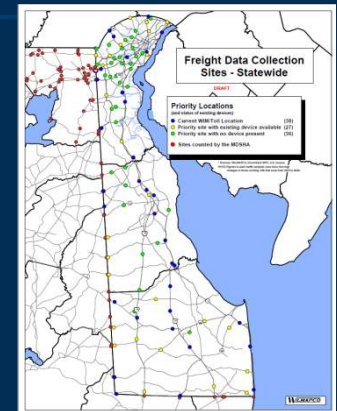
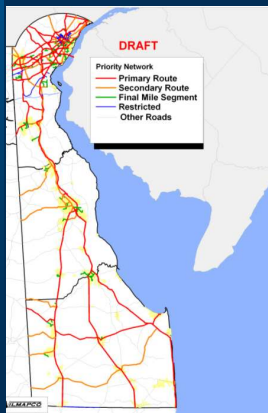
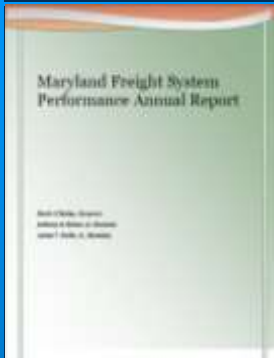


Freight Activities: Year in Review



Dec. 3rd 2014

Agenda

- **Highlight freight related projects and initiatives from past year**
 - MPO's
 - DOTs
 - MDSHA
- **Follow up on items presented/discussed at summer summit and winter meetings**
- **Upcoming freight planning efforts discussion**
- **Begin Freight Plan Implementation**

Where have we been?

- 2009 & 2010: Delmarva Rail Summit
- 2011-Present: Expanded to include all freight. Over 200 unique attendees to summit
- 2013 – Present: Added “Winter Meetings”
- 2014 Established Delmarva Freight & Goods Movement Working Group

Includes:

- Public Agencies (DOTs, MPOs)
- Private Sector
- Ports
- Anyone interested in freight!

Track #1: Data & Information	Tally	Track #2: Policy, Planning & Project Prioritization	Tally	Track #3: Community Issues	Tally	Track #4: Shipping Interests	Tally
Dissemination of information to stakeholders (i.e. Quarterly publications, annual performance reports, “Freight as a Good Neighbor” literature, etc...)	0	Detailed bottleneck analysis & project development from problem locations identified in Statewide/regional studies	6	Truck Safety	7	Development of designated truck routes/ priority freight corridors	14
Select and budget funds for annual data collection activities (Truck AADT, O/D data, WIMS, TranSearch etc...)	3	Development of priority projects to be added to Regional Transportation Plan (RTP) project list	5	Freight considerations in the Highway Safety Improvement Program (HSIP)	2	Participation and development of freight related planning studies in annual MPO/DOT Work Programs	2
Surveys/Interviews of regional truckers & shippers on transportation issues and priorities	8	Development of a Freight Transportation Improvement Program. (From NCHRP 320 Report)	1	Community impacts along major freight corridors	10	Regional/local rest stop and parking issues	1
Creation of a “Base Map” of freight facilities for distribution: <ul style="list-style-type: none"> - Truck routes/corridors - Rail lines and weight limits - Critical freight network (Bottlenecks, NHS, key supply chain routes, etc..) - Annual freight trend summaries 	10	Financing of freight-related transportation projects. MAP-21 Implementation	11	Other: <ul style="list-style-type: none"> • Air quality conformity Environmental Impacts		Obstacles which alter supply chain patterns (i.e. toll increases, congestion, global challenges, etc..)	8
Other: Data Accessibility		Other: Identify issues associated with resiliency	1	Other: Incident Management	3	Other:	

Projects, Studies and Initiatives from Last Year

Maryland Efforts

Coordinated Freight Data Workgroup

- Group will work toward identifying data sources that are already used within SHA and MDOT and other potential outside sources (for example, FHWA freight data).
- Data could be used for modeling, performance measures, etc.
- Meeting monthly.

