

# State of Alaska Department of Transportation & Public Facilities



## Mobile Inspection System



### Presented By

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# 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.



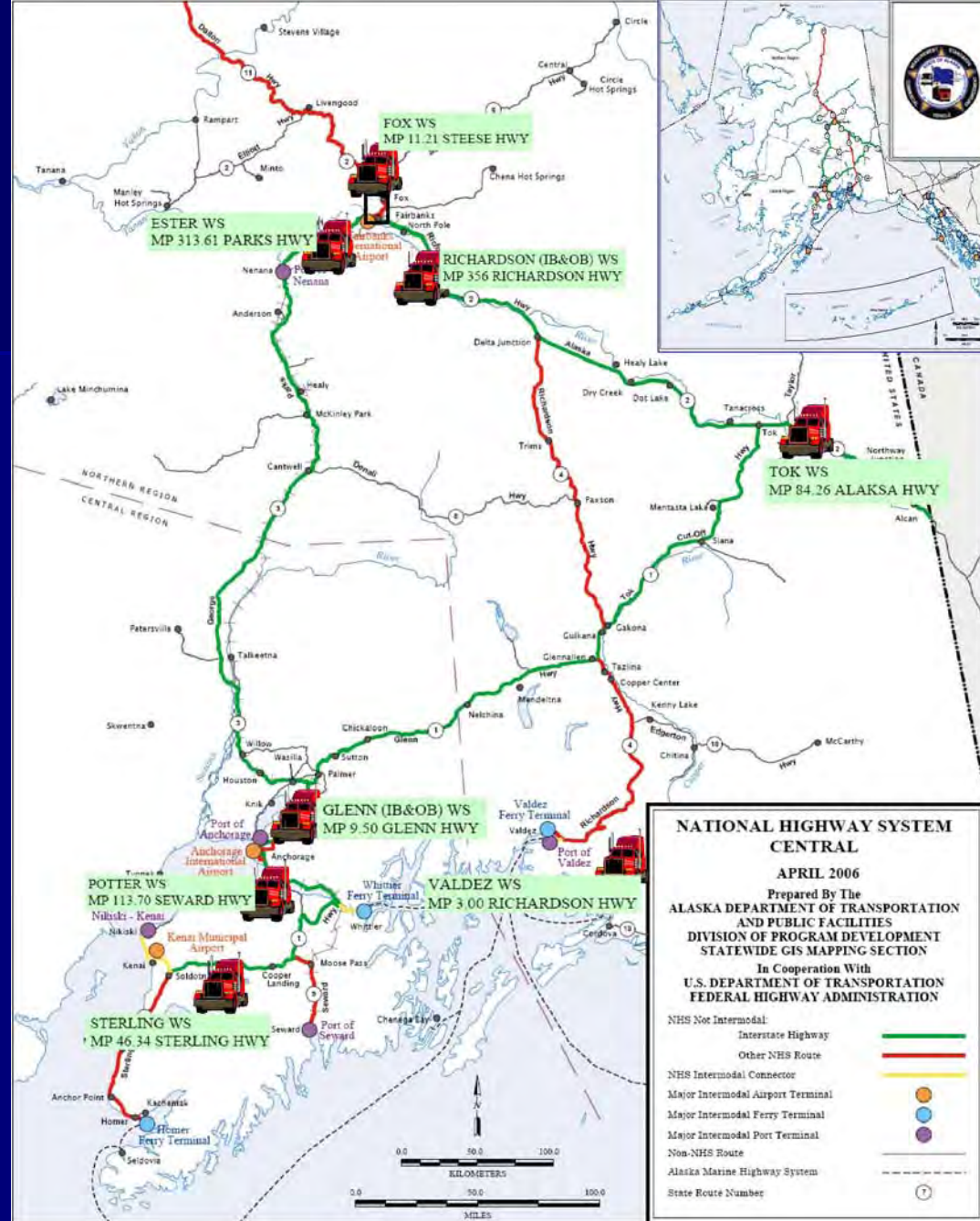




# 1. Remote Locations

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

