

FMCSA Wireless Roadside Inspection Research Program Field Operational Test Overview

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WRI Characteristics

- Assessment of driver, carrier and vehicle compliance via secure wireless communications while the commercial motor vehicle (CMV) passes by fixed and portable sites.
 - System uses identifier information to query federal and state databases to identify potential OOS violations.
 - System assesses driver hours of service (HOS) information.
 - Envisioned to augment data available to the Safety Measurement System (SMS).
 - Field operational test is using Commercial Mobile Radio Services (CMRS) for communications.

WRI Background – Phase 3

- Field Operational Test (FOT) – Full end-to-end system testing on vehicles from fleets within a multi-state corridor (began July 2012).
 - Testing of fully-integrated network (vehicle/roadside/wireless inspection processing system)
 - Determine the viability and effectiveness of wireless CMV inspection using existing CMRS technologies
 - Receive and process safety data messages in real time

WRI Phase 3 – Field Operational Test

- Maximum of 1,000 vehicles
- Multiple fleets
- Testing in Commercial Motor Vehicle Roadside Technology Consortium (CMVRTC) (Georgia, Kentucky, Mississippi, North Carolina, and Tennessee)
 - 20 inspection sites identified for data collection
- Selection of CMRS vendor to support testing
- Development of Wireless Inspection Processing System (WIPS)
 - Will be developed by NDSU/UGPTI

WRI FOT Year-1 Activities

– Partnerships with State Agencies

- Georgia Motor Carrier Compliance Division

- Kentucky State Police

- Mississippi Department of Transportation

- North Carolina Highway Patrol

- Tennessee Highway Patrol



Over 2,400 miles of interstate roadway



WRI Communication Path

SDM is evaluated for safety issues

8

Geofence Locations

2

SDM sent to WIPS

7

WRI Inspection Results

9

Motor Carrier Ops Center

Wireless Inspection Processing System (WIPS)

Roadside Enforcement

Safety Data Message (SDM) - Message is compiled using vehicle-based and back-office data (if needed)

Sends Vehicle Data via CMRS

5

Sends In-Cab Indicator

10

Sends Geofence via CMRS

3

Creates Geofence Locations

1

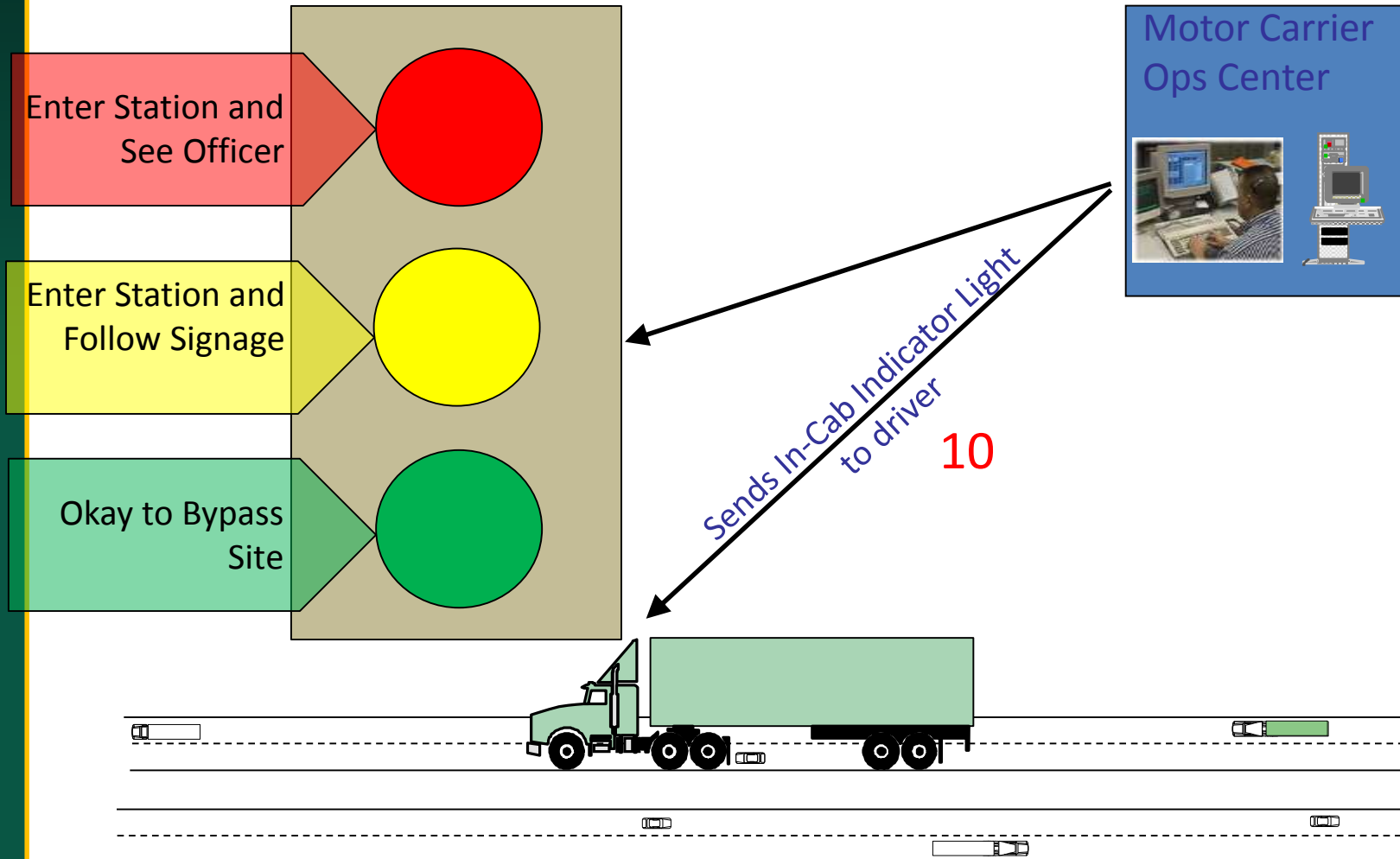
Vehicle:
 • Crosses into Geofence
 • On-board data collected