Conducted and reported annual statewide truck parking counts

- Evaluate overnight truck parking along the Maryland Statewide Truck Route System. Approx. 900 miles.
- At peak periods of the survey, there were up to 600 trucks parked along the ramps, shoulders, or in public parking areas along the Maryland Freight Network.
- Shortage of truck parking availability along I-95, US 50, and US 301, among other routes on the Maryland Freight Network.
- Surveys were taken along the mainline of the roadway, interchange ramps, rest areas, travel plazas, park and ride lots, public parking lots and parallel roadways.
- Survey locations did not include privately owned or operated lots.

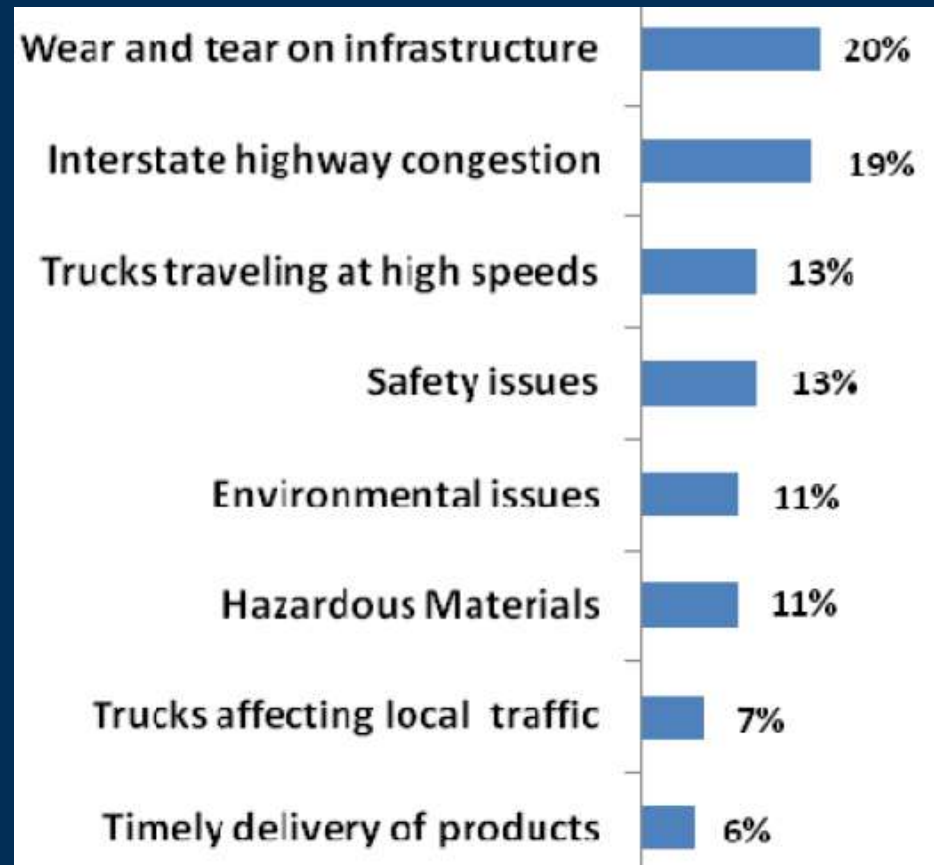
Maryland Efforts

Perceptions of Freight Transportation in MD

University of Baltimore completed 808 surveys using a sample of landline telephones and cell phones from February 26 through August 19, 2014.

- What mode of transportation comes to mind when thinking about freight movement, 63% trucking (i.e. highways) and 30% rail.
- 96% of respondents said it was very important or important to ensure an efficient freight transportation system
- 48% state it was truck driver fatigue was biggest safety issue and 30% said it was trucks driving at high speeds.
- When asked to select one mode of transportation to make a top investment priority, 63% said highways and 26% said rail.