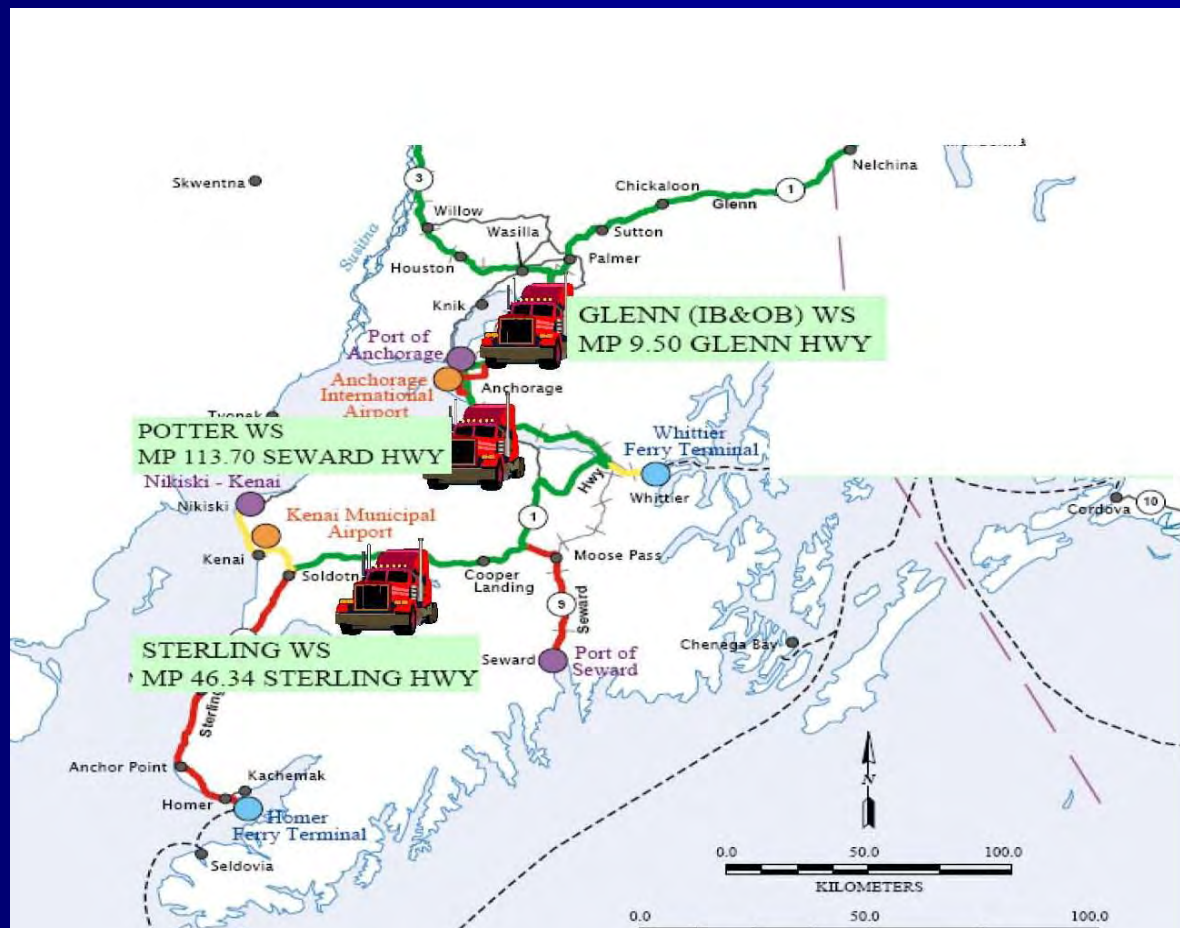


## 2. Commercial Zone pockets

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



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
<b>1.</b>	<b>Purchase of Mobile Weigh-In-Motion System</b>	<b>\$350,000</b>
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”

