minor disruptions to the flow of traffic or increase the need for additional maintenance costs to repair damages to the system. A **Catastrophic** failure is when an asset is destroyed creating a "life-safety" gap in the transportation system. An example of this would be a bridge or culvert washout that completely removes access across an entire section of roadway. The typical solution to a catastrophic failure is constructing a new asset altogether or performing a major rehabilitation on the existing feature.

Failure Examples		
	Functional	Catastrophic
Bridges	Rot, deterioration, or damage to one or more structural components substantially limiting its ability to carry its intended load.	Bridge collapse or structural failure resulting the in the closure of the bridge
Culverts	Water is flowing over, or undermining, the roadway due to the culvert being blocked, plugged, or exceeding its intended capacity. Rust, collapse are also functional deficiencies.	Culvert collapse, excessive "piping", or the pipe washing out resulting in the closure of the road
Paved Roads	Severe deterioration of the surface such as major depressions, deflection, ruts, cracking, and delamination that require corrective measures beyond routine maintenance.	A sink hole or other base failure requiring the closure of a travel lane or the entire roadway.
Gravel Roads		
Roadside Ditches	Erosion and scour occurs diverting the intended flow caused by a point blockage. Point blockages may include plugged pipes, natural or manmade debris (i.e. downed tree limbs, garbage, topsoil, surface rock, etc) in the channel, overgrown vegetation, or sedimentation.	Excessive sedimentation or some other blockage that forces water out of the ditch and into the roadway or over an embankment.
Traffic Signals		
Traffic Signs	Sign has been knocked or torn down due to age, an accident, vandalism, or inclement weather. Vegetation or other debris may be covering the sign obstructing sight.	
ITS		
Pavement Markings	Stripes or legends that have lost reflectivity or does not exist from being worn by traffic.	Loss of a stripe, legend or raised marker that creates a situation where delineation of a travel lane is no longer visible.
Street Lights		
Landscaped Areas	Vegetation is either untrimmed, dead, diseased, or damaged. Landscaped areas are littered with debris and trash diminishing the aesthetic value.	Excessive growth that causes sight distance or other visibility issues to the point of causing a safety hazard.
Right-of-Way Corridor	Vegetation has been neglected and is encroaching the roadway. Flooding, landslides, length and weight restrictions closing or limiting sections of road.	

MAINTENANCE PRIORITIES

There are four different types of priorities associated with roadway maintenance:

1) **Emergencies:** Work related to abating or managing an immediate threat to public safety, private property, or environmental resources

2) **Mandated**: Work related to regulatory or legislative requirements that require the agency to perform certain activities

3) **Essential**: Work that maximizes the efficiency of the transportation system but is not required, by law, to be performed

4) **Non-Essential**: Work that is typically for aesthetic or non-functional enhancements as it relates to the movement of vehicles and pedestrians.

(NEED TO WORK ON THIS TABLE)

Asset	Emergency	Mandated	Essential	Non-Essential
Bridges	☑	☑	☐	☐
Culverts	☑	☐	☐	☐
Paved Road	☑	☐	☐	☐
Gravel Roads	☑	☐	☐	☐
Roadside Ditches	☑	☐	☐	☐
Traffic Signals	☑	☐	☐	☐
Traffic Signs	☑	☐	☐	☐
Pavement Markings	☑	☐	☑	☐
Landscaped Areas	☑	☐	☐	☐
Right-of-Way Corridor	☑	☐	☐	☐

(DO WE WANT TO INCLUDE ANY SORT OF REFERENCE FOR THE "MANDATES"?)

CRITICAL SERVICE RESPONSE TIMES

In addition to roadway category routine service levels, certain roadway conditions warrant critical responses regardless of the roadway category or service level. Such activities are included in certain roadway service areas and represented as Critical Service Response Times. If the safety or integrity of any roadway element or structure has been compromised in a manner that presents an immediate hazard to the traveling public, the road will be closed or necessary actions and repairs will be implemented immediately.

