

State of Alaska
Department of Transportation &
Public Facilities



Mobile Inspection System



Presented By

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Measurement Standards and
Commercial Vehicle Enforcement

Mobile Inspection System

Setting of the Stage

- What – Definition
- Why – Need for Mobile Inspection System
- How – Project Development
- Where - Deployment

Technical Elements

- Technical Components
- Mechanical Components

What is a Mobile Inspection System?

A Mobile unit, consisting of all components necessary to:

- Utilize e-screening to perform roadside inspections
- Inspect Commercial vehicles at selected locations for an extended period of time
- Use in conjunction with Alaska's IRIS van to perform break checks

The inclusion of these components in a mobile environment create a mobile inspection system.

Why was a Mobile Inspection System needed?

1. Alaska's roads cover great distances over remote areas (Over 14,000 road miles in Alaska). Very little enforcement capabilities in remote areas.
2. Little enforcement of Commercial Motor Vehicle in pockets of commercial zones outside weigh station routes.



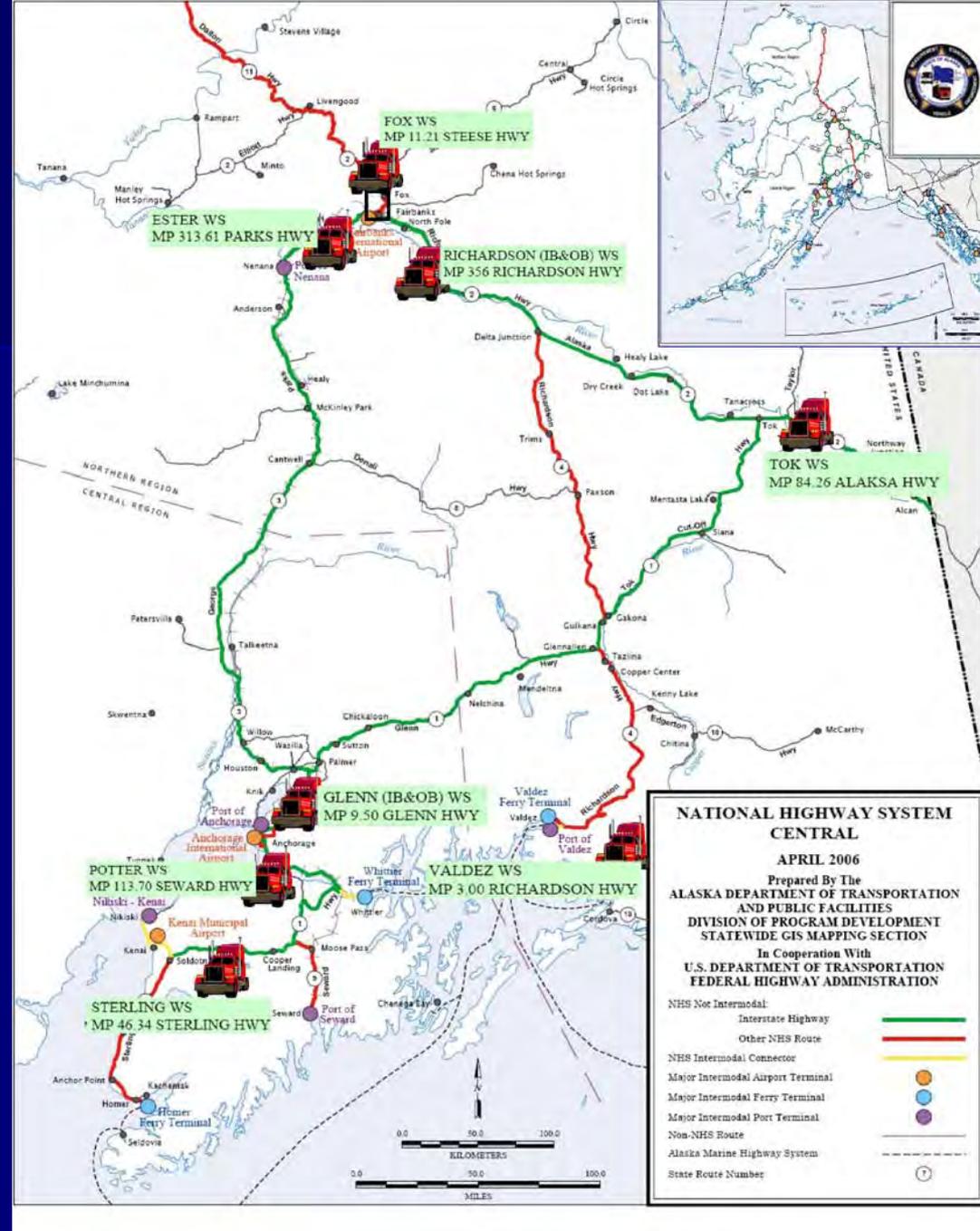
Major Road System



1. Remote Locations

The state operates 6 fixed weigh stations. There will be 7 by end of 2012.

