

# Road Weather Information System (RWIS) & 511 Improvements for Highway Avalanche Operations



**Matt Murphy**  
Avalanche Specialist  
Alaska Department of Transportation and Public Facilities  
November 2014





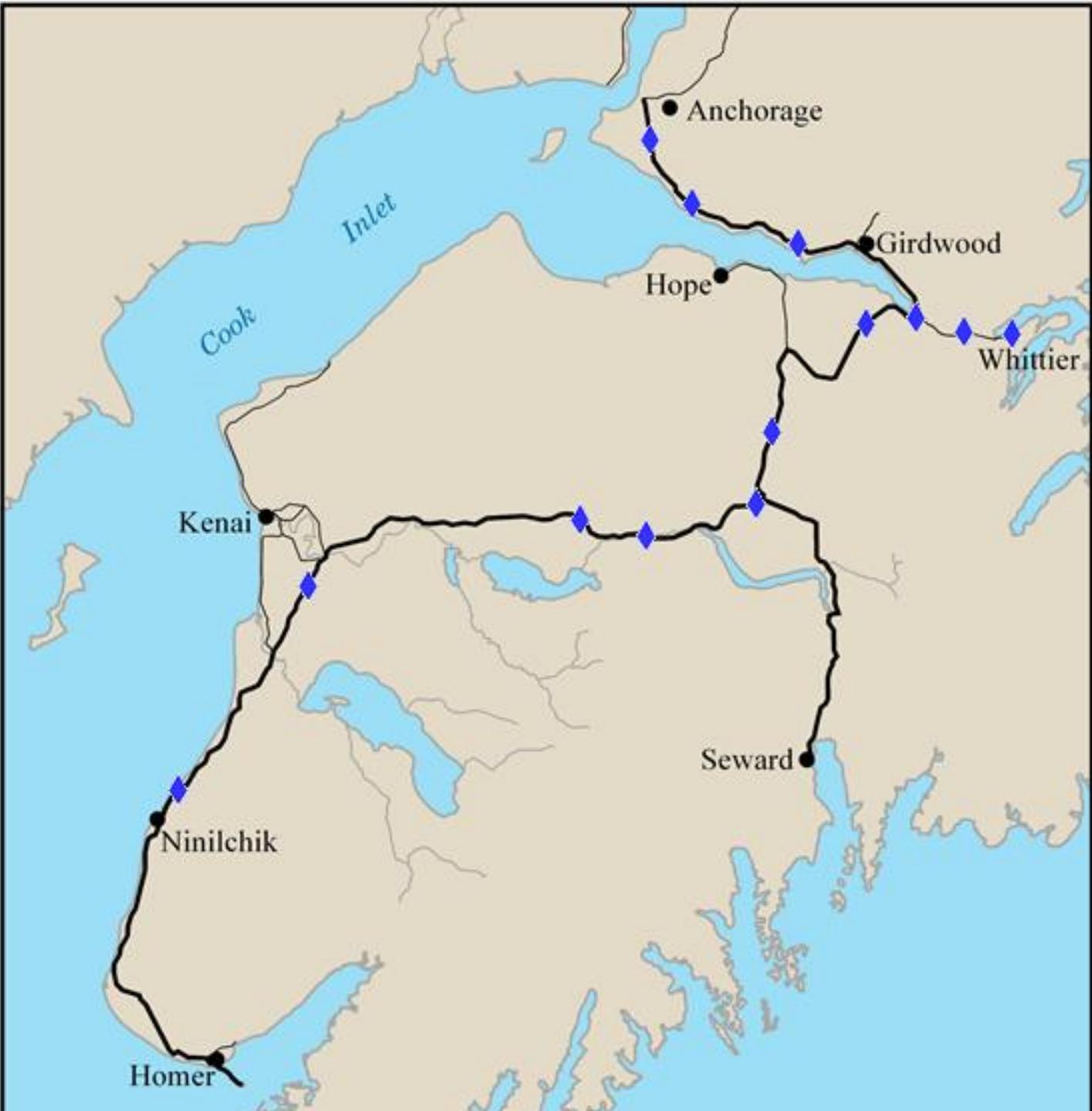
## Goal

Improve safety for all highway users  
by reducing the avalanche hazard while  
concurrently minimizing avalanche related  
traffic delays and road closures



A wide-angle photograph of a snowy mountain road. The road curves from the bottom left towards the center. It is flanked by snow-covered embankments and a dense forest of evergreen trees. In the background, large, rugged mountains are partially obscured by low-hanging clouds. On the right side of the road, a small sign on a post reads "PARKING AREA 1/2 MILE". A few small, brightly lit objects, possibly emergency vehicles, are visible on the right side of the road, their lights reflecting in the snow.