TARGET SERVICE LEVELS

BRIDGES

Critical Service Response

A bridge deck defect with the potential to cause injury or vehicle damage will be repaired in less than XX hours from discovery or notification. Other defects that meet the critical dimensions in the following table, will be addressed according to the times listed, regardless of routine service level.

Bridge Deck Patching Response Times

Roadway Category	Surface Area	Depth	Time
Arterial / Collector	100 sq"	2"	4 days
Neighborhood Route	130 sq"	2"	4 days
Rural Resource Road	155 sq"	2"	30 days
Local	155 sq"	2"	Up to 60 days

Routine Service Levels

Service Level A: Deck surface and structural components with no substantial deficiencies. The shoulder and channel are generally clean and free of debris. No maintenance needed.
Bridge Sufficiency Rating: 95-100 (Very Good)

Service Level B: Deck Surface has a minor amount of unrepaired potholes, or unsealed cracks. The paved shoulder contains a small amount of debris build-up at the edge. No maintenance needed at the time just periodical monitoring.
Bridge Sufficiency Rating: 85-95 (Good)

Service Level C: Deck Surface has a moderate amount of unrepaired potholes, or unsealed cracks. The paved shoulder contains a noticeable debris build-up that may be unsightly. Routine maintenance required.
Bridge Sufficiency Rating: 80-85 (Fair)

Service level D: Deck Surface has a significant amount of unrepaired potholes or unsealed cracks. The paved shoulder contains significant debris that would restrict bicycle or pedestrian use, and be unsightly. Structural integrity requires urgent care to keep bridge performing.
Bridge Sufficiency Rating: 70-80 (Poor)

Service Level E: Deck Surface has an extensive amount of unrepaired potholes or unsealed cracks. The paved shoulder contains debris build-up that would prevent bicycle and pedestrian use, be a hazard to vehicles, and be unsightly. Bridge is at a critical state restricting certain vehicles due to length or weight.
Bridge Sufficiency Rating: 70-65 (Very Poor)

Target Service Levels

Functional Class	Target Service Level	Tolerance 90% of PCMIs Greater Than or Equal to
Arterial		
Collector		
Rural Resource		
Neighborhood Route (URMD)		
Neighborhood Route		
Local (URMD)		
Local		

CULVERTS

Critical Service Response

(NEED A DESCRIPTION)

Routine Service Levels

Service Level A: Culvert is structurally sound and flows freely with no accumulated debris or sedimentation. Channel slopes are stable and water does not breach the embankment and cross the roadway.
Culvert Rating:

Service Level B: Culvert is structurally sound and has only minor silt and debris build-up but channel slopes are stable. Water does not breach the embankment and cross the roadway.
Culvert Rating:

Service Level C: Culvert has moderate silt and debris build-up. Storm drains have moderate blockages and slopes have moderate erosion or slides. There may be some standing water on shoulder and in ditches during major storm events.
Culvert Rating:

Service level D: Culvert has significant silt and debris build-up. Storm drains have significant blockages. Erosion or slides may encroach or threaten the roadway. Standing water in traveled lane during normal storm event.
Culvert Rating:

Service Level E: Culvert has extensive silt and debris build-up. Drains are blocked. Erosion and slides threaten roadway. Water will be over the roadway during normal storm events.

Culvert Rating:

Target Service Levels

Functional Class	Culvert Diameter	Target Service Level	Tolerance 90% of FC Mls Greater Than or Equal to
Urban Arterial	≥36"		
Urban Collector	≥36"		
Urban Local	≥36"		
Rural Arterial	Any		
Rural Collector	Any		
Rural Local	Any		

**Culverts that are less than 36" diameter are the responsibility of Clean Water Services*

PAVED ROADS

Critical Service Response

A pothole with the potential to cause injury or vehicle damage will be repaired in less than XX hours, weather dependent. Other potholes that meet the critical dimensions in the following table will be addressed according to the times listed, regardless of routine service level.