4 Data Collected

Geofence

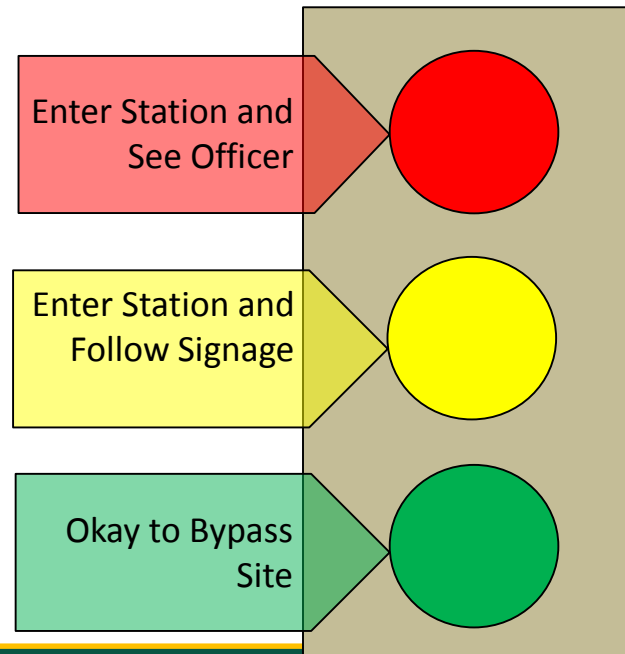
Behavior Analysis and Safety Improvement Categories (BASICS)

