

# Montana's Truck Screening Systems

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Motor Carriers of Montana

2017 WASHTO Meeting

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# Montana Facts

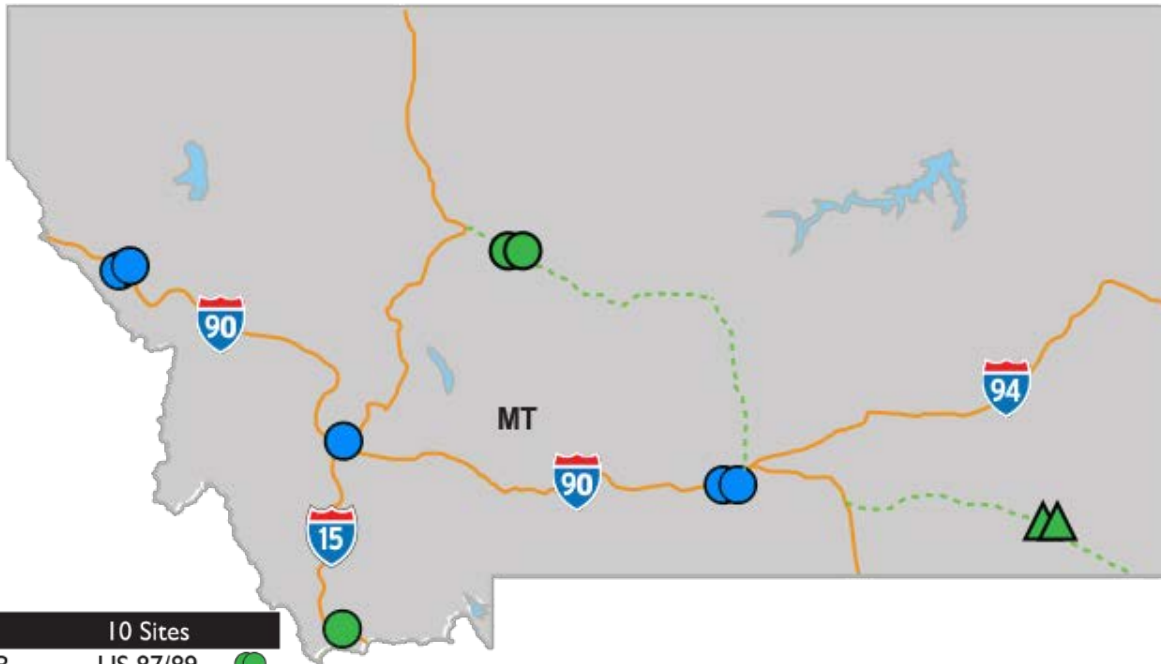
- **11,343 miles of highways**
  - 1,192 Interstate
  - 2,990 NHS
  - 2,575 State Primary
  - 4,428 State Secondary
  - 158 State Urban
- **81 MCS Officers**
  - 55 Weight Station Officers
  - 26 Mobile Officers
- **Annual Truck Vehicle Miles Traveled**
  - 1,081,752,786 in 2016 (Interstate, NHS and Primary routes)







# Montana Enforcement Officer Duties

- **Size and Weight**
- **Commercial Vehicle Safety Inspections**
- **Dyed Fuel**
- **Issue OS/OW Permits**



# Montana's PrePass and 360SmartView Locations



Montana	10 Sites
Armington Jct WB & EB	US 87/89 
Billings WB & EB	I-90 
Butte WB	I-90 
Broadus WB & EB	US 212 
Haugan EB & WB	I-90 
Lima NB	I-15 



- PrePass equipped











- PrePass and 360Smart View equipped








# Montana PrePass Numbers to Date (1997 - 2017)

## PrePass by the numbers

Montana benefits since 1997

-  **316** PrePass currently qualified fleets based in MT
-  **2,227** PrePass currently qualified trucks based in MT
-  **435,917<sup>1</sup>** hours saved
-  **2,092,402<sup>2</sup>** gallons of fuel saved
-  **4,619<sup>3</sup>** metric tons of emissions reductions
-  **\$3,329,202** invested in infrastructure & maintenance
-  **5,231,005** successful bypasses using PrePass
-  **\$41,192,771<sup>4</sup>** operational cost savings

