



TAC Meeting 1

April 20, 2016

1:00 – 4:30 pm

**ODOT Technical Leadership
Center**



Today's Agenda

1:00	Welcome & Introductions <ul style="list-style-type: none">• Plan for today• TAC Charter	Vaughn Brown Erik Havig
1:30	Freight Highway Bottlenecks Overview <ul style="list-style-type: none">• Purpose• Background• Schedule• Definitions	Roseann O'Laughlin Bridget Wieghart
2:00	BREAK	
2:15	Data Debrief and Discussion	Roseann/Bridget
2:45	Performance and Bottleneck Indicators <ul style="list-style-type: none">• What they are• How they will be used	Bridget
4:15	Public Comment & Next Steps <ul style="list-style-type: none">• Meeting with OFAC – May 11• Next TAC workshop – September 7 Topics: <ul style="list-style-type: none">• Final indicators and thresholds• Preliminary Bottlenecks List• Initial tiering criteria	Roseann



TAC Charter

TECHNICAL ADVISORY COMMITTEE PURPOSE

The TAC is established for the purpose of reviewing information and technical study findings in providing input to ODOT and the Oregon Freight Advisory Committee as they develop and adopt a prioritized statewide list of freight highway bottlenecks. The TAC provides the primary technical input to the bottleneck list development process. TAC input and advice will be shared with ODOT and OFAC.





FHBL Purpose and Background



Why are we
here?

A thought bubble with a teal-to-cyan gradient, containing the text "Why are we here?". The bubble has a black outline and a tail of five smaller circles leading down to the right.



Oregon Freight Plan (2011)

Strategy 2.3

“Identify and rank freight bottlenecks... in particular those located on the strategic system. Update the ranked list periodically.”



Project Purpose

- Identify Oregon data and analytical tools which provide relevant info
- Develop data-driven metrics to reveal bottleneck locations
- Develop and apply approach to prioritize locations



Project Purpose

What's not included

- Identify locations off the state system
- Evaluate solutions
- Cost analysis





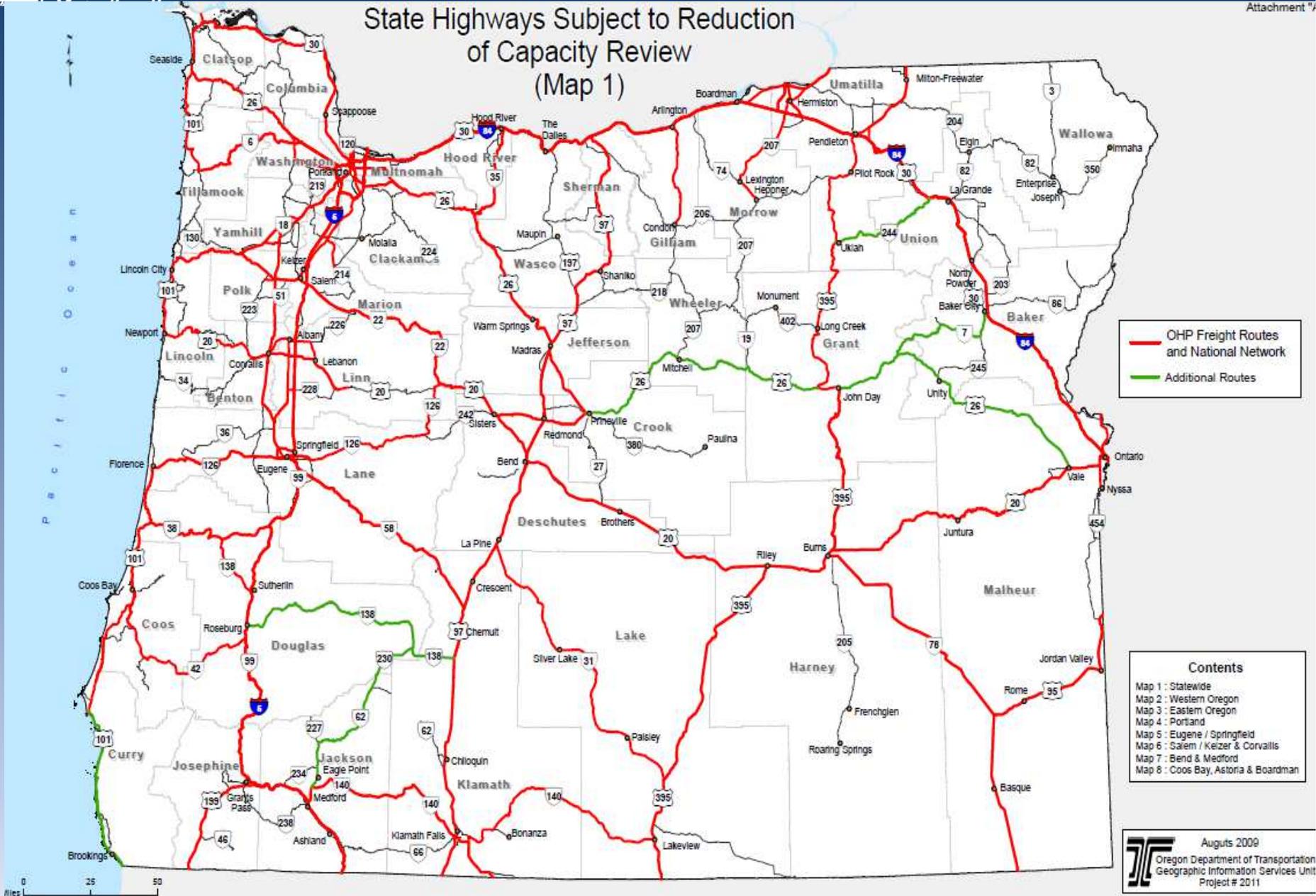
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Freight Highway Bottlenecks List



