



Maximizing Multimodal Connections for Improved First- & Last-Mile Freight Mobility (and beyond)

2019 METRANS International Urban Freight Conference (I-NUF)

October 16, 2019



U.S. Department of Transportation
Federal Highway Administration

**Office of Freight Management
and Operations**

1200 New Jersey Avenue SE
Washington, D.C. 20590
www.ops.fhwa.dot.gov/freight
202-366-9210



Maximizing Multimodal Connections



TRB Urban Freight Committee



AASHTO Special Committee on Freight

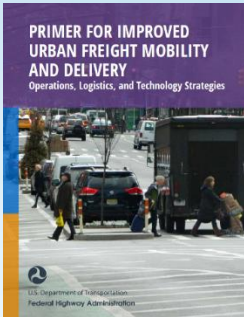
Thank You to our Planning Partners!



U.S. Department of Transportation
Federal Highway Administration



Freight Primers



Operations, Logistics, and Technology Strategies Primer (2018)

Guide to implementing on-the-ground strategies to enhance urban freight mobility in urban areas.



Inform, Collaborate, and Partner Strategies Primer (forthcoming fall 2019)

Guide to identifying and engaging stakeholders to implement urban freight strategies and projects.

Multi-
Modal
Primer

Forthcoming Multimodal-Focused Primer (anticipated mid-2020)

Strategies for identifying, prioritizing, funding, and building support for multimodal freight projects.



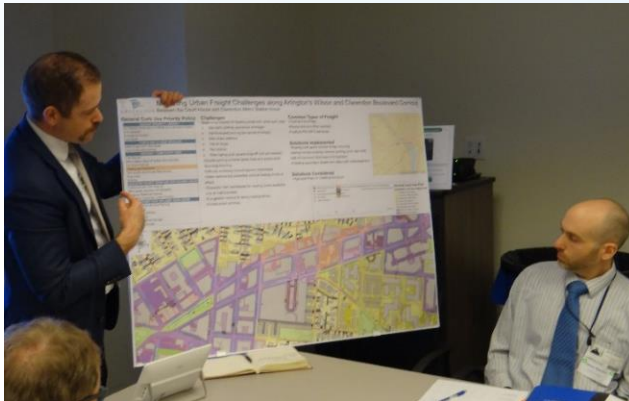
Peer to Peer (P2P) Program



International Peer Exchange. Image source: Volpe Center

Peer Exchanges

Provide opportunities for knowledge-sharing, information exchange, and technical assistance for State and regional/local government freight practitioners.



Downtown Delivery Symposium in Washington, D.C.
Image source: Washington Council of Governments

Downtown Delivery Symposia

Joint effort between FHWA and Institute of Transportation Engineers to connect public sector freight practitioners with industry stakeholders to improve first- and last-mile freight movement and logistics.



Maximizing Multimodal Connections

Dan Pallme

Assistant Chief of Freight

Tennessee Department of Transportation

Jill Lemke

Manager, Strategic Planning & Special Projects

Maryland Port Administration

Scott Drumm

Director of Research & Strategy

Port of Portland



Maximizing Multimodal Connections

Dan Pallme

Assistant Chief of Freight

Tennessee Department of Transportation

Jill Lemke

Manager, Strategic Planning & Special Projects

Maryland Port Administration

Scott Drumm

Director of Research & Strategy

Port of Portland





Urban Freight Issues in a Small Southern Town

October 16, 2019

Dan Pallme, Assistant Chief of Freight

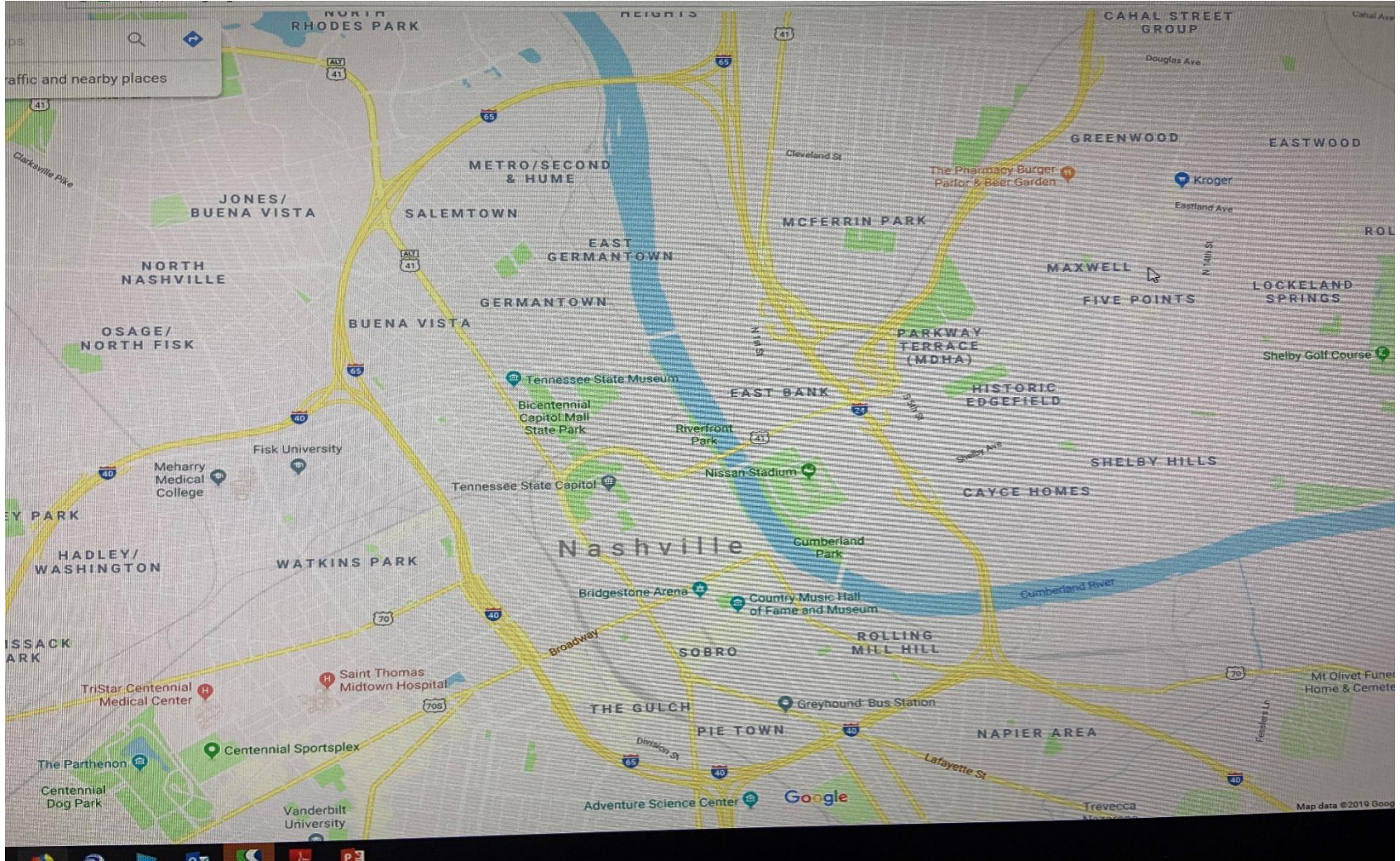
Nashville



Nashville on a Thursday early evening



Nashville's Big Issue



Nashville



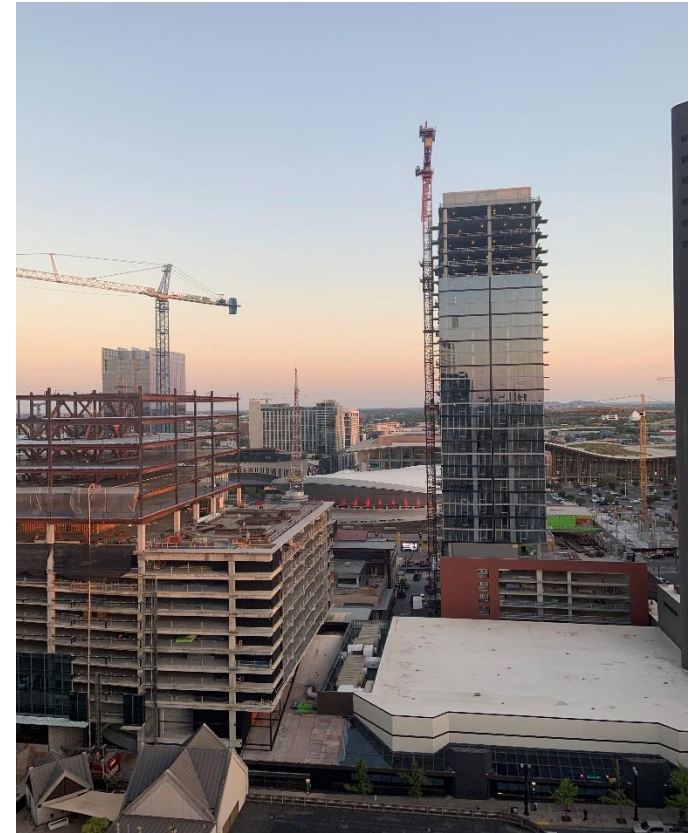
#1 Fear from the Freight guy

- In 2015, TDOT study stated by 2040, Tennessee can anticipate a 34% growth from 6.3 million people to 8.4 million people



No need to worry on urban freight

- Picture's worth a 1,000 words (or additional people)!



Glimpse of Nashville



Potential Pilot from UPS

- UPS
- E-bike Delivery
- Spring of 2020
- Lesson learned from here



Worries to hinder economic prosperity in Nashville

- There is nothing we can do!!!



DAILY COMMUTE
As if we didn't have enough to put up with?