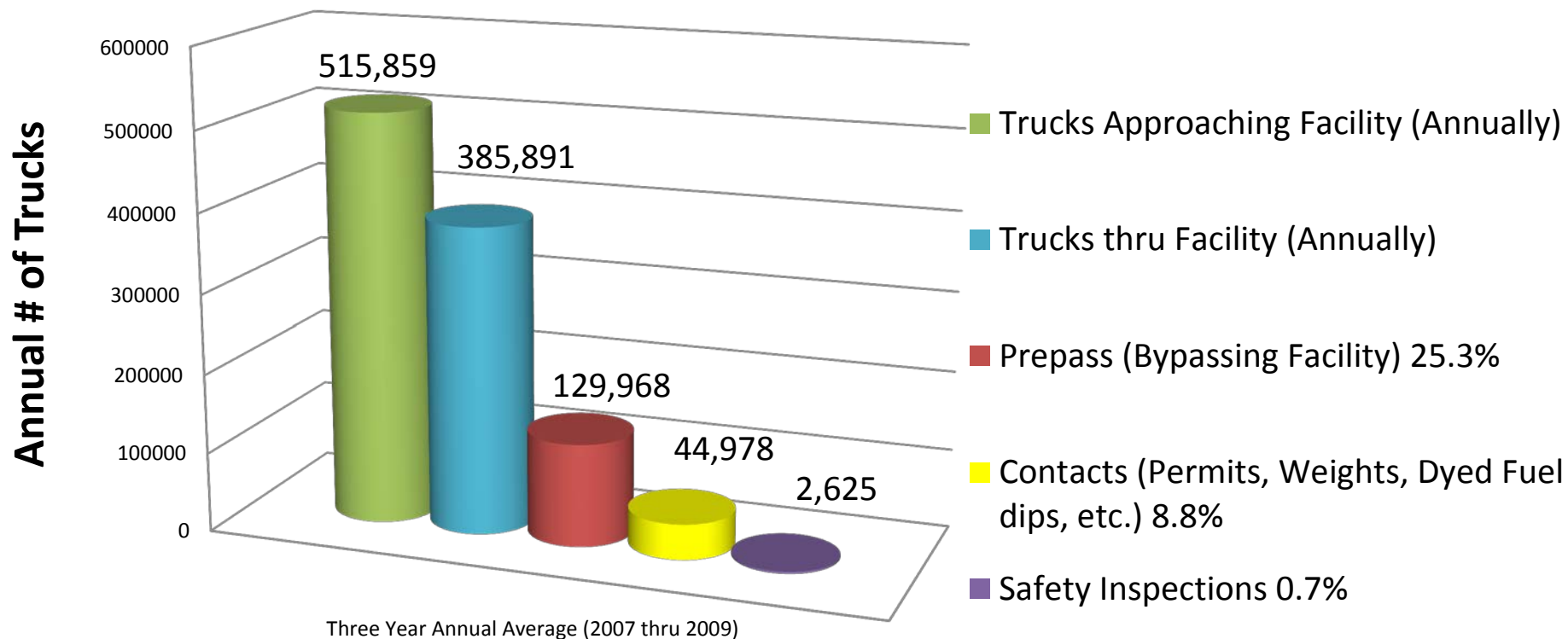
National statistics since 1997

-  **756,739,100** successful bypasses using PrePass
-  **\$5,584,797,698<sup>4</sup>** operational cost savings
-  **63,061,592<sup>1</sup>** hours saved
-  **302,695,640<sup>2</sup>** gallons of fuel saved
-  **668,186<sup>5</sup>** metric tons of emissions reductions
-  **54,487** PrePass currently qualified fleets
-  **545,296** PrePass currently qualified trucks

*Numbers as of April 30, 2017. <sup>1</sup>Based on a minimum of 5 minutes saved per screening bypass; <sup>2</sup>Based on .4 gallons per pull-in; <sup>3</sup>Equivalent to removing 824 passenger vehicles from the road through April 2017 per US EPA estimates; <sup>4</sup>Benefits based on studies by the Iowa State University Center for Transportation Research and Education and the FMCSA; <sup>5</sup>Equivalent to removing 119,177 passenger vehicles from the road through April 2017 per US EPA estimates*

# Why Use LPR Ramp Screening?

## EB Billings Commercial Enforcement Contacts vs Traffic



# MONTANA's Experience with IR Thermal Imaging Screening Systems

Lieutenant Russ Christoferson

Dennis Hult, MCS Operations Bureau Chief



# Background

## Montana's CVISN Program

2008 CVISN team identifies AWSSS, including SIRIS screening project to improve high volume weigh stations operations

2009 to 2012

- Develop project concept, including need for IR cameras on both sides of vehicle
- Secure Grants and Funding
- Contract Award and deployment



