

**CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS**  
**Study Session Worksheet**

**Presentation Date:** 12/17/13 **Approx Start Time:** 10:00 am **Approx Length:** 30 minutes

**Presentation Title:** Winter Weather Road Operations

**Department:** Transportation and Development (DTD) Transportation Maintenance Division

**Presenters:** Sam Irving, Transportation Maintenance Manager; Randy Harmon, Transportation Maintenance Supervisor

**Other Invitees:** Barbara Cartmill, DTD Acting Director

**WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?**

No formal action is requested. We would like to review our Clackamas County Snow and Ice Response Plan (attached) for winter weather operations of Clackamas County's road system.

**EXECUTIVE SUMMARY:**

Transportation Maintenance is charged with responding to inclement weather events such as snow and ice, floods, wind and rain storms by taking action necessary to ensure major roadways are accessible for emergency services, and passable and safe for all travelers as soon as practicable. Our goal is to respond quickly as events occur. With major elevation changes in Clackamas County, snow, ice, heavy rains and wind are all common weather events that influence safe road travel during the winter.

Depending on the nature and severity of an event, we may activate our division's Emergency Operations Center (EOC) with two, 12-hour shifts that operate 24 hours per day. We use the Incident Command Structure (ICS) to align with the County's Emergency Management Team, assuming Incident Command and designating the Incident Commander. While our EOC is activated, we are in close communication with the DTD Director, Emergency Management, Purchasing, Public and Government Affairs, County Administration, the County Commission, as well as the Sheriff's Office, local police and other emergency service providers.

Our primary goals during a response are to:

- 1) Provide access for emergency vehicles to as much of the County as possible.
- 2) Prioritize and define the appropriate service levels in response to snow and ice accumulations and other inclement weather impacts on County roads.
- 3) Mitigate unsafe road surface conditions to the greatest extent possible given the available resources.
- 4) Identify service level priorities by location and function of County roads.

We have a four-level snow removal priority list for County roads.

#### Priority 1:

*Road Type:* Generally major transportation routes such as arterials and major collectors with moderate to high traffic volumes. (A few roads at this level may be placed at priority 2 when (1) an alternate route is available, (2) the road has a low residential density or (3) storm intensity requires greater effort on more significant routes.)

*Control Efforts:* Maintain two lanes of traffic during the storm. When effective, apply abrasives to enhance traffic safety on steep grades, sharp curves, bridge approaches, decks and intersections.

#### Priority 2

*Road Type:* Generally major collector routes with moderate traffic volumes. May include some steep roads serving residential areas that require early plowing for public safety access. (Some roads at this level may be placed at priority 3 when (1) an alternate route is available and/or (2) the road has low residential density.)

*Control Efforts:* When personnel and equipment are available, remove snow during the storm to keep the roads open for two lanes of traffic.

#### Priority 3

*Road Type:* Minor collector routes, urban residential roads and rural local roads that typically carry moderate to low volumes of traffic.

*Control Efforts:* Snow removal during regularly scheduled work hours when personnel and equipment are available.

#### Priority 4

*Road Type:* Urban residential cul-de-sacs and rural local roads with low traffic volume.

*Control Effort:* Snow removal during regularly scheduled work hours when personnel and equipment are available.

In response to these storm events, we can deploy up to 18 trucks with snow plows and sanders, four anti-icing trucks, two 10,000-gallon tanks with anti-icing materials and 60 employees. Depending on the event, we also draw from qualified and trained employees in Transportation Engineering.

Once a severe weather event is over, recovering from it may take longer than the initial response. For example, if we apply sand during a three-day snowstorm, it could take up to three weeks to remove it. Thus, we are judicious in applying sand and use anti-icing material where practicable.

#### **FINANCIAL IMPLICATIONS (current year and ongoing):**

Costs vary depending on the scope, magnitude, frequency and duration of each event. For example:

- Winter storm, December 2008 -- snowplowing, sanding and emergency response: \$900,000
- Rain storms and flooding, January 2009 -- 17 landslides caused road closures that needed repair: \$1.7 million
- Flooding, January 2011 -- repairs needed to Zigzag River Bridge and Lolo Pass Road: \$2 million

**LEGAL/POLICY REQUIREMENTS:**

None.

**PUBLIC/GOVERNMENTAL PARTICIPATION:**

Our focus during winter weather events is on clearing and increasing the safety of travel on major arterial and collector roads. We work with the County's Department of Public and Governmental Affairs to inform both the community and partner agencies of our activities.

**OPTIONS:**

N/A

**RECOMMENDATION:**

N/A

**ATTACHMENTS:**

- *Clackamas County Snow and Ice Response Plan, Transportation Maintenance Operations Policy*

**SUBMITTED BY:**

Division Director/Head Approval \_\_\_\_\_

Department Director/Head Approval *R. B. Coffman 12-4-13*

County Administrator Approval \_\_\_\_\_

For information on this issue or copies of attachments, please contact Sam Irving @  
503-650-3467.

## Fiscal Impact Form

**RESOURCES:**

Is this item in your current work plan and budget?