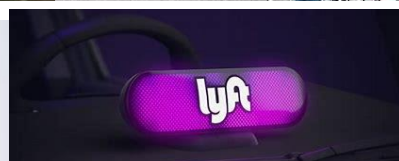


Glimpse of Nashville issues

- Some unique to Nashville.



amazon



FedEx



UNITED STATES POSTAL SERVICE®

Multimodal Oppty – Rail as an Option



SHORTLINE RAILROAD AUTHORITIES

Abbreviation	Rail Authority	Railroad Operator	Length in Miles
WHOE	Bedford County	Walking Horse & Eastern	9
KWT	Carroll - Henry County	KWT Railway	60
NW	Cheatham County	Nashville & Western	23
FI	Cumberland County	Franklin Industries	16
ETRR	East Tennessee	East Tennessee Railway	16
WTNN (1)	Gibson County	West Tennessee Railroad	43
TVRM/ECB/ES	Hamilton County	Tennessee Valley Railroad Museum/ East Chattanooga Belt RRR/Enterprise South	17
KHR	Knox County	Knoxville & Holston River	7
RJC	Montgomery County	RJ Corman	18
NERR	Nashville & Eastern	Nashville & Eastern	129
SQVR	Marion County	Sequitche Valley	37
ORHR	Oak Ridge-Heritage	Heritage Railroad Corp.	10
SCTR	South Central Tennessee	South Central Tennessee Railroad	50
TSRR	Tennessee Southern	Tennessee Southern Railroad	106
TKEN	TennKen	TennKen Railroad	42
CFWR	Tri-County	Caney Fork & Western	60
WTNN (2)	West Tennessee	West Tennessee Railroad	135

CLASS 1 RAILROADS

Abbreviation	Railroad Operator
CSXT	CSX TRANSPORTATION
NS	NORFOLK SOUTHERN CORP
BNSF	BURLINGTON NORTHERN SANTA FE
IC	ILLINOIS CENTRAL RAILROAD
KCS	KANSAS CITY SOUTHERN RAILROAD
MSCI	MISSISSIPPI CENTRAL RAILROAD



RAILROAD AUTHORITIES IN THE STATE OF TENNESSEE

30 0 30 60 Miles

Scale in Miles

Rail Programs To Assist in Modal Diversion

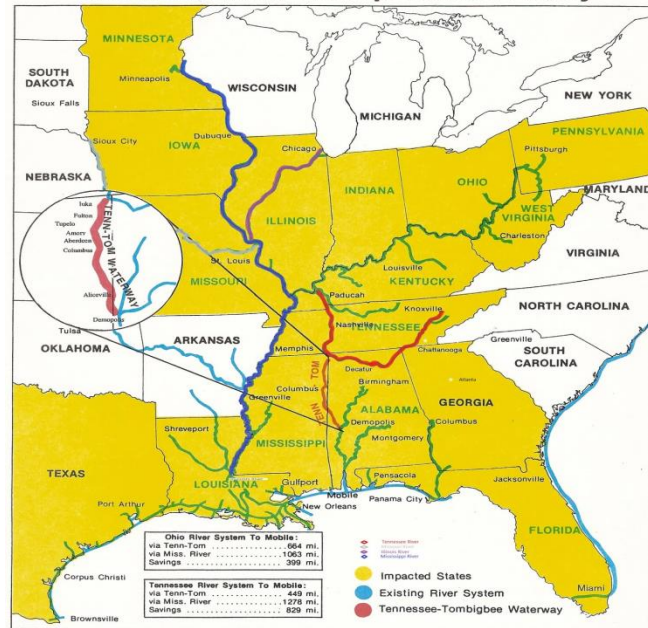
- Rail Rehabilitation
- Rail Competitive
 - Job creation
 - Marketability of available industrial sites
 - Highway diversion
- An added benefit not seen



Multimodal Oppty - Water

- Importance
- Concern





THE TENNESSEE-TOMBIGBEE WATERWAY
America's New Transportation Artery



Future Freight Flows

Freight Movement is Multimodal

Every mode of transportation moves freight, but trucking is the primary mode of freight travel.

	2013	(in tons)	2040
 Truck	14 billion	+35%	18.8 billion
 Rail	1.9 billion	+49%	2.8 billion
 Waterborne	808 million	+32%	1.1 billion
 Air	15 million	+263%	53 million

55
million tons
of freight
move across
our nation
every day

Multimodal Real Case Scenario in Tennessee

Outside the box thinking: COB (Total Supply Chain)



Seacor in Memphis / Photo by Dan Pallme

Contact Information

Dan Pallme, Assistant Chief of Freight & Logistics

Environment & Planning Bureau

615-741-4031 office

615-879-4390 cell

Daniel.pallme@tn.gov

Let me know if you know others that want to be included on our freight contact list.



Maximizing Multimodal Connections

Dan Pallme

Assistant Chief of Freight

Tennessee Department of Transportation

Jill Lemke

Manager, Strategic Planning & Special Projects

Maryland Port Administration

Scott Drumm

Director of Research & Strategy

Port of Portland



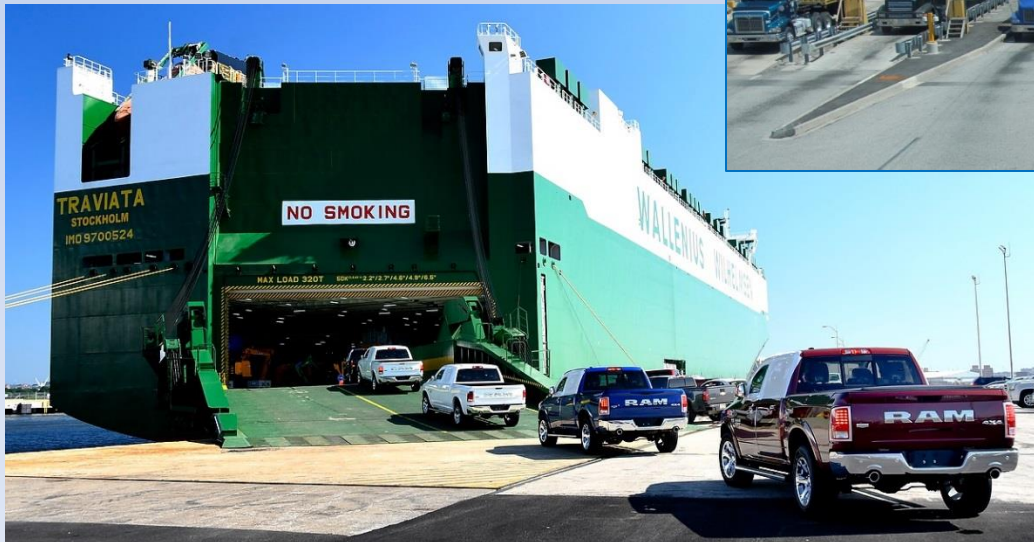


Partnerships to address Urban Freight Challenges at the Port of Baltimore

Maryland Port Administration

Jill Lemke

Manager, Strategic Planning & Special Projects





The Maryland Port Administration

Our mission:

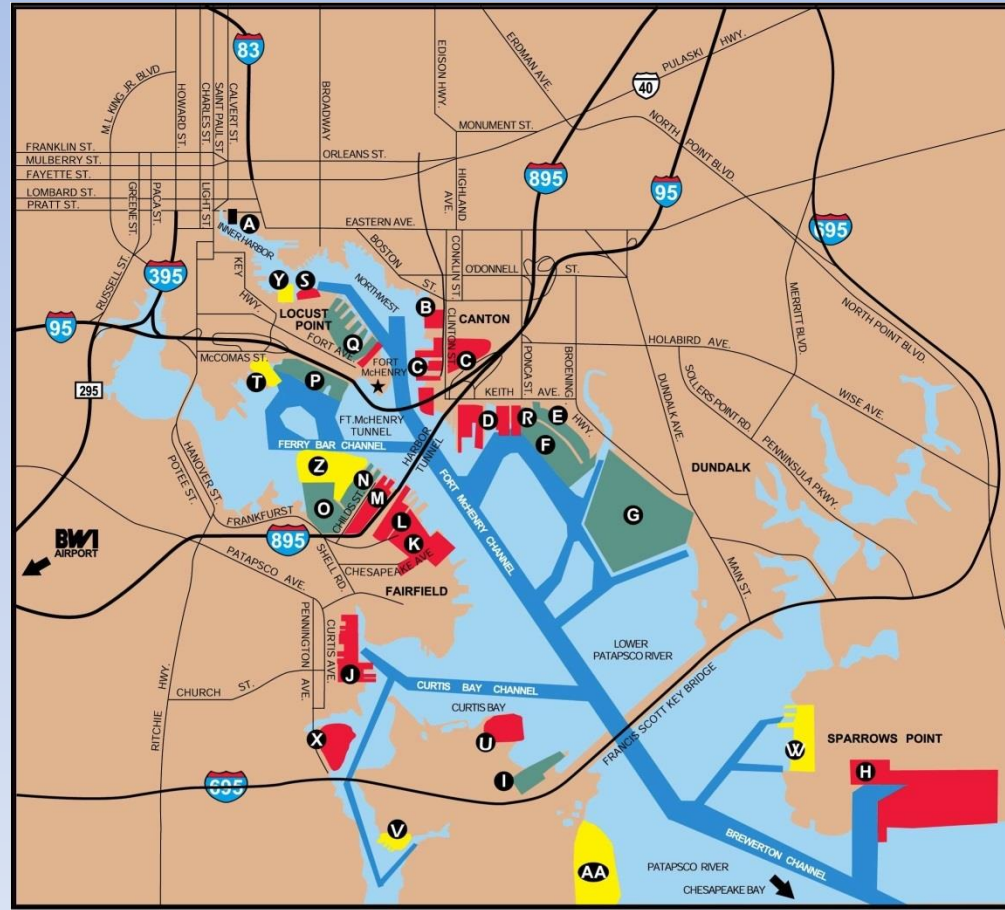
To increase the flow of waterborne commerce through the State of Maryland in a manner that benefits the citizens of the State.

To fulfill this mission, the MPA partners with a variety of agencies and entities that help make the Port of Baltimore work.



The Port of Baltimore is a complex mix of Private and Public terminals....

- 45 miles of waterfront facilities and industries.
- 23 private facilities handle nearly all of the bulk commodities.
- Six MPA public terminals handle over 90% of the general cargo.
- Active relationships by both public & private sector entities, on local, regional, state, national and international levels.