Pothole Patching Response Times

Roadway Category	Surface Area	Depth	Time
Arterial / Collector	100 sq"	3"	4 days
Neighborhood Route	130 sq"	3"	4 days
Rural Resource Road	155 sq"	3"	30 days
Local	155 sq"	3"	Annual Maintenance

Routine Service Levels:

Service Level A: Few or no unrepaired potholes, ruts, or unsealed cracks. No drop-off at the road surface edge. The shoulder is generally clean and free of debris.
PCI Range: 85 – 100 (Very Good)

Service Level B: Minor amount of unrepaired potholes, ruts, or unsealed cracks. A minor amount of drop-off and minor erosion is at the road surface edge. The paved shoulder contains a small amount of debris build-up at the edge.
PCI Range: 70 – 84 (Good)

Service Level C: Moderate amount of unrepaired potholes, ruts, or unsealed cracks. A moderate amount of drop-off has developed from at the road surface edge with some erosion. The paved shoulder contains a noticeable debris build-up that may be unsightly.
PCI Range: 55 – 69 (Fair)

Service Level D: Significant amount of unrepaired potholes, ruts or unsealed cracks. A significant drop-off has developed at the Road surface edge with noticeable erosion. The paved shoulder contains significant debris that would restrict bicycle or pedestrian use, and be unsightly.
PCI Range: 25 – 54 (Poor)

Service Level E: Extensive amount of unrepaired potholes, ruts, or unsealed cracks. Extensive erosion or drop-off has developed at the Road surface edge. The paved shoulder contains debris build-up that would prevent bicycle and pedestrian use, be a hazard to vehicles, and be unsightly.
PCI Range: 0 – 24 (Very Poor)

Target Service Levels

Functional Class (FC)	Target Service Level With 90% of FC Miles Greater Than or Equal to
Arterial	
Collector	
Rural Resource	
Neighborhood Route (URMD)	
Neighborhood Route	
Local (URMD)	
Local	

GRAVEL ROADS

Critical Service Response

A pothole or washboarding with the potential to cause injury or vehicle damage will be repaired in less than XX hours, weather dependent. Other potholes or washboards that meet the critical dimensions in the following table will be addressed according to the times listed, regardless of routine service level.

Pothole & Washboard Response Times

Roadway Category	Surface Area	Depth	Time
Collector			
Rural Resource			
Local			

Routine Service Levels

Service Level A: New construction with excellent, crown, drainage and gravel layer. Little or no distress.

Service Level B: Good crown, drainage and gravel layer. Distress limited to traffic effects such as dust, loose aggregate, and slight washboarding.

Service Level C: Adequate drainage and crown on more than 50% of roadway. Gravel layer is adequate with only need for spot replacement. Regrading needed to improve crown and repair washboarding and slight ruts or potholes.

Service Level D: Travel at slow speeds (25 mph) may be necessary. Additional gravel layer needed to carry traffic. Little or no crown. Ditching is inadequate on more than 50% of roadway.

Service Level E: Needs complete rebuilding. Travel is difficult; road may be closed at times.

Target Service Levels

Functional Class (FC)	Target Service Level With 90% of FC Miles Greater Than or Equal to
Collector	
Rural Resource	
Local	

ROADSIDE DITCHES

Critical Service Response

A ditch defect with the potential to cause injury or vehicle damage will be repaired in less than XX hours from discovery or notification. Other defects that meet the critical thresholds in the following table will be addressed according to the times listed, regardless of routine service level.

Roadside Ditch Repair Response Times

Roadway Category	Water Overtopping Roadway	Time
Arterial		8 hours
Collector / Resource Route		12 hours
Neighborhood Route		24 hours
Local		72 days

Routine Service Levels

Service Level A: Ditches flow freely. Storm drains are free of blockages, and slopes are stable. No standing water on pavement or in the ditch line.