# Funding

## ► Deployment

### ► ECVISN Grant

- 50% CVISN Funds
- 50% UCR Funds
- Legislative Approval

## ► Maintenance

### ► ECVISN Grant

### ► UCR Funds

# Comprehensive Solution

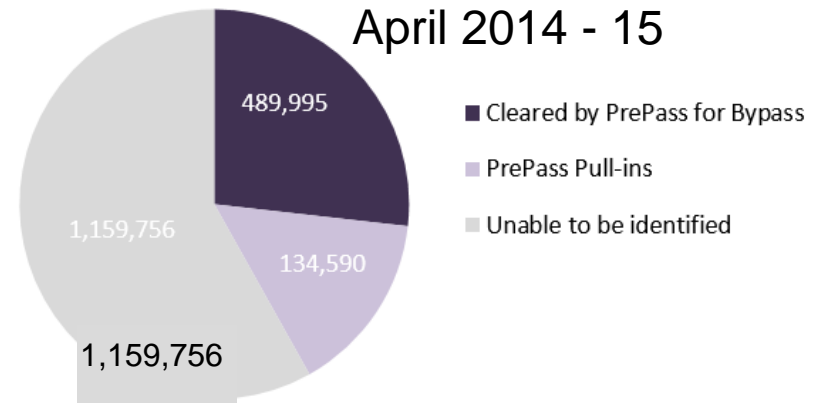
## With PrePass:

- Electronic identification of ~40% of trips on mainline
- Remainder are manually processed on the ramp

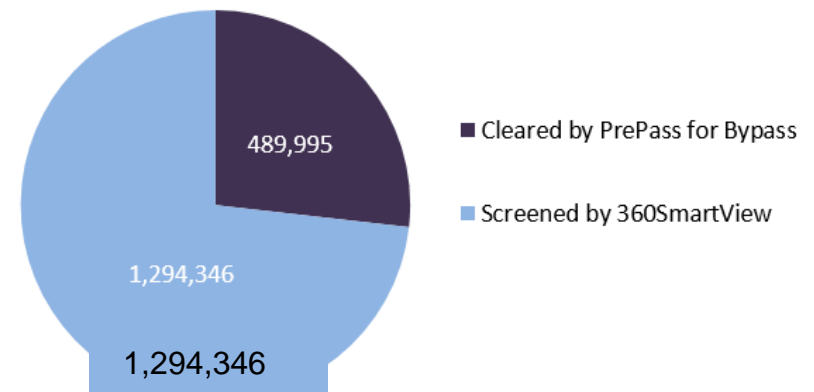
## With PrePass and 360SmartView:

- Integrated solution for mainline and ramp
- Data-driven inspection selection decision based on key screening factors

