

Efficiency and Effectiveness of Weigh Station Management in Washington State

presented to
**Washington State Joint
Transportation Committee**

presented by
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November 17, 2015

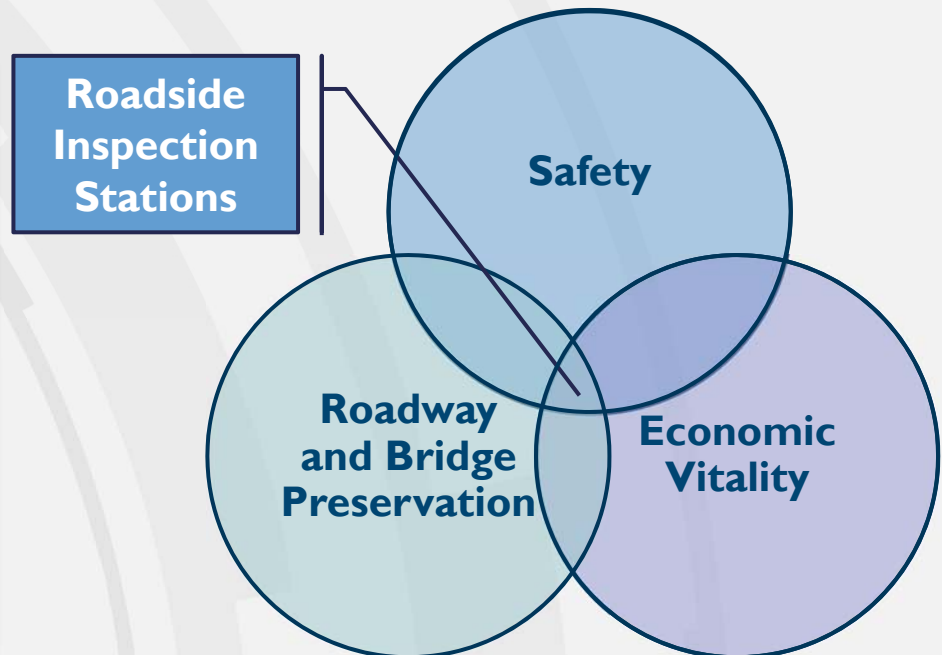
CAMBRIDGE
SYSTEMATICS

Study Overview

- ① Purpose of the study
 - » Understand *systematic* issues with statewide commercial vehicle roadside enforcement
 - » Evaluate system efficiency and effectiveness at achieving outcomes relating to traffic safety, highway and bridge preservation, and economic vitality
 - » Recommendations for strategic system coordination and processes, rather than specific short-term investments
- ② Consultant team – Cambridge Systematics, Inc. and BGM Consulting, LLC, national experts in commercial vehicle operations and enforcement

Introduction and Takeaways

- Truck inspection stations (also called weigh stations) are a key element in preventing truck-related fatalities, preserving highway infrastructure, and fostering economic vitality
 - » Washington's stations span a variety of levels of infrastructure and technological complexity, at different ages, and at different cost investments



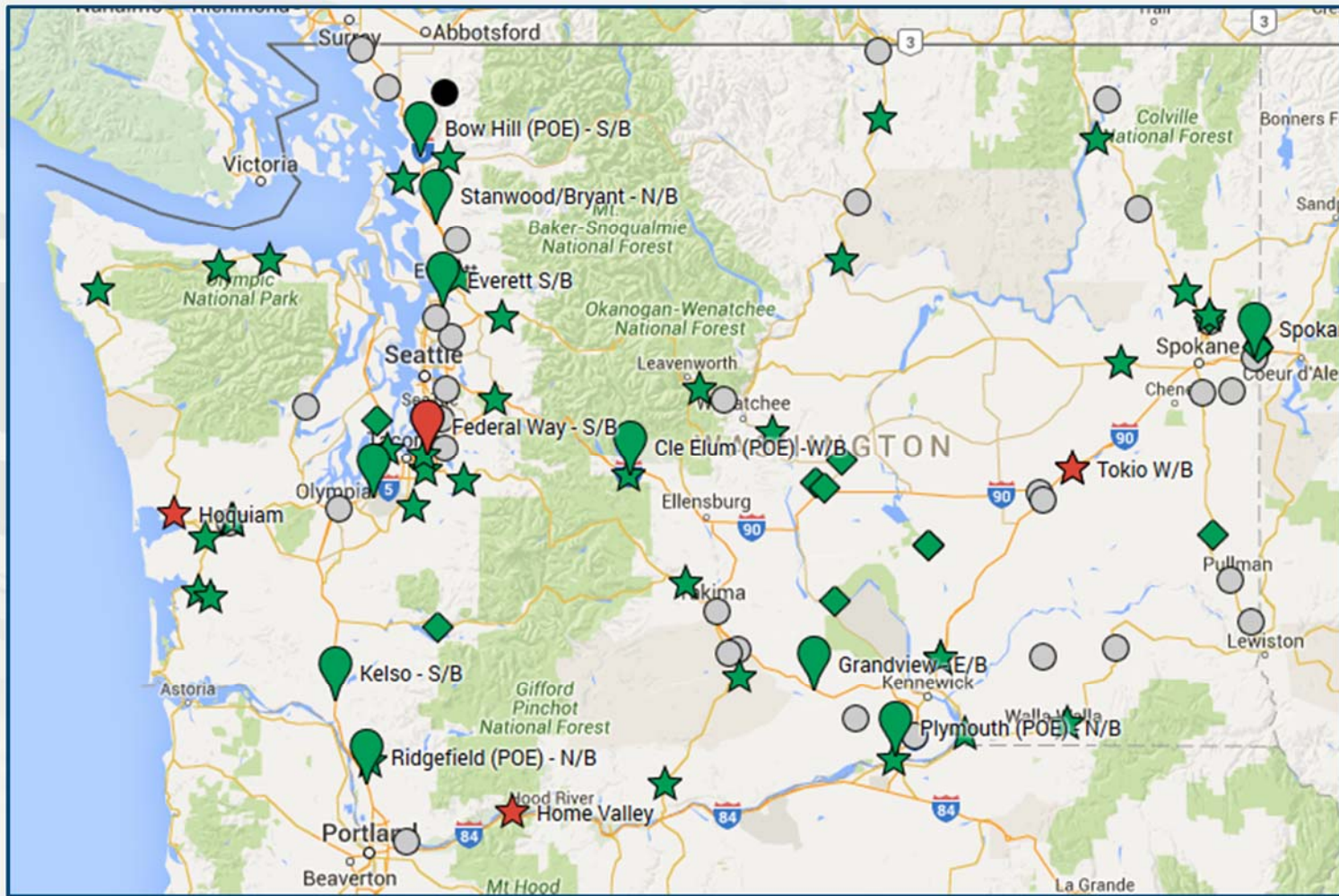
Introduction and Takeaways (continued)