Service Level B: Ditches have minor silt and debris build-up. Storm drains have minor blockages. Minor puddling may occur during normal storm events.

Service Level C: Ditches have moderate silt and debris build-up. Storm drains have moderate blockages and slopes have moderate erosion or slides. There may be some standing water on shoulder and in ditches during major storm events.

Service Level D: Ditches have significant silt and debris build-up. Storm drains have significant blockages. Erosion or slides may encroach or threaten the roadway. Standing water in traveled lane during normal storm event.

Service Level E: Ditches have extensive silt and debris build-up. Drains are blocked. Erosion and slides threaten roadway. Water will be over the roadway during normal storm events.

Target Service Levels

Functional Class (FC)	Target Service Level With 90% of FC Miles Greater Than or Equal to
Arterial	
Collector	
Rural Resource	
Neighborhood Route (URMD)	
Neighborhood Route	
Local (URMD)	
Local	

TRAFFIC SIGNAL SYSTEMS

Critical Service Response

The County has traffic signal and lighting technicians on call 24 hours a day, 7 days a week for emergency response on the traffic signal and lighting systems. Our standards call for a response to an emergency traffic signal condition within two hours of notification and emergencies arising during the regular workday will be responded to as soon as notification is received. The following types of failures or conditions are considered critical and warrant an emergency response:

- Any traffic movement controlled by only one signal head with a red, yellow, or green lamp outage.
- Any red lamp outage.
- When two different indications are showing at the same time on a single signal head.
- Any signalized intersection that is in flashing mode.
- Any signalized intersection where all signal heads are dark.
- Any signal equipment at an intersection that has been involved in an accident, should be checked for damage or failure.
- Down signal poles should be secured until repairs can be performed.

Routine Service Levels:

Service Level A: Traffic signal system is fully functional. All equipment meets latest County standards and equipment is in like new condition. Signal system downtime is only occurring during planned events.

Service Level B: Minimal bulb outages, signal down time, or control system malfunctions on traffic signal system. Minimal visible damage to equipment and hardware when closely inspected. Equipment may not meet latest County Standards, but is modern and operational. Down time from signal system malfunctions is brief.

Service Level C: Moderate amount of bulb outages, signal down time, or control system malfunction on traffic signal system. Moderate visible damage to equipment and hardware when closely inspected, equipment is operational but outdated. Down time from signal system malfunctions is brief.

Service level D: Significant amount of bulb outages, signal down time, or control system malfunction on traffic signal system. Visible damage and surface rust on equipment and hardware when inspected, equipment is operational but significantly outdated. Down time from signal system malfunctions could be significant. Signal system doesn't always operate as intended.

Service Level E: Extensive amount of bulb outages, signal down time, or control system malfunction on traffic signal system. Easily visible damage to equipment and hardware when inspected, heavily weathered and/or rusted. Equipment doesn't operate as intended and is severely outdated. Signal system is either non-functioning or down for extended periods of time.

Target Service Levels

Functional Class	Target Service Level
Arterial	B
Collector	B
Neighborhood Route	C
Local	C

TRAFFIC SIGNS

Critical Service Response

Any missing, knocked down, or severely damaged traffic sign is considered a critical response item and resources should be deployed as soon as practicable after becoming aware of the defect to restore its function. When prioritizing critical service responses for signage, the following table should be used as a guideline for acceptable critical service response times for different types of signage:

Sign Type	Response Time
Stop, Stop Ahead, Yield & Yield Ahead Signs	< 2 hours
Other Regulatory and Warning Signs	< 14 days
Guide Signs	< 30 days

Routine Service Levels:

Service Level A: All signs are highly visible at night, and far exceed MUTCD established standards for retroreflectivity.

Service Level B: Minor amount (XX%) of signs are worn have lost some night visibility but still exceed MUTCD established standards for retroreflectivity.