Most important issues related to freight



Maryland Efforts

Published third annual *Freight System Performance Annual Report*

- The *Freight System Performance Annual Report* highlights leading indicators corresponding to the freight system performance within MDOT's goals. The report identifies freight performance measures for each modal administration within MDOT.

•Started *Strategic Goods Movement Plan*

- Update to MDOT freight plan will be strategic in nature.
- The plan will be the guiding document for freight planning and programming at MDOT.
- The policies that come from this effort will be screening criteria for projects that benefit all modes of freight transport.
- This approach would incorporate traditional freight-related planning documents from each mode as modules or appendices to constitute a complete freight planning package.
- The complete freight planning package, Strategic Goods Movement Plan and modal freight plans, could be presented as a cohesive package when necessary, such as for freight plan approval by FHWA.
- We have an aggressive schedule; completion is expected end of January 2015.

Maryland Efforts – Planned for 2015

- **Freight planning activities planned for 2015:**

- Complete and implement *Strategic Goods Movement Plan*
- Establish freight data repository in partnership with modal administrations and MPOs
- Truck parking counts
- 2015 *Freight System Performance Annual Report*
- Truck parking partnership opportunities

Delmarva Freight Summit (August 2014)

- **70 Attendees, 6 speakers & guests**

- Marc Dixon, US DOT Freight Analysis and Research Team
- “Transportation challenges in agribusiness” Lee Derrickson, Delaware Motor Transport Association (DMTA)
- “Multi-Region Freight Planning” - Ted Dahlburg DVRPC
- “Safe Communities, Norfolk Southern and Crude Oil by Rail”- Rudy Husband Norfolk Southern Railroad
- Delmarva Freight Study - Chad Reece, Whitman, Requardt and Associates.



Delmarva Freight Summit (August 2014)

“Transportation challenges in agribusiness”

- **Traffic growth in general**
 - **Seasonal recreational destinations**
- **Both are problems on Delmarva**
After slight decline because of economics of “great recession”
 - **Traffic is on the rise**
 - ♦ **Increases approximately 3% annually**
 - **Tourism is recovering from recession also**
 - **Leads to seasonal traffic problems**
- **First & last movements in agricultural supply chain are by truck**
- **Two big transportation challenges in agribusiness involve highway transportation**
Congestion and Infrastructure condition
- **Solution is Holistic approach to transportation**
 - **Improve intermodal choke points**
 - **Market is currently making improvements on its own**
- **Better cooperation between modes**

Delmarva Freight Summit (August 2014)

“Safe Communities, Norfolk Southern and Crude Oil by Rail”

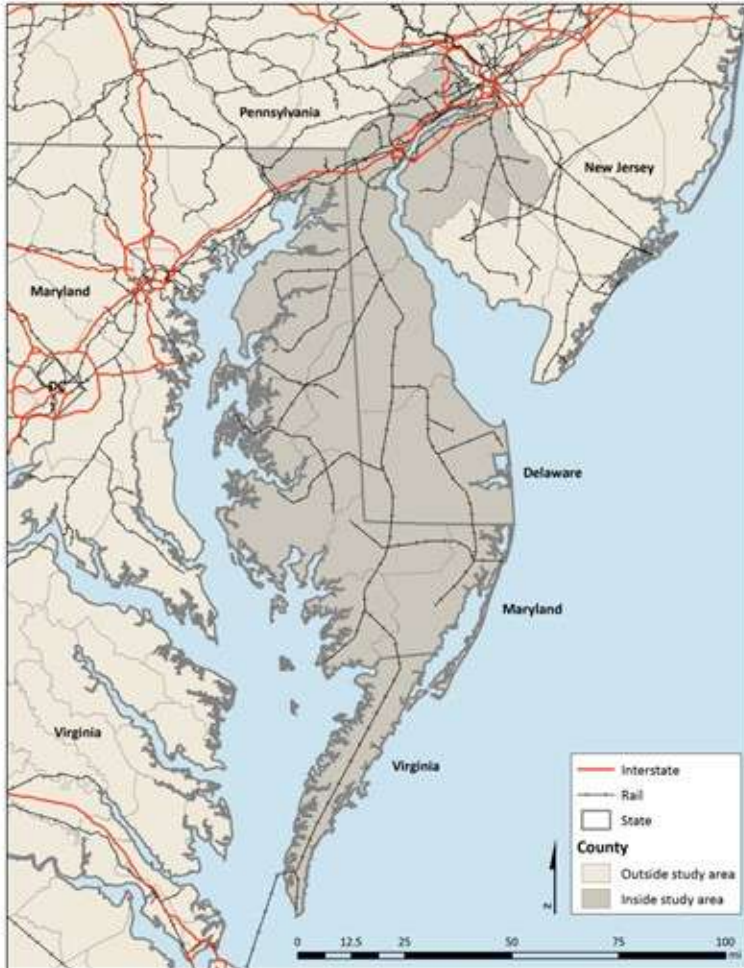
- NS transported little crude oil in 2010 and only 75,000 in 2013
- “Fills in gap” where pipelines do not exist for crude
- New speed rules and tank specifications have been changed in urban areas