Attachment 9

State Highways Subject to Reduction of Capacity Review (Map 1)





Project Purpose

Inform

- ODOT project development process
- FAST Act Requirements
- Assist ODOT regions in STIP



Previous ODOT Efforts

- 2013 Freight Bottlenecks List
 - Endorsed by OFAC
 - Did not include ranking
- 2013 Corridor Metrics Study

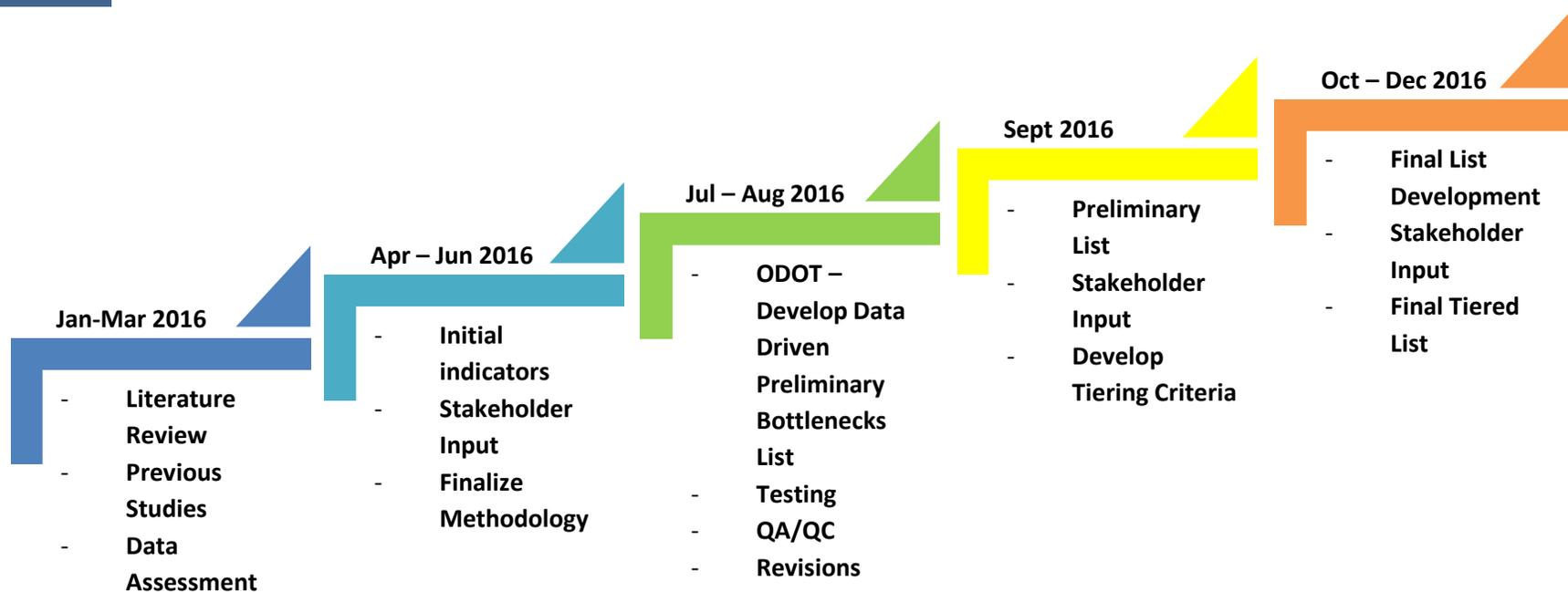


Schedule & Key Milestones

- Roughly 12 month project
- Sept 2016: Preliminary List