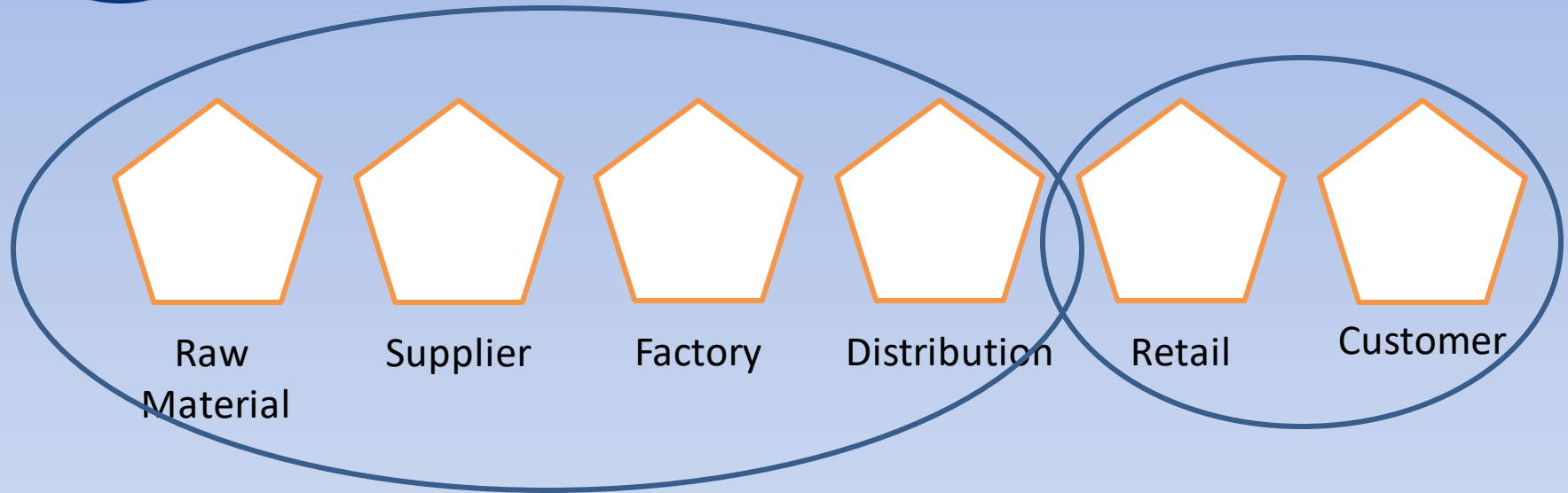
Formed over 300 years ago, the Port of Baltimore is older than the City itself.



As the City grew up around the Port, terminal activities were shifted south for larger areas of land, opening up the Inner Harbor for redevelopment.

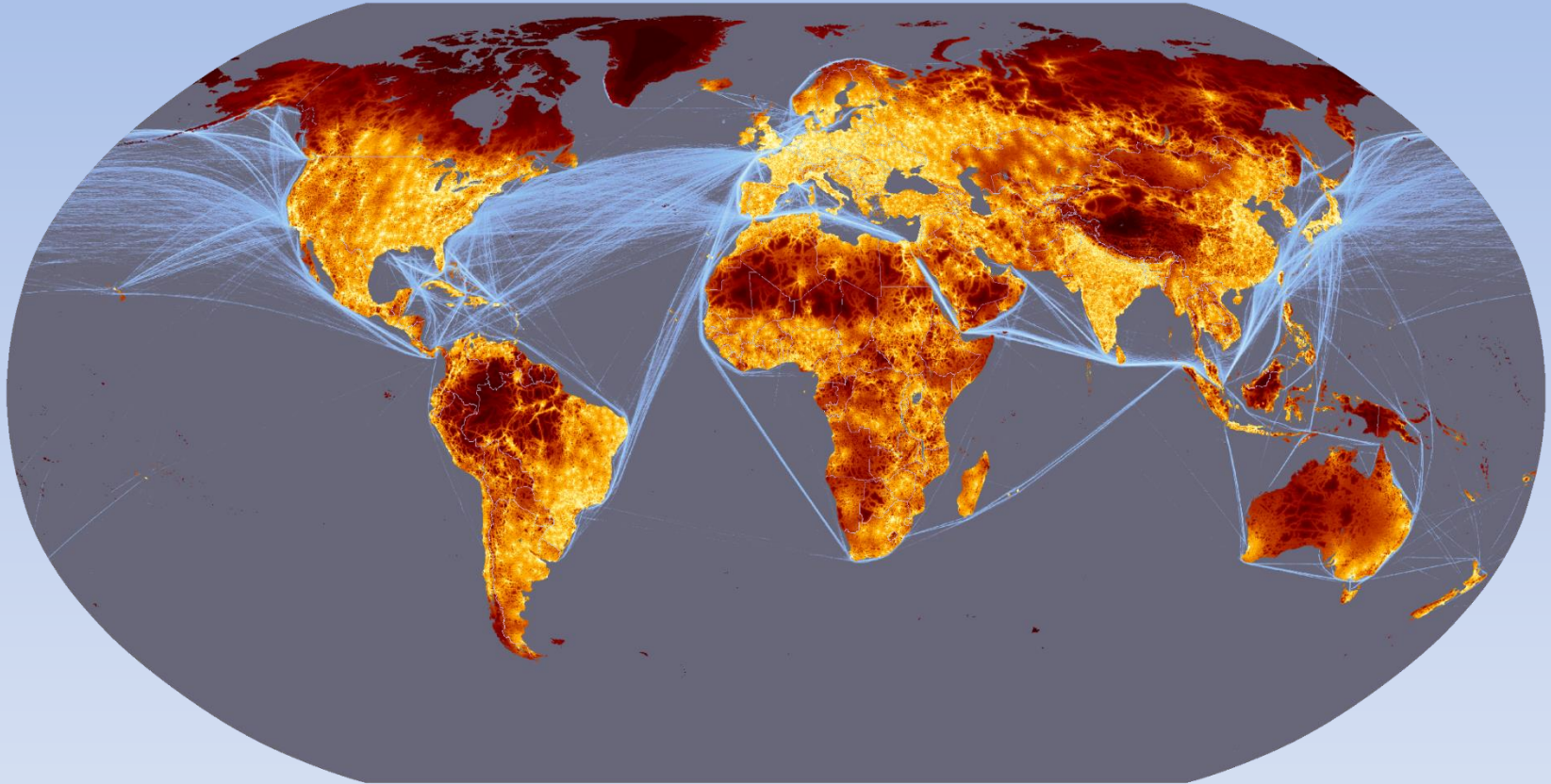


Is all “Urban Freight” created equal?





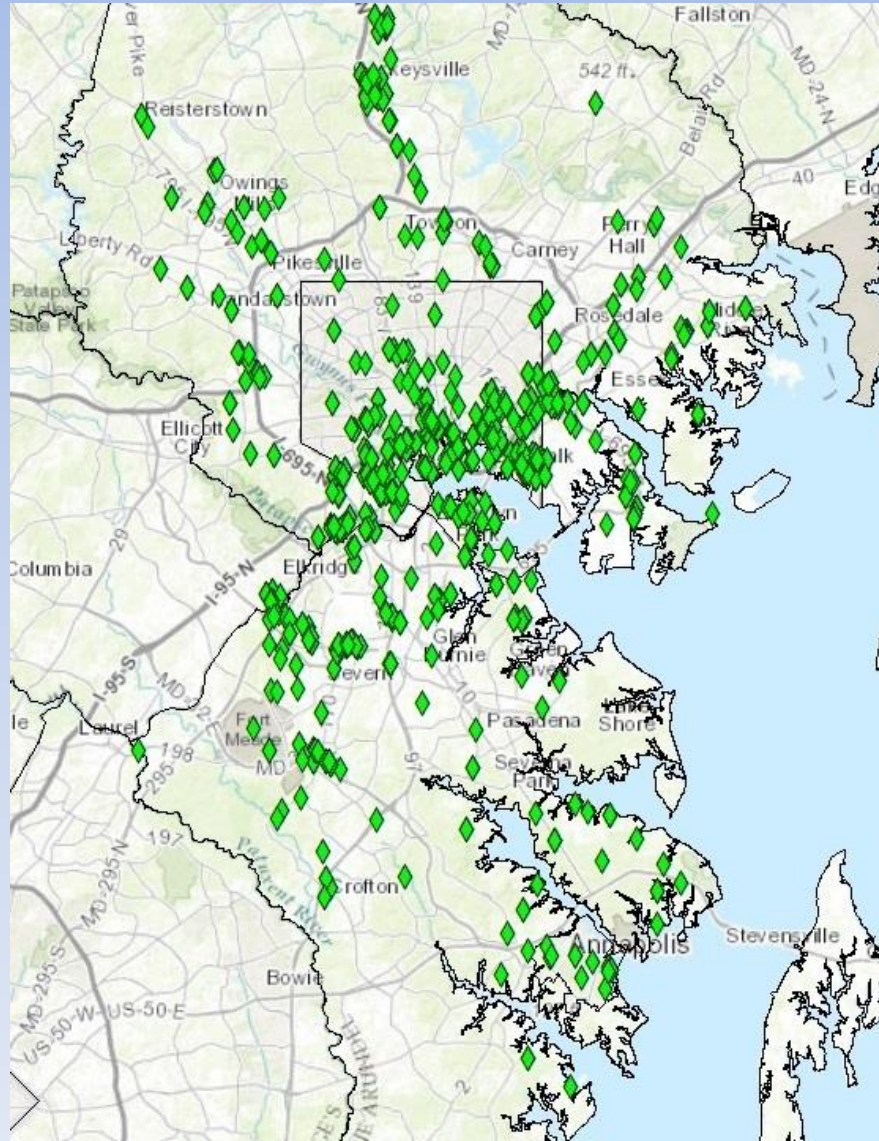
Supply Chains are Increasingly Complex



Every step along the supply chain, every mode change, adds to the cost of goods.