- Large distances between most weigh stations
 - Glenn Hwy to Tok – 220+
 - Glenn Hwy to Ester – 350
 - Fox to end of the Dalton Highway (Haul Road) at Prudhoe Bay– 483 Miles
- Distances are too great to travel on a daily basis, so no ability for prolonged enforcement.



What
Why
How
Where

Haul Road Mishaps



What
Why
How
Where



What
Why
How
Where

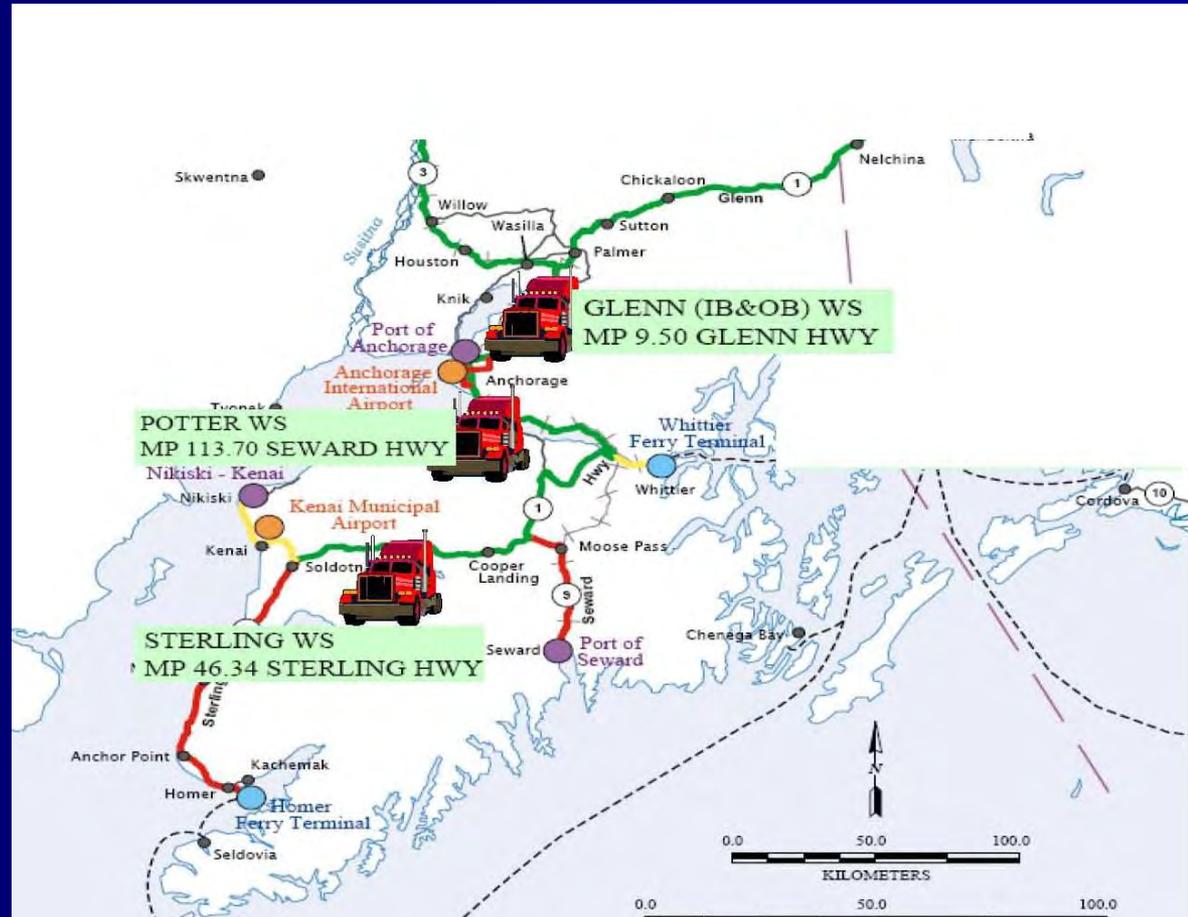


2. Commercial Zone pockets

Not all areas are covered by Weigh Stations

- ❖ Seward
- ❖ Homer
- ❖ Nikiski/Kenai/Soldotna

“Mom and Pop” Operations outside purview of weigh stations. Stop operations during temporary roadside enforcement.



What
Why
How
Where



13 9:40 AM

What
Why
How
Where



WASHINGTON
THE
EVERGREEN STATE

7887 SE

29 3:56 PM

In Summary: Why MIS?

- We need to conduct inspections and e-screening in areas too remote to allow roadside inspections for more than a few hours
- We need to conduct inspections and e-screening in areas where CMV business operations are outside of weigh stations

Project Development

- CVISN Funded: Request Scope of Work:
 - *“Purchase and deploy a portable WIM system which will be used in conjunction with the state’s InfraRed Inspection System (IRIS) equipped vehicle to conduct roadside safety inspections and enforce state size and weight regulations. A portable WIM system will allow the State of Alaska to deploy enforcement officers throughout the state to screen carriers at remote locations. The system will include wireless communications to enable the enforcement officer to do electronic screening, carrier credential verification and driver qualification checks”*

Project Funding-Original Grant Proposal- Budget

September 2006

**FFY07 (IT06-0201G00000) Core CVISN Augmentation_50806
Original Budget Proposal**

Item	Item Description	Amount
1.	Purchase of Mobile Weigh-In-Motion System	\$350,000
2.	Glenn Highway License Plate and DOT readers	\$250,000
3.	Sterling Highway License Plate and DOT readers	\$300,000
4.	Purchase Transponders	\$100,000
Total Amount of Funding Required to Complete Proposed Projects in FY 2006.		\$1,000,000

NO record of a breakout of component costs !!