- Jan 2017: Final Prioritized List

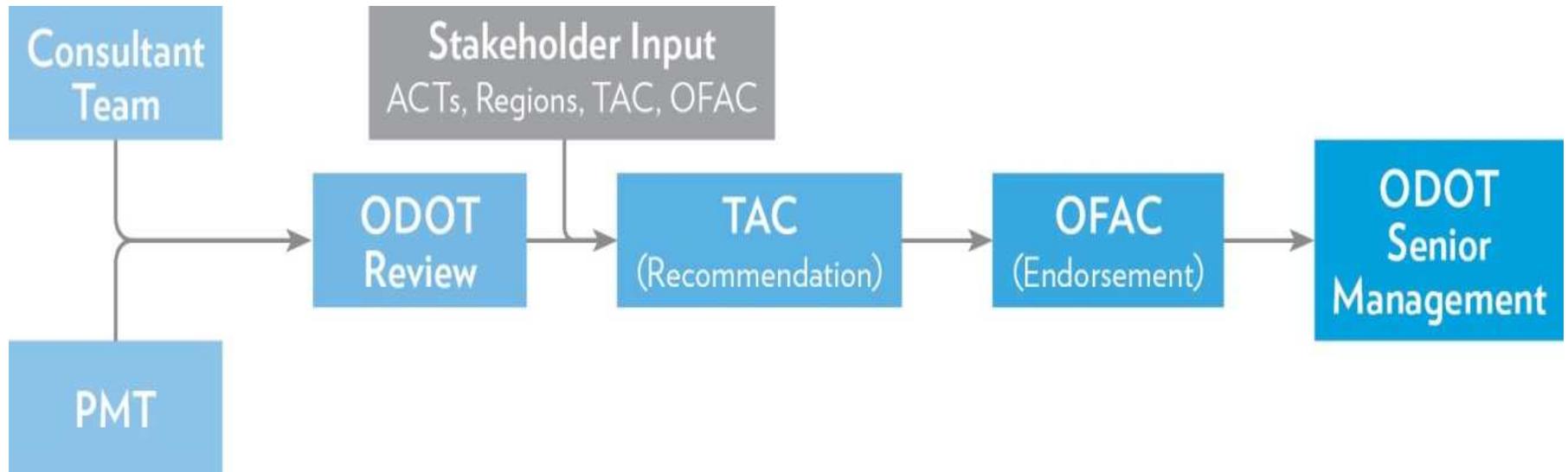


Project Schedule





Decision Project Flow Chart





KEY DEFINITIONS

Pinchpoint

Physical features on the state highway system that restrict the movement of an over-dimension load because of height, width, weight or length constraints



KEY DEFINITIONS

Indicator

A data point calculated for each corridor segment that provides information about its performance.



