

Soil & Water Quality Testing

PNS Conference
Portland Oregon
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Pacific Northwest Snowfighters

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Winter Maintenance Materials





Material Usage

ODOT solid: 187 tons*

ODOT Mag: 4.4 million gallons

WSDOT solid: 70,000 tons

WSDOT liquid: 2.2 million gallons



* Limited to pilot locations





Material Usage

Nationally: **7.7 Million Tons**

New York: **1,106,000 Tons**

Pennsylvania: **1,100,000 Tons**

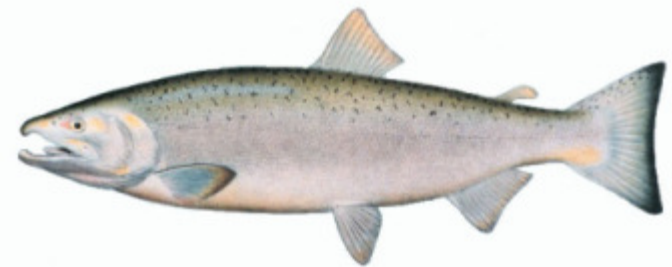
Ohio: **949,313 Tons**

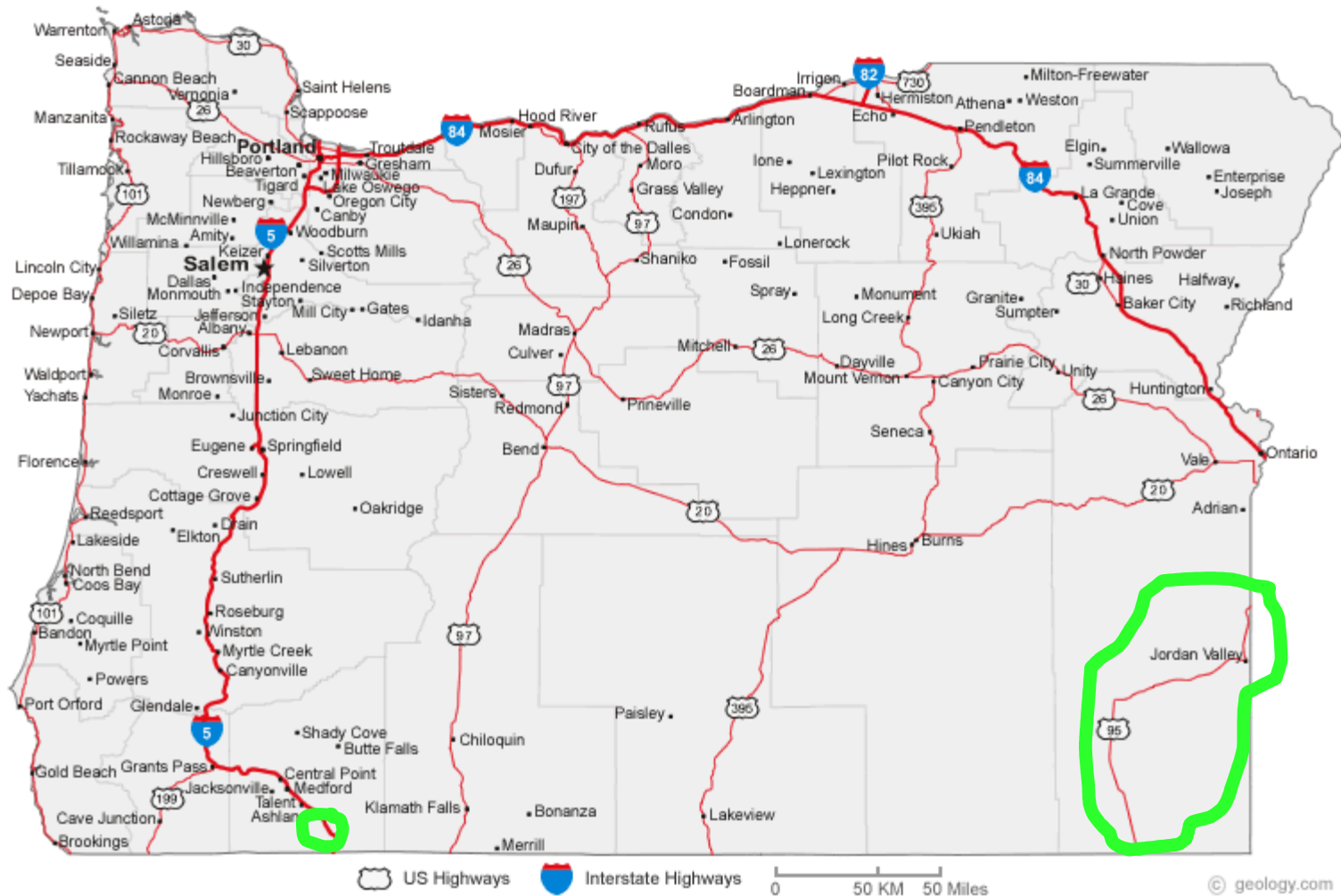


What's the Big Deal? Why do we care?



What's the Big Deal?





