

Guidelines for Addressing Potholes Repairs

Purpose: To provide a proactive approach to reporting and prioritization of pothole repairs within the road system maintained by Marion County Public Works.

Training: Initial training was provided to line staff at the February 19, 2008 divisional safety meeting. A pothole severity rating scale of High, Medium and Low levels was included in this new guideline and is consistent with pavement management inspection principals that use the same three tiered scale for rating other types of pavement distress. The following is a description of the process for addressing and repairing of potholes:

The Four R's: **Response, Rating, Reporting and Repair**

Response:

1. MCPW Dispatch generally becomes aware of potholes by one of the following means. Usually a pothole is reported by:
 - a) A citizen's complaint. (i.e. phone, Marion County web site, e-mail)
 - b) Calls from another agency.
 - c) A MCPW staff member observes the pothole while working or driving in the area.
2. If the report is coming from either (a) or (b) above, the MCPW dispatcher will ask the caller general questions to help determine the severity of the pothole and the location. Operations staff trained in the rating process may also be sent to the area in order to rate the severity of the pothole. This information is entered into the dispatch log with an event tracking number.
3. If the report is from a MCPW operations staff member the dispatcher will ask for information regarding the severity rating of the pothole, detailed information related to the location and if traffic control may be needed to safely complete the repair. As above, information is entered into the dispatch log.

Rating (evaluation):

The "Pothole Severity Criteria Matrix Guidelines" chart on the following page will be used by MCPW staff in evaluating the severity rating of potholes.

Reporting:

After the rating process has been completed, staff will report to Dispatch and recorded in the log:

1. Location information including some or all of the following:
 - Street name
 - Address or mile post
 - Nearest cross street
 - Lane and location within the lane.
2. Severity rating of the pothole
3. Whether traffic control will be needed to safely complete the repair.

Repairs:

Repairs will be scheduled based on the level of severity with priority given to the high rated potholes.

1. Currently repairs to potholes are made by one the following methods:
 - a) 25-pound bags of pre-made cold patch asphalt mix are used to fill potholes. The material is manually placed and compressed into the pothole.
 - b) A 6-yard dump truck that is equipped to carry a large quantity of cold mix in a heated enclosed bed is driven to the site and staff manually place and compress the material into the pothole.
 - c) In 2009, Public Works will have a new "hot-patch" truck, which gives the crews the ability to make permanent repairs with heated asphalt concrete.
2. Once a repair has been completed staff report back to dispatch, and the repair information recorded into the dispatch log.
3. Lower severity rated potholes will be repaired after higher rated potholes, as time and materials allow.