YES

NO

**START-UP EXPENSES AND STAFFING (if applicable):**

**ONGOING OPERATING EXPENSES/SAVINGS AND STAFFING (if applicable):**

**ANTICIPATED RESULTS:**

**COSTS & BENEFITS:**

| Costs:            |                                       |       |                  |                |                   |                |       |
|-------------------|---------------------------------------|-------|------------------|----------------|-------------------|----------------|-------|
|                   | Item                                  | Hours | Start-up Capital | Other Start-up | Annual Operations | Annual Capital | TOTAL |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   | <b>Total Start-up Costs</b>           |       |                  |                |                   |                |       |
|                   | <b>Ongoing Annual Costs</b>           |       |                  |                |                   |                |       |
| Benefits/Savings: |                                       |       |                  |                |                   |                |       |
|                   | Item                                  | Hours | Start-up Capital | Other Start-up | Annual Operations | Annual Capital | TOTAL |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   |                                       |       |                  |                |                   |                |       |
|                   | <b>Total Start-up Benefit/Savings</b> |       |                  |                |                   |                |       |
|                   | <b>Ongoing Annual Benefit/Savings</b> |       |                  |                |                   |                |       |



# **SNOW AND ICE RESPONSE PLAN**

**CLACKAMAS COUNTY  
TRANSPORTATION MAINTENANCE  
OPERATIONS POLICY  
OCTOBER 2013**

**CLACKAMAS COUNTY TRANSPORTATION MAINTENANCE  
SNOW AND ICE RESPONSE PLAN—OPERATIONS POLICY**

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**POLICY NEED**

The Clackamas County Transportation Maintenance Division (OPERATIONS) has established a snow removal and ice control operations policy in order to efficiently use its resources and effectively respond to snow and ice conditions that cause unsafe driving conditions.

**PURPOSE STATEMENT**

To provide a uniform policy, procedure and level of service for snow removal and ice control operations on the Clackamas County road system.

**GOALS**

1. To provide access for emergency vehicles to as much of the County as possible.
2. To prioritize and define the appropriate level of service to be provided by OPERATIONS in response to snow and ice accumulations on County roads.
3. To mitigate unsafe road surface conditions to the greatest extent possible with available resources.
4. Identify service level priorities by location and function of County roads.

**PROCEDURE**

The Department of Transportation and Development's Director or designee has primary responsibility to take all reasonable and prudent steps to satisfy this policy consistent with resources available and accessibility by County equipment.

**SERVICE PRIORITIES**

Roads will be cleared and maintained based on service level priority. The following factors were taken into consideration in establishing service priorities:

1. Road Functional Class.
2. Traffic Volumes.
3. Availability of alternate routes.
4. Steep grades, sharp curves, intersections or potentially hazardous areas.
5. Roads with adequate room to maneuver County equipment.
6. Emergency vehicle accessibility.

Snow plowing and sanding activities will be accomplished by service level priority. Road service priorities are designated as level one (1) through level four (4) with level one as the highest priority. Service levels are further defined in ice and snow removal priority. The snow removal and ice control priority list and map identify priority levels. The list and map will be updated as needed. The Department of Transportation and Development's Director or designee will review the entire list before November 1st of each year. The Department of Transportation and Development's Director or designee may make discretionary changes in the service priority of any road when in his/her judgment, conditions require such actions.

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**COMMUNICATIONS**

Communications within OPERATIONS and between OPERATIONS and other agencies are important in providing information to execute this plan.

Notice of adverse road conditions may be received by OPERATIONS from observations of its employees, telephone calls from private citizens to OPERATIONS or the Sheriff's Department or notification from the C-COM dispatch center. Response to these notices shall be in accordance with the plan.

Anyone may call to report problems or concerns to OPERATIONS during regular business hours (Monday through Thursday, 7 A.M. to 5:30 P.M.) at 503-557-6391, or by contacting the Sheriff's/C-COM's non-emergency number after hours, weekends, and holidays at 503-655-8211. During ongoing snow and ice operations, OPERATIONS should be contacted directly.

**CALL OUT CRITERIA**

OPERATIONS will review call out criteria and the On-Call Personnel list with the Sheriff's Department/C-COM by November 1st of each year. This will allow for consistent and timely notice of areas requiring inspection. C-COM dispatch will call the Emergency On-Call OPERATIONS Supervisor or designee to inspect a road to determine whether snow and ice control operations are needed.

**SNOW PLOWING**

The snow response plan will be activated when the snow accumulation reaches two (2) inches on County roads and it is continuing to snow.

**SANDING AND CHEMICAL APPLICATION PRIORITY**

In the event of a county-wide condition of ice build-up, the priority for sanding application will be the same as it is for snow removal. In accordance with this plan, traction materials and anti-icing materials will be applied only to intersections where vehicle stops are required, and to steep grades, curves and bridges. If OPERATIONS receives actual notice of an area that would benefit from the application of traction materials, the OPERATIONS supervisor shall evaluate the need in accordance with the priorities of this plan. Sanding material will not be applied to straight level roads. During snow events, sanding materials will be applied only after plowing operations have ended.

