

Deschutes County Board of Commissioners  
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541.388.6570 – Fax 541.385.3202 – [www.deschutes.org](http://www.deschutes.org)

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## **AGENDA REQUEST AND STAFF REPORT**

**For Board Business Meeting of: November 23, 2015**

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**DATE:** November 16, 2015

**FROM:** Chris Doty, PE                      Road Department                      Phone: 541.322.7105

**TITLE OF AGENDA ITEM:**

Consideration of Board approval of Resolution 2015-109 adopting the Deschutes County Road Department Snow/Ice Plan.

**PUBLIC HEARING ON THIS DATE?** No

**BACKGROUND AND POLICY IMPLICATIONS:**

The Deschutes County Road Department provides snow and ice response to approximately 900 miles of road facilities in Deschutes County. The Department's Snow/Ice Plan is the guidance document which identifies the priorities, objectives, resources and strategies of Deschutes County while responding to snow/ice events on county road facilities. The Snow/Ice Plan was substantially updated for FY 14/15 and this plan is presented unchanged for approval in 2015 and beyond, until such time that operational or technologic advancements warrant a change in procedure.

**FISCAL IMPLICATIONS:**

There is no fiscal impact associated with the Resolution. Snow/Ice related expenses are program expenses within the Road Department as budgeted within the Department's 325 Fund (Road) and 330 Fund (Equipment).

**RECOMMENDATION AND ACTION REQUESTED:**

Approval, with suggested motion: "I move to authorize Board signature of Resolution 2015-109, adopting the Deschutes County Road Department Snow/Ice Plan."

**ATTENDANCE:** Chris Doty

**DISTRIBUTION OF DOCUMENTS:** Board Secretary

REVIEWED

LEGAL COUNSEL

For Recording Stamp Only

BEFORE THE BOARD OF COUNTY COMMISSIONERS OF DESCHUTES COUNTY, OREGON

A Resolution adopting the Deschutes County  
Road Department's Snow/Ice Plan

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RESOLUTION NO. 2015-109

WHEREAS, Deschutes County's most recent Snow/Ice Plan was adopted via Resolution 2014-133; and

WHEREAS, the DCRD Snow/Ice Plan is the guidance document which identifies the priorities, objectives, resources and strategies of Deschutes County while responding to snow/ice events on county road facilities; and

WHEREAS, the DCRD Snow/Ice Plan reflects the current priorities, objectives, resources and strategies of Deschutes County while responding to snow/ice events on county road facilities; and

WHEREAS, the DCRD Snow/Ice Plan establishes policy related to snow/ice related procedures and practices; and

WHEREAS, the DCRD Snow/Ice Plan will be updated as operational needs dictate; and

WHEREAS, the DCRD Snow/Ice Plan does not assure the safe operation of motor vehicles upon County road; therefore

BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF DESCHUTES COUNTY, OREGON, as follows:

Section 1. The Snow/Ice Plan adopted per Resolution 2014-133 is extended as set forth in the DCRD Snow/Ice Plan attached hereto (Exhibit A) and by this reference incorporated herein.

Section 2. This resolution shall take effect upon its adoption.

DATED this \_\_\_\_ day of \_\_\_\_\_, 2015.

BOARD OF COUNTY COMMISSIONERS  
OF DESCHUTES COUNTY, OREGON

\_\_\_\_\_  
ANTHONY DEBONE, Chair

ATTEST:

\_\_\_\_\_  
ALAN UNGER Commissioner

\_\_\_\_\_  
Recording Secretary

\_\_\_\_\_  
TAMMY BANEY, Commissioner

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# SNOW/ICE PLAN

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2015

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Deschutes County  
Road Department



RESOLUTION 2015-109,  
EXHIBIT A

## PRELUDE

One of the primary requirements of operating a transportation system is reacting to inclement weather conditions. Extreme winter weather conditions are commonplace in Deschutes County. As such, snow/ice response is one of the core services of the Deschutes County Road Department.

Although a core service, the level of investment in snow/ice response related personnel, materials, and equipment must compete with other systems needs such as pavement maintenance/preservation, capital improvement projects, equipment replacement and other system needs – our transportation system resources are finite and limited.

Funding investment levels in snow/ice response is a delicate balance between public safety (providing a reliable and safe transportation system during inclement weather) and system sustainability (sustaining the quality of the \$500M transportation asset). At the center of this discussion are the expectations of levels of service desired by our customers.

This plan represents the Road Department's approach to snow/ice events in Deschutes County. It is the result of an iterative process that has occurred over decades of response to snow/ice events on the system. This plan does not provide a level of service guarantee nor does it assure safety of the driving public – constantly changing weather conditions do not permit the ability to do so. Rather this plan outlines the process for responding to snow/ice events with the resources at the disposal of the Road Department.

In addition to outlining the Road Department's snow/ice response, embedded within this plan are policy elements addressing:

- Seasonal road closures
- Use of traction material (including anti-ice)
- Identification of areas in which no winter maintenance is provided
- Driveway clearing responsibility
- Mailbox area clearing responsibility
- Mailbox damage responsibility for repair/replacement.

Every snow/ice event requires **a measured response** and judgment in use of resources to address the conditions. This plan seeks to identify and articulate the priorities, objectives, resources and strategies of Deschutes County while responding to snow/ice events on county road facilities – and therefore inform that judgment.

## SECTION I: PURPOSE AND GOALS

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### **PURPOSE STATEMENT**

The purpose of the Snow/Ice Plan is to identify and articulate the priorities, objectives, resources and strategies of Deschutes County while responding to snow/ice events on county road facilities.

**It is not the purpose of this plan to assure the safe operation of motor vehicles upon County roads.**

### **GOALS**

1. Within available budget, personnel resources and equipment resources, respond in an adequate manner to the accumulation of snow and ice on county roads to facilitate motor vehicle travel within the limits imposed by the adverse driving conditions.
2. To prioritize and define the level of service provided by the Road Department to snow and ice accumulation on county road facilities.
3. To identify operational response and service priorities by location and functional classification of county road facilities.
4. To arrange for supplemental resources during times of severe conditions through intergovernmental agreements and private service contracts.
5. To identify roads, portions of roads, or general areas to be closed to the public throughout the snow season.

## SECTION II: SUMMARY OF THE COUNTY SYSTEM AND TYPICAL WEATHER CONDITIONS

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Deschutes County is located in Central Oregon east of the crest of the Cascade Mountain Range. Elevations of roads within the County vary from 2,800 feet to 6,300 feet. Roads at higher elevations may experience greater accumulations of snow and ice than roads at lower elevations. Rapidly changing weather patterns result in different snow and ice conditions throughout the County during the snow season.

The County contains the cities of Bend, Redmond, La Pine, and Sisters. With the exception of La Pine, each city maintains the city streets within their respective jurisdiction. Although the majority of the streets within the incorporated limits of the City of La Pine remain county facilities, the City of La Pine provides contract snow removal services to Deschutes County for numerous county facilities located within the city limits via an intergovernmental agreement.



Additional road jurisdictions within the County include the Oregon Department of Transportation (ODOT, state highways), the United States Forest Service (USFS facilities), and the Bureau of Land Management (BLM facilities). Several Special Road Districts within Deschutes County provide snow and ice maintenance as do several homeowners associations on local access roads not accepted within Deschutes County's maintenance system. Several hundred miles of local access roads (not included in a road district or HOA) exist within Deschutes County in which maintenance and snow and ice response is not provided by any entity, but rather typically provided via adjacent residents and road users. Per ORS 368.031, a county is strictly limited in its ability to spend funds on local access road maintenance.

Deschutes County's road system consists of approximately 900 miles of roads of which approximately 700 miles are paved. The 900 mile network includes 84 miles of arterial facilities, 239 miles of collector facilities, and 102 miles of forest highway (a special type of arterial roadway); the remaining miles are classified as local roads.

Deschutes County has a dry climate. Annual average precipitation (in the form of rain and snow) in the City of Bend is 12 inches. Over six inches of precipitation in the form of snow falls between November and February in the City of Bend. At Mt. Bachelor, located west and south of Bend, snow depths can reach 180 inches. County roads receive snow levels within this range with occasional absence of snow in the northern and eastern portions of the County. Winter conditions are intermittently encountered in the high desert in the eastern part of the

County. The high elevation and openness of the eastern portion of the County is conducive to snow drifting. The occurrence of a snow event may be county-wide, but more likely will be confined to a limited geographical area of the County.

The location and amount of snow and rain the County receives varies from year to year and from location to location. Rapid changes in temperature and wind as well as the presence of micro-climates provide little predictability as to the conditions affecting county roads at any specific time or date during the snow and ice season.

Given the nature of varied, unforeseeable and rapidly changing climatic conditions within Deschutes County, and the resources available to the County to combat such conditions, a measured and limited response during the snow season may be provided.

## **SECTION III: SNOW/ICE PLAN - OPERATIONS**

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### **OPERATING STRATEGY**

Implementation of the Snow/Ice Plan in response to a snow/ice event occurs through a six-phase process as follows:

Phase 1: Notice of adverse County road conditions

- As defined within the plan.

Phase 2: Undertake needs assessment.

- Per the judgment of the Operations Manager or others as assigned.

Phase 3: Activate resources if a snow event or ice formation on curves and intersections is occurring.

- Providing a measured response to the weather conditions as anticipated or as occurring.

Phase 4: Implement plan.

- Based on the priorities established within the plan.

Phase 5: Continue needs assessment.

- Per the judgment of the Operations Manager or others as assigned.

Phase 6: Deactivate resources.

### **SERVICE PRIORITY FACTORS**

Each snow/ice event is different and requires a prioritization of effort and resource allocation. The following factors were taken into consideration in establishing service priorities, especially for snow/ice events occurring in multiple snow zones within the county – or in some cases – the entire county:

1. Provide service for major population centers using available resources efficiently within the least amount of time.
2. Prioritize arterial and collector facilities.
3. Prioritize providing service to routes to public safety facilities, medical facilities, employment centers, and governmental facilities.
4. If possible, avoid road closures by responding to early snowfalls.
5. In accordance with service priorities above, provide service to roads with steep grades, curves and intersections.