ODOT Salt Pilot Locations
 I-5 Siskiyou Pass: MP 0-11
 US 95: MP 0-121



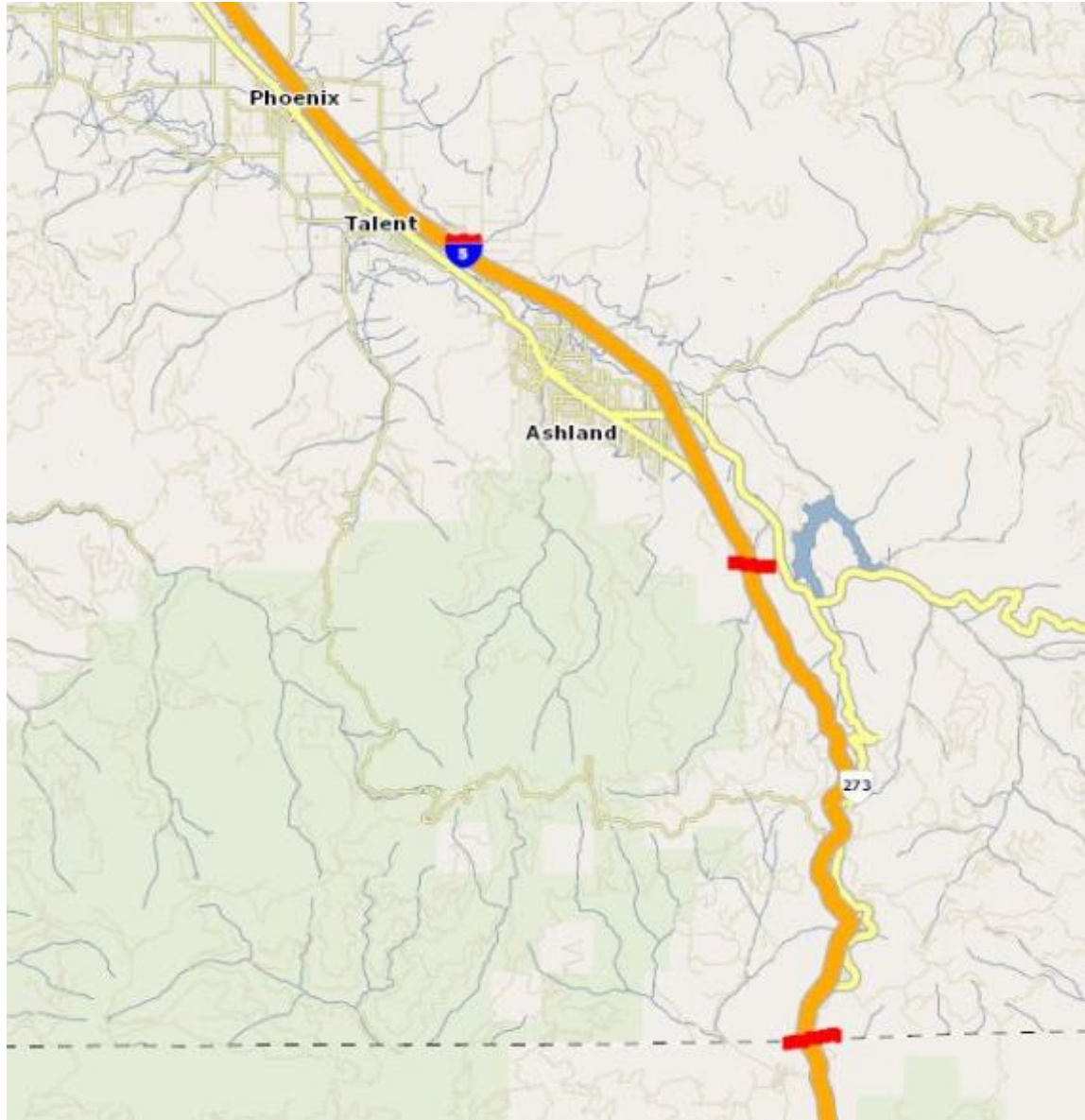