	<b><u>Budgeted</u></b>	<b><u>Actual</u></b>
■ 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
	<b>\$363,000</b>	<b>\$203,813</b>



# 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		

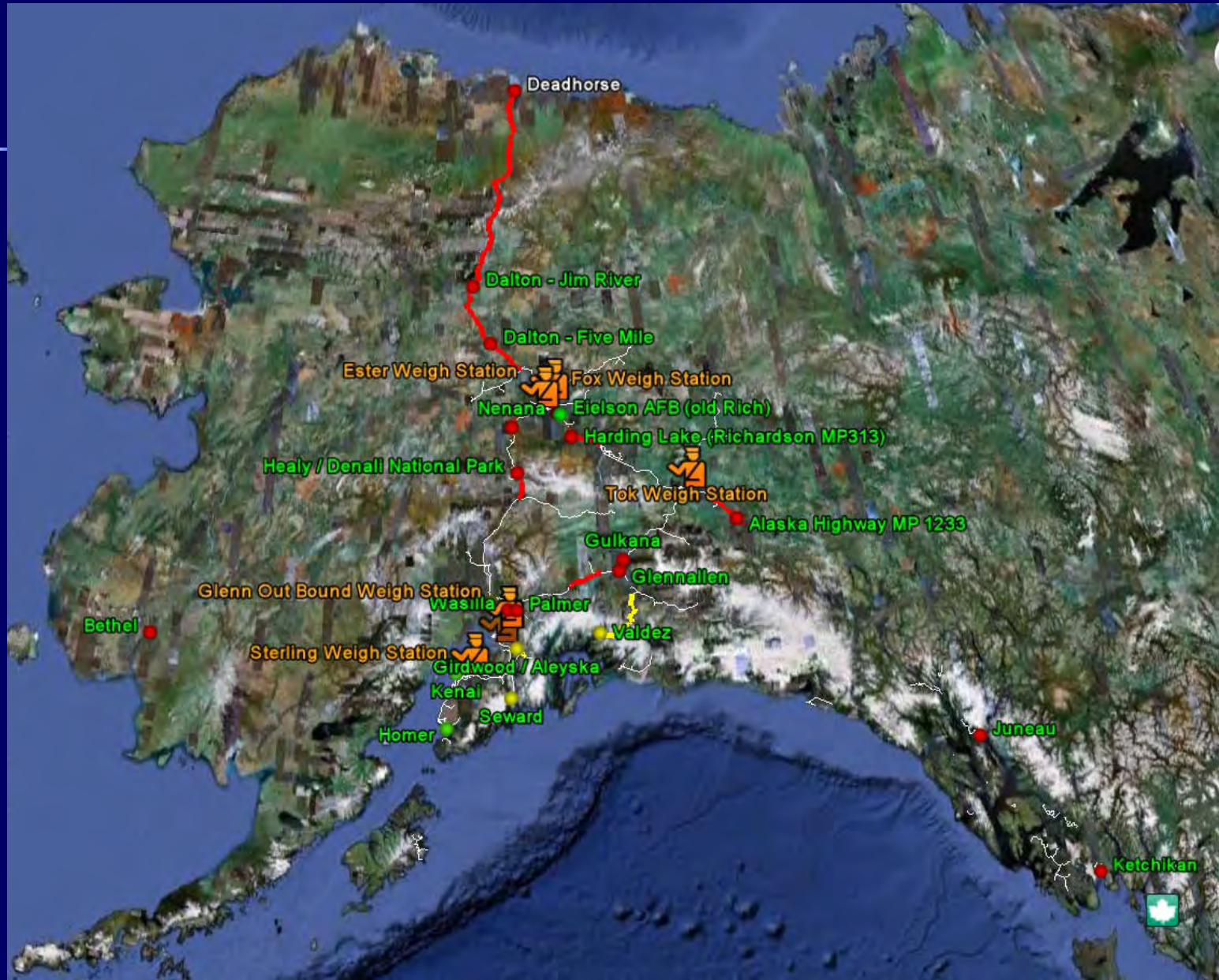