Project Funding – Final Grant Budget Amendment

Purchase of Mobile Inspection System

– “to deploy CVEO’s to screen carriers at remote locations”

	<u>Budgeted</u>	<u>Actual</u>
■ Motor coach	\$102,000	\$89,380
■ Personal Services for In-house interface/connectivity development for MIS	\$ 30,000	\$58,222
■ Vehicle ID System (ALPR, USDOT number reader)	\$160,000	TBA
■ “Weigh Station OPEN/CLOSED” Portable DMS	\$ 20,000	\$33,000
■ Exterior lighting	\$ 1,200	N/A
■ Hand held infrared thermometer	\$ 500	\$ 999
■ ALMR, dual head	\$ 6,000	\$ 5,950
■ Roadside inspection warning signs	\$ 3,000	\$ 1,525
■ Computer server and interface/connectivity equipment	\$ 20,000	\$ 4,221
■ Desktop computer with printer	\$ 3,800	\$ 1,856
■ Misc. CVEO inspection equipment and gear, one set	\$ 5,500	\$ 300
■ Equipment trailer	\$ 10,000	\$ 8,360
■ Portable generator, 2 each	\$ 1,000	N/A
	\$363,000	\$203,813

Mobile Inspection Station Deployment Plan

- ❑ Identify areas of higher HOS, Driver and Vehicle violation rates
- ❑ Identify Turnouts where MIS can be Deployed
- ❑ Develop Summer Deployment Plan

Winter conditions (ice and snow buildup, sub zero temperatures) do not allow use of MIS during winter months

HOS, Driver & Vehicle violation rates

Identify Turnouts
Develop Deployment Plan

1. Collect Inspection data

Tok to Canadian
Border 90 Miles

Location	Violations	CY 2008	OOS VIO	# Insp	
Alcan Border	Veh OOS	33.3%	2	6	
	Alaska Highway MP 1233	Driver OOS	7.5%	3	40
		HOS vio	23		
		Securement VIO	1		

Tok to Glennallen
139 Miles

Glennallen	Veh OOS	33.3%	1	3
	Driver OOS	20.0%	2	10
	HOS vio	6		
	Securement VIO	0		

Fox WS to Jim River
130 Miles

Dalton-jim river	Veh OOS	50.0%	2	4
	Driver OOS	33.3%	5	15
	HOS vio	16		
	Securement VIO	1		

Not Remote

Wasilla	Veh OOS	31.2%	48	154
	Driver OOS	5.0%	10	199
	HOS vio	16		
	Securement VIO	29		