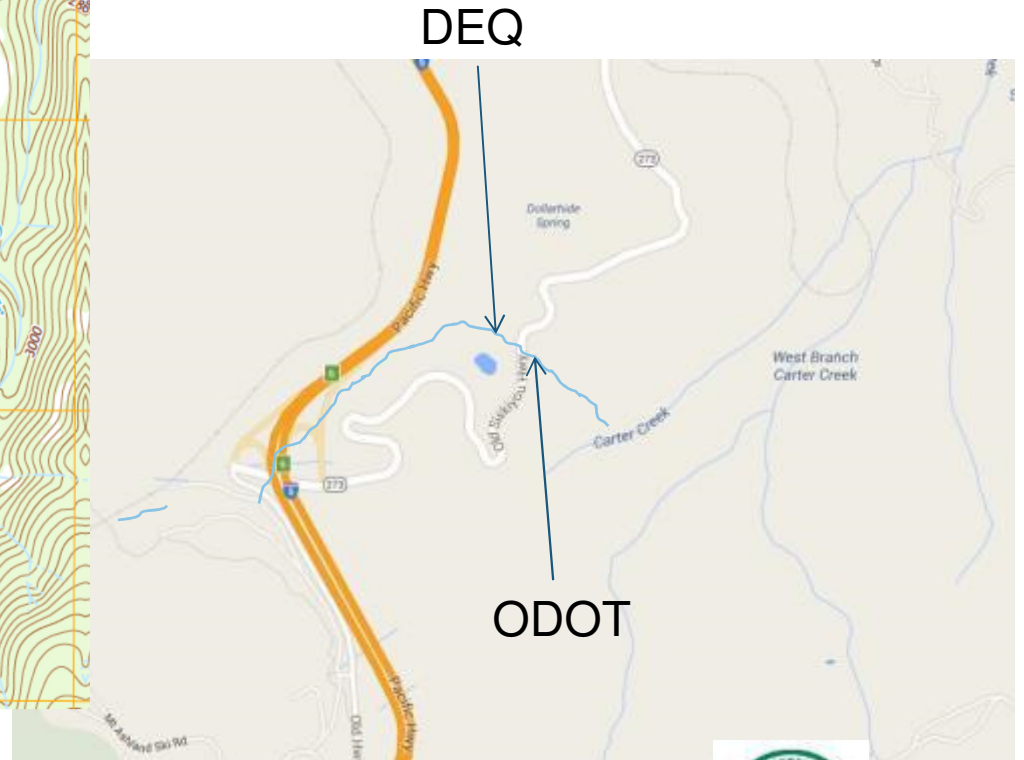
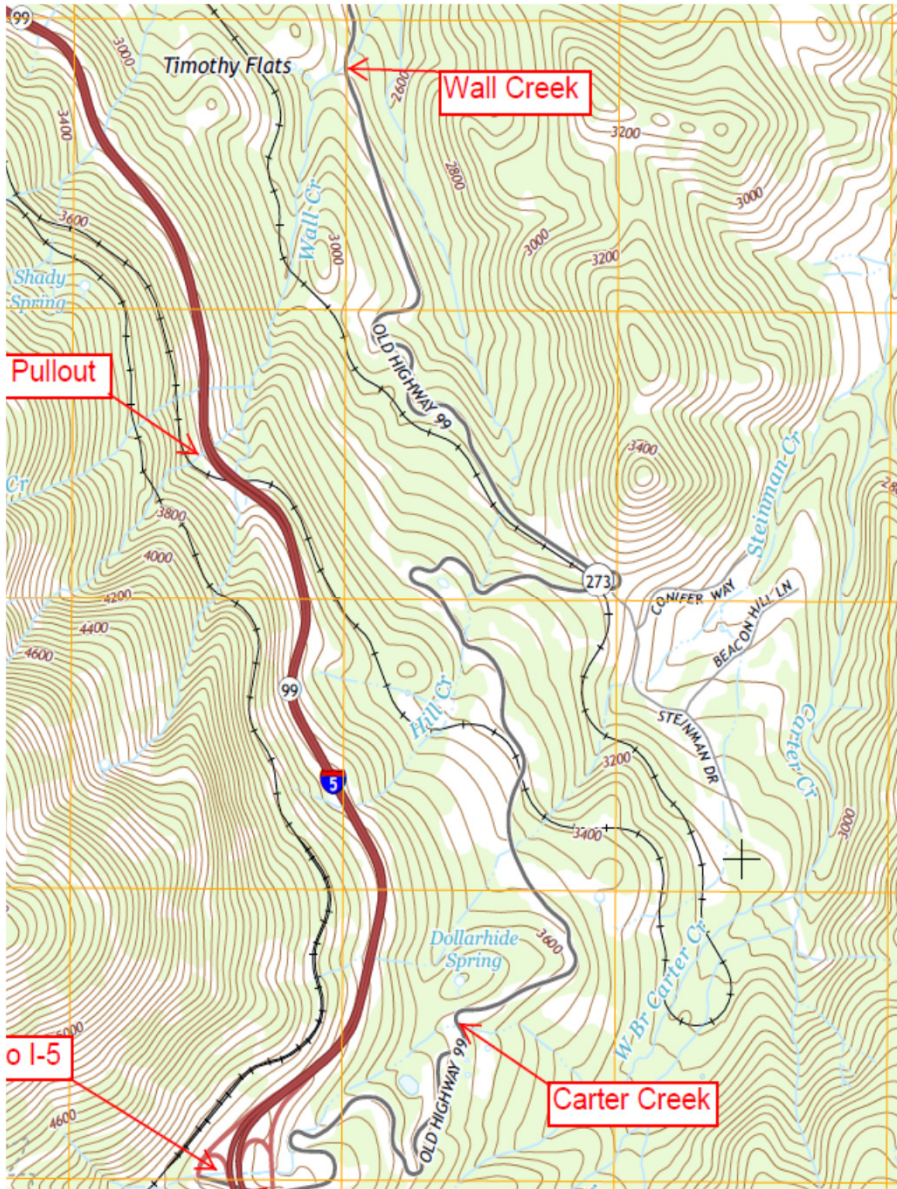
US 95