- ④ Managing investments for these stations is complex and requires...
 - » Effective communication for agencies involved in their operation
 - » A framework for comparing potential investments against each other and against investments in other asset categories

- ④ Today's presentation describes findings, recommendations and identifies proposed Legislative directives for WSP and WSDOT to:
 - » Improve communications
 - » Formalize processes for asset management and strategic planning
 - » Consider highway project impacts on inspection stations
 - » Improve data and tools for decision making

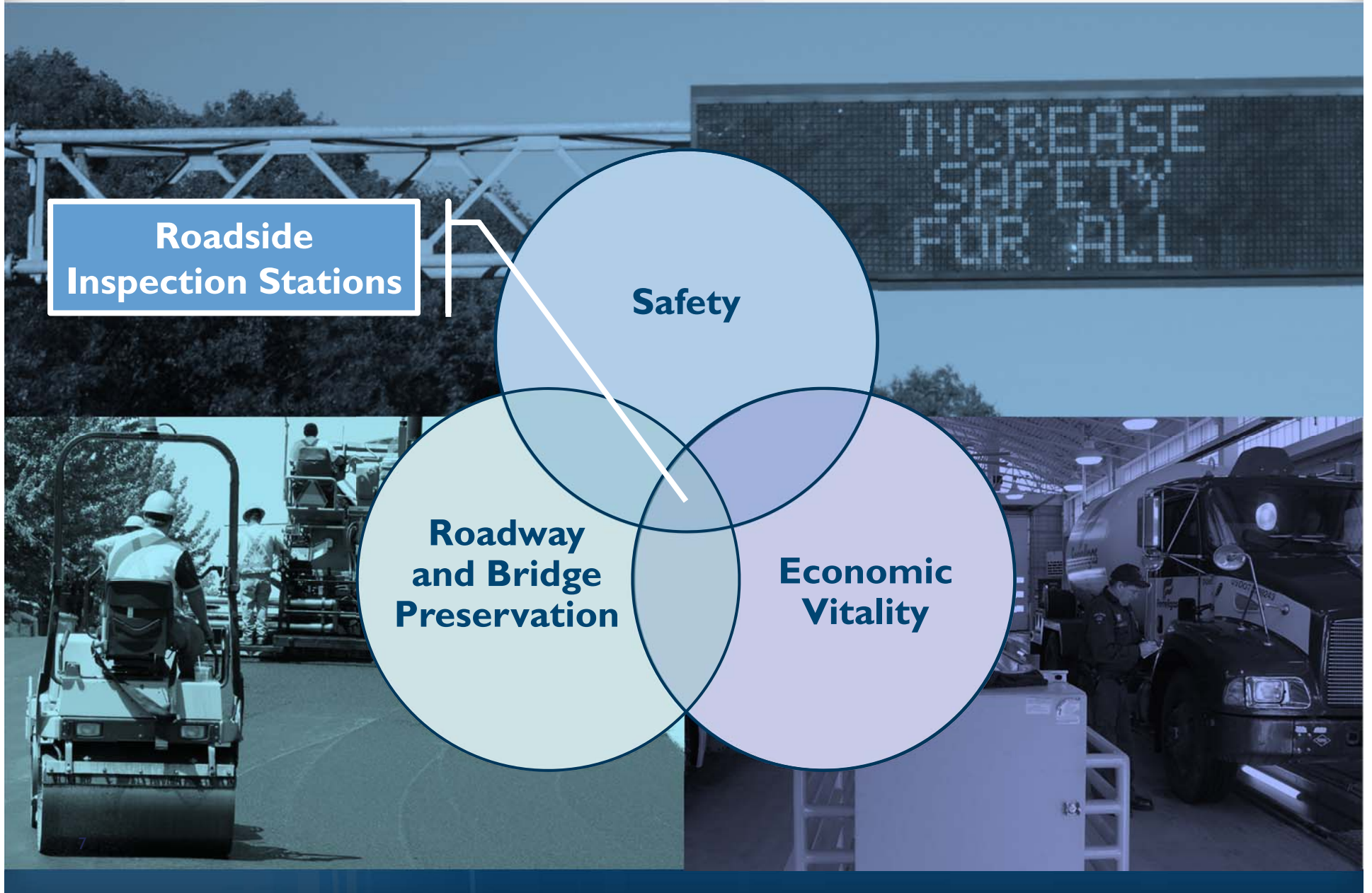
What are Inspection Stations? Why are They Important?