**Keep Alaska Moving Through Service and Infrastructure**





## Small & relatively inexpensive improvements

- 24 Hour Snowstake Camera Views
- Camera Views of Avalanche Areas
- Additional Precipitation Instruments
- Additional Ridge Top Weather Stations



# Snow Stakes





AT&T 4:36 AM 39%

Road Weather Information System

F > Iways > RWIS > State Map > Area Map

Seward Highway @ Portage Glacier Road MP 78.9

Camera: Snow Stake Time: 11/06/2014 4:17 AM

Loop



A black and white photograph from a snow stake camera. It shows a vertical ruler standing in a field of snow. The ruler has markings from 1 to 9. The background is a textured, snow-covered ground.

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T&PF > Iways > RWIS > State Map > Area Map

Seward Highway @ Turnagain Pass MP 69.9



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# Road Weather Information, Transportation &...

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## Road Weather Information System

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### Sterling Highway @ Tern Lake MP 37

Camera: Snow Stake Time: 11/06/2014 4:09 AM



Road Weather

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- [» RWIS Area Summary](#)
- [» Camera Area Overview](#)

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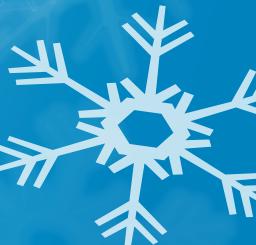
- [» 511 - Traveler Information](#)

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Road Weather Information System

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Whittier Access Road @ Tunnel MP 6.5

Camera: Bear Valley Snow Stake Closeup Time: 11/06/2014 4:15 AM

Loop



A black and white close-up photograph of a snow stake. The stake is vertical with horizontal markings at the top labeled '3' and '2'. It is partially buried in a dark, textured ground. The background is dark and out of focus.

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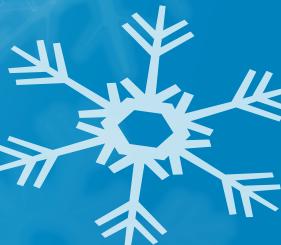
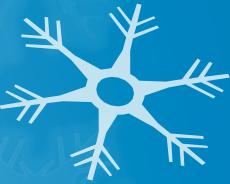
# Mountain Views