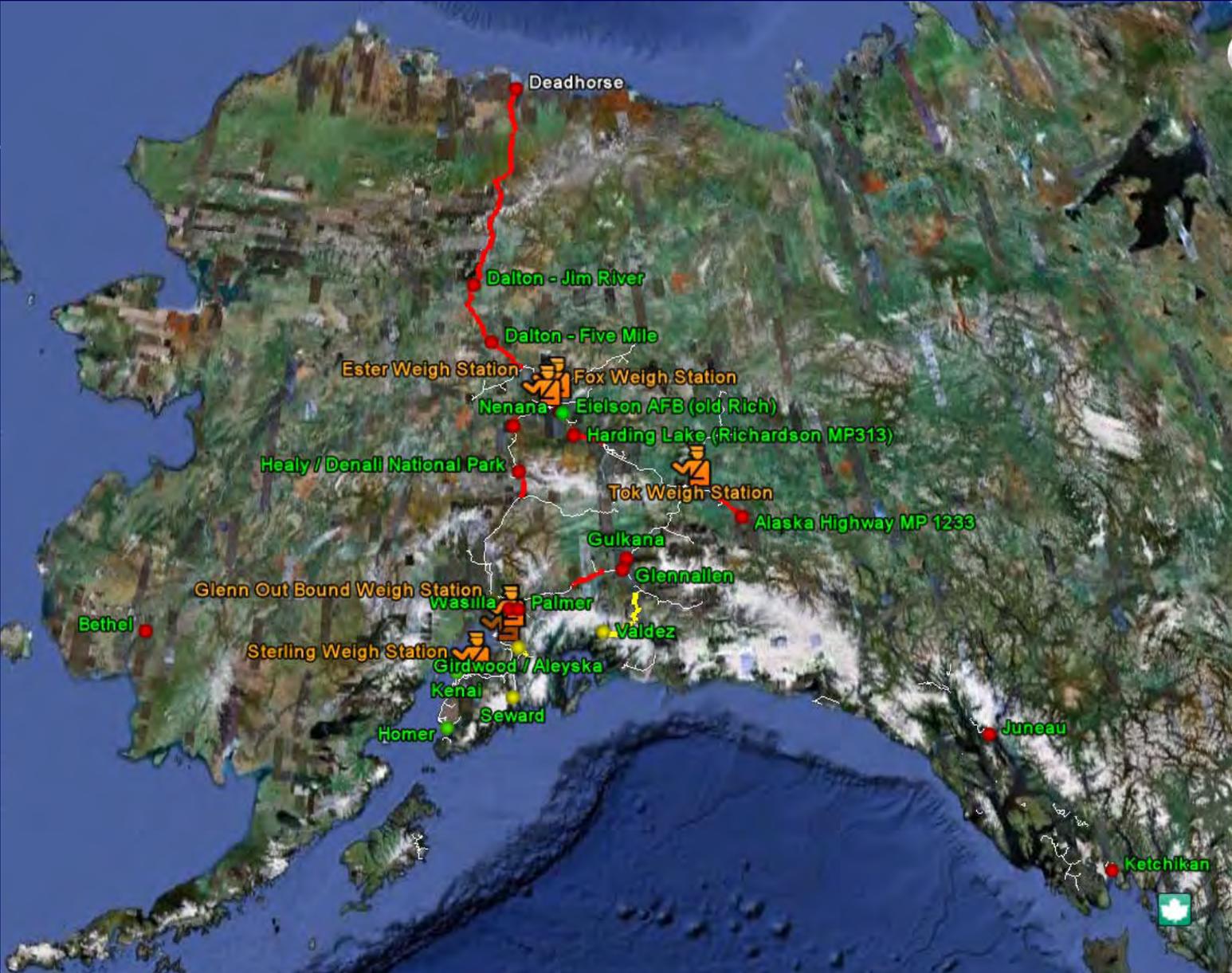
Not Remote

Palmer	Veh OOS	40.4%	19	47
	Driver OOS	6.6%	5	76
	HOS vio	13		
	Securement VIO	18		