Washington's Inspection Station System



Washington has 63 inspection station sites –
52 “Fixed” sites and 11 sites commonly used by mobile enforcement details

Inspection Stations Help Meet Transportation Goals



Roadside
Inspection Stations

Safety

Roadway
and Bridge
Preservation

Economic
Vitality

INCREASE
SAFETY
FOR ALL

Safety is Top Priority

WSDOT

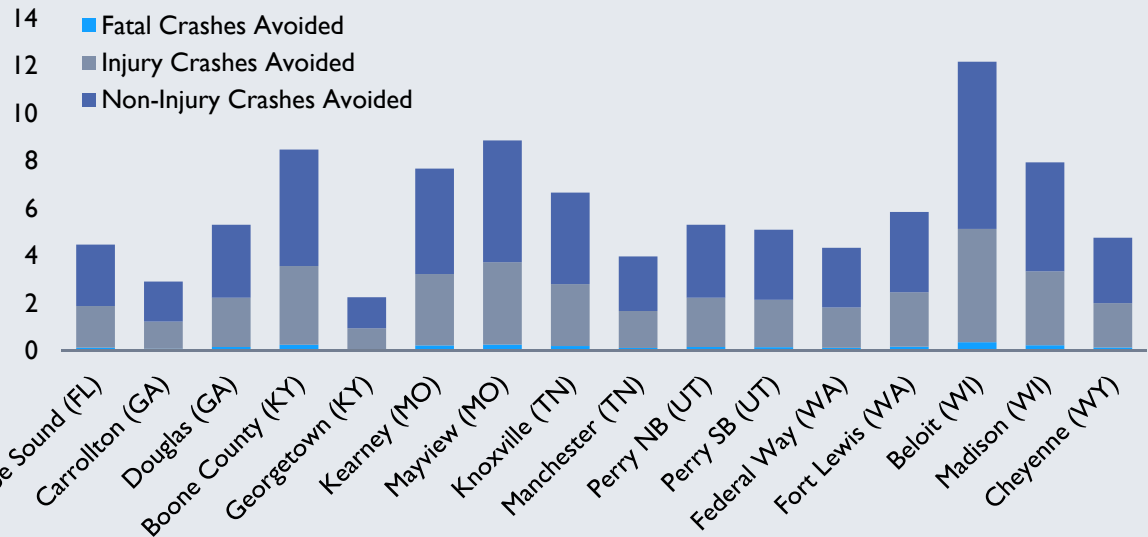
Develops and implements roadway designs and projects to enhance safety

WSP

Enforces the laws related to highway safety, including inspecting trucks and drivers

Inspections reduce crashes by taking unsafe vehicles and drivers off the road

About 6 Truck Crashes are Avoided per 1,000 Safety Inspections



● The *State Highway Safety Plan – Target Zero* sets statewide priorities for traffic safety

» 8.2 percent of fatalities statewide are from crashes involving a truck

Infrastructure Preservation

WSDOT

Builds infrastructure; repairs and mitigates damage

WSP

Prevents truck-related damage by enforcing size and weight laws



WSDOT Spending for Bridge and Pavement Preservation (\$ Millions)

| Year | FY 2015 | FY 2014 | FY 2013 |
|----------------------------------|----------------|----------------|----------------|
| Roadway Preservation | \$133.2 | \$118.1 | \$121.7 |
| Structures (Bridge) Preservation | \$107.8 | \$95.6 | \$95.3 |
| Total | \$241.0 | \$213.8 | \$217.8 |