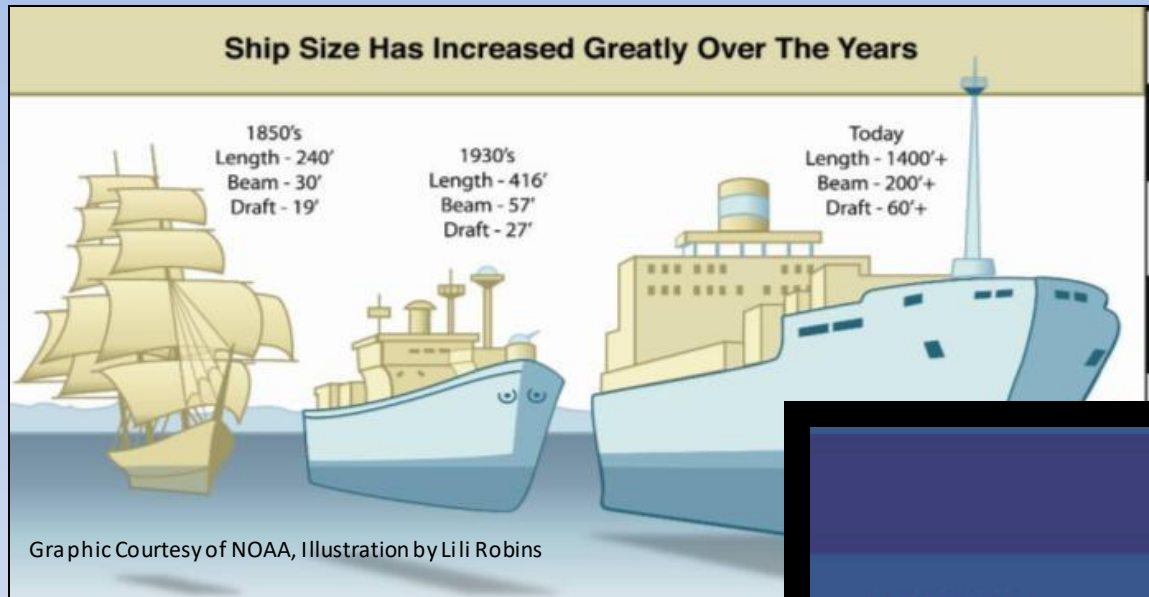


The Port has **global** and **local** reach, connecting many Mid-Atlantic suppliers and markets worldwide.

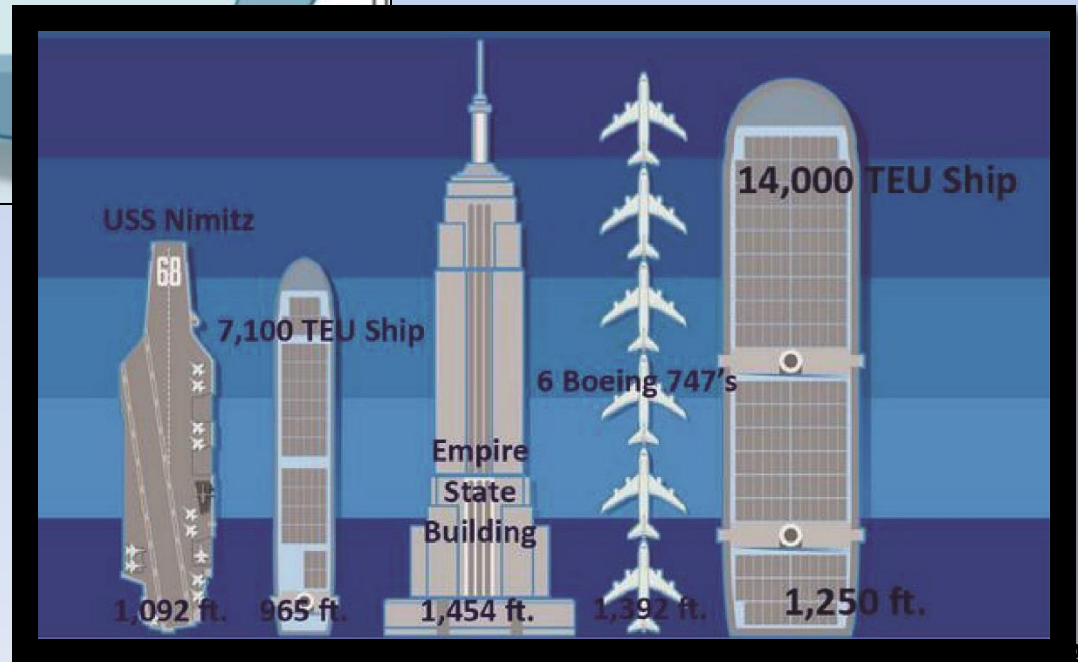




In the last 300 years, enormous shifts in waterborne cargo movement and ship design have taken place, requiring a larger Port and terminals.



Our “Delivery Vehicles” are getting bigger, not smaller as global freight volumes continue to grow.





Larger ships facilitate globalization and international trade, but require deeper channels – With 50 foot channels, Baltimore is one of only a handful of US east coast ports currently capable of handling the largest “post-Panamax” ships.





In Baltimore, the “first mile” and “last mile” are getting more and more difficult to separate.





In Baltimore, the “first mile” and “last mile” are getting more and more difficult to separate.

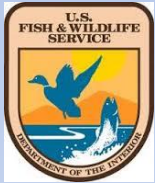
Challenge:

Finding room to grow in a region where industrial land supply is shrinking, high demand is driving up costs, with increasing pressure from communities interested in quality of life and environmental concerns.





The Port's success is dependent on partnerships, stakeholder engagement and public support



- The strong relationship between the Port and our neighbors is a product of years of relationship building.
- The Port has learned from past controversies that Stakeholder Engagement and Partnerships are crucial.
- The Baltimore Port Alliance (BPA) is a group of representatives of businesses and organizations within the Port of Baltimore.

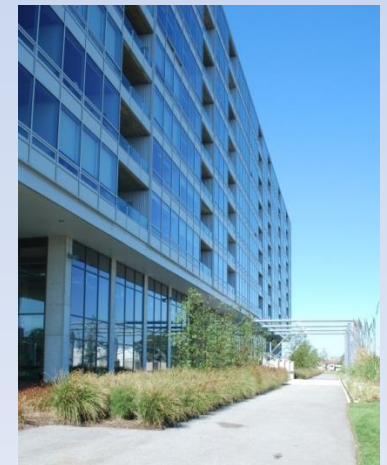
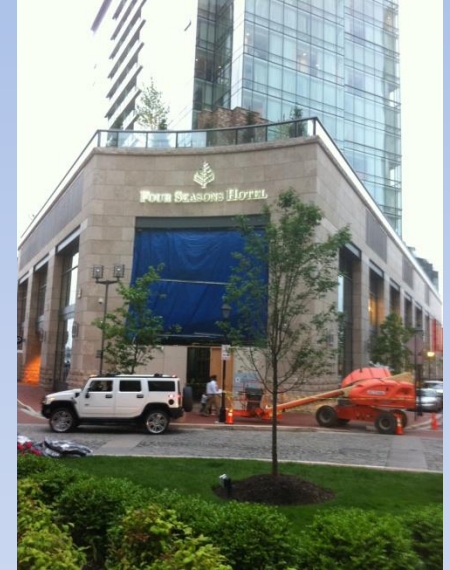




Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

Balancing Waterfront Growth & Development

Inner Harbor successes, and recent real estate booms, spread investment and speculation to other waterfront areas.

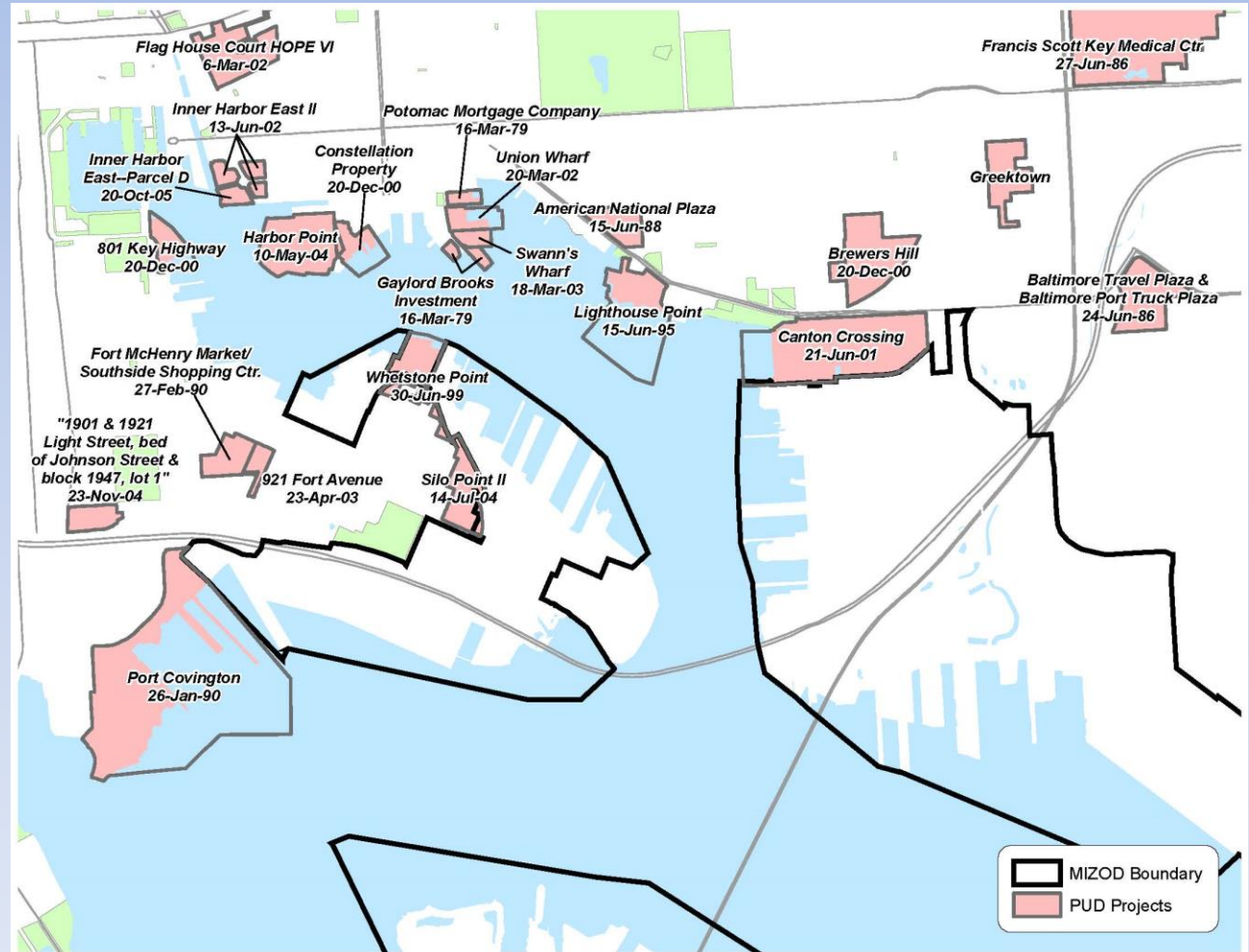




Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

Balancing Waterfront Growth & Development

Planned Unit Developments





Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

The **Maritime Industrial Zoning Overlay District** (MIZOD) was drawn to protect existing industrial properties with deep water access that were also in a “Heavy Industrial” (M-3) Zoning District.





Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

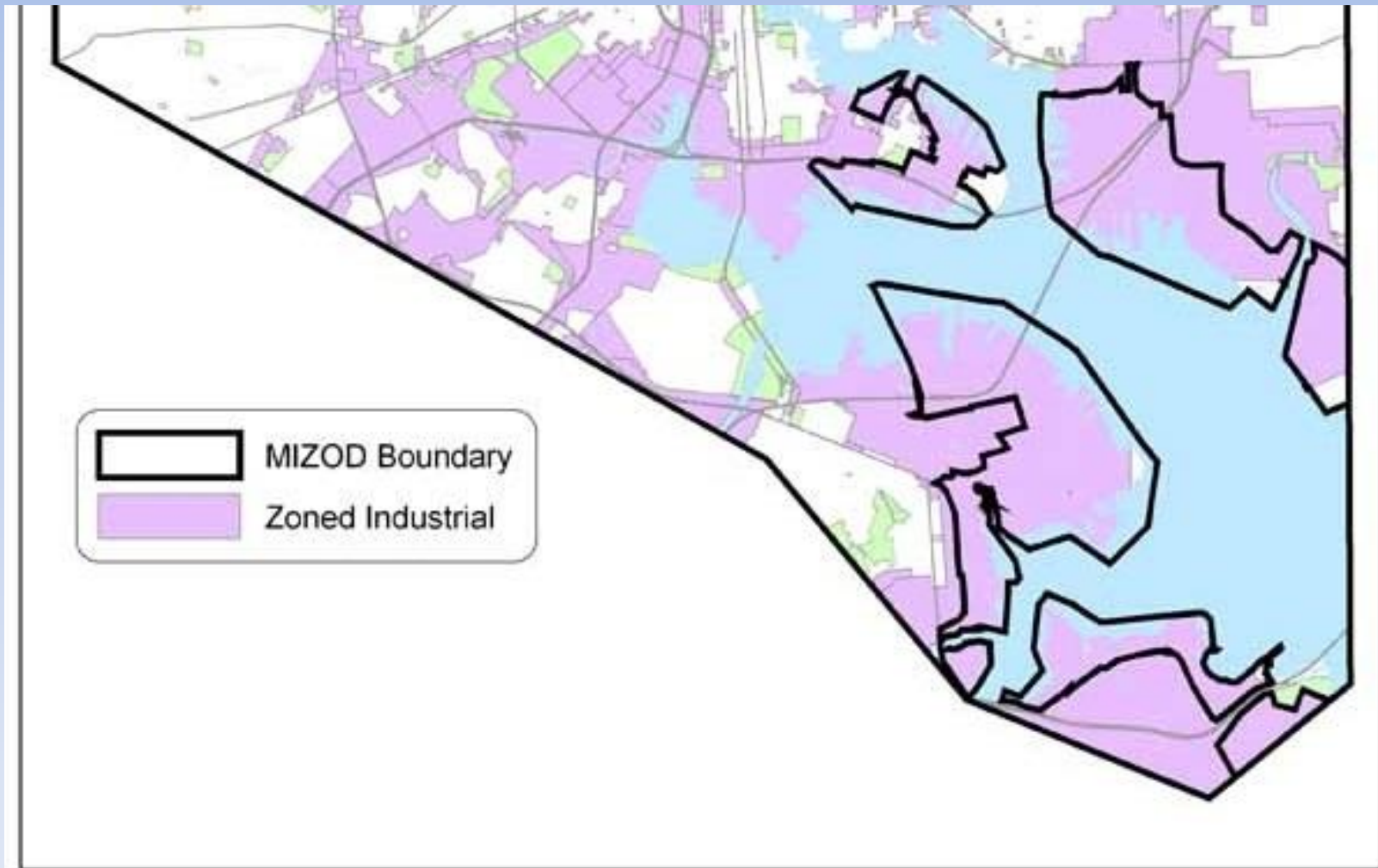
The Maritime Industrial Overlay District or, MIZOD preserved these areas for maritime industrial use by:

- Disallowing PUDs
- Prohibiting hotels, motels, taverns, and all other uses not permitted in an M-3 district
- Allowing offices and restaurants only as accessory uses
- Creating a 20 year “moratorium” on Rezoning



Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

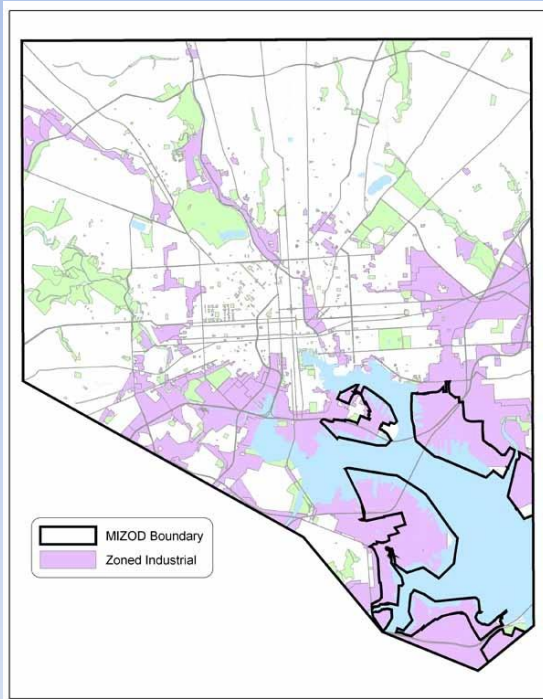
Maritime Industrial Overlay District (MIZOD)





Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

Maritime Industrial Overlay District (MIZOD)



- The MIZOD was adopted as a protective overlay district in 2005, and amended in 2008.
- It had a sunset date of 2024, with a 12-month opt-out period in 2014
- No properties opted-out.
- MIZOD protection provides firms with the confidence to make significant capital investments.



Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

Maritime Industrial Overlay District (MIZOD)

The City conducted annual evaluations of the MIZOD for the first three years, and found that:

- MIZOD firms made **significant capital investments** after it was enacted.
- Despite initial declines in cargo volume following the great recession, business at the Port grew beyond pre-recession levels.
- While other east coast port cities continued to compete for its business, the MIZOD successfully enhanced the Port of Baltimore's competitiveness.



Partnership with Industry Groups and Baltimore City: Maritime Zoning Protections

Maritime Industrial Overlay District (MIZOD)

- In 2017, a new Zoning Code was enacted, making the Maritime Industrial Zone a permanent zoning district, with the same protections as the MIZOD built in... with no sunset provision.



Partnership with Ports America Chesapeake

In January 2010, the MPA and Ports America Chesapeake (PAC) entered a landmark 50-year public-private partnership or P3 for the management and redevelopment of the State-owned Seagirt Marine Terminal.

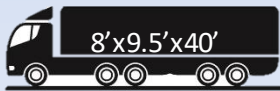
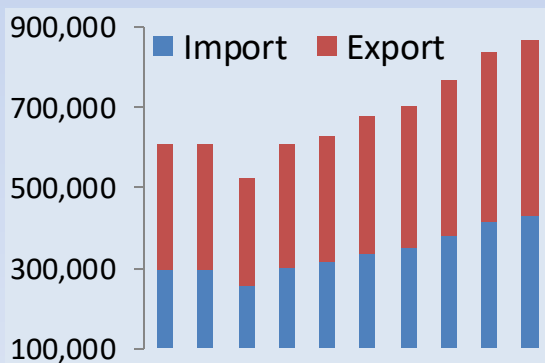




Partnership with Ports America Chesapeake



- PAC has since invested millions of dollars in capital improvements. Those improvements included new yard cranes, cargo handling equipment, paving, a grain-transload facility, RFID technology, a new back gate, and 6 new RTG cranes, in addition to a new 50 foot deep berth and four new Neo-post Panamax ship to shore cranes.
- PAC partnership to operate the SMT Intermodal ICTF Facility, invested in new RTG cranes, and the redevelopment of a 37 acre industrial park for future terminal expansion.
- Post-recession container growth continues to break new records for the Port.

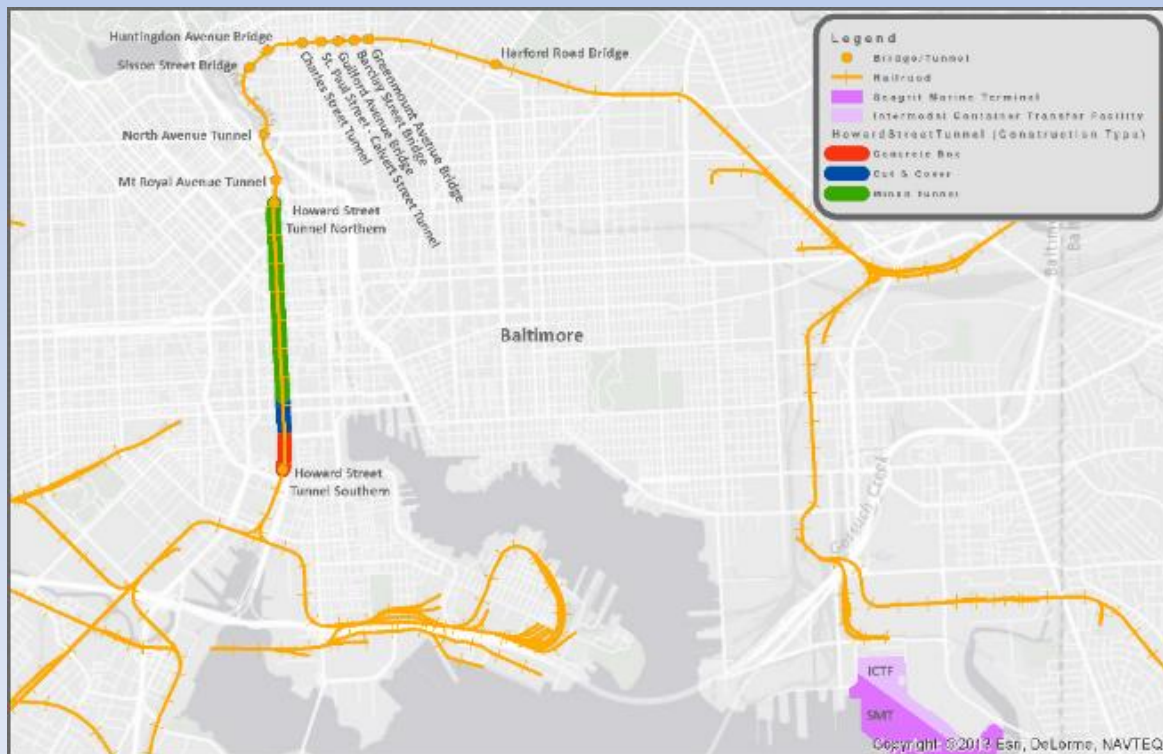


TEU = Twenty Foot Equivalent Unit



Partnership with CSX and MDOT: Double-Stack Rail Capability

- 124-year old CSX-owned rail tunnel under Howard St./Downtown Baltimore is a freight bottleneck – it is 18 inches too short to allow for double stacking of containers.
- Several City bridges over rail line need to be raised;