## **SNOW ZONE AREAS**

The Road Department has divided the county into 16 snow zones in an effort to geographically assign equipment/personnel during events, triage and establish priorities, and contract snow removal efforts when warranted. Individual maps of the snow zones are included in the appendix of this document and are approximated in the following table:

<b>Snow Zone</b>	<b>Approximate Geographical Location</b>	<b>Major Road Facilities in Zone</b>
1000-A	West of Bend city limits	Skyliners Road, Johnson Mkt Road, OB Riley Road
1000-B	Tumalo area to Hwy 126	Cline Falls Hwy
1000-C	Sisters area	Camp Polk Road, Holmes Road
2000-A	Terrebonne area and NE Redmond area	Lower Bridge Way, Smith Rock Way
2000-B	NW and SW Redmond Area	Helmholtz Way, Old Bend-Redmond Hwy
3000-A	NE Bend Area	Powell Butte Highway, Deschutes Market Road
3000-B	East of Bend	Alfalfa Market Road
3000-C	SE Bend Area	Arnold Market Road, Rickard Road
3000-D	South of Bend City Limits, DRW	Knott Road, Baker Road
4000-A	Sunriver Area	S Century Drive, Spring River Road, River Summit Drive, Cottonwood Road
4000-B	South of Sunriver	S Century Drive, N Huntington Road
4000-C	North of La Pine	State Rec Road, Riverview Drive, Huntington Road
4000-D	West and NW La Pine Area	Day Road, Burgess Road, Dorrance Meadow Road
4000 E	La Pine city limits	Huntington Road, 1 <sup>st</sup> Street, Finley Butte Road
4000-F	East and South of La Pine	Masten Road, Darlene Way, Newberry Road
5000	East of Horse Ridge (Brothers Area)	No pre-emptive snow/ice maintenance is provided in this area. Service provided via request only. Map of area not included in appendix.

## **SNOW REMOVAL INITIATION AND PRIORITIZATION**

When the snow accumulation reaches four inches on county roads within a given zone, plows will be dispatched to plow snow from one lane in each direction on arterial and collector roads. When weather forecasting information indicates a high likelihood of accumulation in excess of four inches, plows may be dispatched prior to accumulation of four inches of snow. Plows will continue to plow these lanes until no further snow accumulates. After snow accumulation stops, remaining lanes, shoulders and local roads will be plowed.

Snow management operating hours will be from 4:00 a.m. 10:00 p.m. When conditions require continual response outside the snow management operating hours, plows will only be used on arterial and collector roads.

When a storm covers more than one snow zone, arterial and collector roads will be plowed in the following sequence:

First Priority:	Snow Zones 1000-B, 1000-C, 2000-B, 3000-A, 3000-D, 4000-A, 4000-C, 4000-D and 4000-E.
Second Priority:	Snow Zones 1000-A, 2000-A, 3000-B, 3000-C, 4000-B, and 4000-F.
Third Priority:	Local roads (thru roads) in the above zones.
Fourth Priority:	Dead end roads over 1/2 mile in length.
Last Priority:	Dead end roads less than 1/2 mile in length and cul-de-sacs.

*Notes:*

1. Given the low traffic volumes, seasonal nature of use, and the remote location, county road facilities within snow zone 5000 (eastern portion of Deschutes County) will not receive priority snow and ice response. Major road facilities are signed to reflect the lack of winter maintenance. Service is provided upon request and prioritized based on the availability of resources and other system needs.
2. Equipment may not remove snow from local roads where there is a high risk for property damage such as vehicles parked on roadway or other obstructions in or close to the roadway.

### **TRACTION AND CHEMICAL (ANTI-ICE) MATERIAL APPLICATION POLICY**

During adverse ice and snow conditions, Deschutes County utilizes traction and chemical materials on County roads in an attempt to provide safer driving conditions for the general driving public. There is a potential for property damage to individual vehicles as a result of the application of these materials. The County has determined that the safety benefit to the general public from the application of these materials outweighs the potential for property damage to individual vehicles, which may result from the application of these materials.

It is the policy of Deschutes County to continue to apply traction and chemical materials on County roads during adverse ice and snow conditions when such application will tend to enhance safer driving conditions even when such application may result in damage to individual vehicles.

### **TRACTION MATERIAL APPLICATION PRIORITY**

Snow zones identified for traction material will be the same as those for snow removal. Priority zones and operating hours will be the same as those for snow removal.

Application of traction materials shall begin in the snow zones with noticeable icy conditions. Other criteria for application of traction control materials include:

1. Upon notice of ice on a county road facility.
2. The occurrence of freeze/thaw cycles resulting in the presence of ice on a previously plowed county road.

3. After repeated snow removal on roads in which previously applied traction control material was removed.

### **TRACTION MATERIAL APPLICATION PROCEDURE**

In accordance with this plan, traction materials will be applied only to intersections where vehicle stops are required, steep grades and curves. If the Road Department receives actual notice of an area which would benefit from the application of traction materials, the Operations Manager shall evaluate the need in accordance with the priorities of this plan. Traction materials will not be applied to straight level roads. During snow events, traction materials will be applied only after plowing operations have ended.

The application of traction materials (or “sanding”) will begin in snow zones in accordance with this plan when the Road Department receives notice of ice present on county roads.

### **STOCKPILE LOCATIONS**

The County will stage traction material stockpile sites throughout the various snow zones and partner with other area agencies where practical. The following are existing stockpile locations of traction control material:

- Area 1: ODOT Sisters Site (Highway 126).
- Area 2: City of Redmond Public Works and Negus Transfer Station
- Area 3: Deschutes County Road Department facility
- Area 4: Ann’s Butte and Deschutes County La Pine facility
- Area 5: ODOT Horse Ridge site

### **USE OF CHEMICAL (ANTI-ICE) MATERIAL**

Roadway anti-icing is application of chemicals that impede the formation of ice or the development of 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 chlorides and corrosion inhibitors applied to the roadway prior to moisture reaching the freezing point.

Anti-icing application is typically used as a pre-treatment or preventative measure up to 48 hours before a winter storm to prevent a bond from forming between the pavement and the snow and ice after a storm begins. The Road Department may use anti-ice material when a snow or ice storm is predicted and when pavement temperatures are above 15 degrees Fahrenheit. It should be noted that anti-ice application is limited by atmospheric conditions, such as rain or extreme cold, which can render it ineffective.



Due to resource limitations and atmospheric conditions which are difficult to predict in the micro-climates of the area and frequently on the borderline of conditions recommended for use, the Road Department operates a limited anti-ice program.

## **CHEMICAL (ANTI-ICE) MATERIAL APPLICATION PROCEDURE/PRIORITY**

Similar to the application procedure for traction material, chemical use will be applied only to intersections where vehicle stops are required, steep grades and curves.

To the extent that atmospheric conditions and weather forecasting allow, use of anti-ice material in priority zones and operating hours will be the same as those for snow removal.

## **CONTRACT SNOW REMOVAL**

The Road Department operates a minimally sized operations crew capable of responding to the majority of snow/ice events routinely experienced within the micro-climates of the region. Occasionally a snow event may exceed the operational capacity of the Road Department to provide acceptable snow plow response to all areas of the County. During significant County-wide snow events, the use of contractors is recommended.

Utilizing the procurement processes required in Deschutes County Code, the Road Department shall contract as necessary to enable on-call snow removal services.

In addition to contracting for significant snow events, the Road Department will also contract with various cities, special road districts, and homeowners associations for routine snow removal operations when and where portions of the County system are more efficiently served by other service providers operating in the area.

## **ROAD CLOSURE**

In cooperation with the USFS, the Road Department will close a portion of the Cascade Lakes Highway (Dutchman Flat to Deschutes Bridge) and Paulina Lake Road (Newberry Road to East Lake) from approximately mid-November to Memorial Day weekend of each year.

If early winter storms occur or a significant event is forecasted prior to the annual scheduled road closures, Cascade Lakes Highway and Paulina Lake Road may require preemptive, immediate closure. Additionally, significant winter snow accumulation may hinder efforts to guarantee opening of these facilities by Memorial Day weekend.



While not gated, the section of Cascade Lakes Highway from Deschutes Bridge to the Klamath County line is not plowed during winter months. Signage notifies drivers of the lack of winter maintenance on the facility.

Note: Paulina Lake Road (from Newberry Road to the 10-mile Snow Park) is plowed by a separate organization under agreement with Oregon Department of Transportation, for the express purpose of providing a route to winter recreation areas.

### **CLEAN-UP**

Clean-up of traction control material remaining on county roads after the snow season shall begin after May 1 of each year or as soon as weather forecasting indicates winter snow events have concluded. Cycling routes will be prioritized for removal efforts. Assistance from other agencies including the cities of Bend and Redmond may be utilized in quasi-urban areas. Cleanup of traction control material shall be completed by August 1 of each year.

## SECTION IV: SNOW/ICE PLAN - ADMINISTRATION AND RESOURCES

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The Road Department maintains a fleet of equipment and a roster of employees capable of executing the Snow/Ice Plan.

The following equipment is available for use during snow and ice events:

### **AVAILABLE EQUIPMENT RESOURCES**

<b>Equipment</b>	<b># of each</b>
6-Wheel Truck with 750 gallon anti-icing distributor	1
6-Wheel Truck with 1000 gallon anti-icing distributor	2
10-Wheel, 12 Yard dump trucks with 12-ft side delivery plows	10
6-Wheel, 6 yard dump truck with 10-ft angle plow	1
10-Wheel, chassis mounted sanders with spinners (3 underbody plows)	7
6-Wheel, 1-ton flatbed trucks with V-plows	2
Motor Graders with 14-ft moldboards	5
Motor Grader V-plow (attachment)	1
Motor Grader front plow (attachment)	1
Backhoes with 2-yd bucket	2
Wheel Loader with 4-yd bucket	1
Wheel Loader with 3-yd bucket	3
Skid steer loader with 1-yd bucket and blower attachments	1
Loader mounted snow blower (3000 tons per hour)	1
Field Equipment repair truck with crane	1
Field equipment fuel/lube truck	1
Pickup support vehicles	33

### **AVAILABLE ROAD DEPARTMENT PERSONNEL RESOURCES AND PRIMARY DUTIES**

The below list of Road Department personnel resources is available for snow/ice response.