Delmarva Freight Working Group (December 2013)

- 2 meetings (North/South)
- Roughly 60 attendees between both
- Not the same agenda for each
 - Allows for more local freight issues (i.e. chemical, agriculture)

Purpose

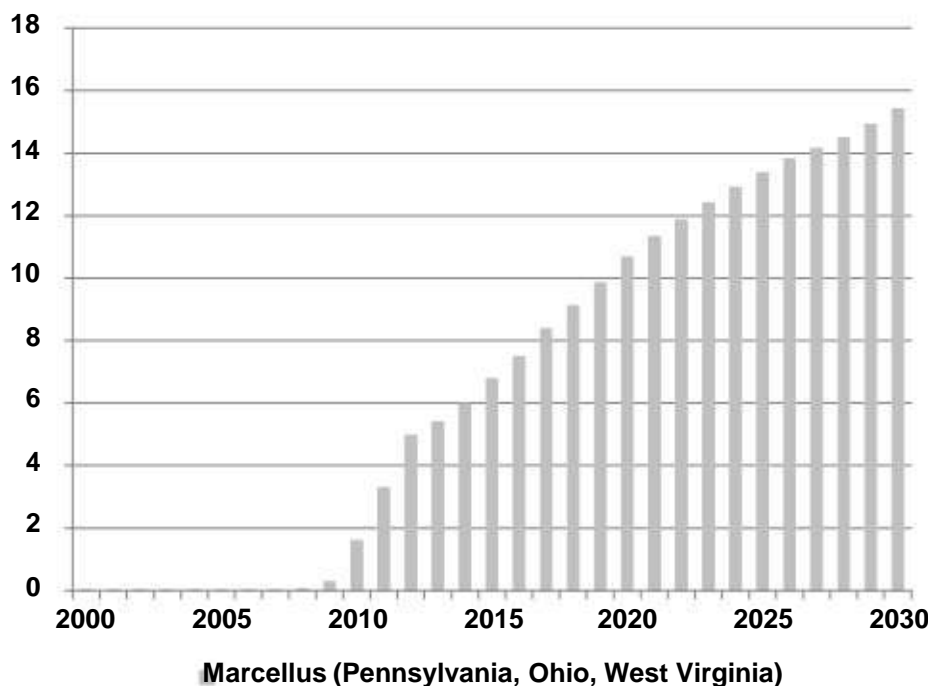


- To “dig deeper” into Delaware’s chemical supply chains. IHS proposes to examine the inbound and outbound supply chain characteristics at each of the region’s chemical plants.
- Identification and sources of inbound raw materials as well as destinations of outbound finished product either for further processing (i.e. intermediate product) or final consumption.
- Supply chains will be reviewed with IHS experts in light of emerging chemical industry market trends or logistics practices to identify potential opportunities for economic development or changes in the State’s freight system that could strengthen supply chain performance.