Economic Vitality

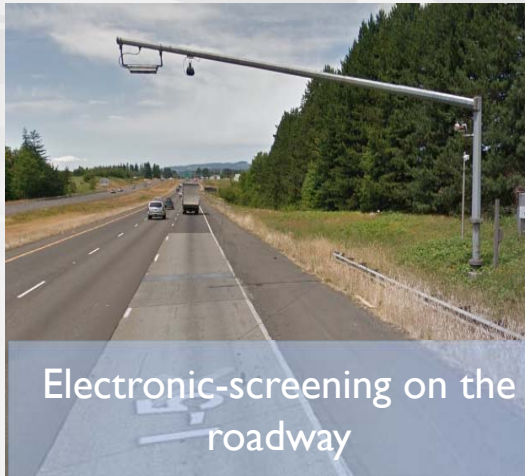
WSDOT

Provide infrastructure for goods movement – a cornerstone of Washington’s economy

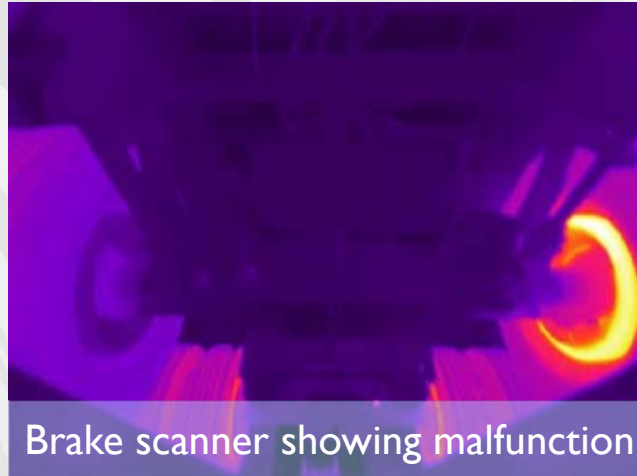
Invest in technology to prioritize mobility (bypassing) for carriers with lower volumes of weight or safety-related violations

WSP

Provide the staffing and expertise to properly monitor and enforce activities of carriers



Electronic-screening on the roadway



Brake scanner showing malfunction



In-truck transponder equipment

WSDOT and WSP Must Work Jointly to Accomplish Goals

Joint Agency Goals

Ensure traveler safety and a well maintained system while supporting economic vitality

Overall, both agencies have common goals but interpretation and implementation is different

Leads to a breakdown in accomplishing goals

WSDOT

Primary mission – Build and maintain transportation system, including inspection station infrastructure

Commercial vehicle primary responsibility – Build infrastructure and technology, but must prioritize between MANY types of projects

WSP

Primary mission – Provide for public safety and security

Commercial vehicle primary responsibility – Enforce size/weight/safety regulations

Key Items that were Studied

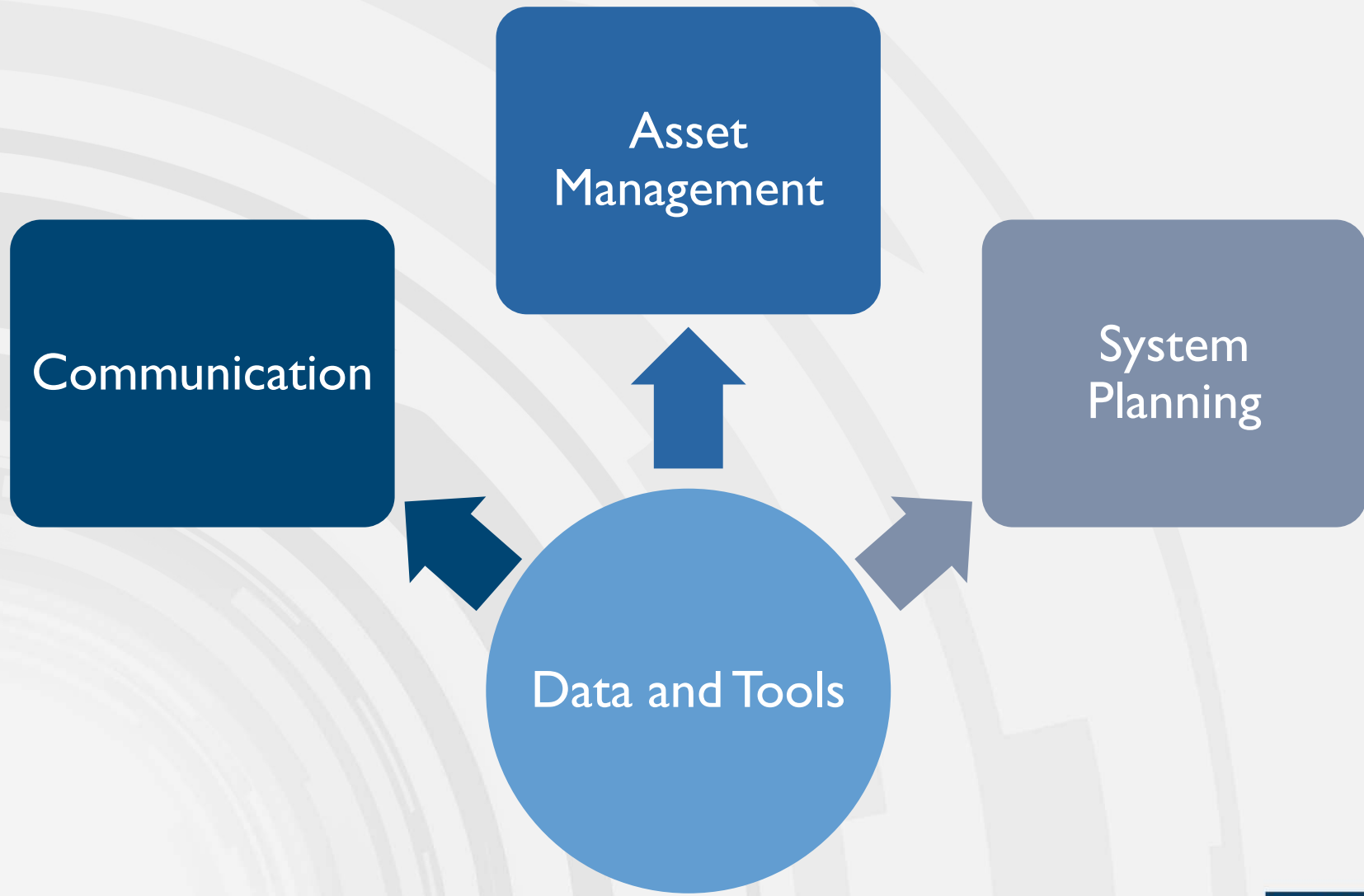
- Current operations and practices
 - » How weight- and safety-related truck enforcement is undertaken in the field
 - » How WSDOT and WSP communicate with about needs and opportunities
 - Both maintenance and capital improvements
 - » How funding is determined and how funding decisions related to broader goals of both agencies
- Why capacity for truck enforcement has begun to shrink in certain parts of the State, especially on I-5
- The opportunities for improving truck enforcement in Washington through improved focus on coordination and better investments