<b>Position</b>	<b># of FTE</b>	<b>General Duties</b>
Operations Manager	1	Implementation of Snow/Ice Plan.
Supervisors	3	Field assessment and supervision of conditions and effort.
Equipment Operators	23	Operate snow removal, traction control, and anti-ice equipment as directed.
Traffic Device Specialist	1	Respond to downed traffic control devices as necessary
Equipment Mechanics	7	Prepare and repair equipment for snow/ice plan implementation. Operate equipment as needed and as qualifications allow.
Fleet/Equipment Manager	1	Direct activities of Fleet/Equipment personnel and communicate with Operations Manager and

		Supervisor regarding equipment needs and readiness.
Office Support Staff	3	Provide communication interface between public and Operations Manager/Supervisors.
Department Director	1	Communicate with County Administrator, elected officials, media, and others as conditions dictate.

## **ANNUAL BUDGET CONSIDERATION/RESOURCE ALLOCATION**

The Road Department's annual budget is adopted by July 1 of each year as a portion of the County's comprehensive budget. The budget includes all recommended requirements for personnel, equipment and material necessary for the various activities of the Department.

During budget preparation, consideration is given to the Snow/Ice Plan requirements based on historical data and anticipated needs. Materials, personnel and equipment are budgeted within numerous budget lines within the Departmental budget. Cost accounting is utilized to track time, material, and equipment expenditures for the snow/ice related activities.

Prolonged snow and ice events can have a significant budget impact, primarily in the areas of overtime and contract snow removal. Multiple events throughout a winter season can have an impact that may require use of reserves and/or a budget amendment. The Road Department budget does not contain reserve funds specifically allocated for winter maintenance. As budgeted funding becomes depleted, additional funding for priority snow/ice event response – which is a priority public safety function of the Road Department – may be utilized and other expenditures may be deferred, such as projects (capital, pavement preservation) or equipment replacement/purchase.



## **OPERATIONS MANAGER FUNCTIONS**

The Operations Manager is responsible for implementing the Snow/Ice Plan. The Operations Manager may delegate implementation to others as appropriate.

In accordance with this Snow/Ice Plan, the Operations Manager shall:

1. Determine the phase of operations.
2. Determine appropriate treatments.



3. Determine timing of services according to priorities.
4. Determine the need for resources and deploy such resources.
5. Report on the effectiveness and adequacy of services provided.

### **SUPERVISOR FUNCTIONS**

The on-call Supervisor shall perform all those administration actions necessary to ensure that services are provided according to the adopted plan in a timely manner. The Supervisor shall keep the Operations Manager informed as to the actions they have taken and intend to take, and the effectiveness of such efforts. They shall maintain field assessment of conditions throughout a snow event and communicate with the Fleet/Equipment Manager to ensure equipment is available as needed.

### **OFFICE AND ADMINISTRATIVE SUPPORT FUNCTIONS**

Office support staff receives service requests, transmit requests to the proper staff, maintains records, and coordinates administrative support to the operating divisions.

The Director of the Road Department will ensure that all administrative systems are functioning properly. The Director will ensure that the County Administrator and Board of County Commissioners are kept informed and apprised of the need for any additional resources through the budget process. The Director (or assigned) will be the media contact and will communicate with and through the County's additional media resources as necessary. The Director shall also cause the plan to be reviewed on an annual basis and updated as necessary.



### **COMMUNICATIONS**

Communications within the Road Department and between the Road Department and other service agencies are important in providing information to execute this plan.

Notice of adverse road conditions may be received by the Road Department from observations by department employees, telephone calls or communications from private citizens to the Road Department or Sheriff's Department via notification from the 911 Dispatch Center to the Road Department. Response to these notices shall be in accordance with the plan.



All Supervisors are supplied cell phones and can be reached during the day as well as those evenings and weekends that a supervisor is on-call – enabling a 24/7 response.

Telephone calls received directly to the Road Department after-hours are routed through a messaging service and relayed to the on-call Supervisor. Email communications received via the Road Department website's "contact-us" email function are routed (via Operations Manager) to or received directly by the on-call Supervisor. Inquiries received via Deschutes County's social media network or direct inquiries to Deschutes County Administration (via email, web submission or telephone) are routed from the County's Public Communication Coordinator to the Department Director or assignee for distribution as necessary to the Supervisors or Operations Manager.

### **COORDINATE RESPONSIBILITIES WITH SHERIFF'S DEPARTMENT AND 911 DISPATCH**

A key element of successful snow/ice response is communication with and between emergency services, namely the Deschutes County Sheriff's Office (DCSO) and Deschutes County 911 Dispatch.

1. 911 Dispatch will be provided a list of names on the Department's on-call roster. As Supervisors and other personnel rotate to on-call status, 911 Dispatch will be notified 24 hours in advance of on-call personnel status changes.
2. The Deputy Sheriff on patrol will notify the Road Department through 911 Dispatch of adverse road conditions.
3. 911 Dispatch will notify the Road Department upon report of adverse conditions.
4. The Road Department will notify DCSO, 911 Dispatch, and other emergency service agencies of road closures or other special conditions which may be of assistance to the public.
  - a. Media and social media information will be distributed per the County's Communications Policy (GA-3).

### **ANNUAL PREPAREDNESS PLAN**

The Annual Preparedness Plan is as follows and shall be completed in the fall of each year.

1. Coordinate plans with other agencies.
2. Ensure contracts for supplemental services are executed.
3. Review operations plan with emergency response personnel, and equipment operators.
4. Ensure that all equipment is in a state of readiness.
5. Close designated roads, post applicable warning and/or control signs.

## **SNOW REMOVAL POLICY ON MAILBOXES, DRIVEWAYS AND SIDEWALKS**

With 900 miles of road to service in which time is of the essence during a snow and ice event, it is not possible within the resources of the Road Department to provide a level of service which includes individual clearing of driveways onto the County system. The Road Department is not responsible for opening driveways that have access onto County roads; however, the County may provide or obtain assistance for disabled customers via an application process.

Through the act of plowing and casting snow to the right side of the road, snow berms may be placed across driveway access points. It is not the responsibility of the Road Department to clear snow berms that may be formed by the casting of snow.

In the process of snow removal, mailboxes may be damaged, access to mailboxes may be obstructed, driveways may be closed and sidewalks may be covered. It is the responsibility of the abutting land owner to remove such snow.

Only mailboxes physically hit by Road Department equipment will be reinstalled. Mailboxes knocked down by flying snow will not be reinstalled, nor will fences, signs or other property elements located within the right-of-way.

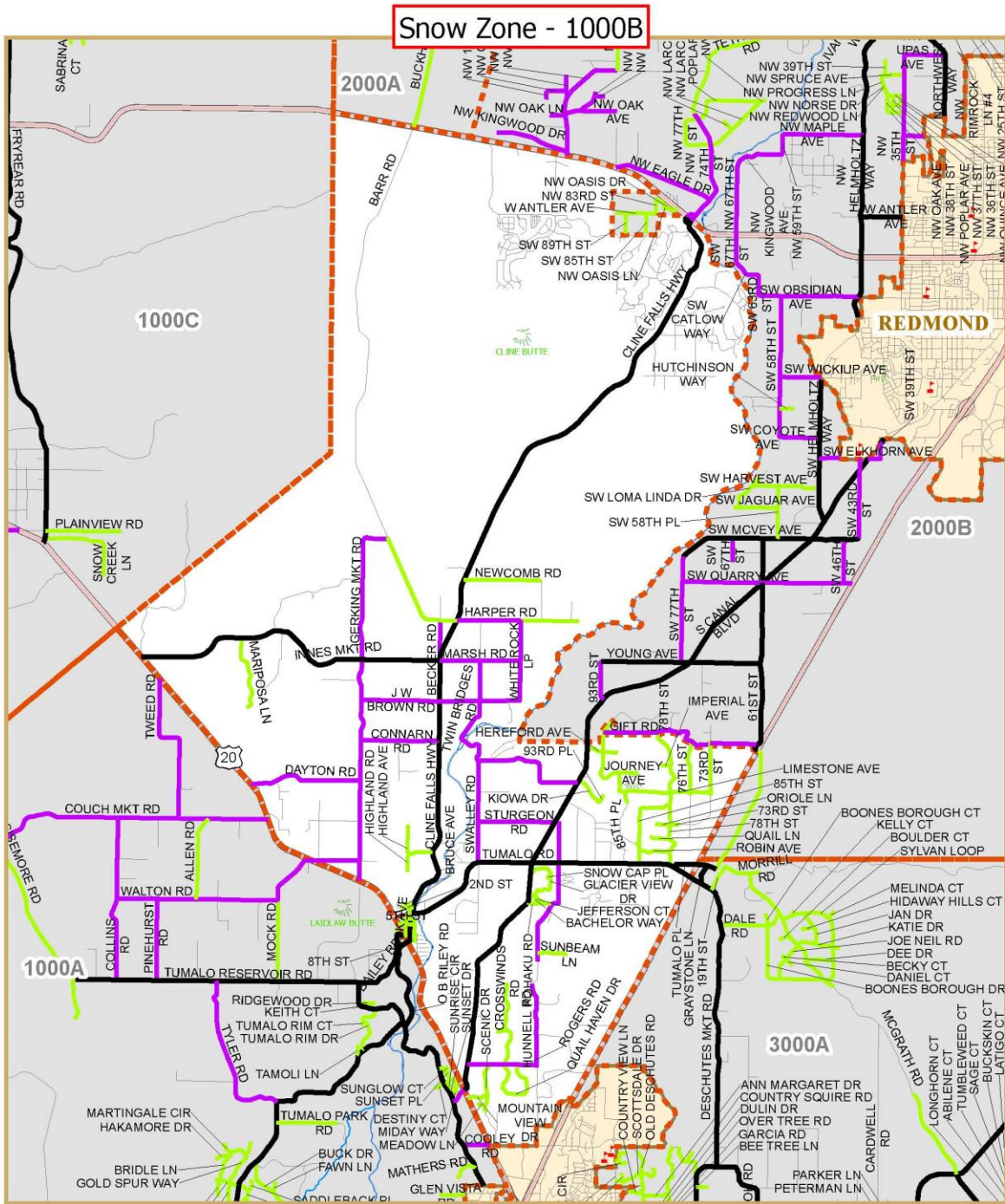
It is the responsibility of the property owner to provide clear access up to the mailbox for the postal carrier.