Annual Truck Trips – Montana PrePass Ports, Open Periods  
April 2014 - 15



With Implementation of 360SmartView at Montana PrePass Ports



# Comprehensive Solution

Montana 360SmartView systems

## Currently operated at 3 locations in Montana

Butte Westbound weigh station on I-15 / I-90

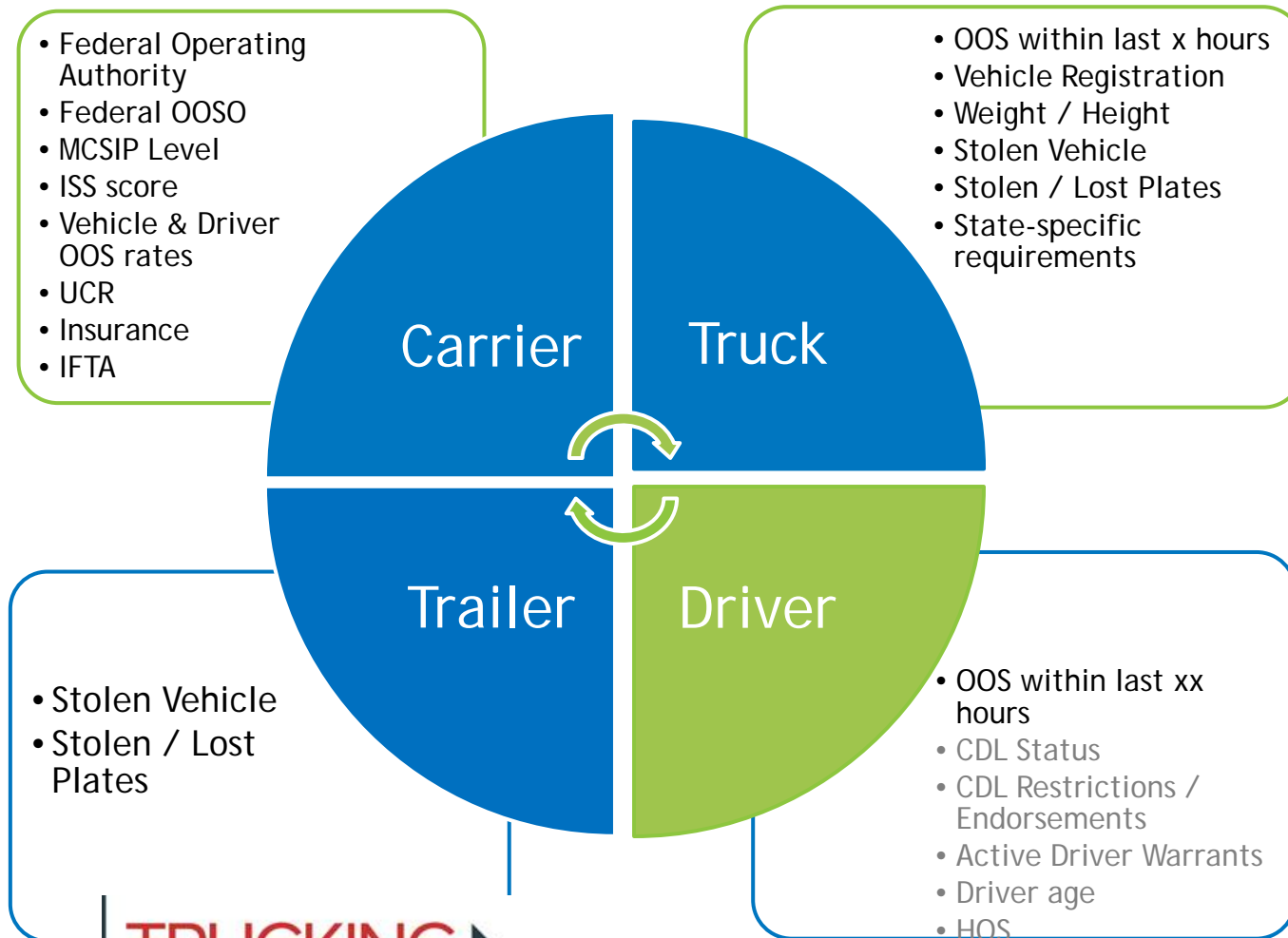
Billings Eastbound and Westbound weigh station's on I-90

- Billings Westbound location has an inspection barn within the facility that is staffed separately from the weigh station