KEY DEFINITIONS

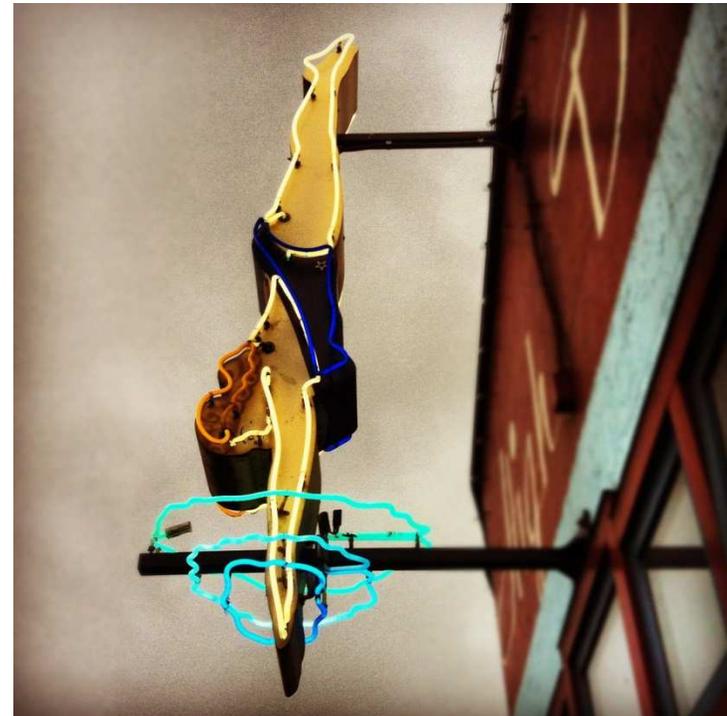
Threshold

The levels of indicators that point to a corridor segment representing a bottleneck in the network.



Discussion

What does a
Bottleneck
look like to
you?





KEY DEFINITIONS

Bottleneck

Part of the state freight network that causes disproportionately high costs in the movement of freight.



Outreach to Date

Stakeholders Interviewed

- OFAC Chairs
- Key ODOT Staff
- ODOT Regional Staff



Outreach to Date

What we found out

- Methodology is critical
- Stakeholder support
- Regions are interested
- No process or data is perfect



Project Work to Date

- Non-Oregon Studies
- Oregon Studies
- Data Assessment & Plan
- TAC Selection



Non-Oregon Studies

Statewide

- Freight Project Prioritization: Value Condition and Performance (VCAP) Matrix (Iowa DOT)
- Bottlenecks on Florida SIS (Strategic Intermodal System)



Non-Oregon Studies

- Developing a System for Computing and Reporting MAP-21 and Other Freight Performance Measures (University of Washington)
- Unclogging America's Arteries 2015, Prescriptions for Healthier Highways (American Highway Users Alliance)
- An Initial Assessment of Freight Bottlenecks on Highways (FHWA)



Non-Oregon Studies

- Freight Bottlenecks in the Upper Midwest: Identification, Collaboration and Alleviation (University of Wisconsin)
- Using Truck GPS Data for Freight Performance Analysis in the Twin Cities Metro Area (MnDOT)



Non-Oregon Studies

Overall Findings

- Most studies used multiple sources
- Travel time reliability important
- Long segments mask bottlenecks
- Newer studies used probe data



Non-Oregon Studies

Probe data

- Real time speeds throughout day
- Limited coverage in low volume areas
- Improving rapidly
- Less well understood



Non-Oregon Studies

NPMRDS

- truck only data
- by direction
- Limited to NHS (ATRI has more)
- can identify truck specific operational issues (e.g. grades)



Project Work to Date

Oregon Studies

- Oregon Statewide highway Performance Data and Metrics Related to Freight (ODOT)
- Westside Freight Access and Logistics Analysis (Greater Portland Export Initiative)



Project Work to Date

Oregon Studies

- Corridor Bottleneck Operations Study (ODOT)
- Economic Impacts of Congestion In Oregon (PBA, OBC and PoP)
- Estimated Impact of Cascadia Subduction Zone Earthquake (ODOT)



Observations

- Performance Data and Metrics
 - Strong methodology
 - Expand to all state highways
 - Integrate probe data
- Westside Logistics
 - Used INRIX and ATRI freight data
 - Tom Tom historic data limited detail
 - Stakeholders ID issues



Observations

- Economic Impacts of Congestion
 - MPO data for congestion
 - SWIM may not capture local congestion
 - Cost/benefit compelling
- Cascadia Subduction Zone
 - Economic impacts of failure of key links
 - Suggests SWIM for freight bottlenecks



Questions ?