## **SNOW/ICE PLAN APPENDIX A: SNOW ZONE MAPS**

a. Snow Zone Maps, as follows:

<b>Snow Zone</b>	<b>Approximate Geographical Location</b>	<b>Major Road Facilities in Zone</b>
1000-A	West of Bend city limits	Skyliners Road, Johnson Mkt Road, OB Riley Road
1000-B	Tumalo area to Hwy 126	Cline Falls Hwy
1000-C	Sisters area	Camp Polk Road, Holmes Road
2000-A	Terrebonne area and NE Redmond area	Lower Bridge Way, Smith Rock Way
2000-B	NW and SW Redmond Area	Helmholtz Way, Old Bend-Redmond Hwy
3000-A	NE Bend Area	Powell Butte Highway, Deschutes Market Road
3000-B	East of Bend	Alfalfa Market Road
3000-C	SE Bend Area	Arnold Market Road, Rickard Road
3000-D	South of Bend City Limits, DRW	Knott Road, Baker Road
4000-A	Sunriver Area	S Century Drive, Spring River Road, River Summit Drive, Cottonwood Road
4000-B	South of Sunriver	S Century Drive, N Huntington Road
4000-C	North of La Pine	State Rec Road, Riverview Drive, Huntington Road
4000-D	West and NW La Pine Area	Day Road, Burgess Road, Dorrance Meadow Road
4000 E	La Pine city limits	Huntington Road, 1 <sup>st</sup> Street, Finley Butte Road
4000-F	East of La Pine	Masten Road, Darlene Way, Newberry Road
5000	East of Horse Ridge (Brothers Area)	No pre-emptive snow/ice maintenance is provided in this area. Service provided via request only.





#### Legend

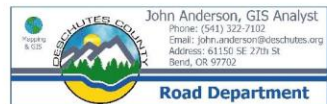
- Zone 1000B
- School Locations
- ▲ Peaks
- Snow Plow Priority
- High
- Medium
- Low
- As Needed
- Primary Highways
- Streams
- Rivers
- City

0 1 2 3 4 Miles



The information on this map was derived from digital databases on Deschutes County's G.I.S. Care was taken in the creation of this map. Deschutes County cannot accept any responsibility for errors, omissions, or positional accuracy and, therefore, there are no warranties which accompany this product. However, notification of any errors will be appreciated.

December 21, 2013

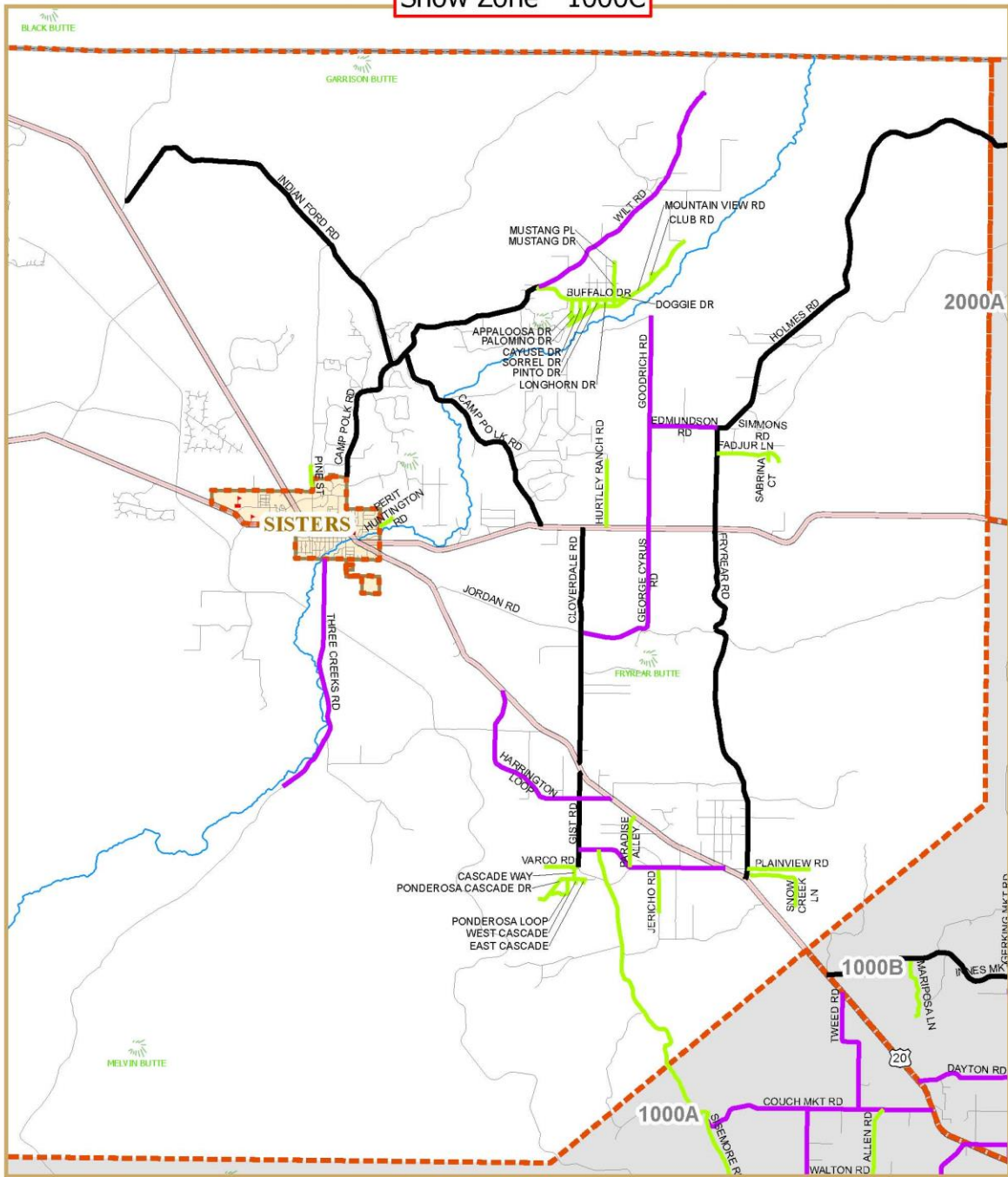


**Road Department**

P:\ArcGIS\_Products\Snow Maps



# Snow Zone - 1000C



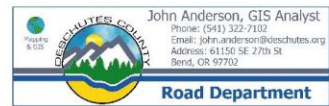
- Legend**
- Zone 1000C
  - School Locations
  - ▲ Peaks
  - Snow Plow Priority
  - High
  - Medium
  - Low
  - As Needed
  - Primary Highways
  - Streams
  - Rivers
  - City
  - County Line

0 1 2 3 4 Miles



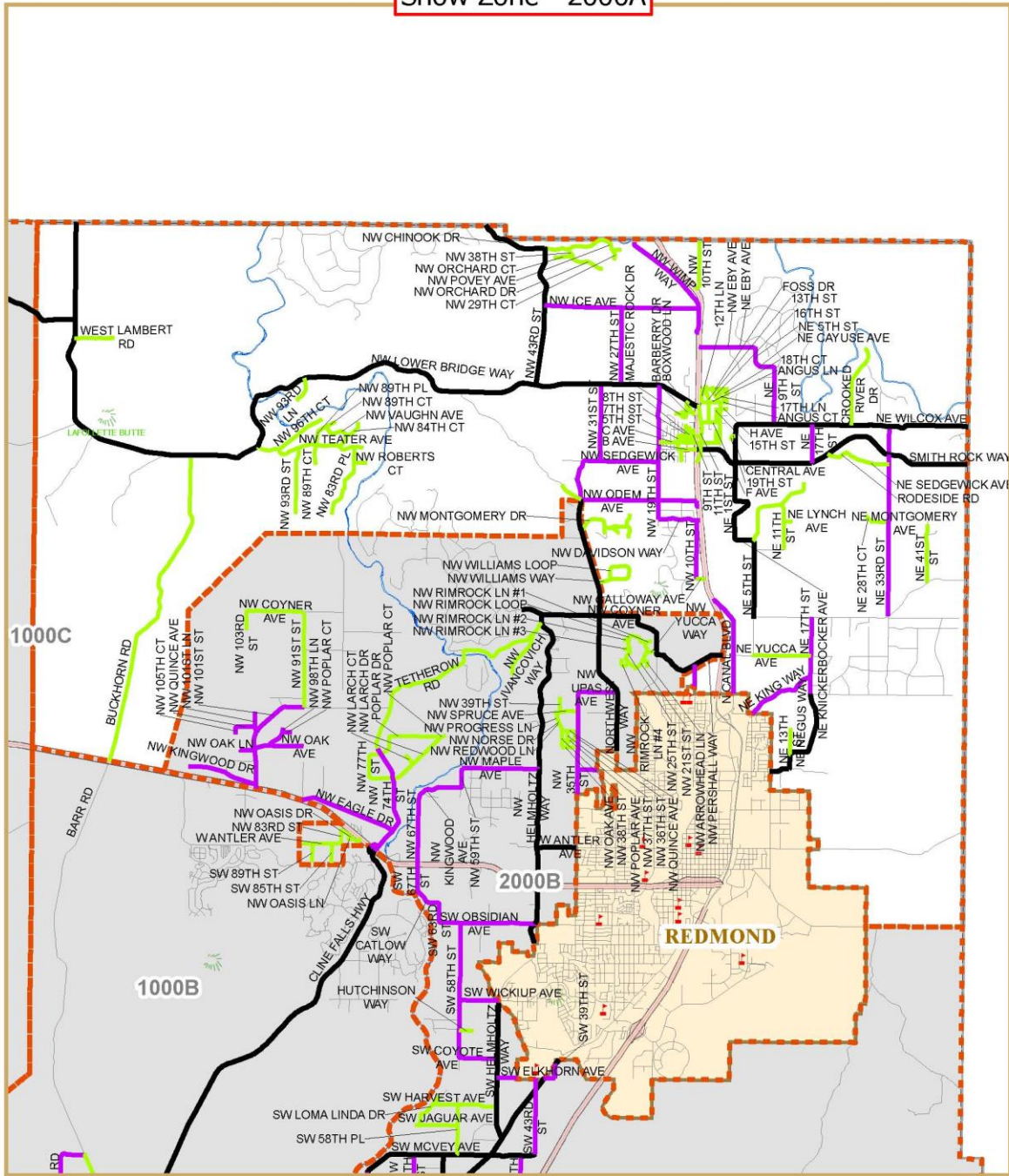
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December 21, 2013



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# Snow Zone - 2000A




- Legend**
- Zone 2000A
  - School Locations
  - Peaks
  - Snow Plow Priority
    - High
    - Medium
    - Low
    - As Needed
  - Primary Highways
  - Streams
  - Rivers
  - City
  - County Line