Study Findings and Recommendations

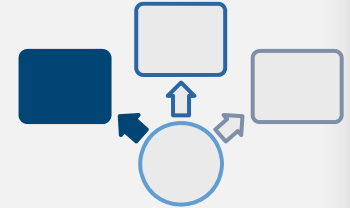
Study Findings

- WSDOT and WSP do not communicate well about inspection stations
- Inspection stations are a class of asset, and WSDOT should manage them like other types of assets, e.g., pavement
- The roadside inspection station system is not considered sufficiently in WSDOT planning, leading to stations being closed
- Currently, the data being collected is not sufficient to make informed decisions

Study Recommendations



Finding I – Communication



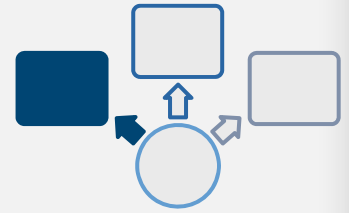
Finding

WSDOT and WSP do not communicate well about inspection stations

Recommendation

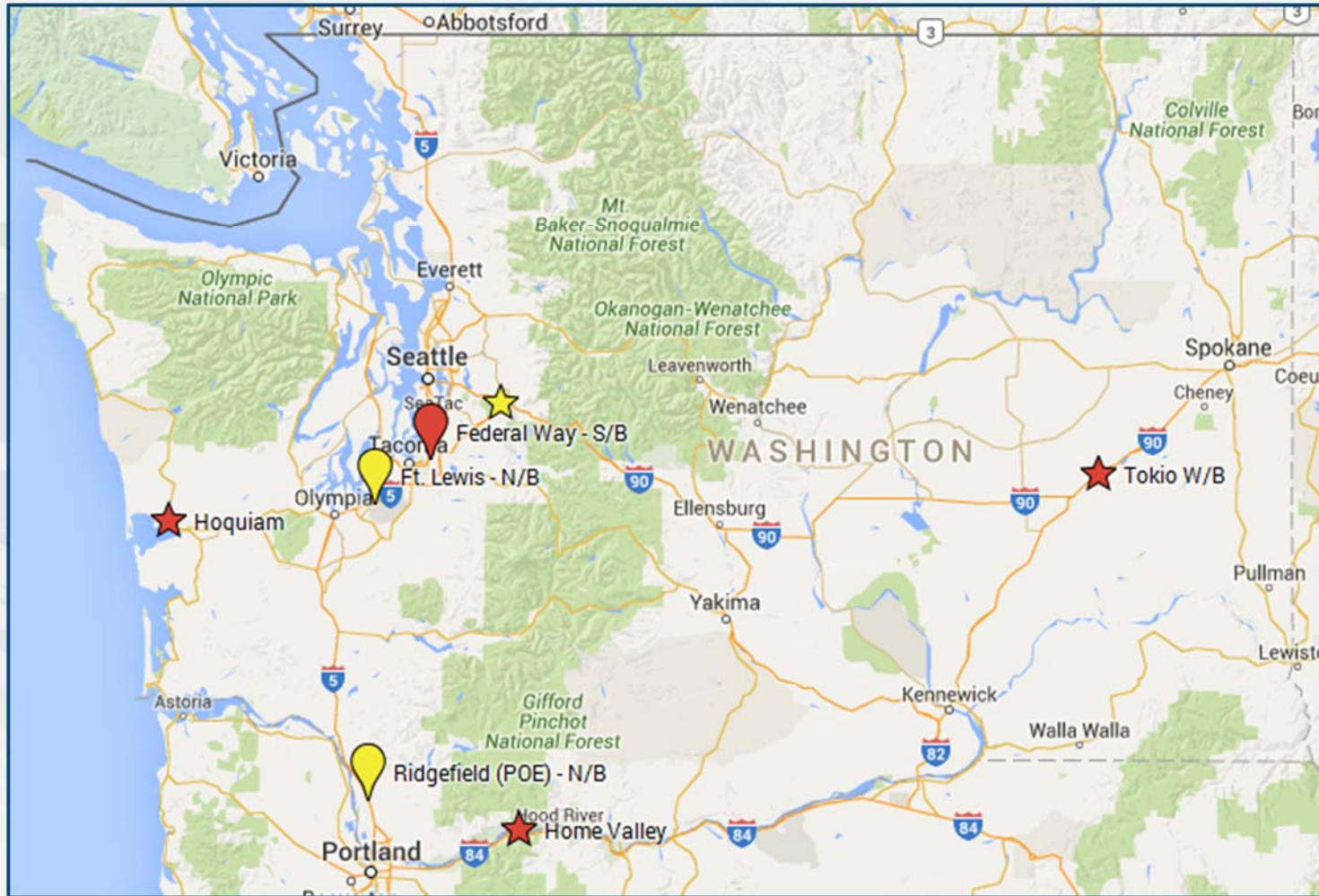
Revisit and formalize protocols for communication and coordination on agency and intra-agency roles and responsibilities and coordinated efforts