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Freight Highway Bottlenecks List



BREAK



Data

Data Assessment

- Reviewed 19 national, Oregon and third party datasets
- Capture key considerations
- No single dataset captures it all
- Redundancy and overlap



Data

Data Assessment

- National datasets are valuable but may be limited to major routes
- ODOT has inventories/datasets that provide broader coverage
- Combine datasets to cover some indicators
- ODOT enhanced HPMS in HERS-ST



Data

Data plan selection

- Measure critical concerns?
- Readily available?
- Can be applied by ODOT within schedule



Bottleneck Considerations

- Congestion/operations (speed, delay, travel time, reliability, truck volume)
- Commodity (type, value, tonnage)
- Geometric/Spatial (grades, curves)
- Security/Safety/Risk (redundancy, collisions, seismic, weather)

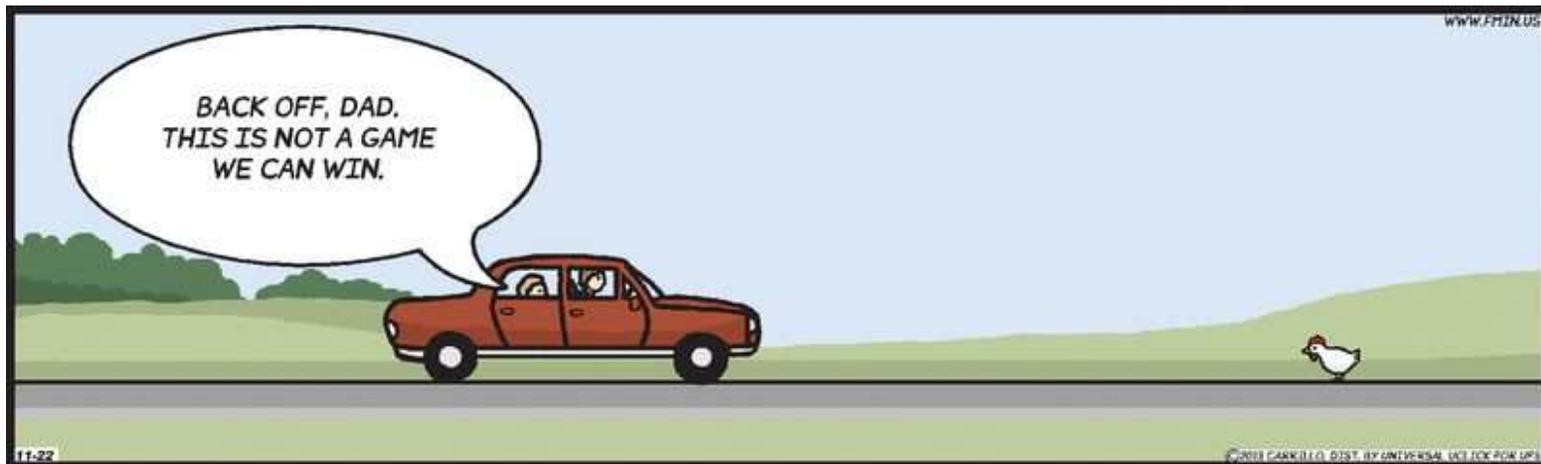


Recommended Primary Datasets

- Congestion/operations
 - **NPMRDS** for congestion
 - **HERS-ST** for truck volumes
- Commodity – **SWIM 2.5**
- Geometric/Spatial – **HERS-ST**
- Security/Safety/Risk – **Trans GIS**