I-5 Siskiyou
Pass







Carter Cr. Sample Locat



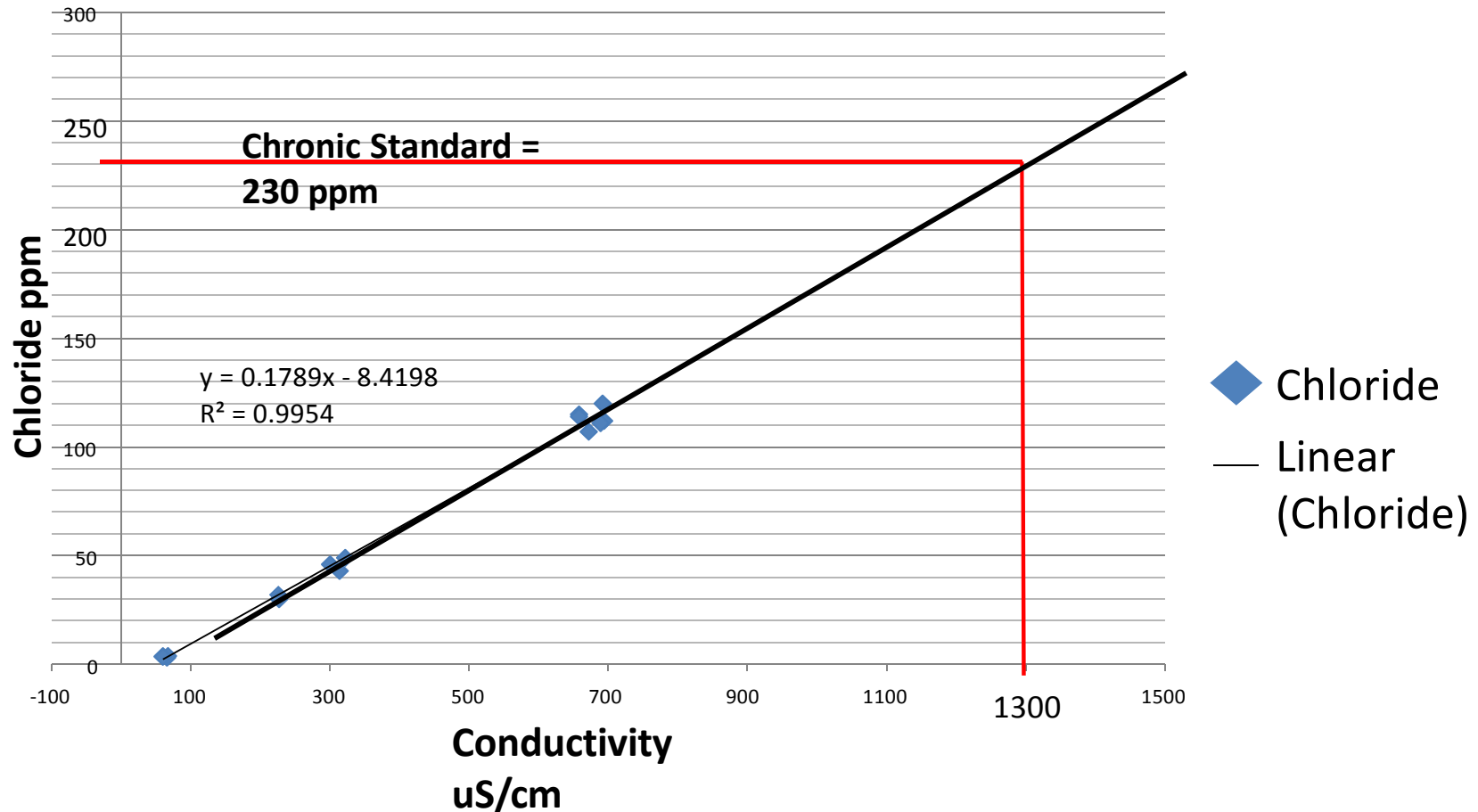
Oregon I-5 Siskiyou Pass



Water Quality Analysis