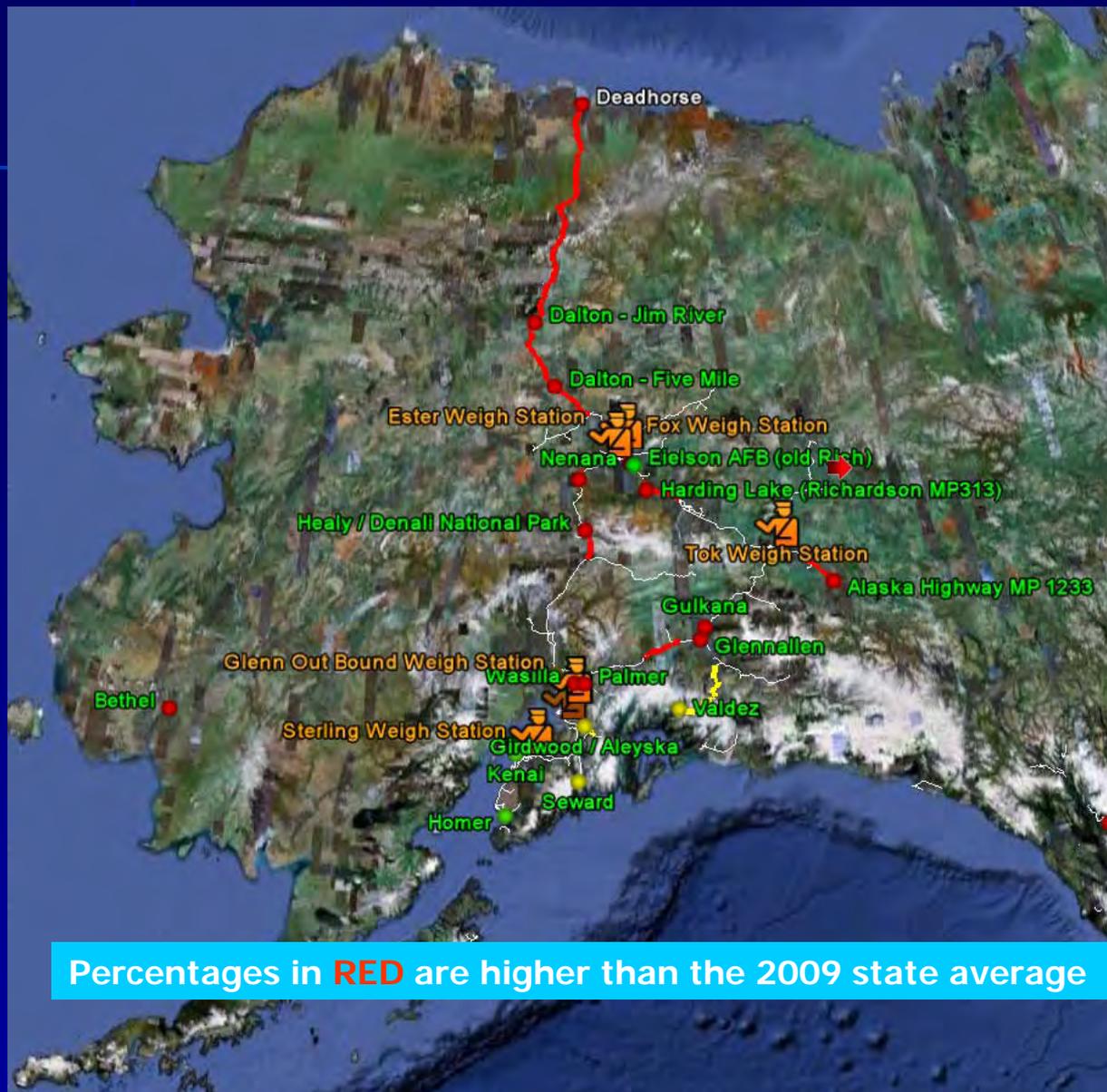
Not reachable by
road

Ketchikan	Veh OOS	39.1%	25	64
	Driver OOS	9.4%	6	64
	HOS vio	0		
	Securement VIO	13		

2. Map Inspection Data



3. Identify Areas



Dalton - Jim River

Vehicle OOS	Percentage	Insp	Vio
CY2009	33.3%	3	1
CY2008	50.0%	4	2
Driver OOS			
CY2009	18.2%	22	4
CY2008	33.3%	15	5
Hours of Service			
Hours of Service 2009	+100.0%	22	31
Hours of Service 2008	+100.0%	15	16
Load Securement			
Load Securement 2009	0.0%	22	0
Load Securement 2008	6.7%	15	1

Dalton - Five Mile

Vehicle OOS	Percentage	Insp	Vio
CY2009	0.0%	5	0
CY2008	0.0%	0	0
Driver OOS			
CY2009	22.7%	22	5
CY2008	0.0%	0	0
Hours of Service			
Hours of Service 2009	+100.0%	22	32
Hours of Service 2008	0.0%	0	0
Load Securement			
Load Securement 2009	0.0%	22	0
Load Securement 2008	0.0%	0	0
Percentages in RED are higher than the 2009 state average: Vehicle OOS 22.8%, Driver OOS 3.8%, Hours-of-Service 15.1%, Securement 4.9%			

Average Daily Traffic '08 - Yukon River PTR245

Directions: [To here](#) - [From here](#)

HOS, Driver & Vehicle violation rates

Identify Turnouts

Develop Deployment Plan

Data Analysis

2009

No MIS Deployment

Deployed 2009

No MIS Deployment
Concentrated stay

Location	Violations	CY 2008	OOS VIO	# Insp	CY 2009	OOS VIO	# Insp
Glennallen	Veh OOS	33.3%	1	3	50.0%	6	12
	Driver OOS	20.0%	2	10	12.5%	2	16
	HOS vio	6			6		
	Securement VIO	0			2		
dalton-jim river	Veh OOS	50.0%	2	4	33.3%	1	3
	Driver OOS	33.3%	5	15	18.2%	4	22
	HOS vio	16			31		
	Securement VIO	1			0		
Wasilla	Veh OOS	31.2%	48	154	31.9%	15	47
	Driver OOS	5.0%	10	199	2.7%	2	73
	HOS vio	16			5		
	Securement VIO	29			11		
Palmer	Veh OOS	40.4%	19	47	38.8%	19	49
	Driver OOS	6.6%	5	76	4.4%	2	45
	HOS vio	13			4		
	Securement VIO	18			13		
Ketchikan	Veh OOS	39.1%	25	64	14.3%	4	28
	Driver OOS	9.4%	6	64	9.7%	3	31
	HOS vio	0			0		
	Securement VIO	13			1		