0 1 2 3 4 Miles



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December 21, 2013



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 John Anderson, GIS Analyst  
 Phone: (541) 322-7100  
 Email: john.anderson@deschutes.org  
 Address: 61150 SE 27th St  
 Bend, OR 97702

**Road Department**

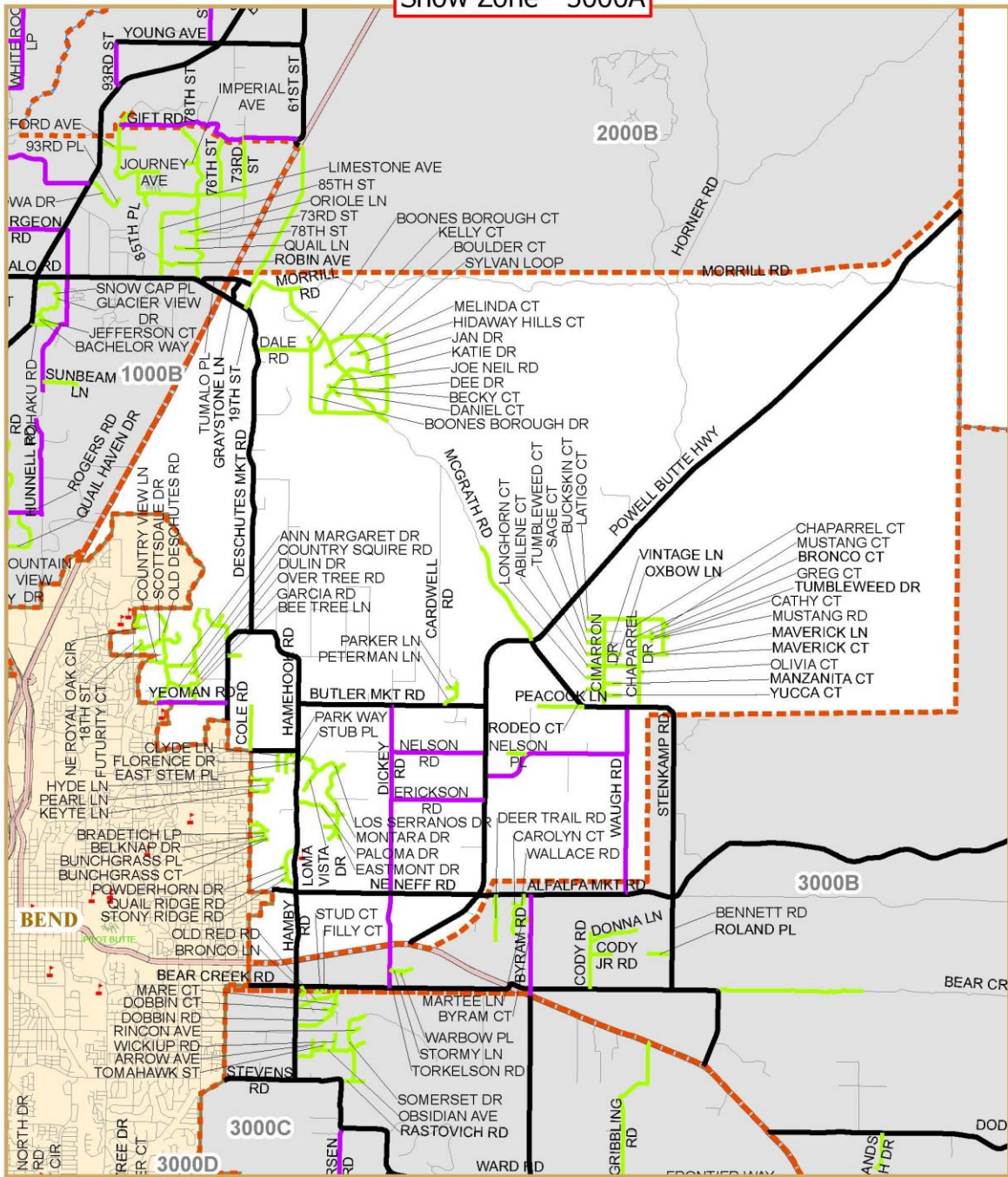
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# Snow Zone - 3000A



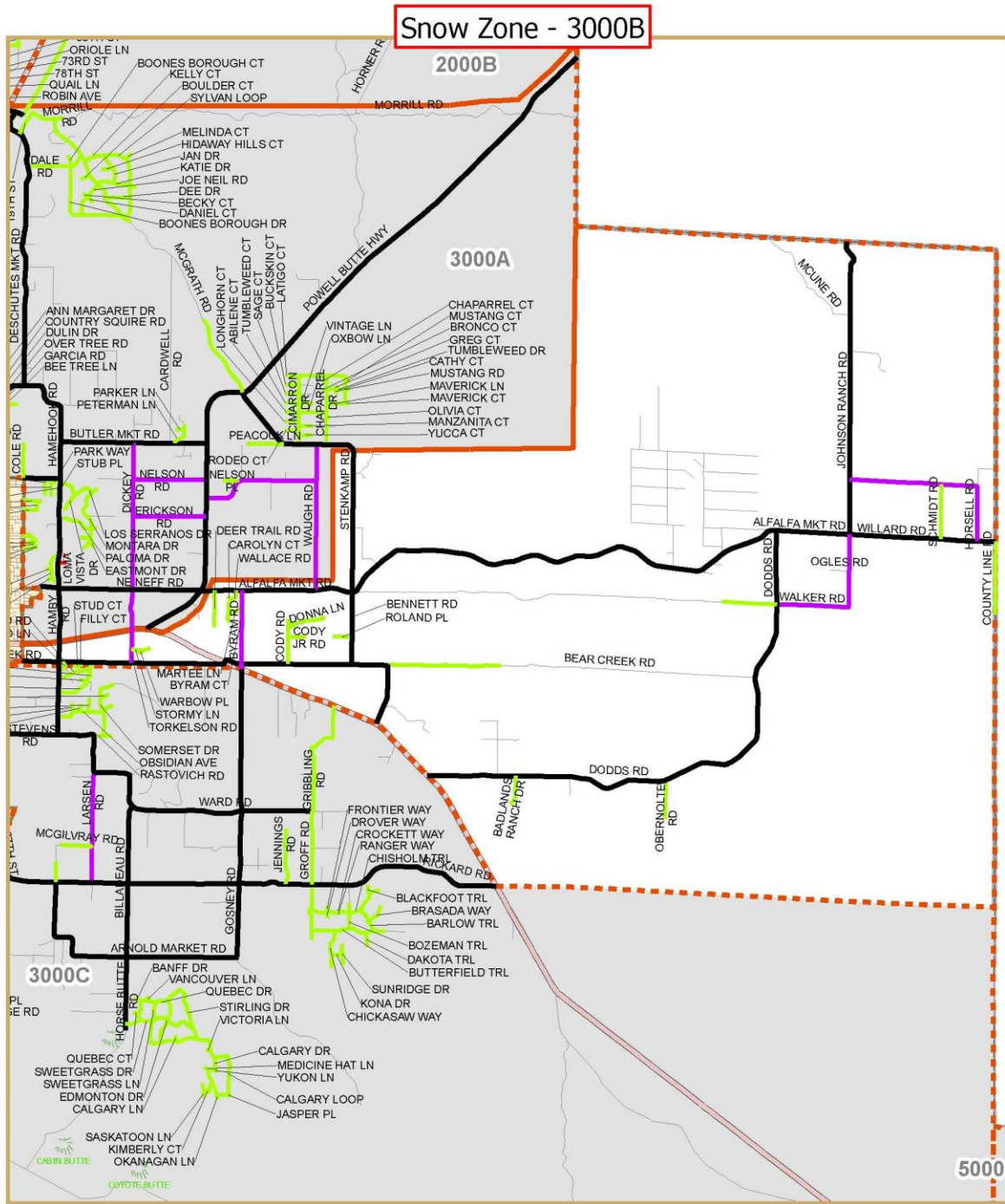
- Legend**
- Zone 3000A
  - School Locations
  - Peaks
  - Snow Plow Priority**
    - High
    - Medium
    - Low
    - As Needed
  - Primary Highways
  - Streams
  - Rivers
  - City
  - County Line

0 1 2 3 4 Miles

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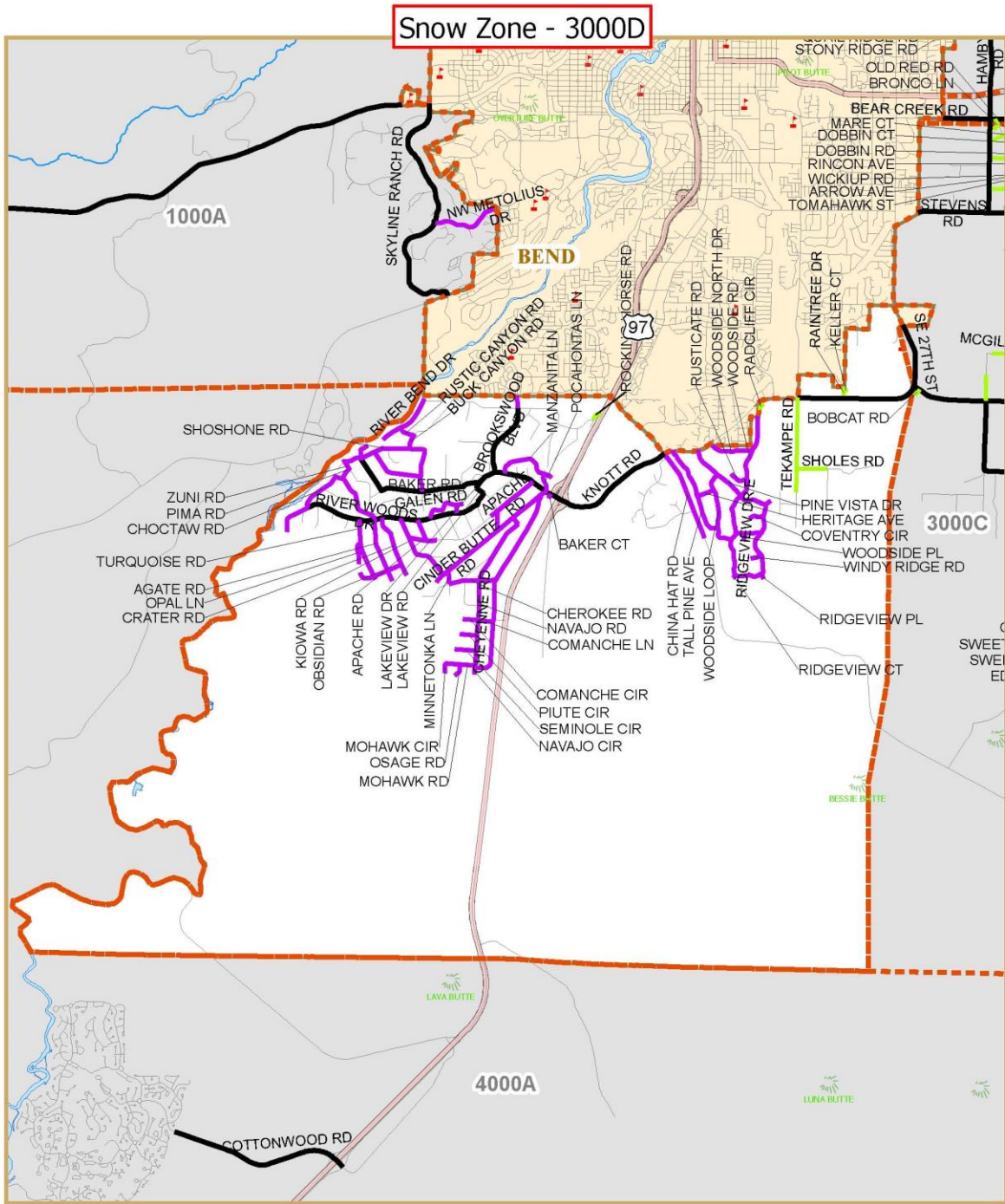
**Road Department**