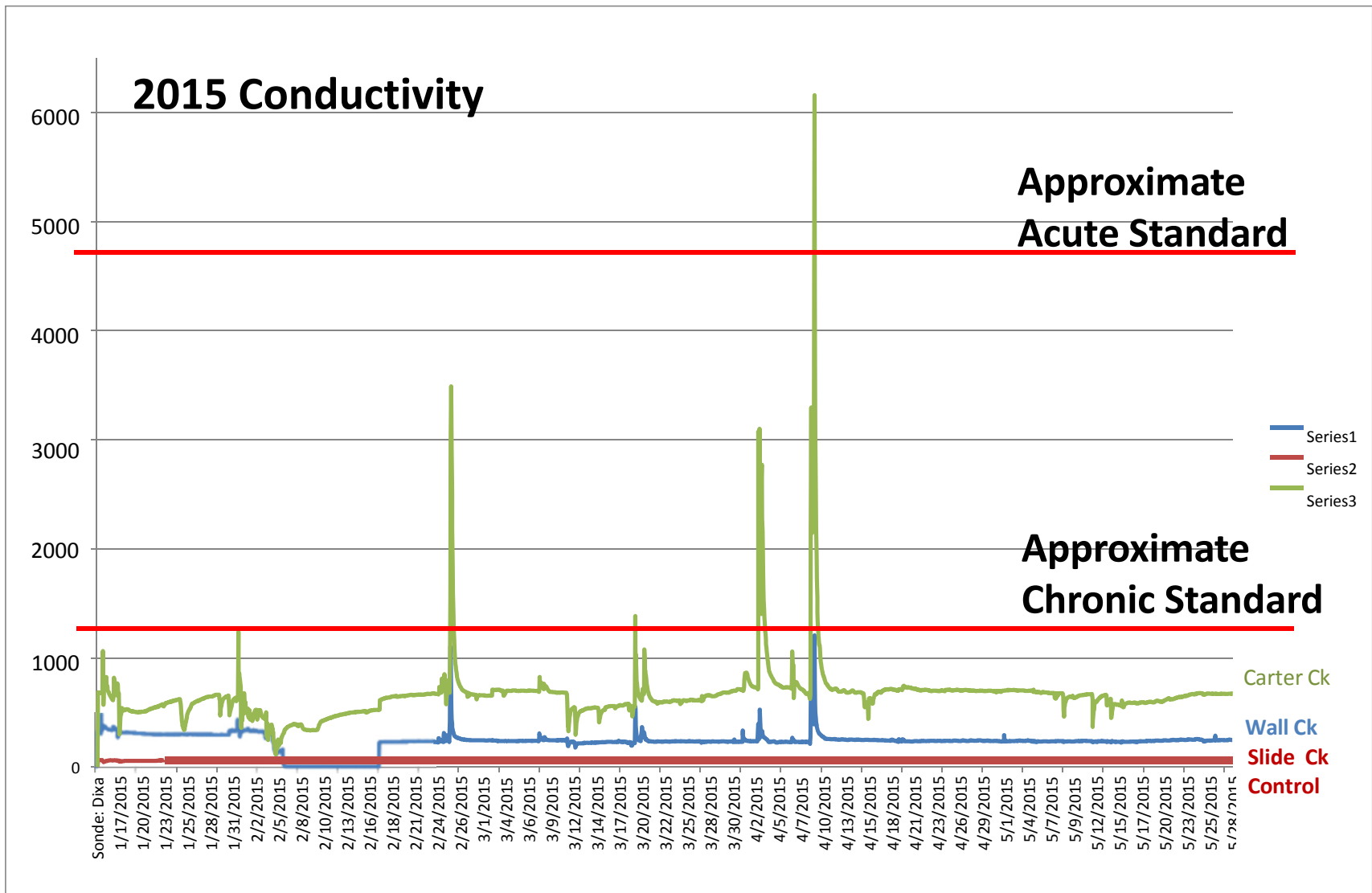
Continuous sampling results

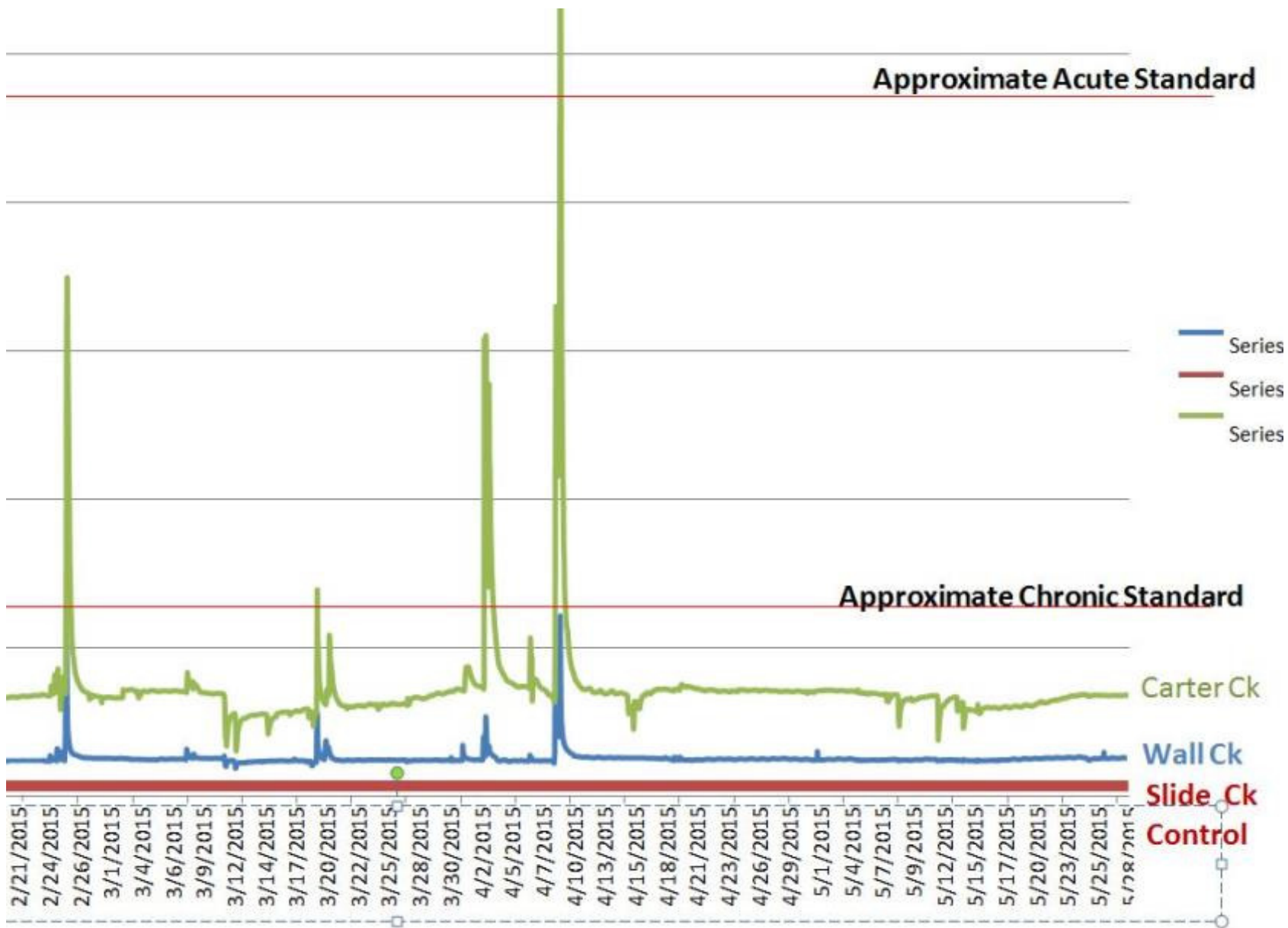
2015 Calibration Curve: Chloride mg/L vs Conductivity uS