Partnership with MDOT and CSX: Federal Infra Grant (\$125M) to expand Howard Street Tunnel

- MDOT and MPA partnered with CSX to successfully apply for **\$125M** in Federal Funding for the **\$466M project** to expand the tunnel to allow double stack rail capability into and out of the Port of Baltimore.
- **\$147M** State Funding
- **\$91M** CSX Funding
- Challenge: Funding Gap **\$103M**
- Outcome: TBD
- Goal: Increase Container Volumes at the POB, and reduce the number of Trucks on the Highway network.





Other MDOT MPA Partnerships

- **Baltimore City Official Truck Routes: Focus on where trucks should go, instead of on restricted routes;** electronic enforcement mechanisms to encourage compliance; all registered Port Trucks notified of new routing. **Challenge:** Getting GPS providers to add approved truck routing to existing GPS Systems.

- **EPA DERA Grant Partnerships:** \$ 5,863,907M in EPA Grants since 2013; Incentivized the modernization of Cargo Handling Equipment, dray trucks, locomotives, and marine engines. Result: Emissions down 19% while cargo volumes increased 10%.
- **Maryland One Permit System:** A first-in-the-nation automated truck permit system to reduce overweight-hauling permit processing from days or weeks to hours, eliminating review fees. Estimated to save the trucking industry \$6 million annually in fees.





Our Bottom Line...

1. The Port is growing, and that is projected to continue, but we are not without challenges, especially to freight linkages.
2. Intermodal freight connections link Maryland and the Mid-Atlantic region to the global marketplace. Without those links, the Port cannot continue to function.
3. The Port is the economic heart of the Maryland economy.
4. The Port creates family sustaining jobs for **all skill levels**.





Questions?

Jill Lemke

Maryland Port Administration
Manager, Strategic Planning & Special Projects
jlemke@MarylandPorts.com
(410) 385-4445



Maximizing Multimodal Connections

Dan Pallme

Assistant Chief of Freight

Tennessee Department of Transportation

Jill Lemke

Manager, Strategic Planning & Special Projects

Maryland Port Administration

Scott Drumm

Director of Research & Strategy

Port of Portland



Using Regional Research to Identify Freight Infrastructure Priorities



 **PORT OF PORTLAND**
Possibility. In every direction.™

Scott Drumm, Port of Portland
Stacy Shetler, Washington County
October 16, 2019

Overview

- Port of Portland and its role in trade and freight
- Regional culture of collaborative freight research
- State of Trade Report
- Greater Portland Export Plan → Westside Freight Access and Logistics Analysis



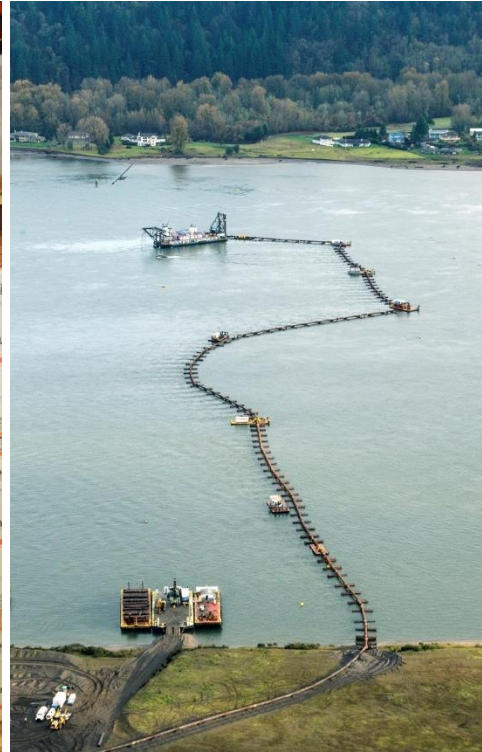
Port of Portland

4 Marine Terminals

3 Airports

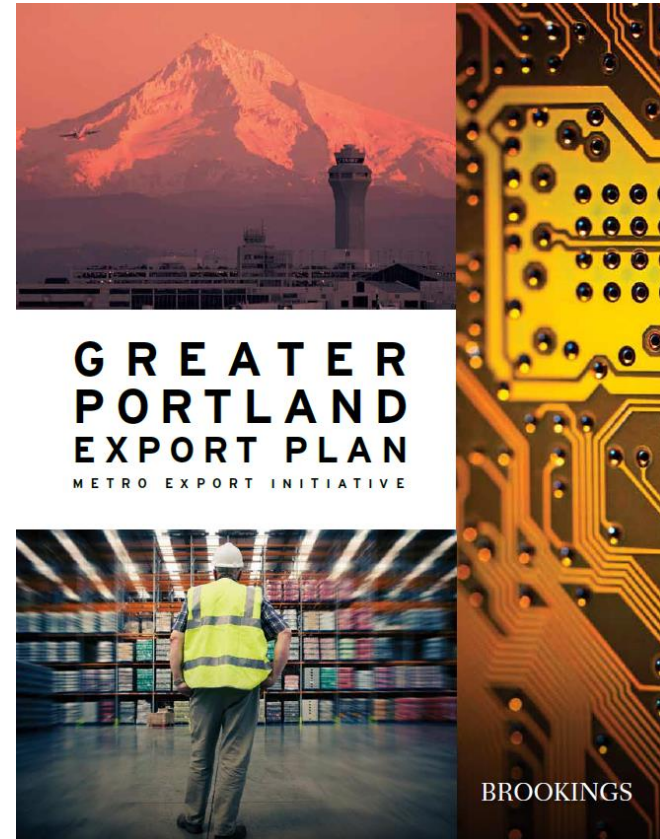
5 Business Parks

Navigation

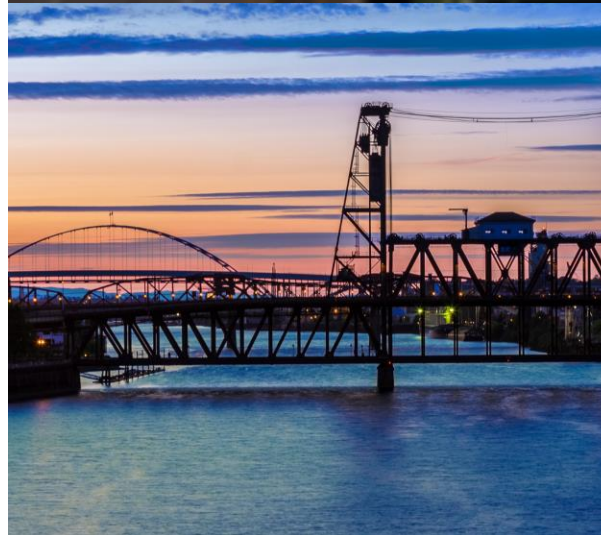


Collaborative Regional Research

- Regional Commodity Flow Forecast
- Regional Truck Model
- Trade Capacity Study
- Freight Data Collection Project
- Cost of Congestion Studies
- Value of Trade/State of Trade Reports
- Greater Portland Export Plan
- Westside Freight Access and Logistics Analysis



State of Trade



Portland is
#14
of top 100
U.S. metro
regions for
highest export
value.



State of Trade

Calls to action:

- Encourage leaders to ensure the US retains a free trade agreement with Canada and Mexico
- Support new trade agreements to expand access for Oregon products creating more jobs
- Advocate for programs to retool and up-skill workers for new traded sector industries
- *Invest in the maintenance, expansion, and resiliency of our infrastructure to ensure businesses can efficiently move export products nationally and internationally*
- Strengthen support for local, state, and federal export assistance programs, helping small businesses enter the trade markets



Westside Freight Access and Logistics Analysis

Challenge: connecting westside manufacturers with Portland International Airport, particularly during PM peak

 BROOKINGS	 Hillsboro OREGON		 US Department of Transportation Federal Highway Administration
 GREATER PORTLAND	 Greater Hillsboro Area Chamber of Commerce		 Metro <i>Making a great place</i>
 MULTNOMAH COUNTY	 Oregon Department of Transportation	 One Northwest Consulting, LLC	 business oregon <small>where business grows</small>
 PORT OF PORTLAND	 Port of Vancouver USA	 CITY OF PORTLAND BUREAU OF TRANSPORTATION	 PORTLAND BUSINESS ALLIANCE <small>Commerce - Community - Prosperity</small>
 QUINN THOMAS	 TRIMET	 WASHINGTON COUNTY OREGON	



West Side Freight Access and Logistics Analysis

- Computers and electronics account for over half the total value of the regions exports