WRI – How the FOT Will Work for Driver



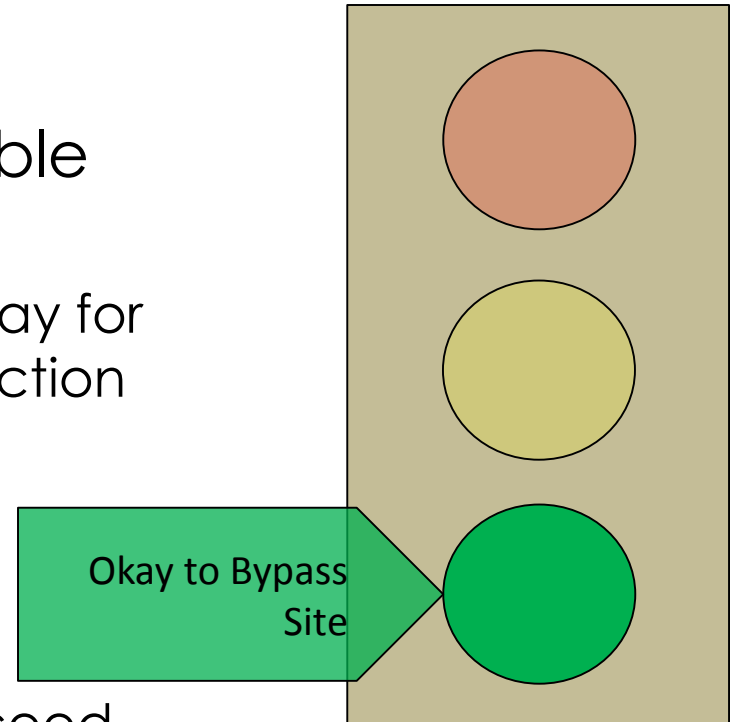
WRI Operational Refinements

- In-Cab Indicators
 - Exact mechanism (light, tone, etc.) has not yet been defined. Defer to telematics industry for implementation.
 - For the purposes of this presentation, we will use lights.
 - They are:



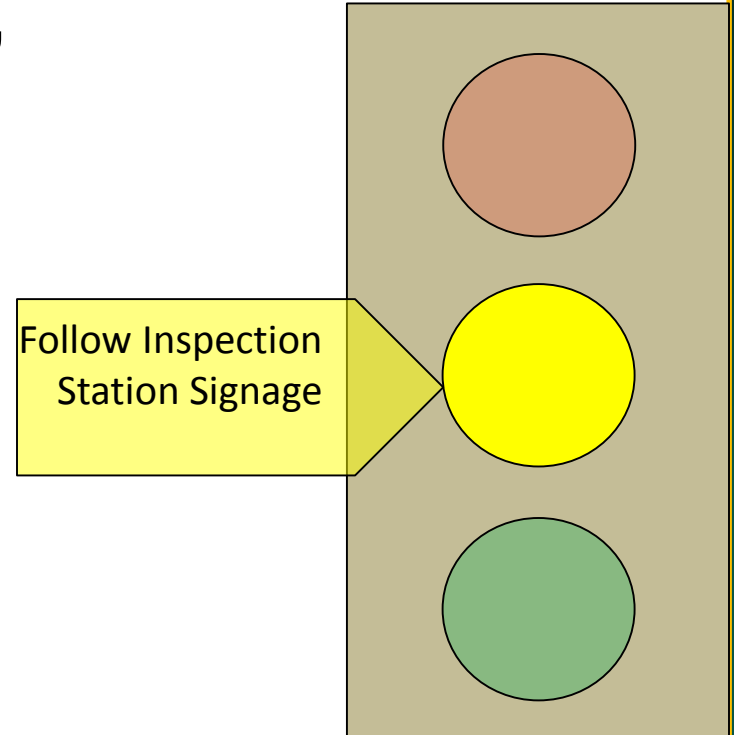
WRI Operational Refinements

- In-cab Indicator – “Green”
 - Indicates no problem is perceived based on available information.
 - Geotriggered Inspection – Okay for vehicle/driver to bypass inspection station.
 - Self-Test – Okay for driver to proceed based on available information.
 - Login – Okay for driver to proceed based on available information.
 - Officer Initiated Inspection – No problems identified during WRI inspection.