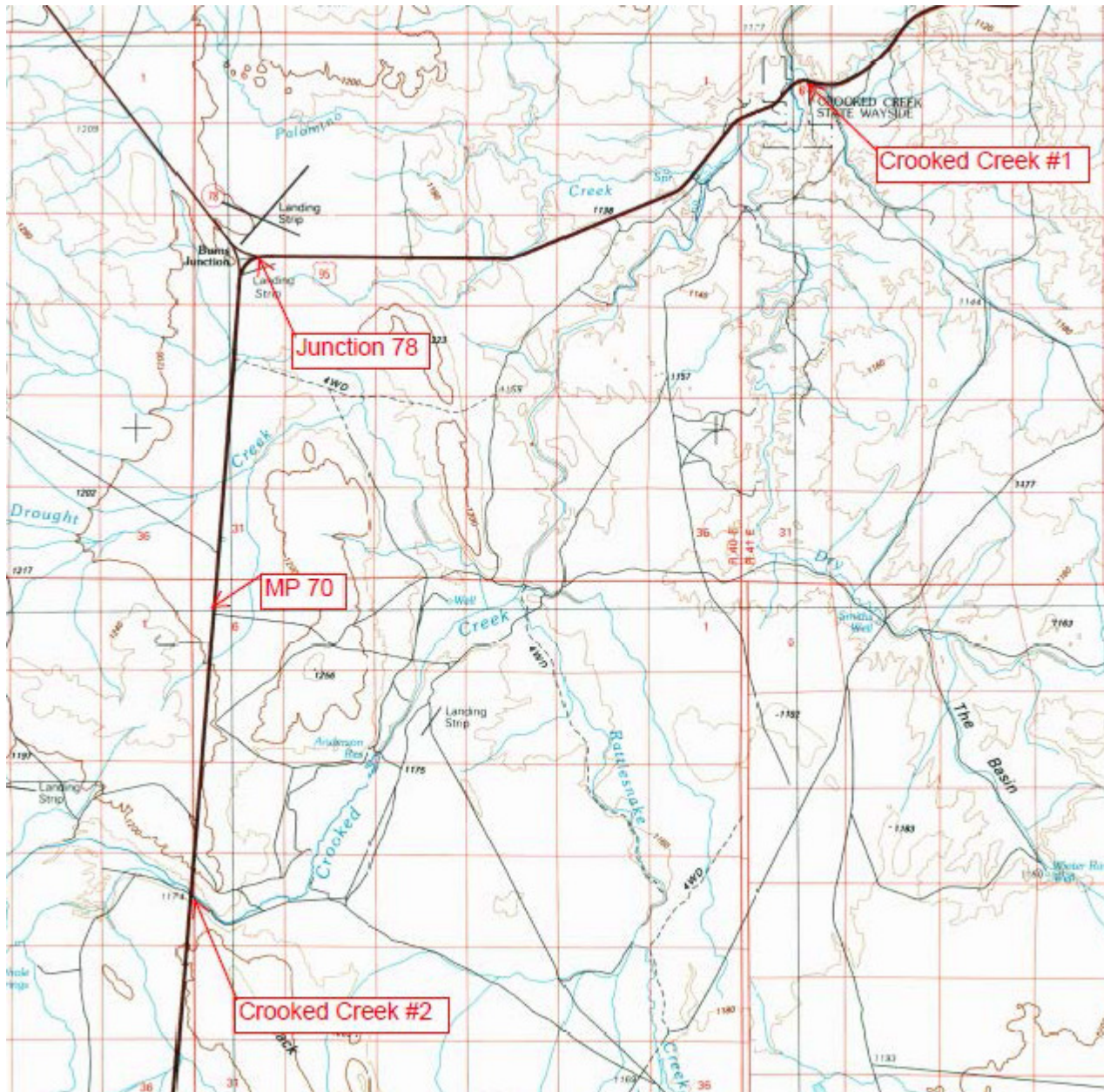


Acute Std: 860 mg/L (off the graph)
Chronic Std: 230 mg/L









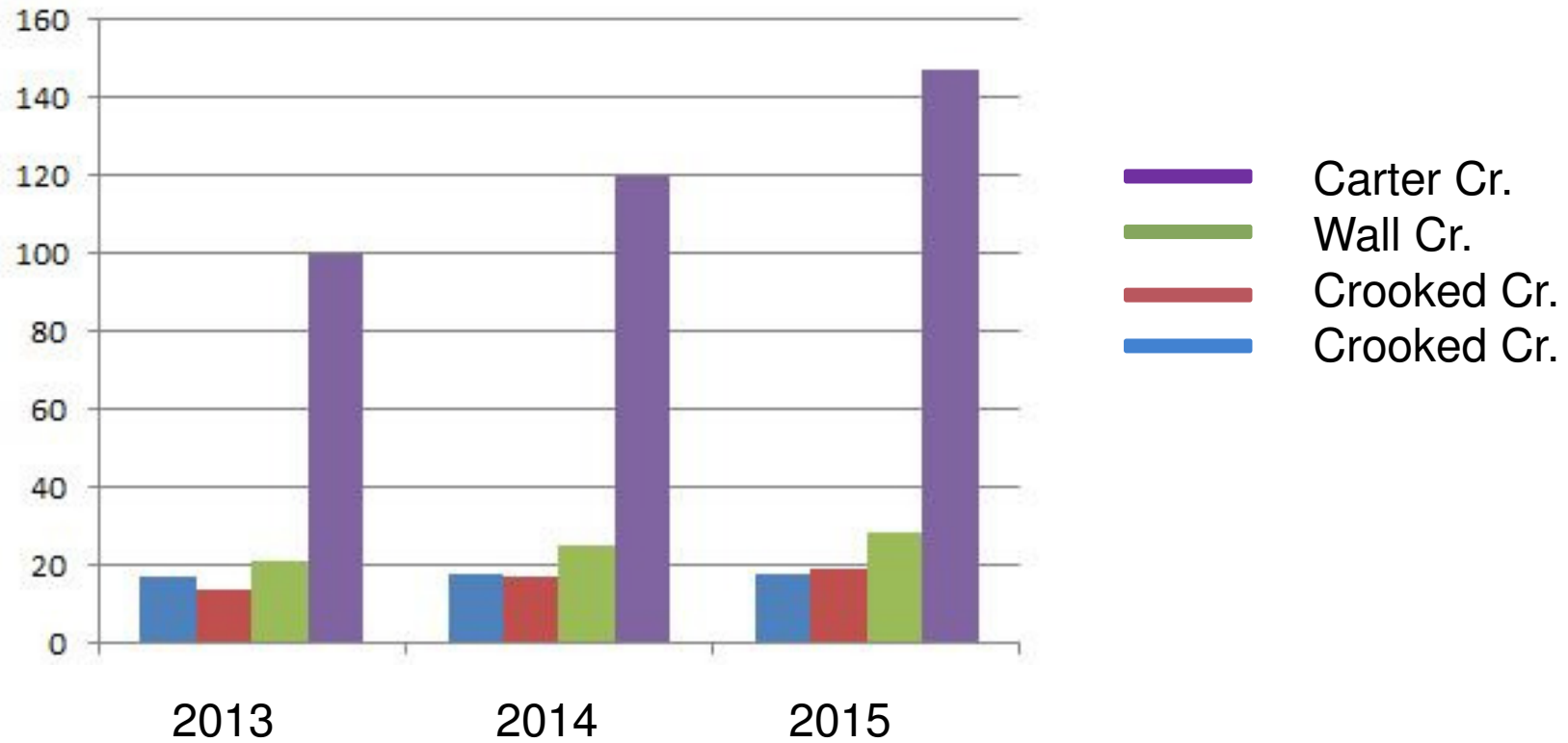
US 95 Sampling Locations



Water Quality Analysis

Grab sample results

ppm Chloride



How does it inform the program?



Confirms suspicions
Can indicate sense of urgency
Confirm smaller streams at risk