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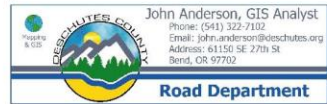


- Legend**
- Zone 3000D
  - ▲ School Locations
  - ▲ Peaks
  - Snow Plow Priority
  - High
  - Medium
  - Low
  - As Needed
  - Primary Highways
  - Streams
  - Rivers
  - City



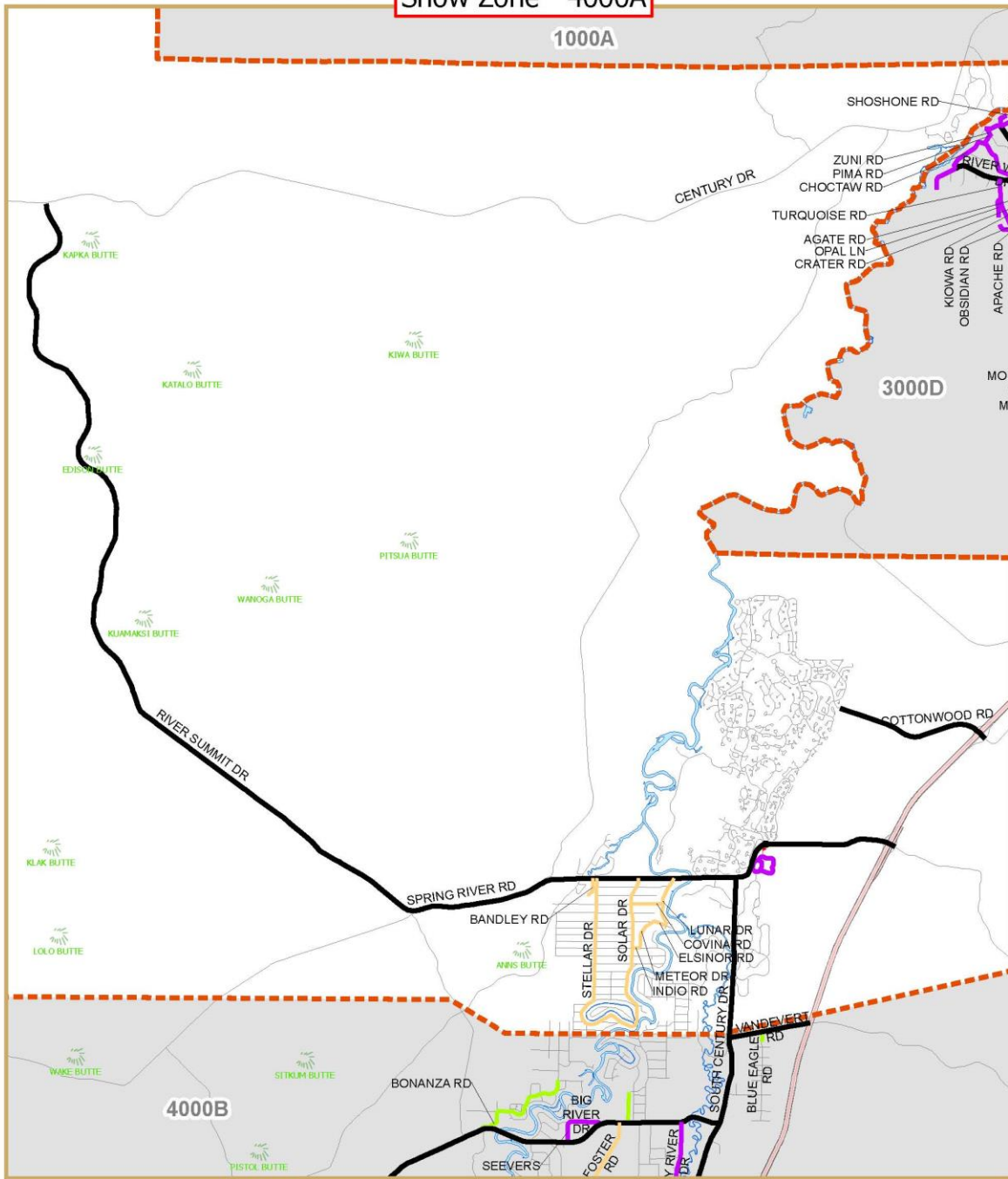
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# Snow Zone - 4000A



## Legend

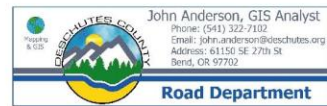
- Zone 4000A
- School Locations
- Peaks
- Snow Plow Priority
- Primary Highways
- Streams
- Rivers
- City
- High
- Medium
- Low
- As Needed

0 1 2 3 4 Miles



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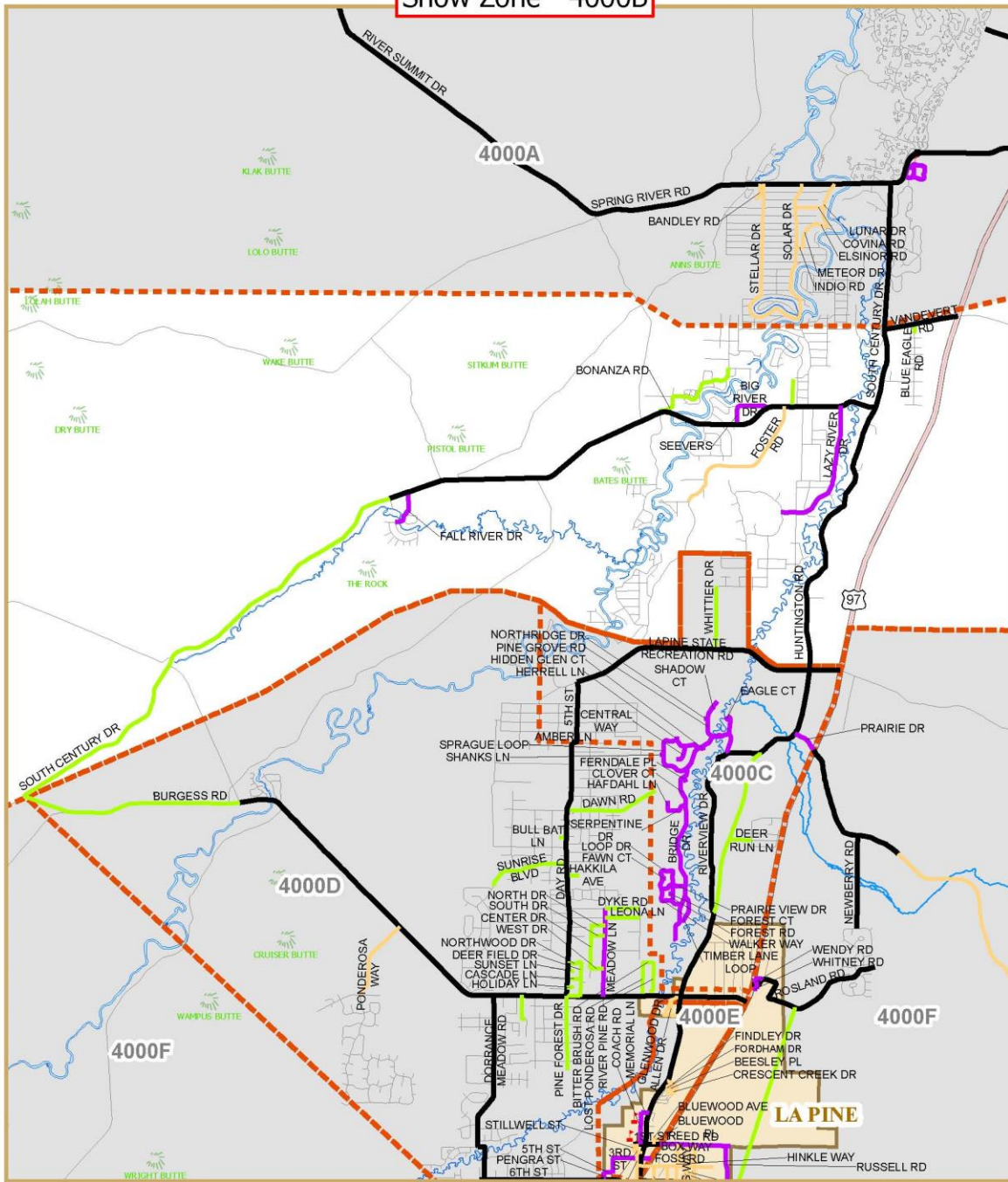
December 21, 2013



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# Snow Zone - 4000B



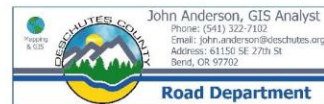
- Legend**
- Zone 4000B
  - School Locations
  - Peaks
  - Primary Highways
  - Streams
  - Rivers
  - City
  - Snow Plow Priority**
    - High
    - Medium
    - Low
    - As Needed