Service Level C: Moderate amount (XX%) of signs are worn and have lost some night visibility but meet MUTCD established standards for retroreflectivity.

Service level D: Significant amount (XX%) of signs are worn and have lost some night visibility and do not meet MUTCD established standards for retroreflectivity.

Service Level E: Extensive amount (XX%) of signs are worn and have lost some night visibility and significantly fail to meet MUTCD established standards for retroreflectivity.

Target Service Levels

Functional Class	Target Service Level
Arterial	B
Collector	B
Neighborhood Route	C
Local	C

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

Critical Service Response

(NEED A DESCRIPTION)

Routine Service Levels:

Service Level A: Communication Systems and ITS field equipment are generally fully functional. All equipment meets latest County standards and equipment is in like new condition.

Service Level B: Minimal number of outages or down time on communication systems and ITS field equipment. Minimal visible damage to equipment and hardware when closely inspected. Equipment may not meet latest County standards, but is modern and operational. Down time from communication system outages is brief.

Service Level C: Moderate amount of outages or down time on communication systems and ITS field equipment. Moderate visible damage to ITS field equipment and hardware when closely inspected, equipment is operational but outdated. Down time from communication system outages is brief to moderate.

Service Level D: Significant amount of outages or down time on communication systems and ITS field equipment. Visible damage to ITS field equipment and hardware when inspected, equipment is operational but significantly outdated. Significant amount of communication systems downtime from outages.

Service Level E: Extensive amount of outages or down time on communication systems and ITS field equipment. Easily visible damage to ITS field equipment and hardware when inspected, equipment doesn't operate as intended and is severely outdated. Extensive amount of communication system downtime from outages, or missing critical communication system links.

Target Service Levels

Functional Class	Target Service Level
Arterial	B
Collector	B
Neighborhood Route	N/A
Local	N/A

PAVEMENT MARKINGS

Routine Service Levels

Service Level A: All stripes, pavement legends, and raised pavement markers are highly visible at night and far exceed MUTCD established standards for retroreflectivity.

Service Level B: Minor amount (<10%) of stripes and pavement legends are worn or missing and have lost some nighttime visibility, but still exceed MUTCD established standards for retroreflectivity. Minor amount of raised pavement markers are worn or missing.

Service Level C: Moderate amount (11 – 20%) of stripes and pavement legends are worn or missing and have lost some nighttime visibility and meet MUTCD established standards for retroreflectivity. Moderate amount of raised pavement markers are worn or missing.

Service level D: Significant amount (21 – 30%) of stripes and pavement legends are worn or missing and have lost nighttime visibility and do not meet MUTCD established standards for retroreflectivity. Significant amount of raised pavement markers are worn or missing.

Service Level E: Extensive amount (>30%) of stripes, pavement legends, and raised pavement markers are worn or missing and have lost nighttime visibility and significantly fail to meet MUTCD established standards for retroreflectivity.

Target Service Levels

Functional Classification	Target Service Level
Arterial	B
Collector	B
Neighborhood Route	C
Local	C

STREET LIGHTING

Critical Service Response

The County has traffic signal and lighting technicians on call 24 hours a day, 7 days a week for emergency response on the traffic signal and lighting systems. Portland General Electric maintains all street lighting installed under Option A and Option B contracts, and is responsible for emergency response to these systems. Our standards for County maintained street lights call for a response to an emergency street light condition within two hours of notification and emergencies arising during the regular workday will be responded to as soon as notification is received. Street lighting pole knockdowns are considered a critical response item and should be secured by a technician until repairs can be performed.

Routine Service Levels:

Service Level A: All street light poles and bulbs are in place, fully functional and in like new condition. All street lights on the system are energy efficient (need a definition of this) and dark sky friendly (need a definition of this).

Service Level B: Minor amount (XX per year) of street light bulb outages or photocell replacements. All equipment is modern and operational but up to 10% of the equipment may not be energy efficient and dark sky friendly. Equipment is in good repair with no significant damage when inspected. Outages due to burned out bulbs is typically less than two business days.