Not Remote

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

Not reachable by  
road

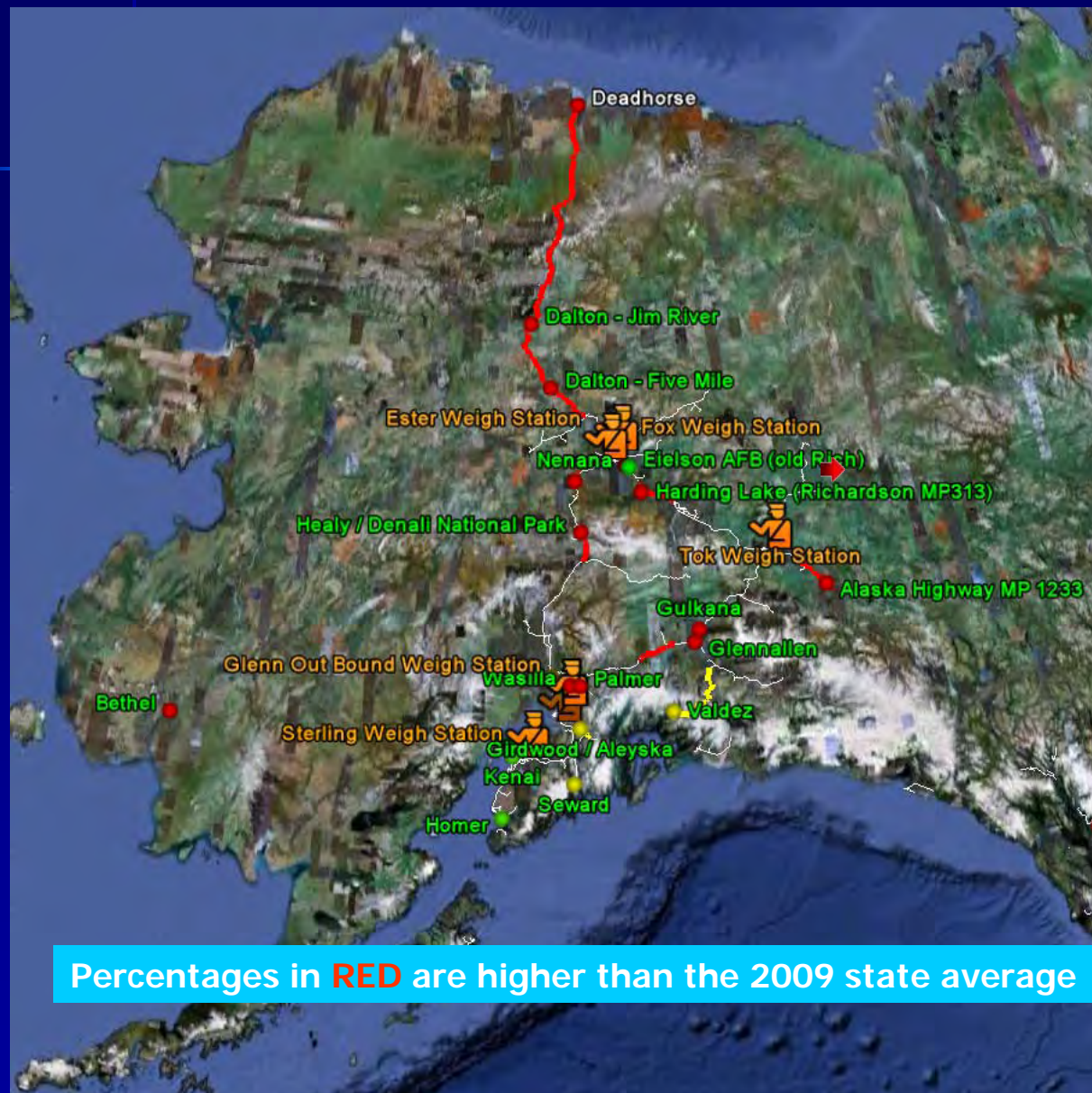
Ketchikan	Veh OOS	39.1%	25	64
	Driver OOS	9.4%	6	64
	HOS vio	0		
	Securement VIO	13		