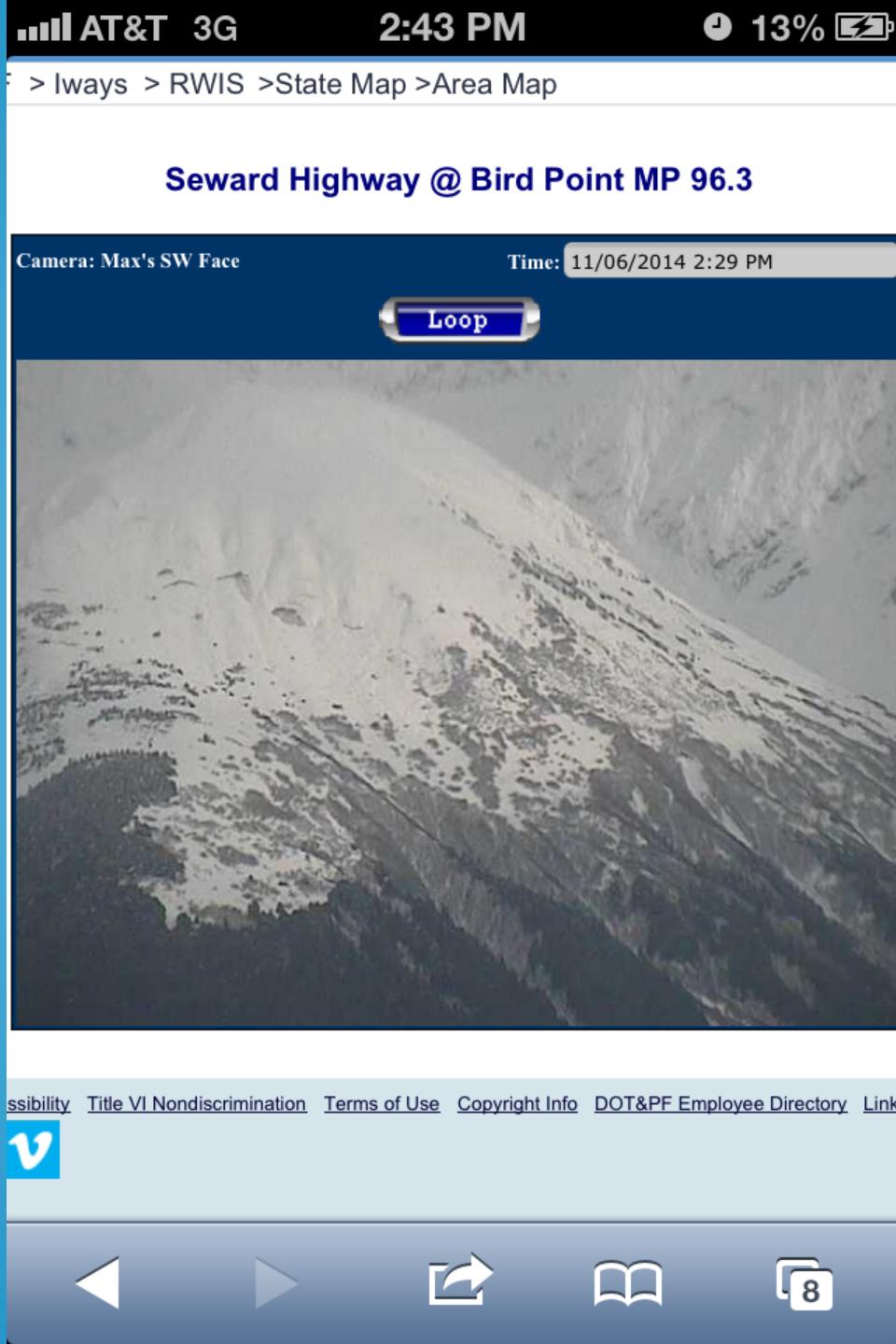


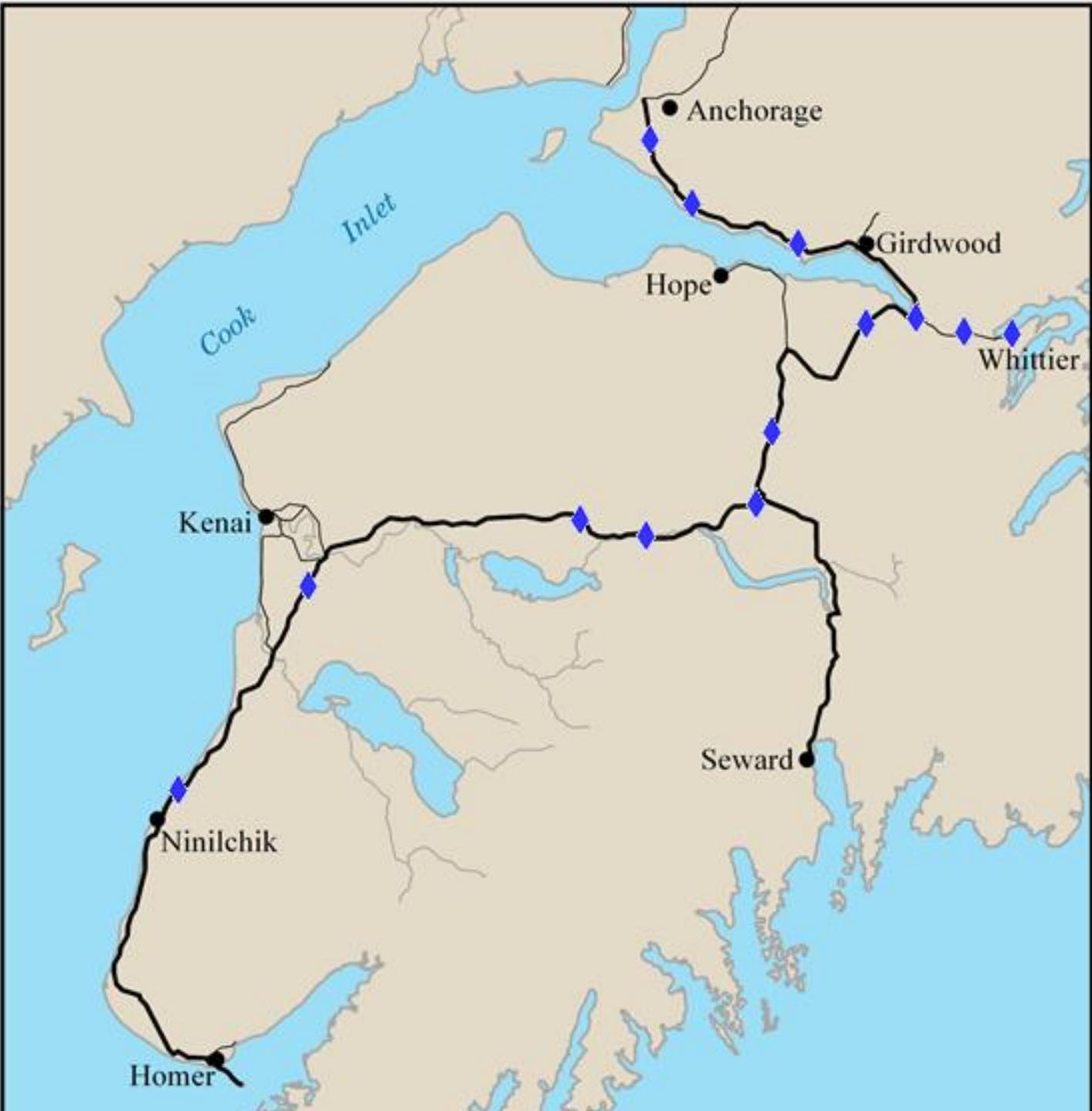


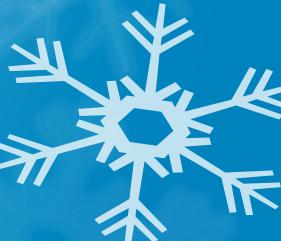












# New Precipitation Instruments



**RWIS Site Summary**

Seward Highway @ Turnagain Pass MP 69.9

For definitions, click on the name field.

**Date / Time**

11/07/2014 6:00 AM

**Atmospheric Data**

Temperature	36 °F
Wind Chill	32 °F
Humidity	85 %
Rain Occurrence	Yes
Wind Intensity	Unknown
Wind Gust	-
Wind Speed	16 mph
Wind Direction	NE
Wind Maximum	24 mph
Wind of Maximum Speed	NE
Barometric Pressure (non-aviation)	970.6 mb

**Precipitation Accumulation Data**

	1 Hour	3 Hour	6 Hour	12 Hour	24 Hour
11/06/2014 6:00 AM	0.04 in since 11/07/2014 5:00 AM	0.11 in since 11/07/2014 3:00 AM	0.20 in since 11/07/2014 12:00 AM	0.41 in since 11/06/2014 6:00 PM	0.45 in since 11/06/2014 6:00 AM

**Snow Depth Data**

	1 Hour	3 Hour	6 Hour	12 Hour	24 Hour
	-	-	-	-	-

**Pavement Surface and Subsurface Data**

Sensor Location	Date/Time	Surface Temperature (°F)	Subsurface Temperature (°F)	Pavement Surface Grip	Pavement Surface State	Pavement Contaminant Depth (mm)
Line 20' S RPU	11/07/2014 6:00 AM	-	-	-	-	-
Line 170' S RPU	11/07/2014 6:00 AM	-	-	-	-	-