Example – Stop Closing Stations



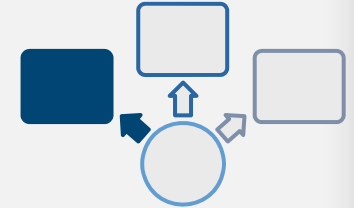
- Currently, inspection stations are being closed or threatened along the I-5 and I-90 corridors
 - » Closures reduce WSP’s ability to enforce safety and weight regulations in key corridors
 - » Generally, WSDOT engineers do not include inspection stations as a consideration in their process
 - » WSP is not being systematically engaged in a way to provide meaningful feedback to the WSDOT process

Example – Stop Closing Stations



Closed Sites – Federal Way S/B, Hoquiam, Tokio W/B, and Home Valley
Threatened Sites – Ft. Lewis N/B, Ridgefield N/B, and North Bend

Example – Miscommunication about Need

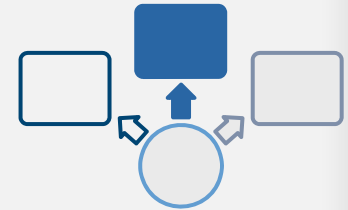


- Inspection station needs are not being articulated, thus are not being considered for funding
 - » A subset of enforcement needs are being identified by WSP, but are not being included in WSDOT project programming
 - » This is partially due to the fact that WSP is not identifying enforcement needs in a way that fits within the WSDOT project programming process
 - » The result is that inspection station projects are not considered for funding at the same time that other roadway preservation and safety projects are being considered

Finding 2 – Asset Management

Finding

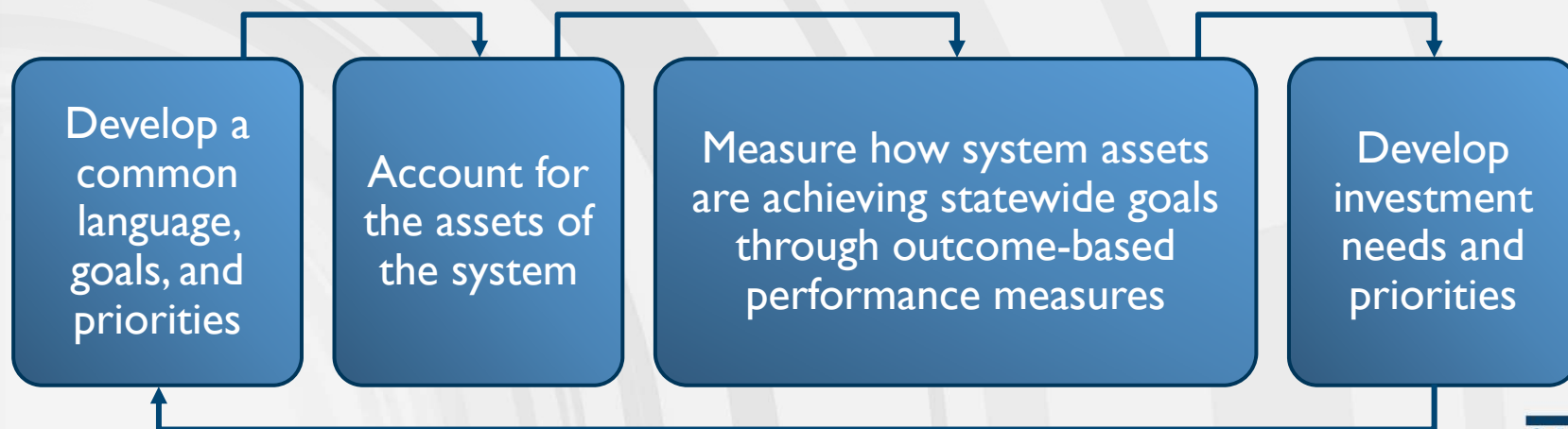
Inspection stations are a class of asset, and WSDOT should manage them like other types of assets, e.g., bridges