Haugan Westbound and Eastbound weigh station on I-90

- Joint POE with Idaho
- Facility in the median

# 360SmartView Screening Factors

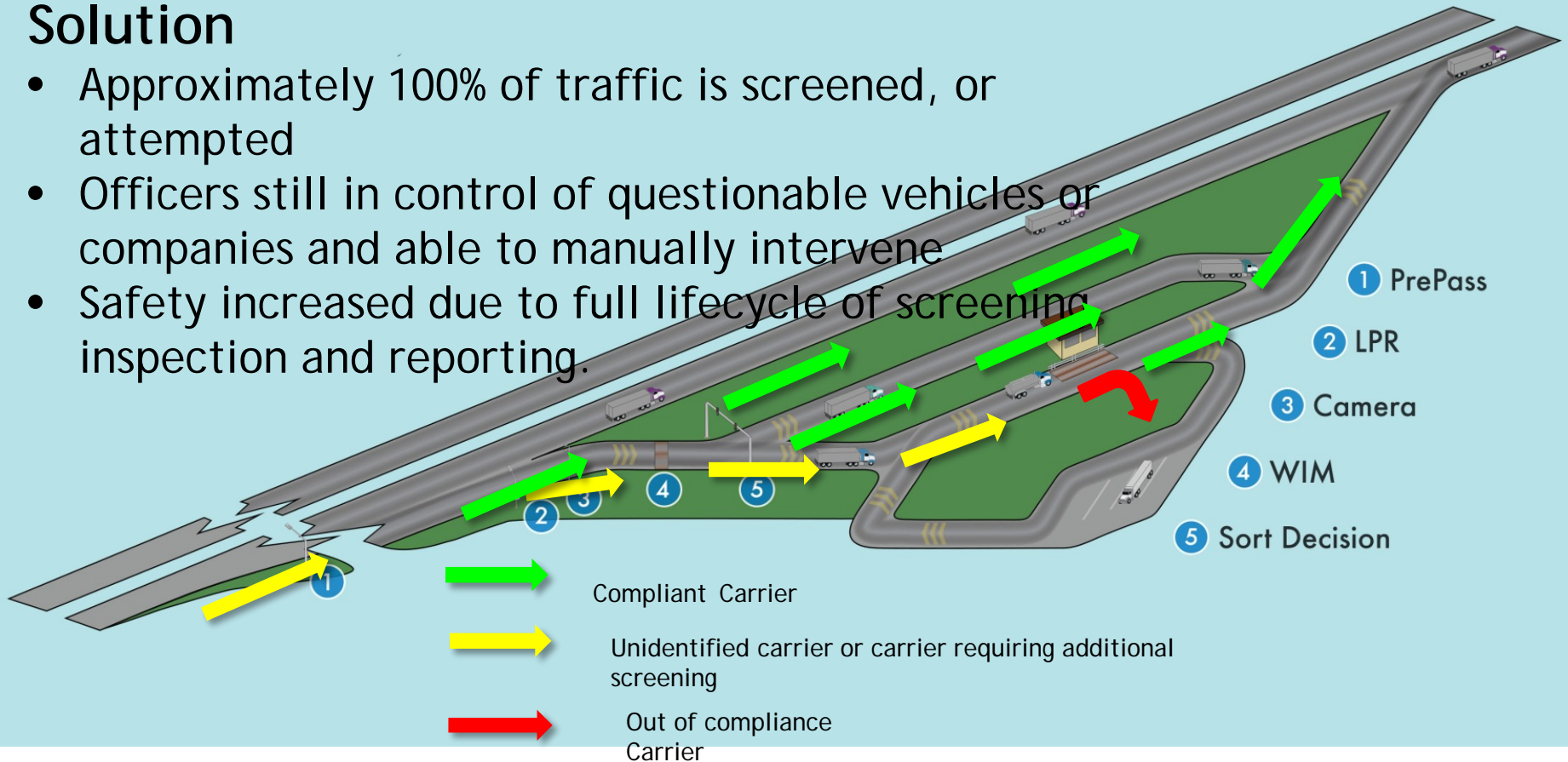


States can  
configure  
additional factors  
as needed

# PrePass and 360SmartView

## PrePass + 360SmartView = Complete Solution

- Approximately 100% of traffic is screened, or attempted
- Officers still in control of questionable vehicles or companies and able to manually intervene
- Safety increased due to full lifecycle of screening inspection and reporting.