Service Level C: Moderate amount (XX per year) of street light bulb outages or photocell replacements. Equipment is operational but up to 30% of the equipment may be outdated. Minor amount of damage to poles or equipment visible when inspected. Outages due to burned out bulbs is typically less than three business days.

Service level D: Significant amount (XX per year) of street light bulb outages, photocell replacements. Equipment is operational, but up to 50% of the equipment may be outdated. Damage and surface rust on poles or equipment visible when inspected. Lighting system experiences frequent outages (XX per month or year) and/or down time. Outages due to burned out bulbs is typically less than five business days. Some street light poles may be missing.

Service Level E: Easily visible damage and surface rust on poles or equipment when inspected. Equipment is severely outdated and/or missing. Lighting system is either inoperative or down for extended periods of time.

Target Service Levels

Functional Class	Target Service Level
Arterial	
Collector	
Neighborhood Route	
Local	

LANDSCAPED AREAS

Routine Service Levels

Service Level A: Landscaped area vegetation is neatly trimmed and beds are clear of all litter, organic debris, and noxious weeds.

Service Level B: Landscaped area vegetation is trimmed, beds are clear of litter but some organic debris, and noxious weeds are evident.

Service Level C: Landscaped area vegetation needs minor trimming, beds have minor amount of litter, organic debris, and noxious weeds.

Service level D: Landscaped area vegetation needs moderate trimming, beds have a moderate amount of litter, organic debris, and noxious weeds.

Service Level E: Landscaped area vegetation needs major trimming, beds have an excessive amount of litter, organic debris, and noxious weeds.

Target Service Levels

Functional Class (FC)	Target Service Level	Within 0.06 FC Miles Greater Than or Equal to
Arterial		
Collector		
Rural Resource		
Neighborhood Route (URMD)		
Neighborhood Route		
Local (URMD)		
Local		

RIGHT-OF-WAY CORRIDOR

Critical Service Response

(NEED A DESCRIPTION)

Routine Service Levels

Service Level A: Right of way corridor has no encroaching vegetation, or roadside litter. No restrictions to the road exist.

Service Level B: Right of way corridor has minor amounts of vegetation encroaching, and roadside litter. No restrictions to the road exist.

Service Level C: Right of way corridor has a moderate amount of encroaching vegetation, and roadside litter. Minor road restrictions occur due to floods, landslides, weight and length restrictions, etc that result in a lane closure for very short durations.

Service Level D: Right of way corridor has a significant amount of encroaching vegetation, and roadside litter. Moderate road restrictions occur due to floods, landslides, weight and length restrictions, etc that result in a road closure for short durations.

Service Level E: Right of way has extensive amounts of encroaching vegetation, and roadside litter. Extreme road restrictions occur due to floods, landslides, weight and length restrictions, etc that result in a road closure for extended periods.

Target Service Levels

Functional Class (FC)	Target Service Level	With 90% of FC Miles Greater Than or Equal to
Arterial		
Collector		
Rural Resource		
Neighborhood Route (URMD)		
Neighborhood Route		
Local (URMD)		
Local		

Condition Rating Methodologies

Bridges – *National Bridge Inspection System*

Culverts – *FHWA Culvert Inspection Manual*

Paved Roads – MTC Pavement Condition Ratings

Traffic Signs – *Manual on Uniform Traffic Control Devices*

Traffic Signal Systems – Washington County's Techniques

Intelligent Transportation Systems – Washington County's Techniques

Street Lighting – Washington County's Techniques

Pavement Markings – *Manual on Uniform Traffic Control Devices* (pending publication of methodology)

Gravel Roads – Wisconsin PASER system

Roadside Ditches – Washington County's technique

Landscaped Areas – Washington County's techniques

Right-of-Way Corridor – Compilation of Condition Ratings for all Assets

Culverts