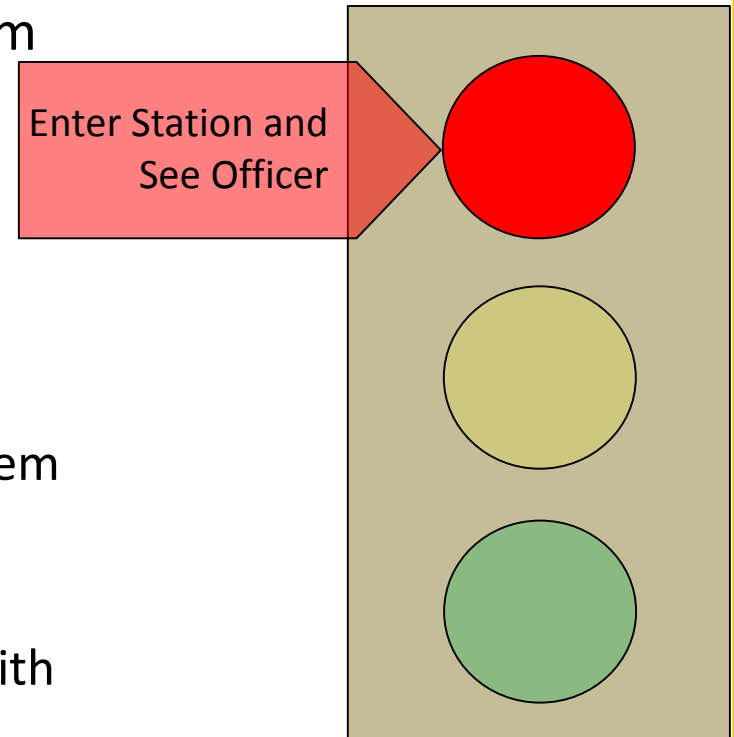
WRI Operational Refinements

- In-cab Indicator – “Yellow”
 - Typically indicates the vehicle has been selected for pull-in.
 - Could indicate that there is a problem on the government side preventing analysis of data.
 - Driver should follow inspection station signage.



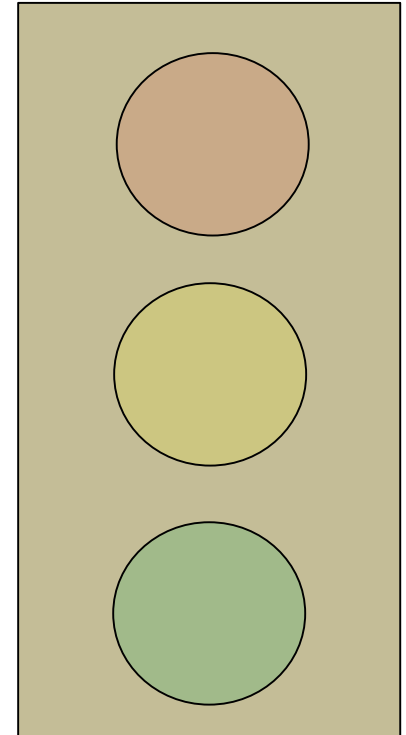
WRI Operational Refinements

- In-cab Indicator – “Red”
 - Indicates there is a perceived problem based on available information.
 - Geotriggered Inspection – Enter inspection station and see officer.
 - Self-Test – Driver may investigate problem and correct if possible.
 - Login – Driver may investigate problem and correct if possible.
 - Officer Initiated Inspection – Enforcement officer will follow up with driver/carrier.



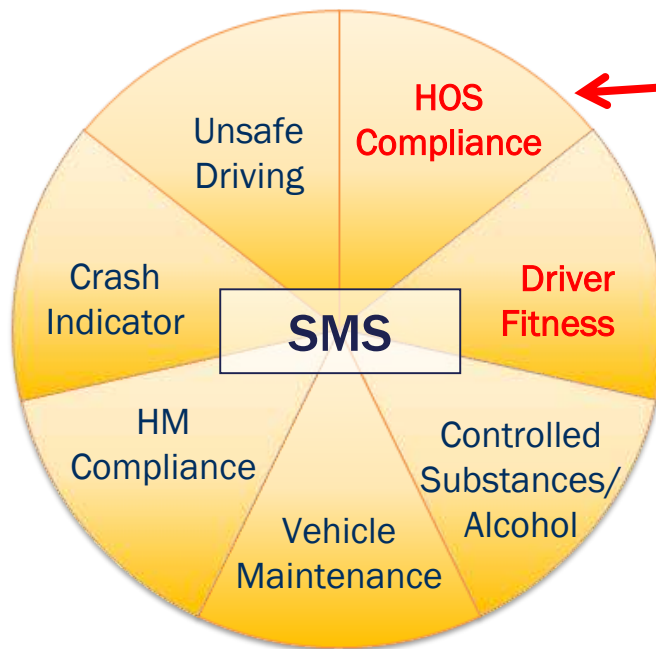
WRI Operational Refinements

- In-cab Indicator – “No Light”
 - Could indicate carrier’s WRI account not active.
 - Could indicate there is a problem on the telematics/carrier side preventing the wireless inspection.
 - Driver should follow existing signage.
 - Data received by the government system will be retained for reporting.
 - “No light” situation is expected to be a very low occurrence.



WRI – Potential Benefits - CSA

Behavior Analysis and Safety
Improvement Categories (BASICS)



Data acquired can have a potential effect on these segments