## 2. Map Inspection Data





## 3. Identify Areas



Percentages in **RED** are higher than the 2009 state average

## 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		

# 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) <sup>23</sup>

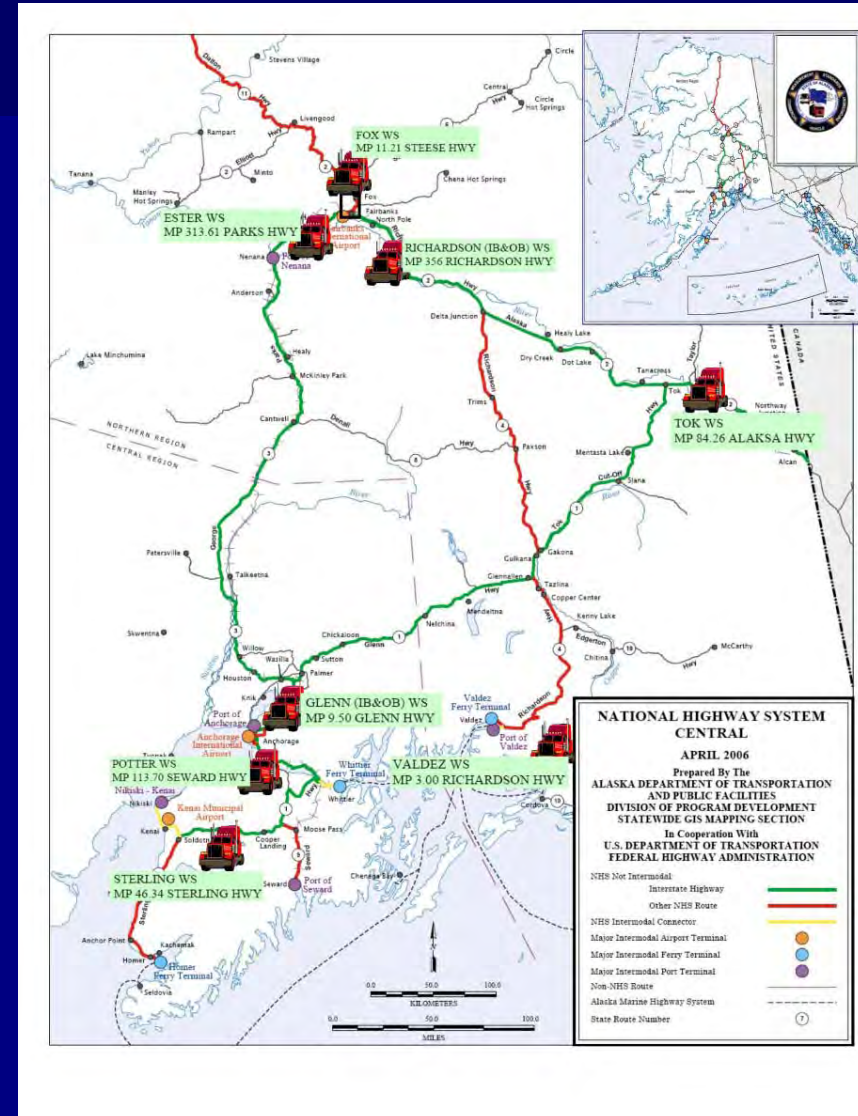


# Into the Future

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

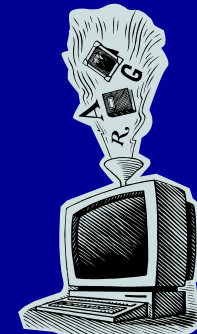
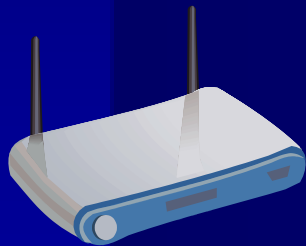
Portable Variable Message Sign