**Road Weather**

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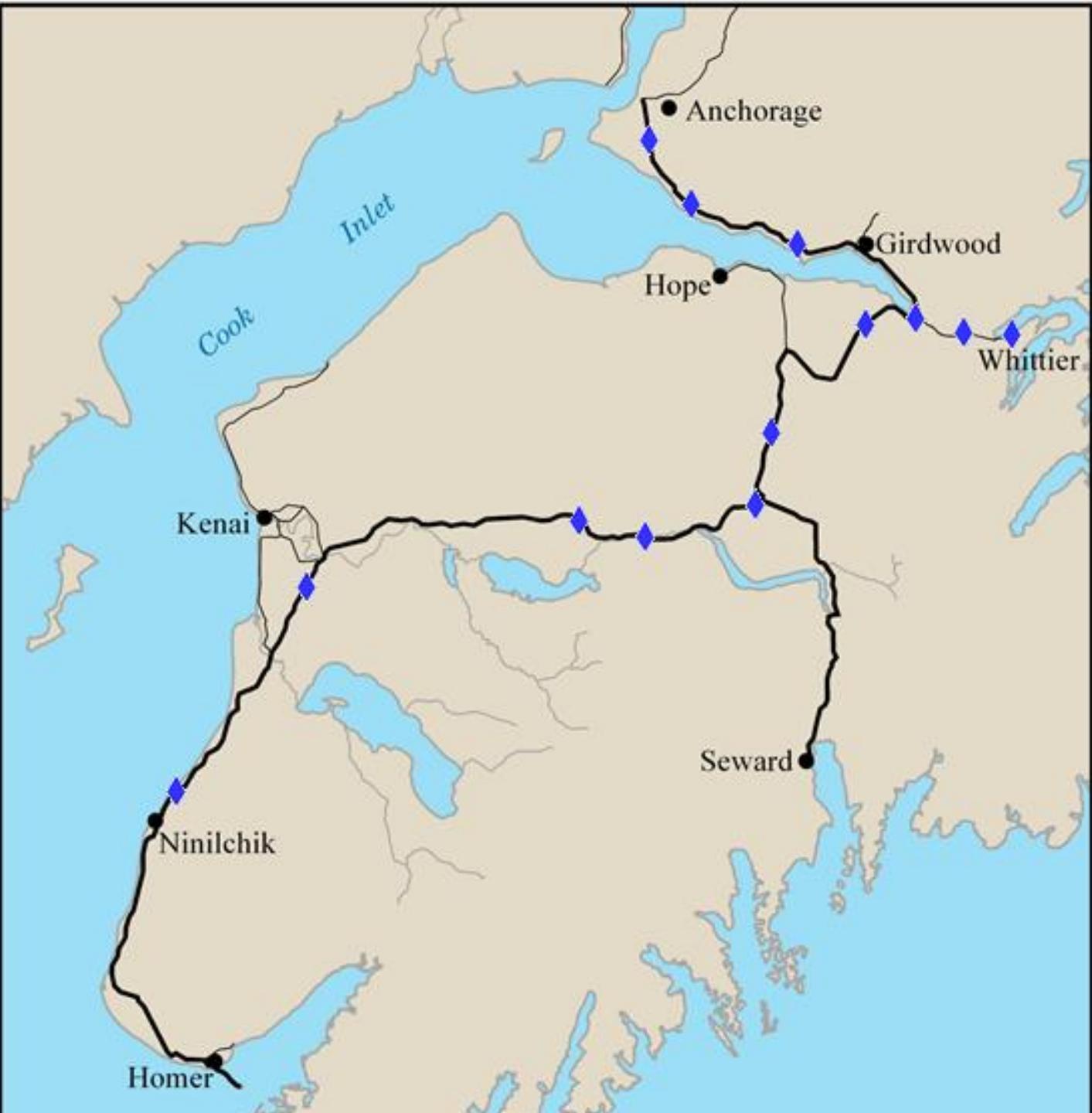
- » RWIS Site Data
- » Site Summary
- » Extremes Summary
- » Atmospherics Summary
- » Pavement Summary
- » RWIS Site MetaData

- » 511 - Traveler Information



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# New Ridge Top Weather Stations







AT&T 8:12 AM 60%

# Chugach National Forest Avalanche Information Center

[www.cnfaic.org/wx/wx\\_s](http://www.cnfaic.org/wx/wx_s)  Search

Chugach National Forest  
AVALANCHE  
Information Center 

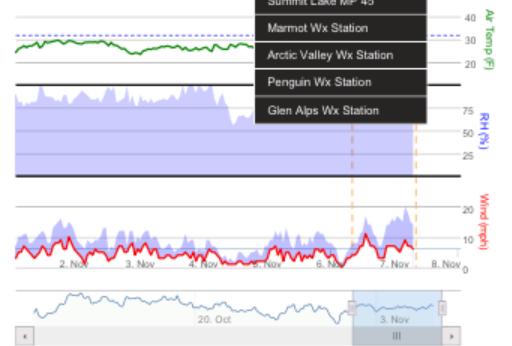
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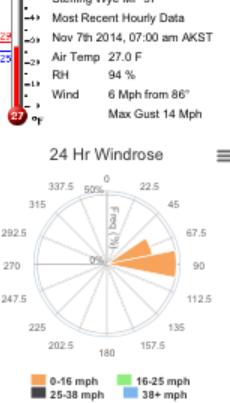
## Weather