Inform best management practices







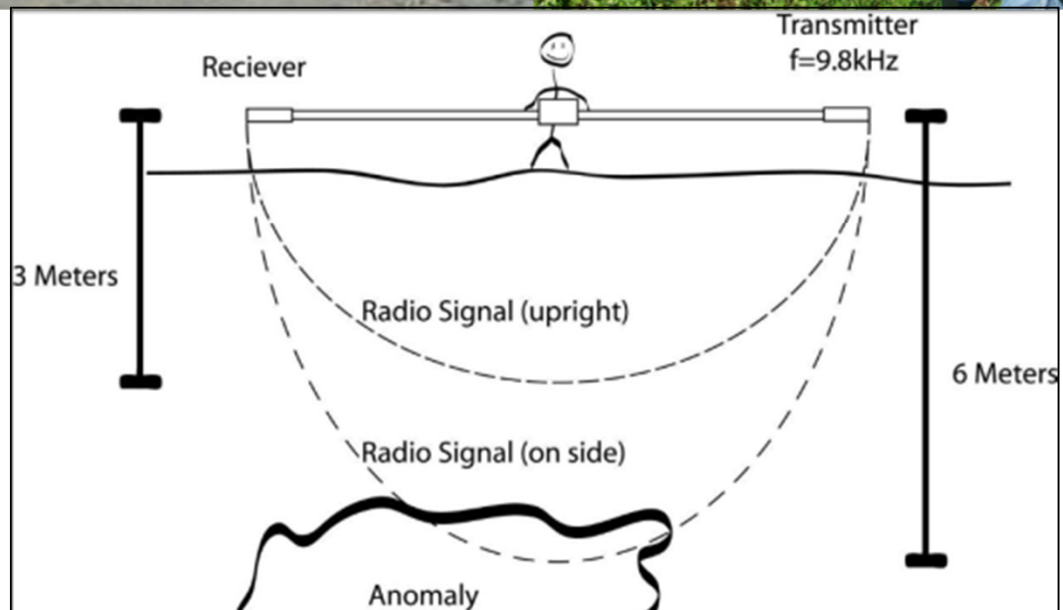




Deicer Containment & Storage



Ground Conductivity Meter

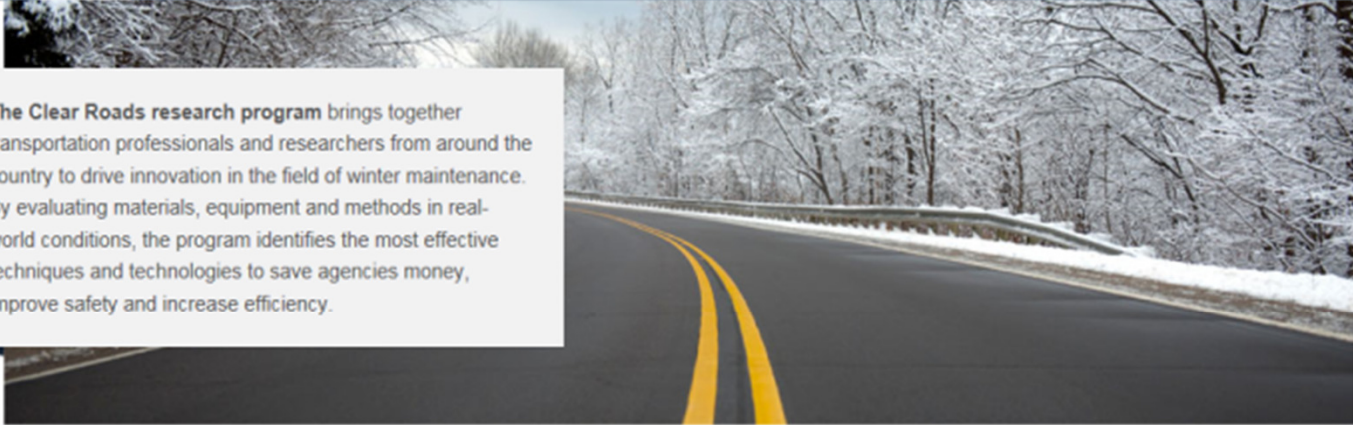




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The Clear Roads research program brings together transportation professionals and researchers from around the country to drive innovation in the field of winter maintenance. By evaluating materials, equipment and methods in real-world conditions, the program identifies the most effective techniques and technologies to save agencies money, improve safety and increase efficiency.



News & Events



May Newsletter
 In this quarterly e-newsletter, you'll find summaries and links to the latest technical news and best practices from the U.S. and around the world, highlighting applications of winter maintenance research and technology and the latest transportation research by state

Recent Research Results



Salt Best Management Practices
 Researchers created a manual of road salt best management practices designed to help agencies increase efficiency and reduce costs in all phases of the salt usage process: procurement, storage and application.

New Resources



National Survey Compiles 2014-2015 Winter Maintenance Data
 We published our first [Annual Survey of State Winter Maintenance Data](#), which compiles winter resources, material and cost data from 35 states for the 2014-2015 winter season. The published spreadsheet includes all submitted





13-01: Snow and Ice Control Environmental Best Management Practices Manual

Problem

Over the last several decades, best management practices have been developed to minimize the volume of chlorides that are introduced into our roadside environments each winter. However, many stakeholders are currently guiding policy discussions towards the chlorides themselves without a complete understanding of the impacts of alternatives maintenance materials or the proactive steps that agencies can take to ensure that their snow and ice programs are utilizing the most current and effective strategies.

Objective

The goal of this project was to develop a comprehensive Snow and Ice Control Environmental Best Management Practices (BMP) Manual that will provide the most up-to-date recommendations for winter highway maintenance. The purpose was to help articulate responsible snow and ice control practices for DOT staff, legislators and other interested parties, so that the priorities of safety, efficiency, cost and environmental protection can be appropriately balanced.

Results

The key outcome of this project is a national Snow and Ice Control Environmental Best Management Practices Manual that provides the most up-to-date recommendations, based on a foundation of leading research and resources nationwide.

Key Details

Project Number: 13-01

Status: Completed

Start Date: January 2014

End Date: July 2015

Investigator: Western Transportation Institute

Study Documents

Final Products

[Best Practices Manual](#)  (9 MB)

[Report Brief](#)  (690 kB)

[Final Report](#)  (2 MB)

Progress Reports

[March 31, 2015](#)  (114 kB)

[December 31, 2014](#)  (157 kB)

[September 30, 2014](#)  (231 kB)

[June 30, 2014](#)  (266 kB)

[March 31, 2014](#)  (112 kB)



So now What?