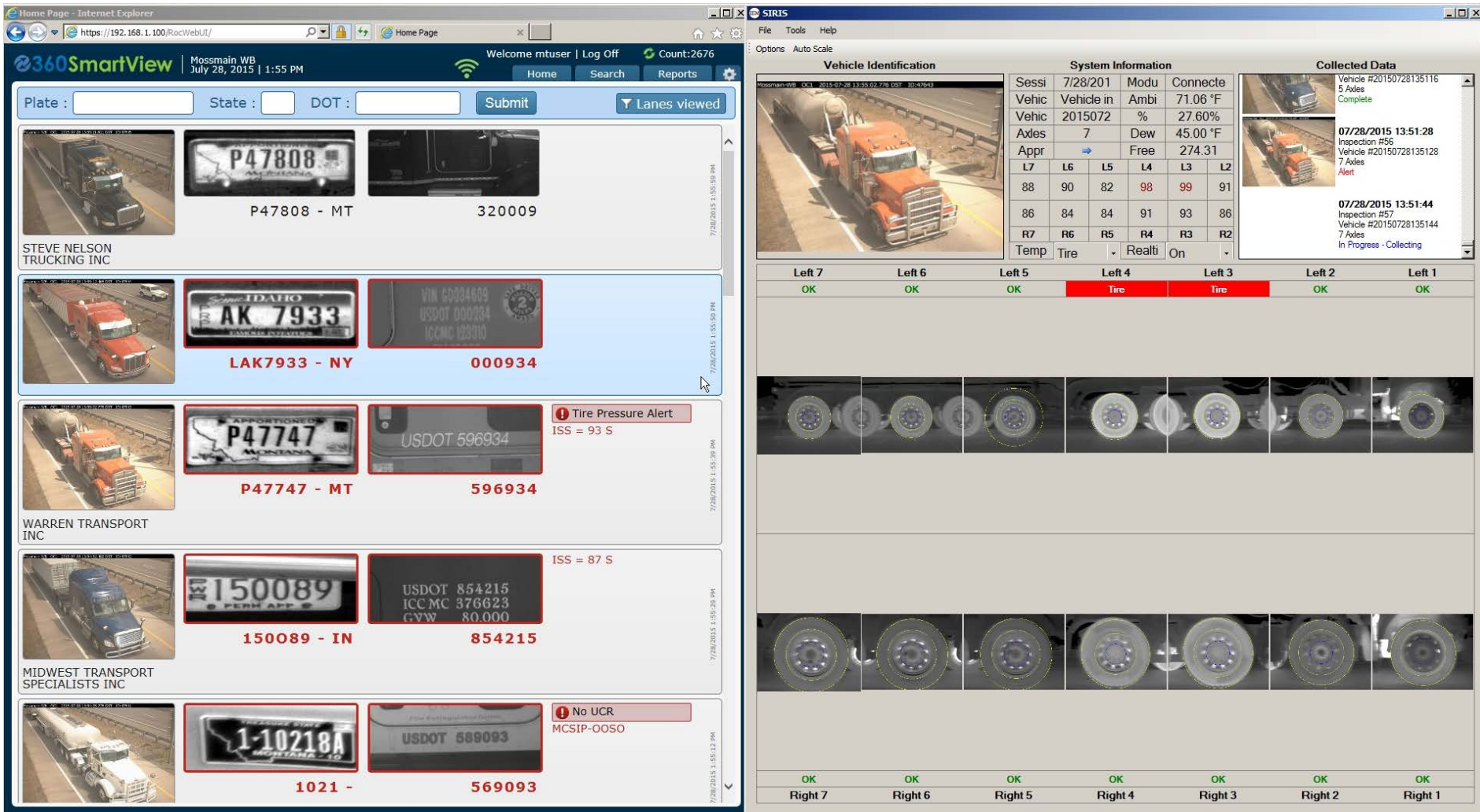


# 360 Ramp Cameras and Lasers





# Computer Screen Display Inside Weigh Station


















# 360 SmartView Screening

**360SmartView** | Mossmain WB  
July 28, 2015 | 1:58 PM

Welcome mtuser | Log Off | Count:2678

Home | Search | Reports

Plate :  State :  DOT :

	 <b>P884408 - IL</b>	 <b>5005795</b>	<b>Brake Alert</b>	7/28/2015 1:57:17 PM
	 <b>NOT FOUND -</b>	 <b>NOT FOUND</b>	Unidentified Vehicle	7/28/2015 1:57:14 PM
	 <b>P47808 - MT</b>	 <b>320009</b>		7/28/2015 1:55:59 PM
STEVE NELSON TRUCKING INC				
	 <b>LAK7933 - NY</b>	 <b>000934</b>		7/28/2015 1:55:50 PM
	 <b>P47747 - MT</b>	 <b>596934</b>	<b>Tire Pressure Alert</b> ISS = 93 S	7/28/2015 1:55:39 PM
WARREN TRANSPORT INC				




# SIRIS Screening

SIRIS

File Tools Help

Options Auto Scale

Vehicle Identification




Massman WB OC1 2015-07-28 13:55:02.776 DST ID:47643

System Information

Sessi	7/28/201	Modu	Connecte		
Vehic	Vehicle in	Ambi	71.06 °F		
Vehic	2015072	%	27.60%		
Axles	7	Dew	45.00 °F		
Appr	→	Free	274.31		
L7	L6	L5	L4	L3	L2
88	90	82	98	99	91
86	84	84	91	93	86
R7	R6	R5	R4	R3	R2
Temp	Tire	Realti	On		

Collected Data

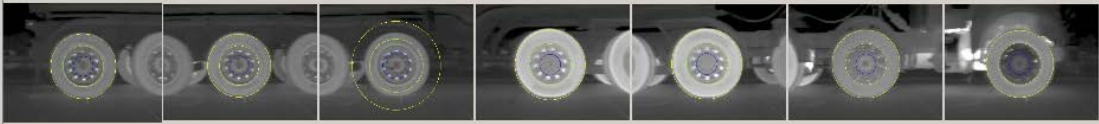


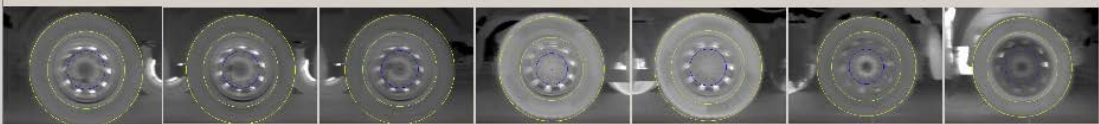
Vehicle #20150728135116  
5 Axles  
Complete