Data Discussion





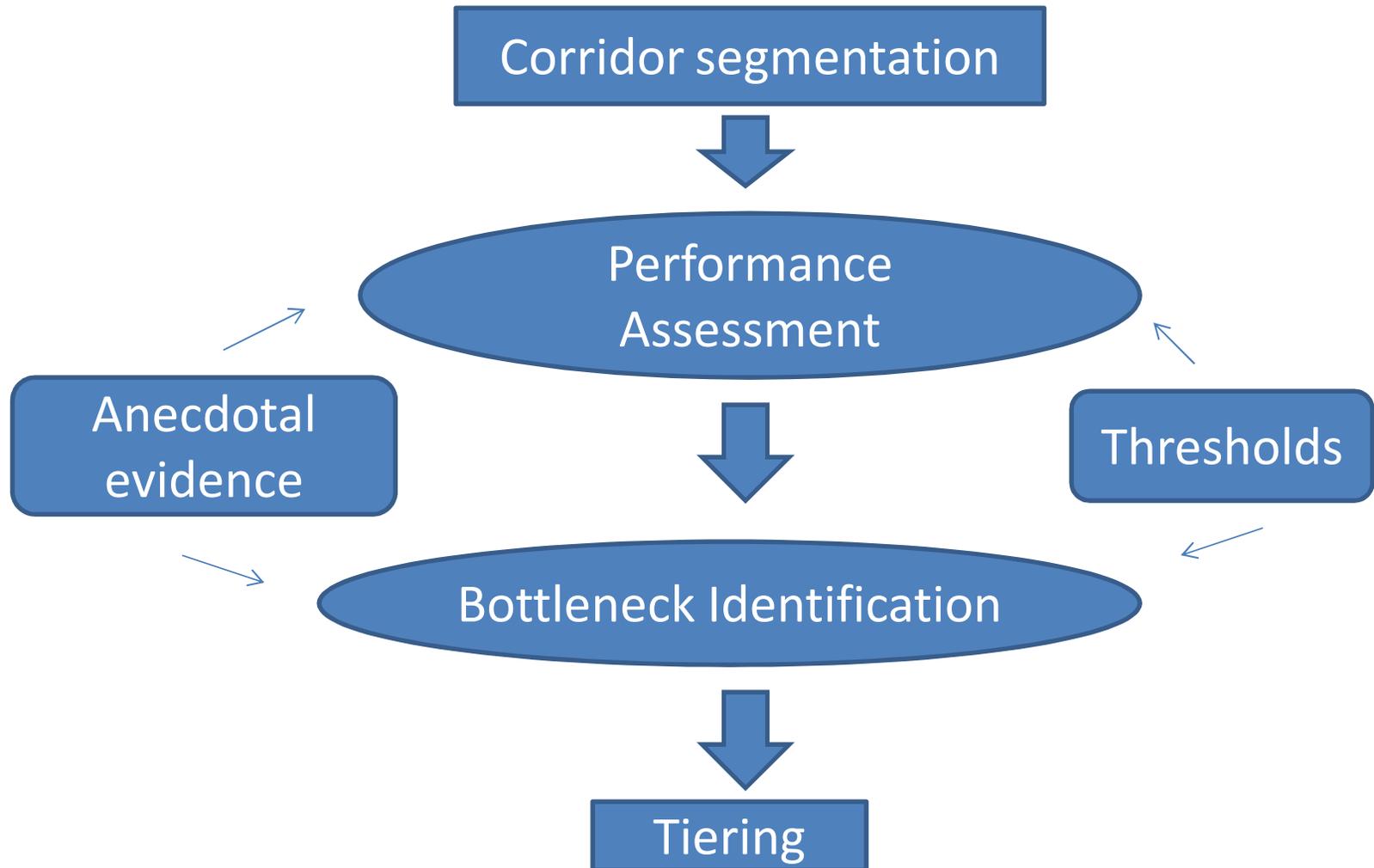
Indicators





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Freight Highway Bottlenecks List





Performance Indicators

- Transportation Delay Costs
- Inventory Delay Costs
- Unreliability
- Safety Costs



Performance Indicators Criteria

- Measurable in real quantities
- Interpretable/understandable
- Easy of calculation for the highways studied



Performance Indicators

Transportation Delay Costs

- Average hours of delay per truck
- Average truck traffic per year
- Incremental cost of delay
- Length of segment





Performance Indicators

Inventory Delay Costs

- Average hours of delay per truck
- Average truck traffic per year
- Average Value of cargo
- Inventory cost associated with delay



Performance Indicators

Unreliability

- Travel time index (90th percentile)
- Annual Average Truck Traffic
- Average cargo value
- Cost of unreliability metric