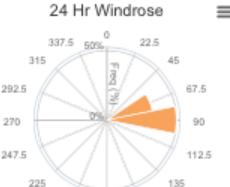
Jump to: 

**Sterling Wye MP 37 - A**  
Click for Map and Panorami

Zoom 2d 1w 1m All From: 2014







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0.034

WX STATION WITHIN 5 MILES	Distance	Date/Time	At Temp (F)	Wind Spd (MPH)	Wind Dir	Gust	Snow Depth (in)
Sterling Wye MP 37 3700 ft (AKDOT)	0.0 mi N	Nov 7th 7:00 am	27.0	6	←	14	-
Sterling Hwy DOT @ Tern Lake 688 ft (AKDOT)	1.2 mi SW	Nov 7th 6:20 am	38.2	13	↖	20	-

Tabular Data for Sterling Wye MP 37







# 511 Tips



AT&T 7:10 AM 58%

## Alaska 511 - Transportation & Public Facilities,...

511.alaska.gov/alaska51 Search

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### 511 Traveler Information

511 TIP! Location

Alaska Department of Transportation & Public Facilities search

Age: 40, brown hair, brown eyes, 5 foot 9 inches, 148 pounds, wearing green and brown camouflage jacket, red down vest, grey hoodie, jeans, tan winter boots, carrying a green nylon sack. Last seen in Mat-Su Borough, Palmer Wasilla Hwy Trunk Road and Trunk Road, Wasilla. To report info call 907-...

Fort Richardson

Map Legend

- Alerts
- Driving Conditions
- Hazardous
- Very Difficult
- Difficult
- Fair
- Good
- Mountain Pass
- Weather Watches
- Weather Cameras
- Planned Events
- Future Planned Events
- Message Boards
- Travel Not Advised - No Winter Maintenance

Map showing driving conditions across the state of Alaska. The map highlights various roads and towns, with color-coded markers indicating driving conditions. A legend on the right side defines the colors: red for hazardous, purple for very difficult, orange for difficult, yellow for fair, green for good, and blue for mountain passes. A message box at the top right provides a tip about a missing person. A note at the bottom left states: "Road conditions can change quickly; we offer no warranty that this report is accurate or complete." A scale bar shows 20 km and 10 mi. Navigation icons at the bottom include back, forward, search, and a page with the number 8.

Driving Conditions Definitions Winter Driving Tips Route Summary Report Text View Alaska Route #'s Alaska Mileposts

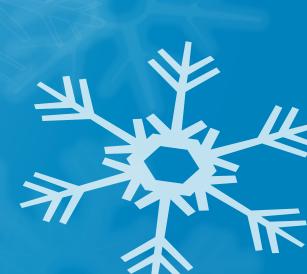
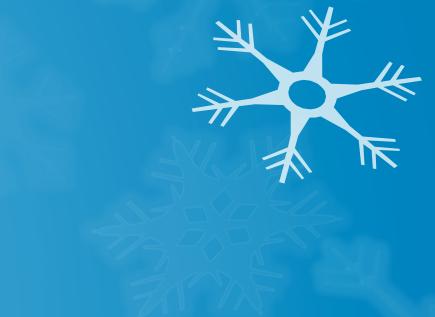
Weight Restrictions National Weather Service Stay connected

Commercial drivers: visit [MS/CVE](#) web site for [Latest Weight Restrictions](#)

NWS provides up to date weather information for the state of Alaska.

Available on the App Store

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3132 Channel Drive  
Juneau, Alaska 99811-3500





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## Alaska 511 - Transportation & Public Facilities,...

511.alaska.gov/alaska51 Search

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### 511 Traveler Information

451-5110 or 8-1-1. VISIT <http://silveralert-alaska.gov> for more information. Call 1-855-458-9999 if you have information.