07/28/2015 13:51:28  
Inspection #56  
Vehicle #20150728135128  
7 Axles  
Alert

07/28/2015 13:51:44  
Inspection #57  
Vehicle #20150728135144  
7 Axles  
In Progress - Collecting

Left 7	Left 6	Left 5	Left 4	Left 3	Left 2	Left 1
OK	OK	OK	Tire	Tire	OK	OK





OK	OK	OK	OK	OK	OK	OK
Right 7	Right 6	Right 5	Right 4	Right 3	Right 2	Right 1

## First Year Results with 360 Screening

- ▶ **Violations per safety inspection – Up 23%**
- ▶ **Vehicles with an ISS “Inspect” rating – Up 25%**
- ▶ **Temporary Fuel Permit Revenue – Up 55%**
- ▶ **Temporary Registration Permit Revenue – Up 88%**




# Detailed View of Tire Pressure Alert

## Vehicle Identification


Mossmain-WB OC1 2015-07-28 13:55:02.776 DST ID:47643




## System Information

Sessi	7/28/201		Modu	Connecte	
Vehic	Vehicle in		Ambi	71.06 °F	
Vehic	2015072		%	27.60%	
Axles	7		Dew	45.00 °F	
Appr			Free	274.31	
L7	L6	L5	L4	L3	L2
88	90	82	98	99	91
86	84	84	91	93	86
R7	R6	R5	R4	R3	R2
Temp	Tire		Realti	On	

## Collected Data



Vehicle #20150728135116  
5 Axles  
Complete



**07/28/2015 13:51:28**  
Inspection #56  
Vehicle #20150728135128  
7 Axles  
Alert

**07/28/2015 13:51:44**  
Inspection #57  
Vehicle #20150728135144  
7 Axles  
In Progress - Collecting

Left 7

OK

Left 6

OK

Left 5

OK

Left 4

Tire

Left 3

Tire

Left 2

OK

Left 1

OK

# Detailed View of Brake Alert


## Vehicle Identification




## System Information

Sessi	7/28/201		Modu	Connecte	
Vehic	Inspectio		Ambi	70.88 °F	
Vehic	2015072		%	26.70%	
Axes	5		Dew	44.49 °F	
Appr	➡		Free	274.31	
L5	L4	L3	L2	L1	
131	140	90	89	136	
148	151	87	88	138	
R5	R4	R3	R2	R1	
Temp	Brake	▼	Realti	Off	▼