Recommendation

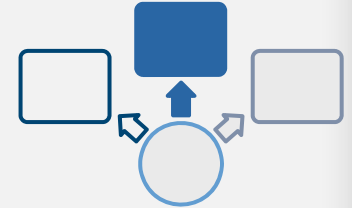
WSDOT should apply its long-standing asset management strategies to the roadside inspection station system

WSP should develop processes to articulate needs and benefits in a manner consistent with WSDOT's general methodologies



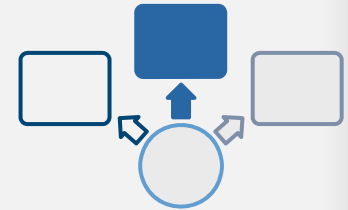
Example – Station End-of-Life Decisions

- ① There is no protocol for what to do when a station or its technology reaches the end of its life, which means that there is crumbling infrastructure that no one can agree on who should fix
 - » At what point do the other transportation needs override the need for additional infrastructure preservation and safety benefits?
 - » When that happens, what do we do?
 - Rebuild the site/replace the technology?
 - Move the site/invest in newer technology?
 - Wait until the next major project in the region for another goal (capacity, mobility) and integrate there?
 - Retire it, and invest elsewhere in Washington?



Example – Performance Measures

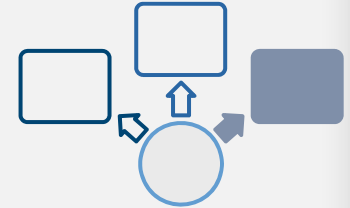
- ① WSDOT and WSP need to develop and utilize performance measures
 - » WSDOT does not have any performance measures directly involving the inspection station system
 - Current measures such as pavement condition can be helpful – if the role of the inspection station system is included
 - » WSP is currently measuring *process* – not *outcomes*
 - This is somewhat driven by federal reporting and funding requirements
 - ◆ e.g., “Weighed X vehicles in 2015”
 - Need to link *actions* to *outcomes*, which leads to better investments
 - ◆ e.g., “Percentage of overweight vehicles in a corridor”



Finding 3 – Planning

Finding

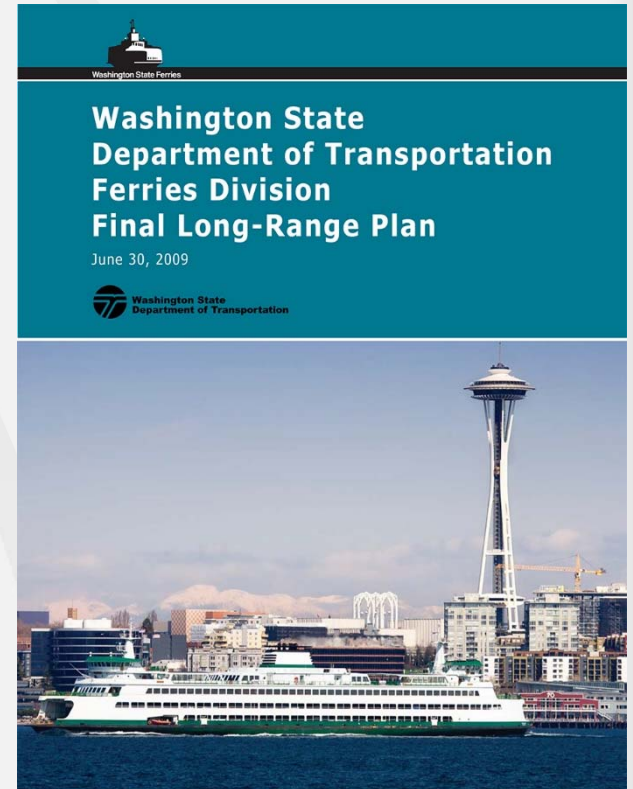
The roadside inspection station system is not considered sufficiently in WSDOT planning, leading to stations being closed