**Alert 1 of 1: Silver Alert from Alaska State Troopers. Senior William Wesley, Alaska native male,**

**Map Legend**

- Alerts
- Driving Conditions
- Hazardous
- Very Difficult
- Difficult
- Fair
- Good
- Mountain Pass
- Weather Watches
- Weather Cameras
- Planned Events
- Future Planned Events
- Message Boards
- Travel Not Advised - No Winter Maintenance

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95 km  
20 mi

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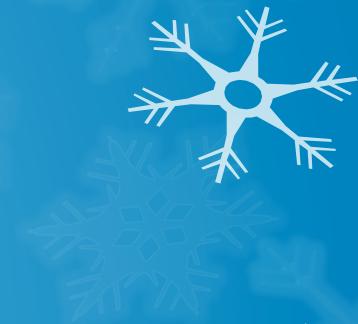
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**Stay connected**

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**511** Alaska Department of Transportation & Public Facilities  
Traveler Information

native male, age 60, brown hair, brown eyes, 5

**Reports** 



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Chiniak Highway >

Copper River Highway >

Dalton Highway >





[Senior William Wesley, Alaska native male, age 6](#)

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## All Reports

[Show Detail](#)

### Alerts



[Dalton Highway](#)

#### Hazardous Driving Conditions

Milepost 355 to Milepost 414

[...more](#)

Driving Conditions >

Weather Watches >

Weather Cameras >



## Message Boards



[Glenn Highway](#)

**Missing Person SILVER ALERT**  
**Details call 511**

[...more](#)



[Seward Highway](#)

**Missing Person SILVER ALERT**  
**Details call 511**

[...more](#)



[Steese Expressway/Highway](#)

**No message is displayed**

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[Seward Highway](#)

**Missing Person SILVER ALERT**  
Details call 511

[...more](#)



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## Reports

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### Seward to Sterling Highway

#### **Driving Conditions**



**Good**

[...more](#)

Railway Avenue to Sterling Highway



**Good**

[...more](#)

Sterling Highway to Milepost 45



**Mountain Pass**

[...more](#)

Milepost 10 To Milepost 13



**Mountain Pass**

[...more](#)

Milepost 28 To Milepost 30

### Sterling Highway to Anchorage

#### **Driving Conditions**



**Good**

[...more](#)

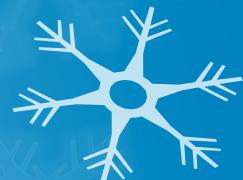
Sterling Highway to Milepost 45





“As with much technology, there is a lot of promise and hope that it will change the way we do business. Ultimately we are still using shovels, skis, explosives, and old military artillery to do the job in much the same way as those before us

John Stimberis  
Washington State DOT





AT&T 9:12 AM 87%

Alaska Department of Transportation & Public Facilities  
Statewide Maintenance & Operations

DOT&PF > Maintenance & Operations > Snow Avalanche Programs

## Snow Avalanche Programs

### Reducing Avalanche Hazard

The goal of ADOT&PF Snow Avalanche Programs is to improve safety for highway users by reducing the avalanche hazard in areas susceptible to snow avalanches while concurrently minimizing avalanche related traffic delays and road closures.

Avalanches cannot be prevented in all avalanche paths that affect the highway, but the encounter risk can be reduced. To help forecast avalanche hazard and the necessity for temporary traffic delays for avalanche work, ADOT&PF regularly monitors weather, terrain, and snowpack conditions. When conditions are appropriate, specially trained maintenance crews use military artillery and other methods to artificially trigger avalanches on the: Seward Highway, Richardson Highway and Dalton Highway, as well as Thane Road in Juneau. Additionally, ADOT&PF crews near Skagway have begun using an Avalanche launcher to reduce avalanche hazard.

- [History of Avalanche Work on the Seward Highway](#) 902KB
- [History of Military Weapons for Avalanche Hazard Reduction](#) 7.3 MB

### Some Common Factors that Increase Avalanche Hazard

- Large quantities of new snow or rain
- Strong winds
- Rapid changes in temperatures

The potential for avalanches changes constantly, sometimes in a matter of minutes. Not all snowstorms create avalanches, nor are all sunny days free of avalanche occurrences.

- During the winter, the vast majority of avalanches occur during snow/rain storms and within 24 hours following a storm.
- In the spring time, a warm sunny afternoon day can be considered a storm as much as heavy snowfall or heavy rain is in the winter.

Avoiding highway avalanche areas and/or postponing your travel during the times described above will greatly reduce the probability of encountering an avalanche or being delayed for avalanche work on ADOT&PF highways.

Visit the slideshow galleries. Links are in side menu.



Photo by Kevin Wright  
Click for larger view

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- » Snow Avalanche Operations
- » Public Service Announcements & Videos
- » Quality Assurance Program Manual (2MB)

**Related Links**

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- » FHWA Operations
- » U.S. DOT

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<http://www.dot.state.ak.us/stwdmno/avalanche.shtml>





[matt.murphy@alaska.gov](mailto:matt.murphy@alaska.gov)