Identify Turnouts

Develop Deployment Plan

Turnout Inventory

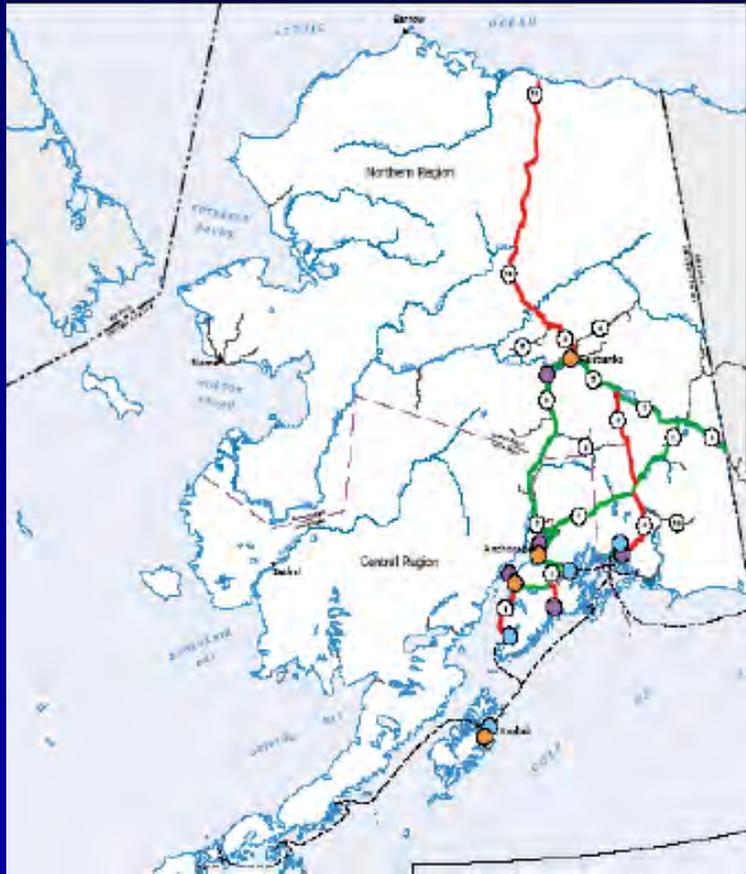


Milepost	Parks Highway, MP 183
Direction	SB
Measurement	100X1000
Grade/Surface	Paved Slight westerly grade.
Suitability For	Excellent Location for all vehicles including Mobile Inspection System
Photo NB	
Photo SB	

2009 Deployment Plan

Concentrated on pockets of commerce:

- Seward
- Valdez
- Nikiski



Seward	
Vehicle OOS	Percentage
CY2009	7.7%
CY2008	35.3%
Driver OOS	
CY2009	0.0%
CY2008	4.8%
Hours of Service	
Hours of Service 2009	0.0%
Hours of Service 2008	9.2%
Load Securement	
Load Securement 2009	6.6%
Load Securement 2008	23.8%

Vehicle OOS	Percentage
CY2009	0.0%
CY2008	33.3%
Driver OOS	
CY2009	0.0%
CY2008	0.0%
Hours of Service	
Hours of Service 2009	36.4%
Hours of Service 2008	20.0%
Load Securement	
Load Securement 2009	0.0%
Load Securement 2008	0.0%

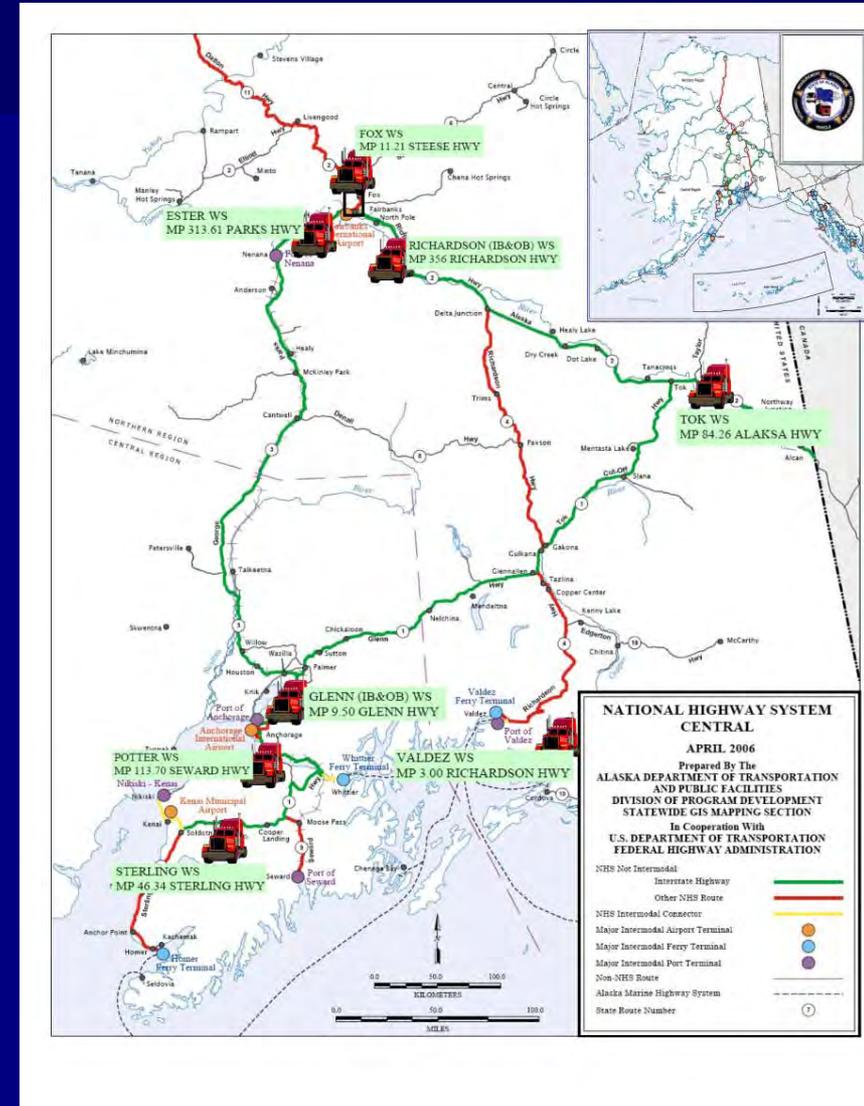
... and on the Dalton Highway (Haul Road) ²³