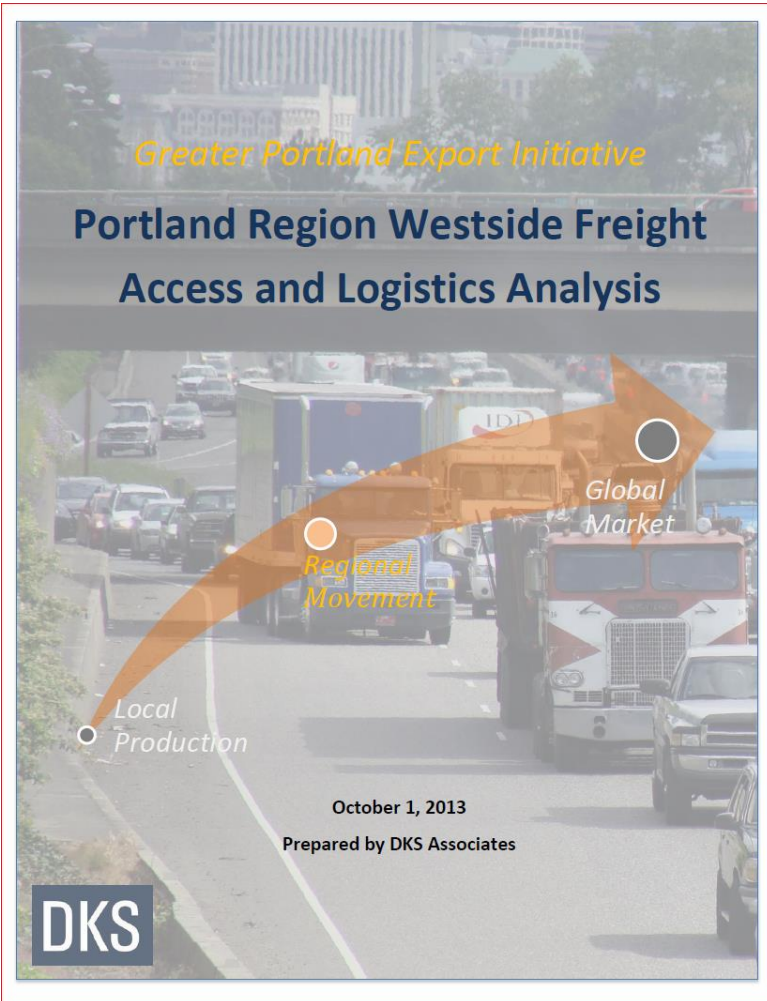
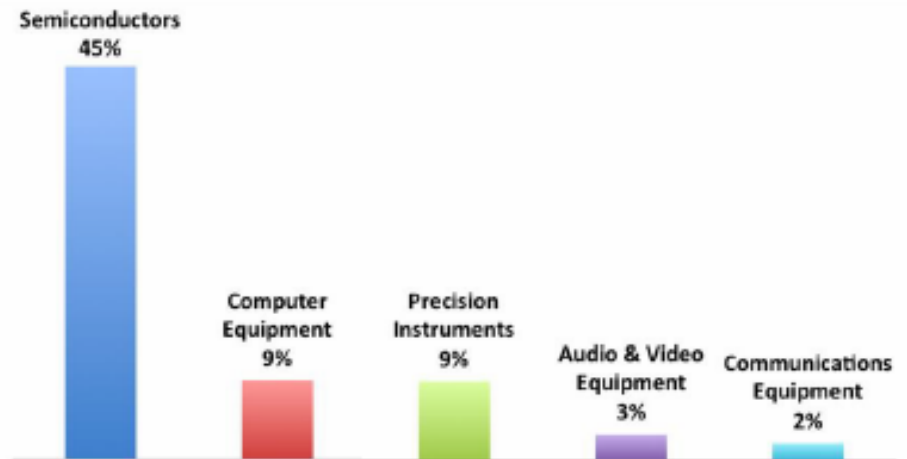
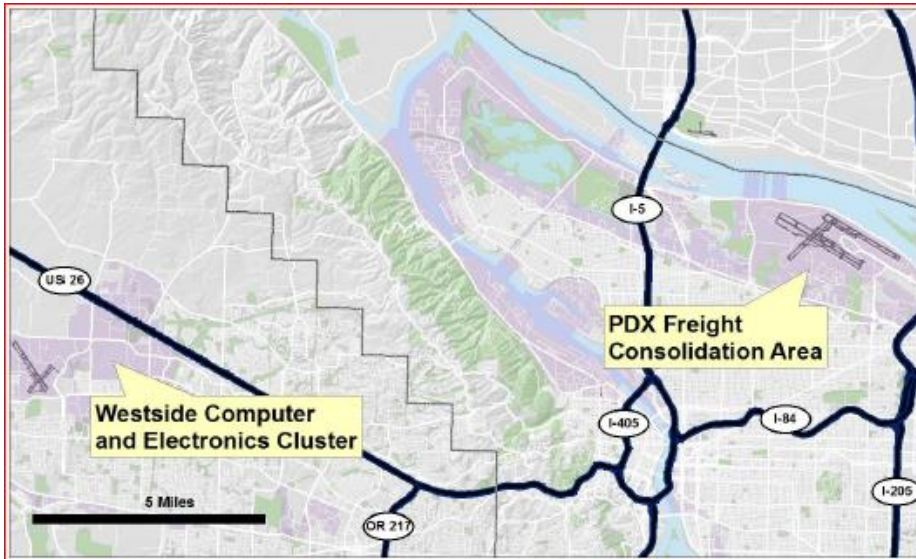


Figure 1: Industries Representing Two Percent or More of the Portland Region's Exported Goods



Source: Brookings Institution Export Nation 2013
(<http://www.brookings.edu/research/interactives/export-nation>)

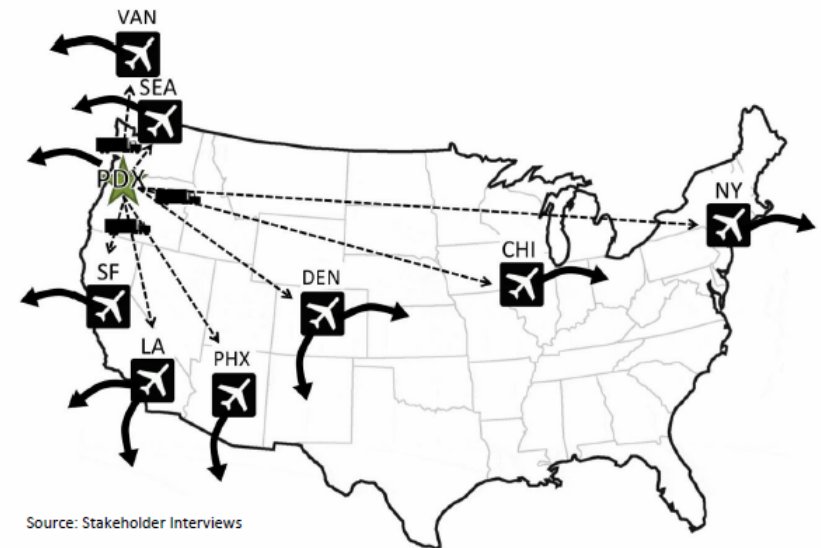
West Side Freight Access and Logistics Analysis



- Delays or missed shipments can shut down overseas production lines

- Reliability of the roadways system is key to goods movements.

Figure 4: Goods Flow to Overseas Gateways



Source: Stakeholder Interviews

Westside Freight Access and Logistics Analysis

Industry interviews confirmed:

- Freight consolidation at PDX is the key destination for C&E goods from the Westside
- PDX is gateway for both air freight and truck freight destined for other international air cargo gateways
- Primary freight routes to PDX from Westside



Westside Freight Access and Logistics Analysis

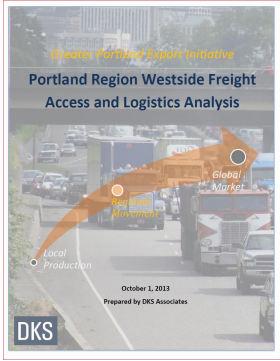
3 strategies met the specific needs of Westside C&E freight movements

- Potential to increase travel time reliability
- Can be implemented in the near term.

1. **Enhanced Traveler Information**
2. US 26 Truck Ramp Meter Bypass
3. Enhanced Freeway Incident Response