**ANTI-ICING**

Roadway anti-icing is the application of chemicals that retard the formation of ice or the development of a bond between snow and the roadway surface. This is achieved by the application of a chemical freezing-point depressant. The technology uses various solutions of magnesium chloride applied to the roadway prior to moisture reaching the freezing point. In light or moderate snowstorms, the freezing point can be depressed to as low as minus 10 degrees Fahrenheit.

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**DE-ICING**

In a typical de-icing operation, snow is cleared from roadways and a mixture of sand, and/or liquid de-icers are spread on the snow pack or ice. After allowing sufficient time for the snow/ice layer to soften, the material is plowed from the road surface. Examples of common roadway de-icing salts include sodium chloride (also known as “rock salt,” NaCl), magnesium chloride (MgCl<sub>2</sub>), and calcium chloride (CaCl<sub>2</sub>).

**CLEAN-UP**

Residual sweeping/flushing of sand from roads and on-street bicycle lanes will be a priority and will be performed as soon as is reasonably possible after the event. This will be accomplished using the same service priority level established by the snow and ice plan. Clean-up operations can take several weeks to complete, depending on the severity of the storm and the amount of sanding material applied to the roads.

**BICYCLE LANES**

OPERATIONS will not plow or sand bicycle lanes or paths that are separate from the roadway; OPERATIONS will attempt to plow and sand on-street bicycle lanes.

**PUBLIC ROADS**

Public roads are not maintained by the County. OPERATIONS will not perform snow and ice control operations on Public roads.

**MAILBOXES, DRIVEWAYS AND SIDEWALKS**

In the process of snow removal, mailboxes may be damaged or access to mailboxes obstructed, driveways may be closed and sidewalks may be covered. It is the responsibility of the abutting landowner to remove such snow. Only mailboxes physically hit by OPERATIONS equipment will be reinstalled. Mailboxes knocked down by flying snow will not be reinstalled.

It is the responsibility of the property owner to provide clear access up to the mailbox for the postal carrier.

OPERATIONS is not responsible for opening driveways that have access onto County roads. This is the responsibility of the property owner. Property owners should not move snow onto the public roadway.

**PROPERTY DAMAGE**

OPERATIONS is not responsible for damage to privately owned landscaping or structures, including but not limited to fences, signs, curbs and wires that are installed within the public right-of-way.

**DAMAGE PRECAUTIONS**

**Signs and Posts.** Caution will be taken to avoid damage to signs, mailboxes, posts and delineators during snow removal.



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**Buildings.** Snowplow operators will reduce speed where adjacent buildings or facilities might be damaged by the flying snow.

**Parked and/or Unattended Vehicles.** Care will be exercised in removing snow in the vicinity of vehicles parked adjacent to County roads. Even though vehicles are illegally parked on the travel way, reasonable care will be taken consistent with the necessity of completing the required work. Vehicles parked and unattended in the right-of-way are left at the owner's risk. Any damage to these vehicles is the owner's responsibility and will not be paid by the County (i.e., paint damage by sanding operations will not be repaired or paid).

**SNOW REMOVAL PRIORITY**

Snow plowing activities will be accomplished by priority in so far as is practical, as described by the following levels. For all levels, efforts may be discontinued when blizzard or other severe forms of weather make operation of maintenance equipment and motor vehicles unreasonable and unsafe.

During severe winter storms OPERATIONS will divide the maintenance crew into two 12-hour shifts to provide 24-hour coverage. If additional resources are needed, Bridge Maintenance, Traffic Maintenance and Engineering staff will be utilized where suited.

**PRIORITY 1**

**Road Type:** Roads that fall under this level are generally major transportation routes such as arterial and major collector roads that carry moderate to high volumes of traffic.

A few roads at this level may be placed at a level 2 priority when an alternative route is available, the road has a low residential density or storm intensity requires greater effort on the more significant transportation routes.

**Control Efforts:** Maintain two lanes of traffic during the storm. Remove snow through the duration of storms to keep roads open to traffic and provide a reasonable surface on which to operate with approved traction devices. When effective, apply abrasives to enhance traffic safety on steep grades, sharp curves, bridge approaches, decks, and intersections.

**PRIORITY 2**

**Road Type:** Roads that fall under this level are generally major collector routes carrying moderate volumes of traffic. Some steep roads serving residential areas, which require early plowing for public safety access, may be included in this level. Some roads exhibiting these characteristics may be placed at a level 3 priority when an alternative route is available and/or the road has a low residential density.

**Control Efforts:** When personnel and equipment are available, remove snow during the storm to keep the roads open for two lanes of traffic.

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**PRIORITY 3**

**Road Type:** Roads that fall under this level are minor collector routes, urban residential roads and rural local roads that typically carry moderate to low volumes of traffic.

**Control Efforts:** Snow removal shall be accomplished during regularly scheduled work hours when personnel and equipment are available.

**PRIORITY 4**

**Road Type:** Roads that fall under this level are urban residential cul-de-sacs and rural local roads that carry low volumes of traffic.

**Control Effort:** Snow removal shall be accomplished during regularly scheduled work hours when personnel and equipment are available.