0 1 2 3 4 Miles



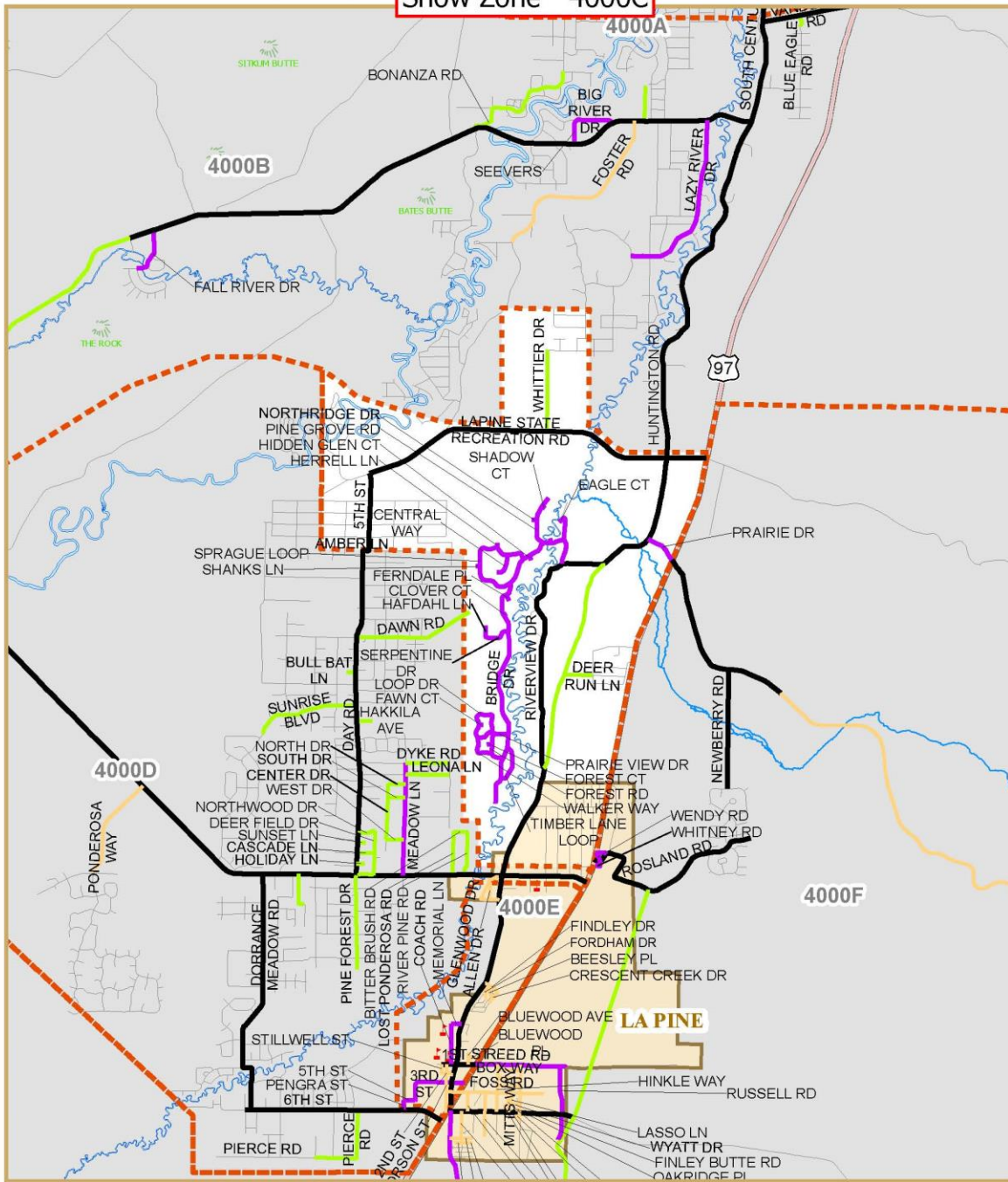
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# Snow Zone - 4000C



## Legend

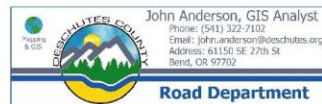
- Zone 4000C
- School Locations
- ▲ Peaks
- Snow Plow Priority
- High
- Medium
- Low
- As Needed
- Primary Highways
- Streams
- Rivers
- City

0 1 2 3 4 Miles



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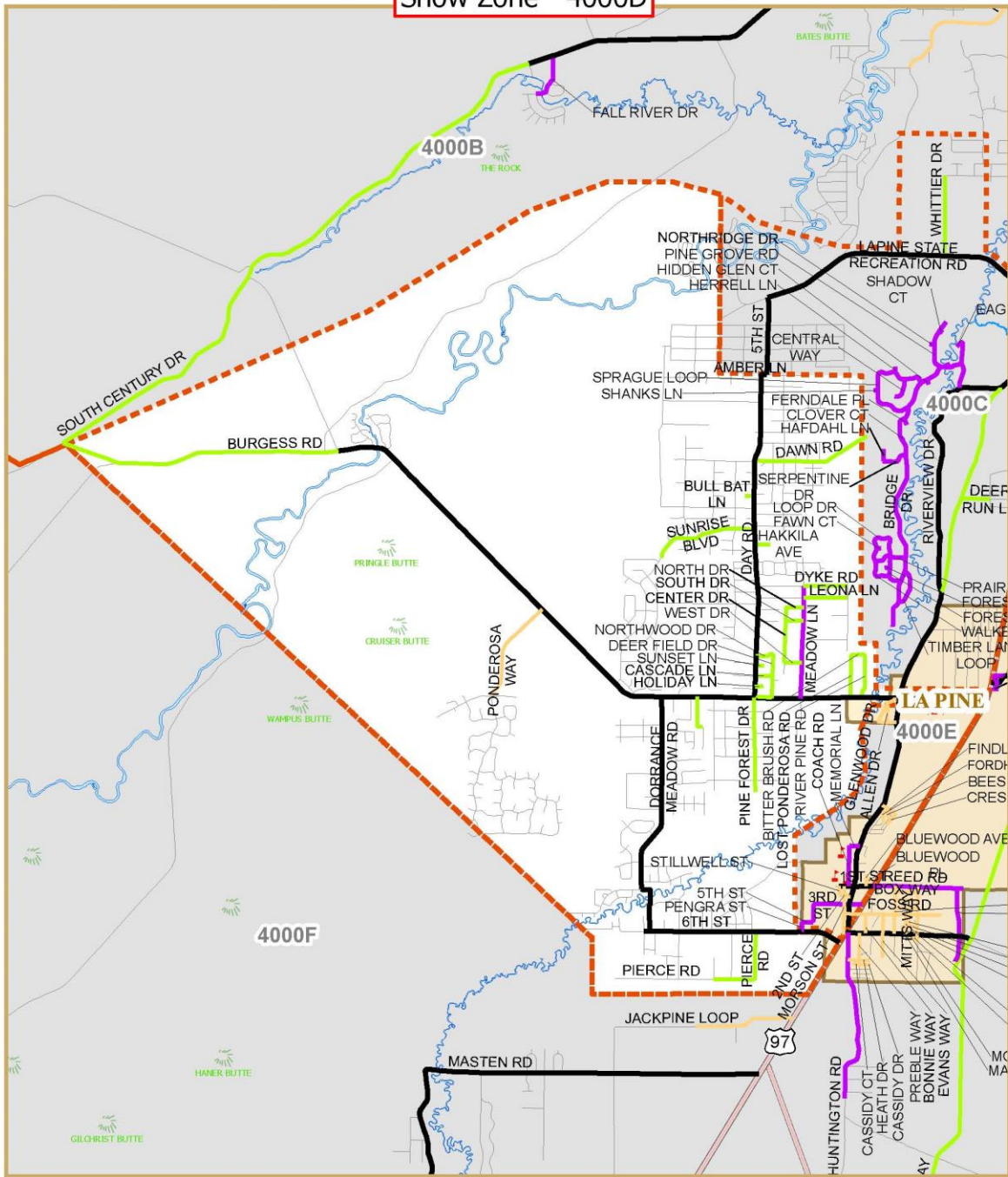
December 21, 2013



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# Snow Zone - 4000D



## Legend

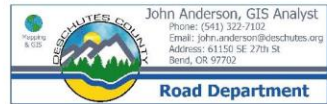
- ▬ Zone 4000D
- School Locations
- ▲ Peaks
- ▬ Snow Plow Priority
- ▬ High
- ▬ Medium
- ▬ Low
- ▬ As Needed
- ▬ Primary Highways
- ▬ Streams
- ▬ Rivers
- ▬ City