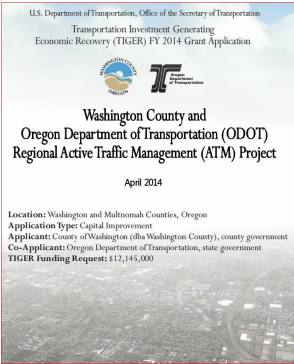


Westside
Freight
Study



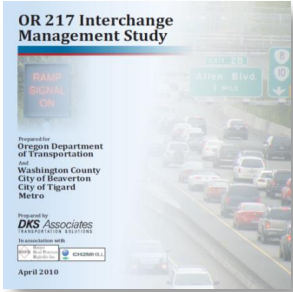
TIGER Grant

Washington
County
ITS Plan



Project

ODOT 217
Real-Time

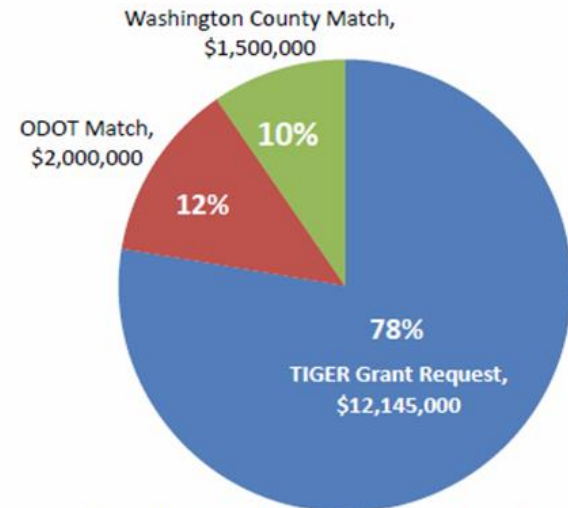


TIGER Grant Award

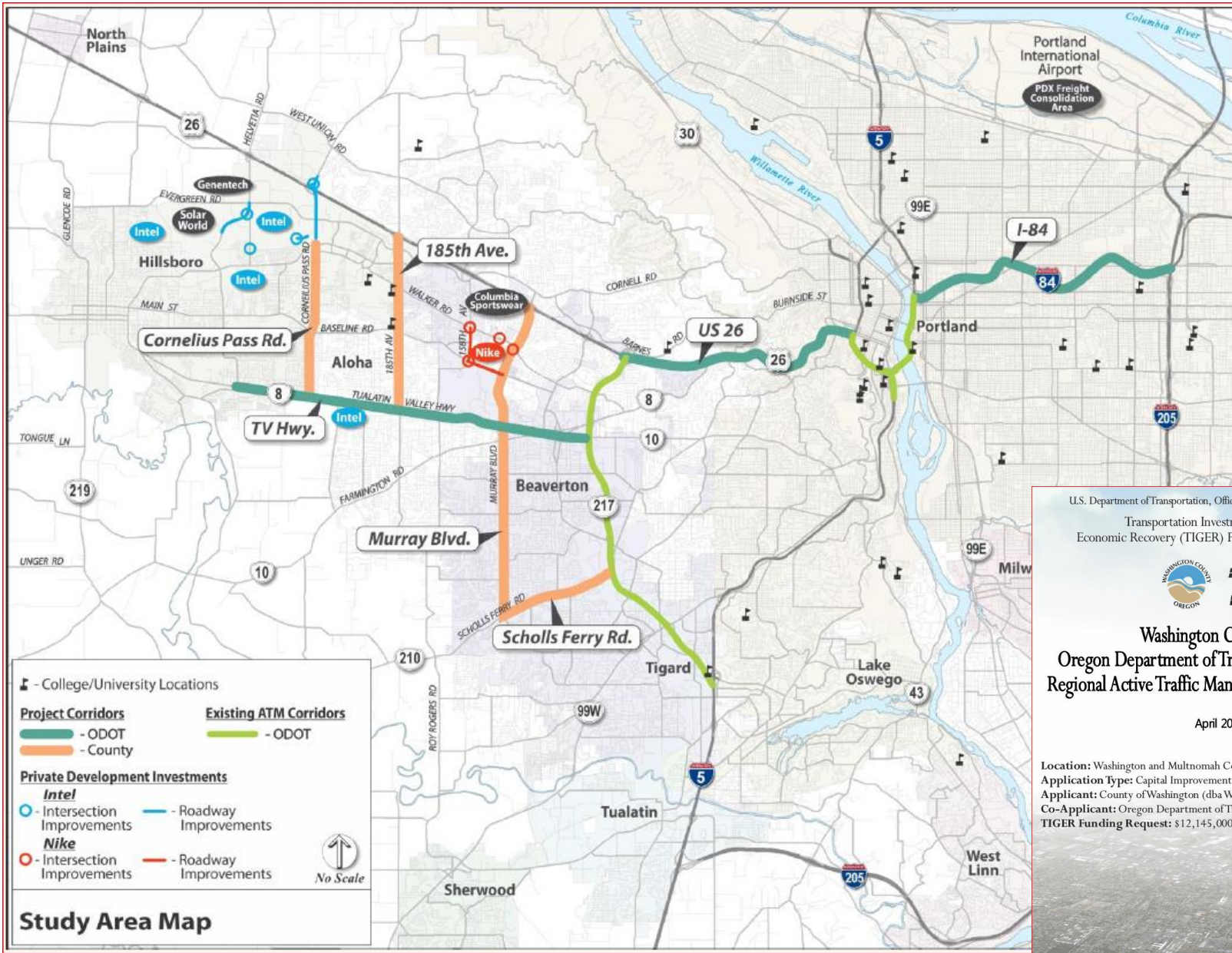


Funding

Grant Award: \$10,125,000
Match: \$ 3,500,000
Total Funding: \$13,625,000




Funding for \$15,645,000 Project Costs



▲ - College/University Locations
Project Corridors
 — - ODOT
 — - County
Existing ATM Corridors
 — - ODOT
Private Development Investments
Intel
 ● - Intersection Improvements — - Roadway Improvements
Nike
 ● - Intersection Improvements — - Roadway Improvements
 No Scale

Study Area Map

U.S. Department of Transportation, Office of the Secretary of Transportation
 Transportation Investment Generating Economic Recovery (TIGER) FY 2014 Grant Application

Washington County and Oregon Department of Transportation (ODOT) Regional Active Traffic Management (ATM) Project
 April 2014
 Location: Washington and Multnomah Counties, Oregon
 Application Type: Capital Improvement
 Applicant: County of Washington (dba Washington County), county government
 Co-Applicant: Oregon Department of Transportation, state government
 TIGER Funding Request: \$12,145,000

Freeway Strategies

Traveler
Information Sign



Travel Time Sign

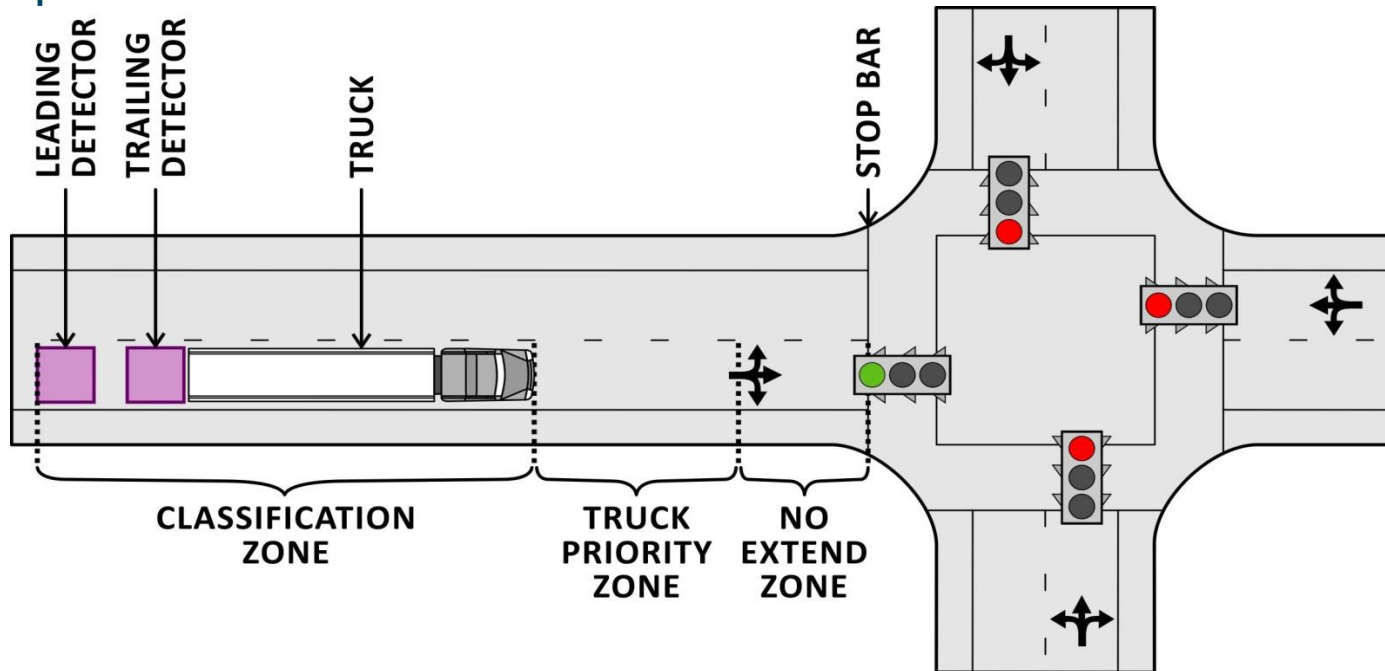


Advisory
Speed Sign



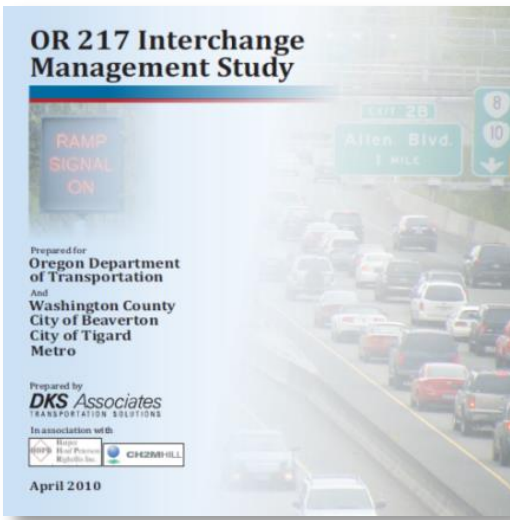
Arterial Strategy: Truck Extensions

- Extend green to **reduce** the probability of:
 - Truck at beginning of queue → increasing intersection capacity
 - Truck running the red signal indication → reducing crash exposure



Source: Traffic Signal Timing Manual, 2nd Edition, Kittelson, Purdue, Texas Transportation Institute (Adapted from Northwest Signal Supply)

Oregon 217 Real - Time



Traveler Information Sign

**CONGESTION AHEAD
RIGHT LANE
1/2 MILE**

Travel Time Sign

TRAVEL TIME TO
26 VIA 217 12 MIN
405 10 MIN

ADVISORY
SPEED
40

Advisory
Speed Sign



Key Measures Evaluated

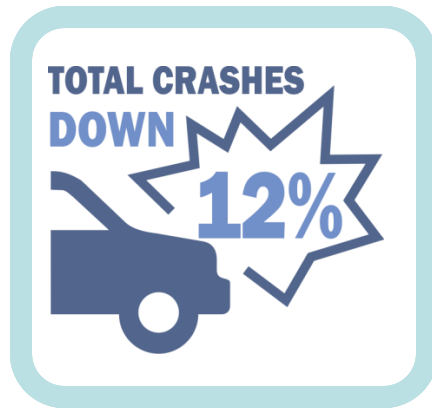
- Travel time
- Travel time reliability
- Transit on-time performance
- Crash Rate
- Greenhouse gas emissions
- Average daily traffic



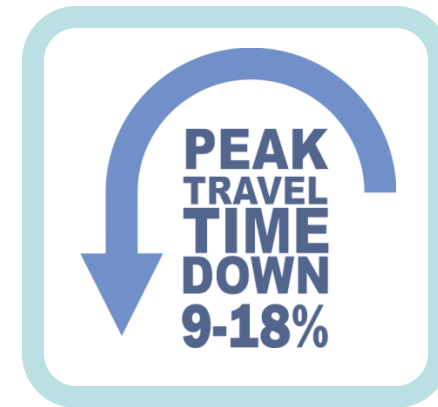
Expected Outcomes

- Similar enhancements made to nearby Oregon 217
- Expect similar improvements from US 26/I-84 investments

Primary Benefits



Additional Benefits



Air Cargo Demand Continues to Grow

- PDX air cargo volumes have grown more than 20% since study was done
- PDX cargo volume up 20% YTD; 25% increase August YOY
- Exports of electronic components up more than 50% YTD





QUESTION AND ANSWER SESSION



Tamiko Burnell

Federal Highway Administration
Office of Freight Management and
Operations

(202) 366-1200

Tamiko.Burnell@dot.gov