Pothole Severity Criteria Matrix Guidelines – Marion County Public Works

Surface / Location	Severity:	High	Medium	Low
Paved Roadway Surfaces	Dimension Descriptions:	Minimal width of 12", Minimal length of 24", & Minimal depth of <u>8"</u>	Minimal width of 12", Minimal length of 24", & Inside wheel paths - Minimal depth of <u>4"</u> , or Outside wheel paths - Minimal depth of <u>6"</u>	Any hole smaller than described in "Medium", or All holes with a depth less than <u>4"</u> inside wheel paths or <u>6"</u> outside wheel paths
	Road Way General Descriptions:	Road classification: Arterials Speed: Over 45 mph Driver response time: Minimal	Road classification: Collectors Speed: Between 30 to 45-mph Driver response time: Some	Road classification: Local streets Speed: Under 30 mph Driver Response Time: Ample
	Roadway Locations:	High traffic / impact areas: - In normal wheel paths	Medium traffic / impact areas: - In travel lanes	Low traffic / impact areas: - Within the road pavement
	Examples:	- 12" W x 24" L x 8" D hole in wheel path - 15" W x 25" L x 11" D hole in high traffic road 	- 12" W x 24" L x 5" D hole in wheel path - 14" W x 27" L x 6" D in pavement surface 	- 17" W x 22" L x 3" D hole in wheel path - 4" W x 27" L x 5" D in pavement surface 
Gravel Roads	Dimension Descriptions:	Minimal width of 12", Minimal length of 24", & Minimal depth of <u>10"</u>	Minimal width of 12", Minimal length of 24", & Inside wheel paths - Minimal depth of <u>5"</u> , or Outside wheel paths - Minimal depth of <u>10"</u>	Any hole/ rutting smaller than described in "Medium", or All holes/ rutting with a depth less than <u>5"</u> inside wheel paths or <u>10"</u> outside wheel paths
	Locations:	High traffic / impact areas: - In normal wheel paths	Medium traffic / impact areas: - In travel lanes	Low traffic / impact areas: - Within gravel road or adjacent shoulders
	Examples:	- 14" W x 48" L x 11" D hole in wheel path - 12" W x 30" L x 13" D hole in wheel path	- 14" W x 48" L x 9" D in wheel path - 18" W x 36" L x 13" D in roadway	- 14" W x 48" L x 7" D in wheel path - 20" W x 38" L x 12" D in roadway
Shoulders / Edge of Pavements	Dimension Descriptions:	None recognized	Minimal width of 12", Minimal length of 24", & Minimal depth of <u>12"</u>	Any rutting smaller than described in "Medium" All rutting with a depth less than <u>12"</u>
	Examples:	None	- 12" W x 24" L x 13" D hole	- 18" W x 34" L x 11" D hole
Damage:	<i>High production, 4-wheel cars / light trucks with a minimal clearance of 6"</i>	Large enough to do significant damage to tires, rims, suspension or axles	Pothole may cause tire or rim damage	Pothole most likely will not cause damage
Action:	Fix as soon as possible	Weather permitting, repairs are generally performed within 3 business days	Place on "patching list" for repairs	

What Causes Potholes?

Cause / Factor	Description	Effects / Impacts
Water:	Washing out aggregate fines in the base or sub-base / poor drainage / new ground-water movement Roadbed drainage needs to be engineered, built and properly maintained	Water moves aggregate and is Western Oregon roads' worst environmental threat Drainage needs to be observed year-round
Freeze / Thaw:	Thrusting - develops cavities / voids	Ice expands rock, creating voids - allowing water movement
Cavities / Voids:	Found beneath surface (water damage / poor repairs)	Unexposed pockets that get larger over time
Loading:	Heavy loading; trucks, high traffic counts	1-loaded truck can do as much damage as 5,000-cars
Worn-Out Asphalt:	Asphalt binders have aged and disappeared – aggregate loosens; aggregate wears down	Asphalt holds aggregate rock together; surface seals prevent water penetration
Worn-Out Road Base:	Over time sub-base materials, including rock, shift, breakdown and fail, creating voids	Roads are supported bridges over their road base, suspending loads horizontally
Connecting Cracks:	Pavement distress cracks that eventually join	i.e. Advanced "alligator cracking" where the surface material eventually detaches
Stud Tires:	Chemical agitation of steel, water and road surfaces	Lab proven that combination thereof creates a unique rutting effect
Edge Raveling:	Edges of roads that lack support	If not properly prepared or maintained, edges cannot support traffic loading
Shoulders:	Traffic loading / impacts; wheel tracking of long truck off road; erosion of shoulders	Shoulders need to be maintained to drain water from road surface; no water bowls
Poor Repairs:	Utility cuts / patches; poor workmanship / poor patching materials	Cuts in surfaces damage the engineered horizontal structure support
Quality of Design & Materials / Workmanship:	Non-engineered / wrong AC-rock mix; poor workmanship or construction practices; inadequate quality controls; poor compaction	Many older roads were never designed for extended life and heavy traffic loading; Life expectancies of road surfaces can be greatly shortened by poor construction practices
Direct Impact Damage:	Farm / construction equipment damage road surfaces; accidents – spillage of damaging liquids; tree roots	Road surfaces and bases damaged by accidents or equipment needs to be properly repaired
Concrete / Gravel Roads:	Potholes also occur in concrete & gravel roads for many of the same above reasons	For many of the same or similar reasons as described above



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For additional information contact:

Marion County Public Works

5155 Silverton Road NE, Salem Oregon 97305

Phone: (503) 588-5036

<http://www.co.marion.or.us/PW/>