0 1 2 3 4 Miles



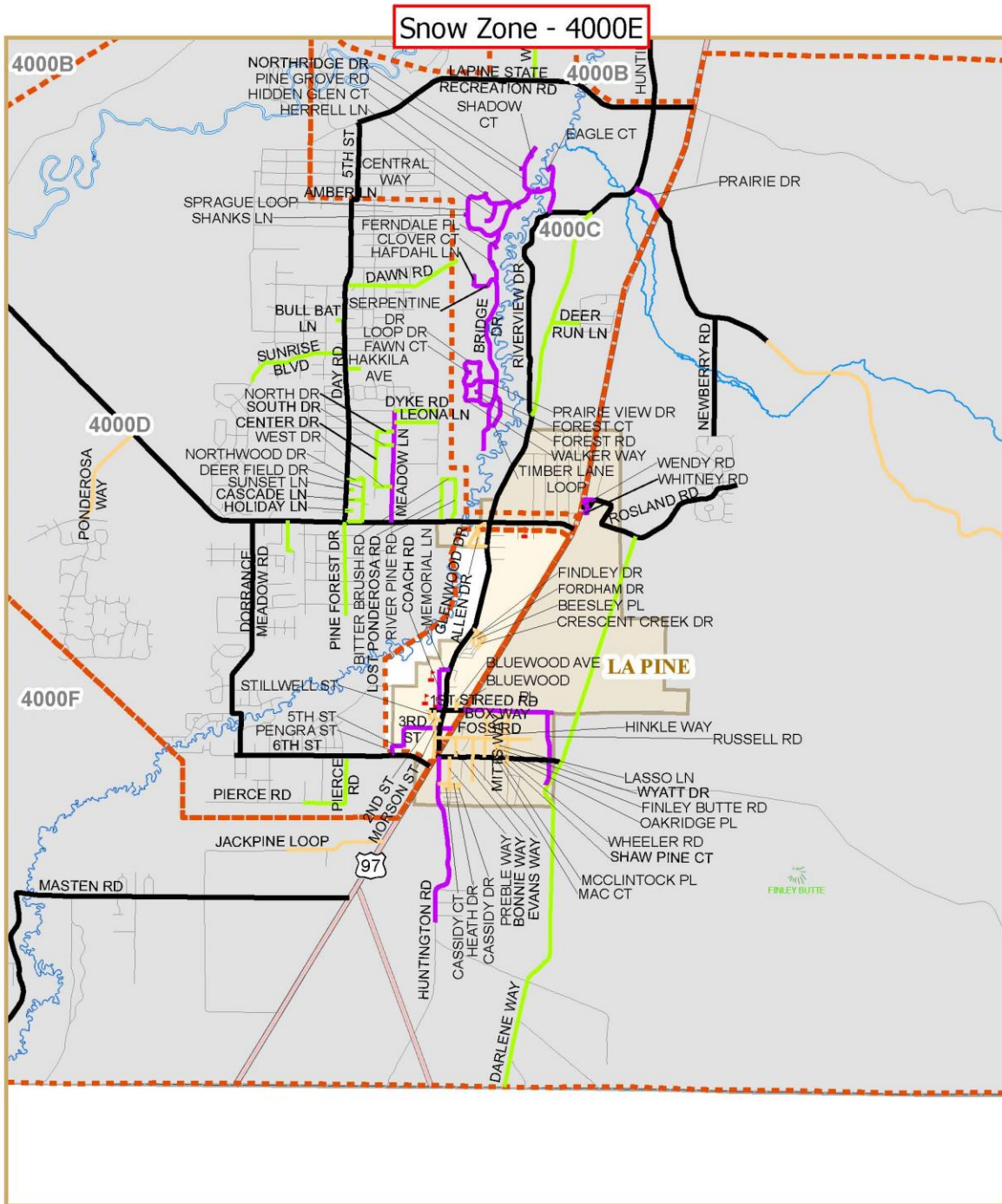
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#### Legend

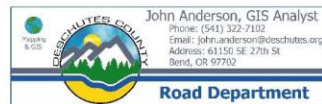
- Zone 4000E
- School Locations
- ▲ Peaks
- Snow Plow Priority
- High
- Medium
- Low
- As Needed
- Primary Highways
- Streams
- Rivers
- City
- County Line

0 1 2 3 4 Miles

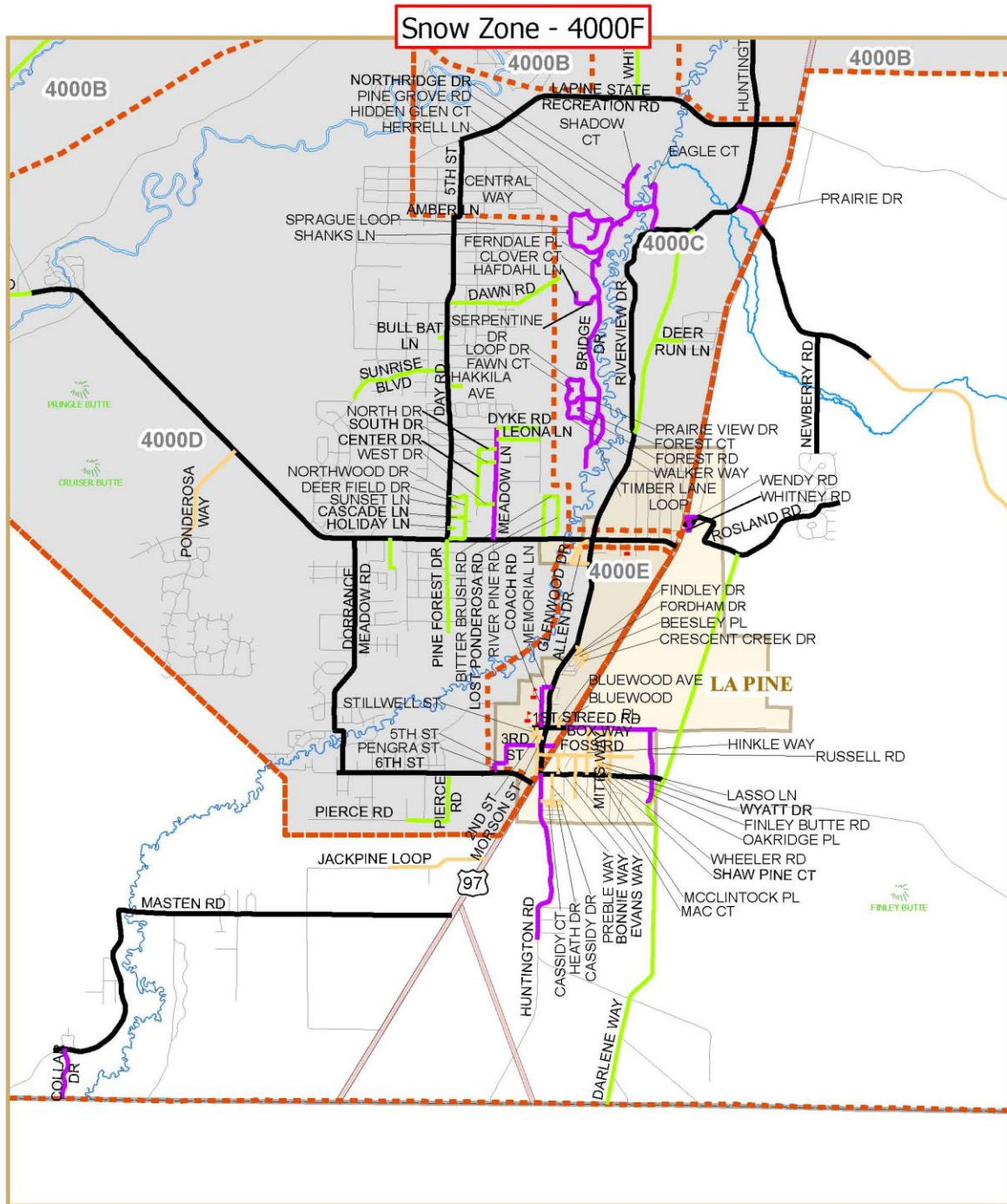


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#### Legend

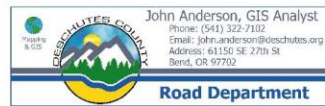
- Zone 4000F
- School Locations
- ▲ Peaks
- Snow Plow Priority**
- High
- Medium
- Low
- As Needed
- Primary Highways
- Streams
- Rivers
- City
- County Line

0 1 2 3 4 Miles



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## **SNOW/ICE PLAN APPENDIX B: DEFINITIONS**

### Anti-Icing:

The snow and ice control practice of applying chemical freezing-point depressants to inhibit the formation or development of bonded snow and ice.

### Arterial Road:

A restricted access street of substantial continuity, which is a primary traffic route and is so designated by the County.

### Available Resources:

Those resources such as traction control material, equipment and labor that are available for directing to the implementation of this plan.

### Board of County Commissioners (Board):

The governing body of Deschutes County, Oregon.

### Chemical Ice Controls:

Chemicals designated to depress the freezing point of precipitation on roadways. Chemical ice controls include salt, magnesium chloride, calcium magnesium acetate, and other similar products which act as freezing point depressants.

### Cinders:

Crushed volcanic sanding material applied to roadways to assist traction on snow-covered or icy roads.

### Collector Road:

A restricted access street supplementary to the arterial street system used, or intended to be used, primarily for the movement of traffic between arterial and local streets, and is so designated by the County.

### Contracts for Service:

Executed agreements between the County and other government entities or private companies for work to be done as needed during extreme weather conditions.

### County Road:

"County road" means a public road under the jurisdiction of a county that has been designated as a county road under ORS 368.016.

### Curve:

A horizontal bend in the road where the posted advisory speed is less than the statutory speed.

### Director:

Director of the Road Department for Deschutes County, designated by the County governing body as being responsible for administration of the road activities of the County.

### Documentation:

Written or electronically recorded information in respect to road conditions or services rendered.

### Emergency Response:

Any time period between when notified of an emergency and when a plan is activated.

### Fleet/Equipment Manager:

The Manager of the Fleet/Equipment Division within the Road Department, or his/her designee.

### Flooding:

The overflowing of water from one point to another.

### Ice:

Water made solid by cold which may result in a slippery surface.

### Intergovernmental Agreement (IGA):

A written arrangement between county, municipal, state or federal agencies.

Local Access Road:

A public road that is not a county road, state highway or federal road.

Local Road:

A road which provides access to property abutting the public right of way. A local road is not intended to carry thru-traffic, although moving thru-traffic is a secondary function of a local road.

Operations Manager:

Operations Manager within the Operations Division of the Road Department, or his/her designee.

Public Road:

"Public road" means a road over which the public has a right of use that is a matter of public record.

Road Department:

Road Department within Deschutes County, which has the responsibility for maintenance and operation of the County road system, including implementation of the adopted Snow/ Ice Plan.

Rural Area:

That area within Deschutes County outside of urban growth boundaries.

Sanding/Traction:

The act of placing sanding material on a road to assist traction during or after a snow event.

Snow:

Precipitated moisture frozen in the upper air currents, resulting in crystalline flakes which accumulate on the ground.

Snow/Ice Plan:

The document adopted by the Board of County Commissioners setting forth the goals, objectives and operating procedures for response to snow and ice on county roads.

Snow Event:

A snow event has occurred when at least four inches of snow has accumulated on a county road and it is snowing.

Snow Removal:

Snow removal, commonly referred to as snowplowing, is the mechanical act of (snowplows, graders, loaders and similar equipment) pushing snow from a portion of the roadway to another portion of the right of way. Snow removal does not remove all snow and ice from the traveled portion of the roadway.

Snow Season:

November 1 thru April 30.

Steep Grade:

A constant vertical change in elevation of eight percent or greater.

Supervisor:

Any so designated employee within the Road Department.

Traction Material (TM):

Include sanding materials and chemicals designed to depress to freezing point of precipitation.

Traction Devices (TD):

Include studs, tire chains or other manufactured devices that enhance vehicle traction.

Urban Area (UGB):

Areas of city and unincorporated adjacent areas designated by adopted comprehensive land use plans.