Warning Signs



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



# 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.



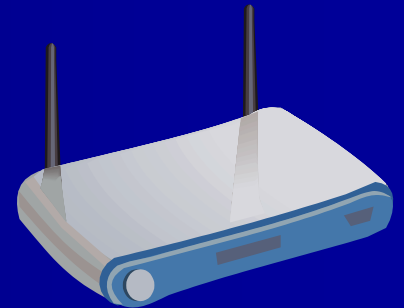
# Components

## 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)

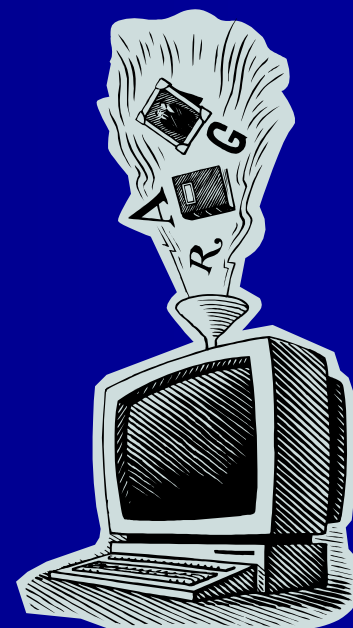
- Carrier/Vehicle MCS-150 Information
- Vehicle Registration Information

## 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 displays the cvQuery web application interface. At the top, there is a navigation bar with links: Home, Carriers (dropdown), Vehicles (dropdown), and Scales (dropdown). The main content area is titled "Carrier Snapshot" and displays information for "CARLILE TRANSPORTATION SYSTEM".

**Carrier Information:**

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

**Entity Information:**

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

Below the carrier information, there are links: [List vehicles], [SAFER Snapshot], and [Lookup L & I].