Into the Future

Target Areas:

High Violation areas in remote locations:

- Haul Road (Dalton Highway: Dalton-Jim River)
- AK Highway near Canadian Border
- Glennallen
- Richardson
- Parks Highway



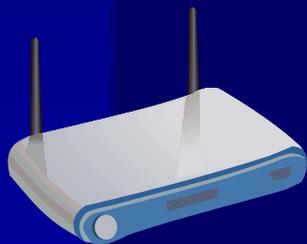
Mobile Inspection System Components

Portable Variable Message Sign



Signage
Connectivity/Communications
Server/Workstation
Data
Software
License Plate Reader
IRIS

Warning Signs



Standard Steel Street Signs



Placed 500 feet from entry to inspection station



Placed 1000 feet from entry to inspection station



Placed 1500 feet from entry to inspection station

Signage
Connectivity/Communications
Server/Workstation
Data
Software
License Plate Reader
IRIS

Watchfire Aurora 2008

Dimensions (Sign): 93 " x 53"

Operational Temp Range: -40 through 100 F

Visibility: Photo detector provides auto intensity adjustments to accommodate all lighting conditions. Legibility at 900 ft. In compliance with Federal Standard Highway Signs handbook.

Sign Control: Remote via USB to RF conversion interface at MIS workstation via "IGNITE" software. Control range = 200' – 800'

Power: Onboard Cummins 5kw Generator.
Standard 120 v AC current

Consumption: 15 Amps



Watchfire Aurora 2008

Miscellaneous:

- 3,500 GVWR axle (Trailer)
- Electric Brakes (Trailer)
- Stabilizer Stands (Trailer)
- Sign raised and lowered utilizing hydraulic controls.
- Height
 - Deployed 18 feet
 - Stored 10 feet
- Sign auto rotates to back at top and right at bottom of reach.



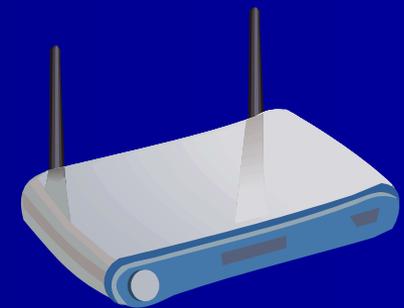
Components

Connectivity (LAN, Ethernet)

- Dedicated Secure Wireless Broadcast
- Wired Ethernet connectivity to MIS Hub

Communications (LAN 2 WAN)

- Department Wireless Access Points
- Public Broadband
- CDMA-3G
- Satellite



Signage
Connectivity/Communications
Server/Workstation
Data
Software
License Plate Reader
IRIS

Components



Dell PowerEdge T605 Tower
2.7Ghz AMD Opteron Quad-Core Processor
4GB RAM
SAS Hard Drives in Raid 5 configuration
Redundant Power Supplies
Dual 17" Monitors on mounted stand
APC Battery Backup System

Components

CVIEW (SAFER)

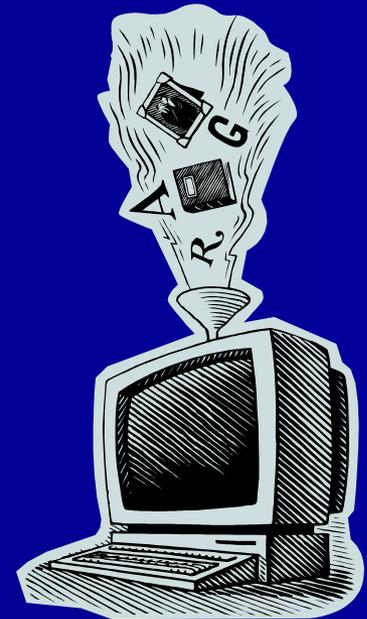
- Carrier/Vehicle MCS-150 Information
- Vehicle Registration Information

SafetyNET

- Carrier/Vehicle Inspection History
- Carrier/Vehicle Violation History

Alaska Datasets

- Carrier/Vehicle Citation History
- Carrier/Vehicle Permit History
- Carrier/Vehicle Scale house encounters (by LP)



Components

WORKSTATION

- cvQuery
- Aspen
- CDLIS
- IIS
- TraCS

The screenshot shows the cvQuery web application interface. At the top, there is a navigation bar with a logo on the left and the text 'cvQuery' in yellow. Below the navigation bar are tabs for 'Home', 'Carriers', 'Vehicles', and 'Scales'. The main content area is titled 'Carrier Snapshot' and displays information for 'CARLILE TRANSPORTATION SYSTEM'. The information is organized into two columns. The left column contains: USDOT #: 190356, Tax ID #: 920078109, Address: 1800 EAST FIRST AVENUE ANCHORAGE AK 99501, Phone: (907) 276-7797, Fax: (907) 929-5616, E-mail: lmarquiss@carlile.biz, MCMIS Status: A - Active, and MCMIS Status Date: 06/01/1974. The right column contains: Entity Type: Carrier, Operation: Interstate, MCS-150 Date: 04/14/2010, MCSIP Level: 10 - Informational Monitoring, ISS Score: 98 - Inspection Warranted, and MC #: 153893. Below the carrier information are links for '[List vehicles]', '[SAFER Snapshot]', and '[Lookup L & I]'. At the bottom, there are sections for 'Cargo' and 'UCR Payments'. The 'Cargo' section lists 'GF General Freight', 'LG Liquids/Gases', and 'ML Metal'. The 'UCR Payments' section shows a table with columns 'Registration Year' and 'Payment Date', with a row containing '2009' and '12/30/2008'.