## Collected Data



5 Axes  
Complete

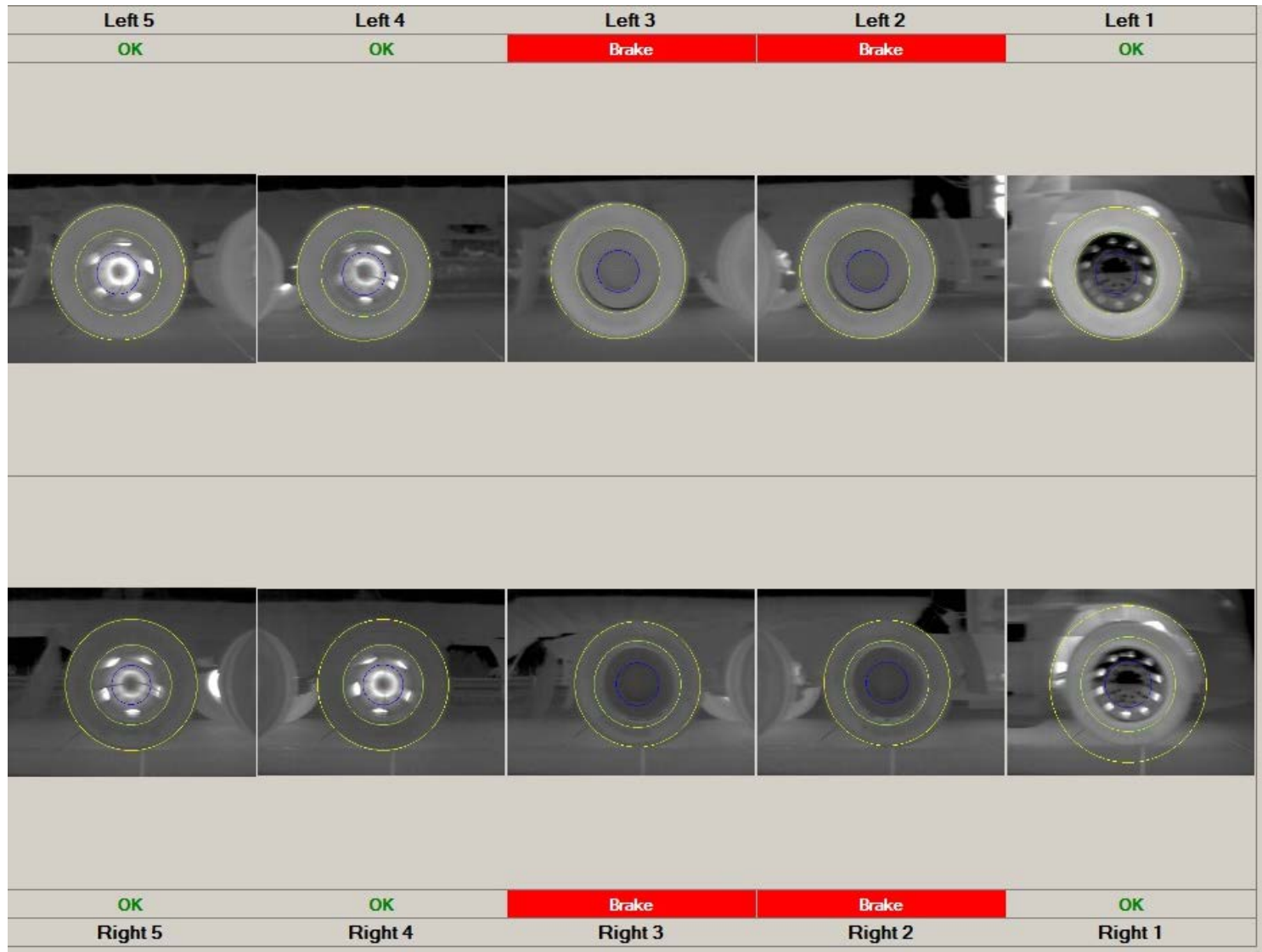


**07/28/2015 13:52:56**  
Inspection #59  
Vehicle #20150728135256  
8 Axes  
Complete



**07/28/2015 13:53:04**  
Inspection #60  
Vehicle #20150728135304  
5 Axes  
Alert

# Thermal Images for a Brake Alert





# Drawbacks

- ▶ SIRIS system MT uses required traffic at maximum of 20 mph as trucks pass by the camera's
  - ▶ Installed the electronic speed limit displays
  - ▶ Longer ramp queues from time to time



# Drawbacks

- ▶ Interpretation of information returned
  - ▶ Brake, tire and hub alerts are showing because one or more of the brakes, tires or hubs have temperatures outside the average
  - ▶ Does not necessarily mean that there is a problem
  - ▶ Does not always show when there are problems
- ▶ Misreading of information
  - ▶ System will return incorrect information or will not return any information at all

# Drawbacks

- ▶ Officers must be paying attention to screen to utilize the information
  - ▶ Officer “Buy In” can be difficult
  - ▶ During testing and implementation many officers lose faith in the system as it takes time to fine tune it
- ▶ Hub alerts show a hot wheel hub assembly but it can be difficult to prove why the hub is hot and have cause to list a violation



# Successes

- ▶ To be used as a Screening Tool to help select which vehicles to conduct inspections
  - ▶ Inspectors must have the right mindset that it is a tool to use and is prone to mistakes but that ultimately it will help them decide what trucks to inspect
- ▶ Officers who utilize the system more frequently are finding more violations during Level 1 or 2 inspections and have higher quality inspections
  - ▶ First year's inspection results
    - Violations per safety inspection - Up 23%
    - Vehicles with an ISS "Inspect" rating - Up 25%

# Successes

- ▶ Having it used in conjunction with the inspection barn in Billings results in higher quality inspections
- ▶ Officers who are using it as a screening tool and conduct inspections based on the information are finding a higher number of OOS vehicles than officers who don't utilize the system and randomly select vehicles

# IRP/HELP/Thermal Imaging Partnership?

## Value Added

- ▶ Safety
- ▶ Increased compliance and revenue to states
- ▶ Level playing field for carriers

## How?

- ▶ Accessing clearinghouse carrier registration information for all jurisdictions
- ▶ Timely data verification
- ▶ Data verification with CVIEW



# Questions?