**Cargo Section:**

Cargo	Description
GF	General Freight
LG	Liquids/Gases
ML	Metal

**UCR Payments Section:**

Registration Year	Payment Date
2009	12/30/2008

## SERVER

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



# 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

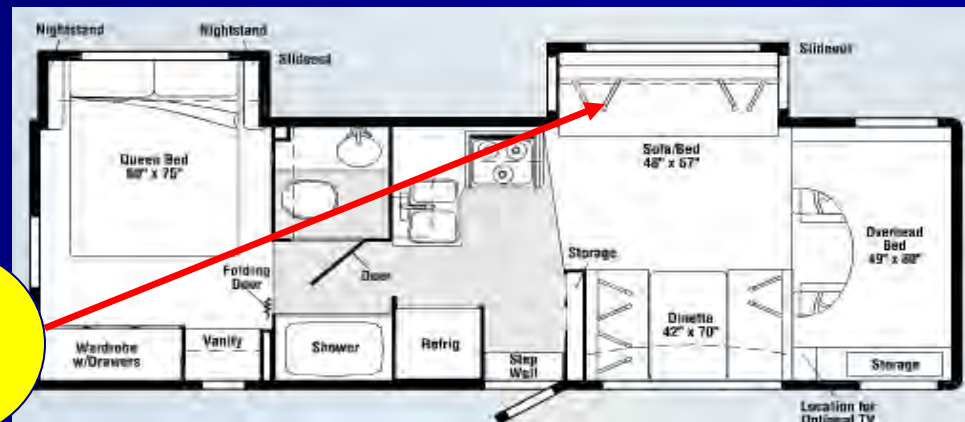


### DRIVETRAIN/ELECTRICAL

- 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

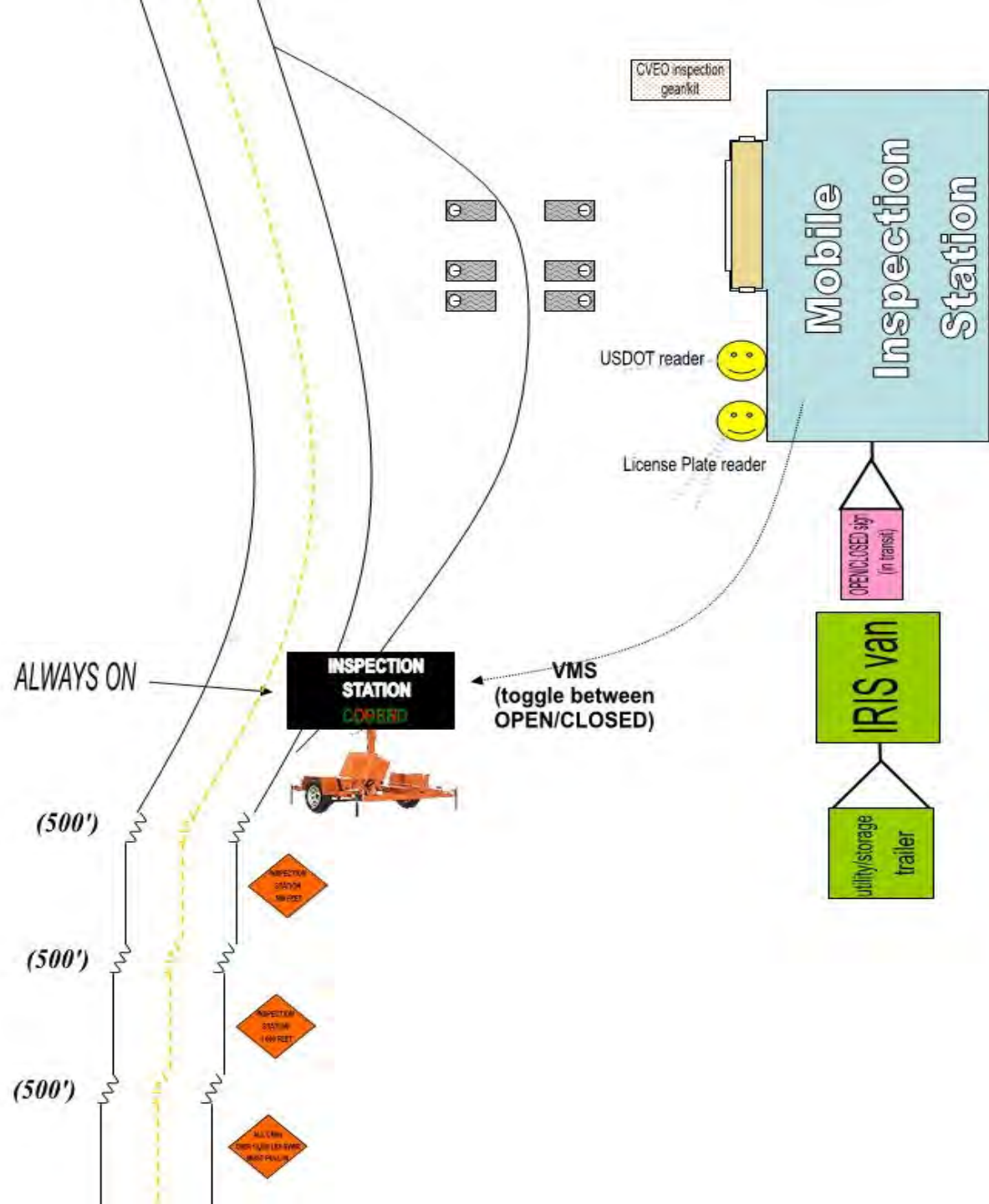
## Haenni Wheel Load Scales

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 <sup>2</sup>
Weight	35 lb
Construction	Aluminum Watertight





# SETUP



# 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