Home Carriers Vehicles Scales

Carrier Snapshot

CARLILE TRANSPORTATION SYSTEM

USDOT #: 190356
Tax ID #: 920078109
Address: 1800 EAST FIRST AVENUE
ANCHORAGE AK 99501
Phone: (907) 276-7797
Fax: (907) 929-5616
E-mail: lmarquiss@carlile.biz
MCMIS Status: A - Active
MCMIS Status Date: 06/01/1974

Entity Type: Carrier
Operation: Interstate
MCS-150 Date: 04/14/2010
MCSIP Level: 10 - Informational Monitoring
ISS Score: 98 - Inspection Warranted
MC #: 153893

[List vehicles] [SAFER Snapshot] [Lookup L & I]

Cargo

GF	General Freight
LG	Liquids/Gases
ML	Metal

UCR Payments

Registration Year	Payment Date
2009	12/30/2008

SERVER

- Windows Server 2003
- .NET 3.5
- SQL Server 2008
- Coldfusion

Signage
Connectivity/Communications
Server/Workstation
Data
Software
License Plate Reader
IRIS

Components

- Automated License Plate Reader
- Wireless roadside trigger system
- Local data communication system



Signage
Connectivity/Communications
Server/Workstation
Data
Software
License Plate Reader
IRIS

Components



Mechanical



Motor Coach
Storage Unit
Haenni Scales



Mechanical

29' Itasca Impulse

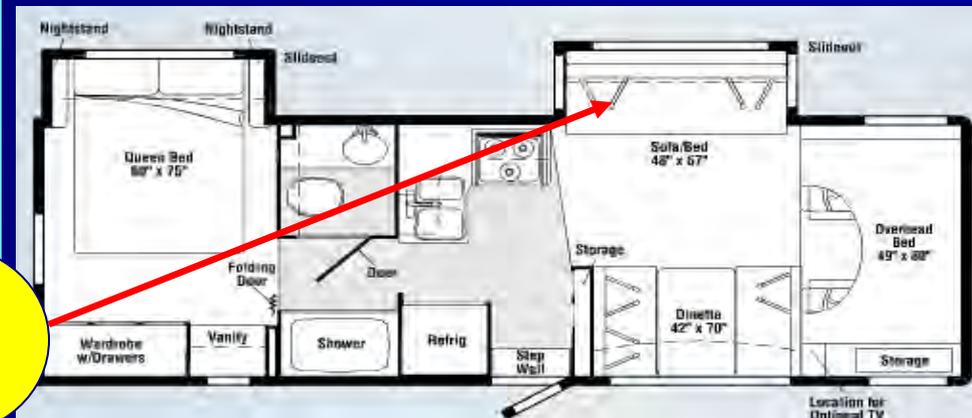


DRIVETRAIN/ELECTRICAL

- Engine: 6.8L V10, 305 HP,
- TorqShift 5-speed automatic transmission
- 115-amp. alternator
- 5 KW Generator
- Furnace, 30K BTU ducted minimum
- Hydraulic leveling jacks
- Chassis: Ford E450
- Trailer hitch, 5,000 lb drawbar w/ 7-pin wiring connector

ACCOMODATIONS

- Slide out area with 3-way visibility
- Furnace, 30K BTU ducted minimum
- Bedroom area in rear
- Front overhead bunk
- Kitchen/Bath



CVEO
"Office"
"

Mechanical

Features

- Drop down rear door
- Breakaway brakes, electronic
- Interior light
- Interior bracing on ceiling



Contents

- Haenni wheel load scales
- Creepers
- Chocks
- Traffic cones
- Warning Signs
- Bus Rams
- Fuel
- Spare tire
- Generator (3 of 3)

Mechanical

Haenni Wheel Load Scales



Range	0...20,000 lb
Scale Division	50 lb
Accuracy	+ - 50 lb
Operational Temperature Range	0...120° F
Permissible load / unit area	170 lb/in ²
Weight	35 lb
Construction	Aluminum Watertight

Lessons Learned

- ❑ Order a standard Portable Variable Message Sign (VMS) (Fits on the shoulder of a road)
- ❑ Funding Request Verbiage – tailor to grant requirements (No “Weigh-In-Motion”!)
- ❑ Ensure assignment of responsibility of MIS upon delivery

Lessons Learned

Project Management:

- ❑ One person assigned overall responsibility to compile all components (technical, mechanical, budget management, orders, etc)
- ❑ Clearly define who has responsibility over each component.
- ❑ Actively promote communication between players.

Discussion