Recommendation

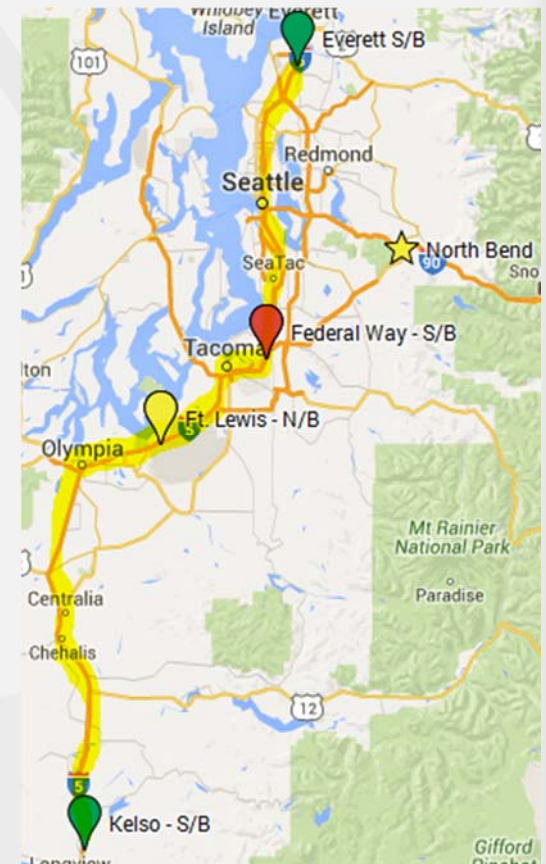
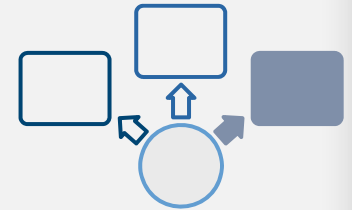
Develop a Joint Statewide Inspection Station Plan

This is already done for other important transportation systems, e.g., Aviation System Plan, Ferry Long-Range Plan



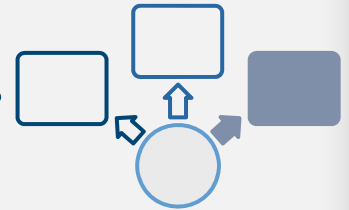
Example – Network Coverage

- Today, stations are built or replaced on an ad hoc basis, which is inefficient and ineffective
 - Example – The closure of Federal Way has left a 150-mile gap in safety and weight enforcement on I-5 for over 5 years
 - Example – Investments do not appear to be made systematically for less dense parts of the state network
- The Governor and Legislature needs to know what the system needs are so that money can be allocated before stations are nonfunctional due to age, condition, location, or roadway construction



Planning – Innovation Marches On...

- Roadside enforcement will be very different 20 years from now



» Current planning does not incorporate this – focus is on building and rebuilding a system that is 50+ years old

35 years ago CVSA founded to standardize roadside enforcement

30 years ago Small facilities on the side of the road, isolated from each other

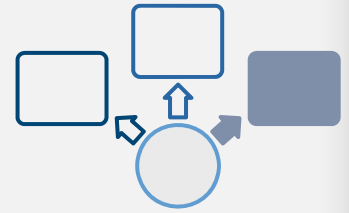
15 years ago Initial technologies to share information between agencies

5 years ago “Virtual stations” become more common (not yet in WA)

Planning – Innovation Marches On... (continued)

- Truck traffic is growing

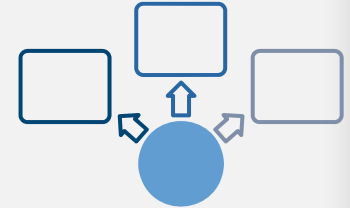
- » Up to 80 percent growth by 2030
- » As volumes increase and technology changes, enforcement staff need enhanced abilities to screen, weigh, and inspect vehicles



- Technology may reduce the need for fixed infrastructure

- » “Virtual” sites can be constructed cheaply, but are very helpful to enforcement – these are being used by many states today
- » Other changes such as autonomous vehicles or ticketing overweight vehicles on the mainline will impact enforcement processes

Finding 4 – Data and Tools



Finding

WSDOT and WSP do not have sufficient data or data-sharing arrangements to make strategic decisions regarding the inspection station system

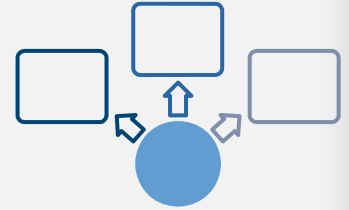
Recommendation

Develop new data sources and share existing data whenever possible to increase knowledge between the agencies

Need to designate an agency/person to be responsible for collecting, updating, and disseminating data to both agencies

Example – Multiple Sources is Confusing

| Metric (2014) | Mainline Annual Truck Volume | Trucks Weighed by WIM | Trucks Physically Weighed | Number of Inspections |
|---------------|------------------------------|-----------------------|---------------------------|-----------------------|
| Data | 462,455 | 372,791 | 2,300 | 2,630 |
| Source | WSDOT | WSDOT | WSP | WSP |



Data on the inspection station system is not being collected or kept in a single place

- » e.g., DOT has truck volumes, but not station locations
- » Some stations referred to by different names (e.g., Federal Way/Seatac) which is confusing

Moving Forward – Phased Implementation

Proposed Legislative directives to WSP and WSDOT

Near Term and Ongoing

Improve coordination, formalize process, update Memorandum of Understanding, common language
Identify and implement asset management strategies within WSDOT WSP framework for assessing all needs, not just needs of current sites

Longer Term and Ongoing

Develop joint statewide system plan
Data and tools (e.g. maintain system map, start developing performance measures)

Outcomes

Immediate consideration of highway project impacts on inspection stations
Improved need/cost information for future WSDOT highway project programming

Discussion & Questions