Performance Indicators

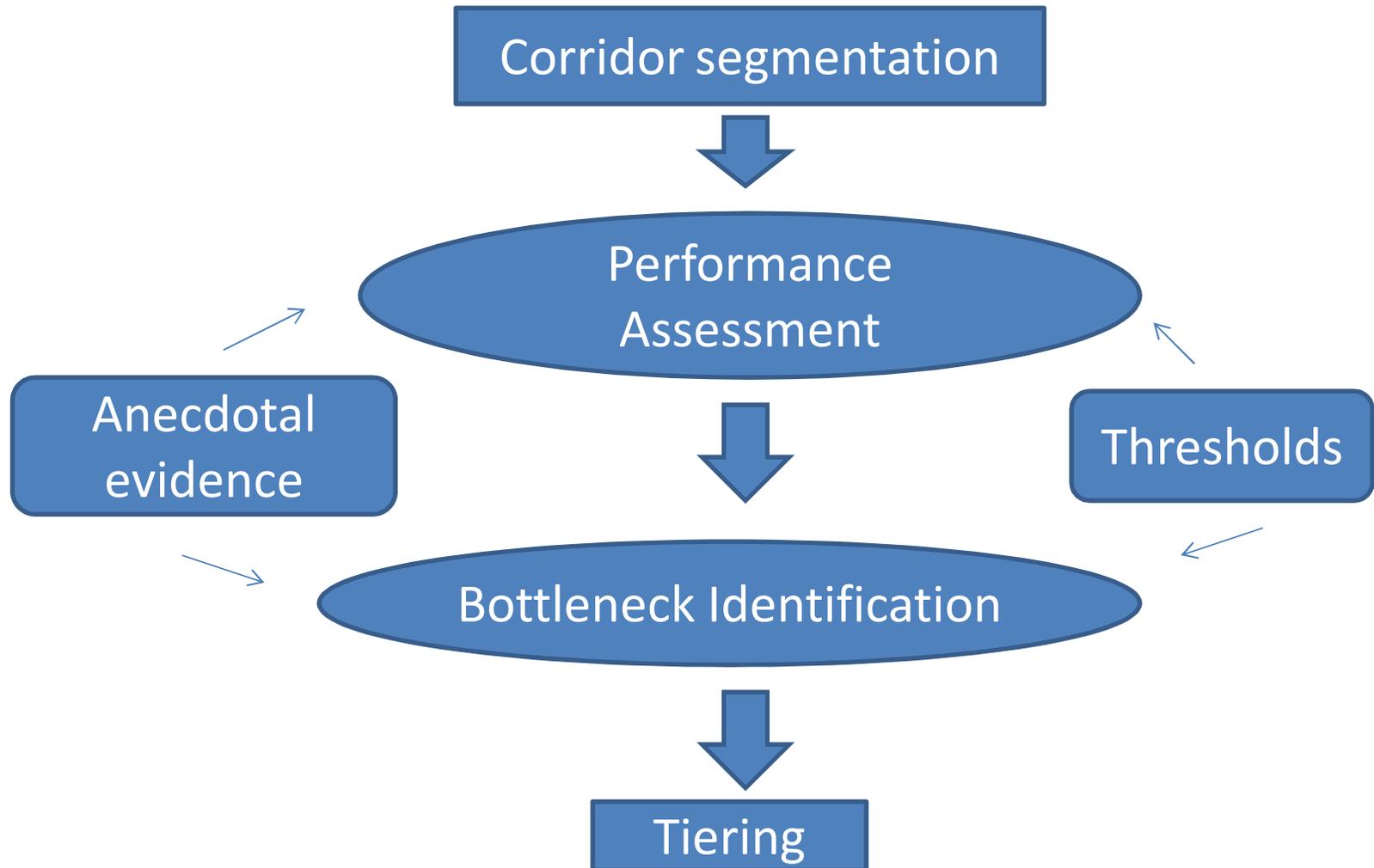
Safety Costs

- Costs of truck involved PDO accidents
- Costs of truck involved injury accidents
- Costs of truck involved death accidents



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Freight Highway Bottlenecks List





Bottleneck Indicators

- Geometric
- Volume
- Incident-related
- Restrictions-related





Bottleneck Indicators

Geometric Bottlenecks

- % grade
- Degree curvature
- Lane drops
- on and off ramps
- narrow lanes or shoulders
- highway alignment
- pavement condition



Bottleneck Indicators

Volume Bottlenecks

- Volume to capacity ratio
- Peak congested travel





Bottleneck Indicators

Restriction-related Bottlenecks

- Truck weight, size, length or width restriction
- At-grade signals
- Time of day hazardous materials, work zone, bridge height truck restriction



Bottleneck Indicators

Incidents-related Bottlenecks

- Frequency of collision types
- Frequency of treacherous weather
- Locations and frequency of truck incidents
- Impact of incidents
- Incident duration
- Days of seasonal or weather closures



Indicators Discussion



Next Steps

- Meeting with OFAC – May 11, Salem
- Next TAC workshop – September 7, Salem

Topics:

Final indicators and thresholds

Preliminary Bottlenecks List

Initial tiering criteria