Marcellus natural gas and the Delmarva regional chemicals industry



**Marcellus Natural Gas Production
Billion Cubic Feet per day**



Please note the caution regarding these “early days” forecasts, per the note earlier in this report.

- **Production of natural gas is expected to grow rapidly in the coming decades as result of Marcellus extraction.**
- **Growth in Marcellus production will benefit domestic chemicals industries, especially in close geographic proximity if efficient delivery methods exist.**

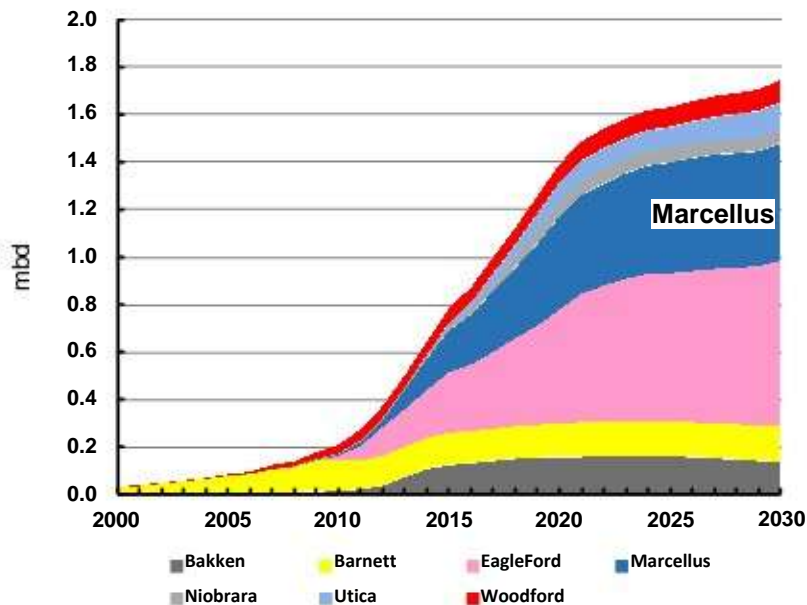
- Delmarva Chemical Supply Chain Analysis Marcellus Shale.



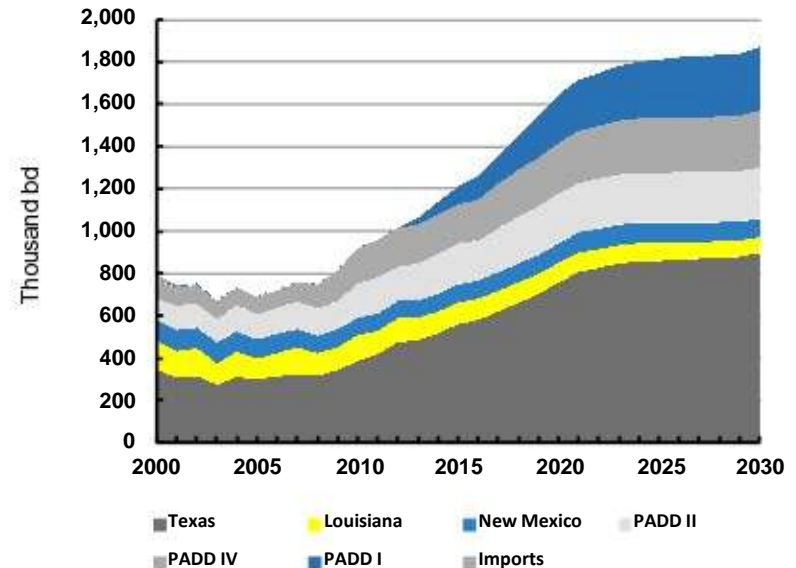


US non-gas liquids (NGLs) NGL & Ethane production

NGL production from key shale gas and tight oil plays



US ethane production by region



Please note that these forecasts are IHS' current estimates, but these are subject to substantial revision from time to time as more data is available in the future and as the unconventional oil and gas techniques are further developed and become more predictable.

Evaluation of transportation policy priorities



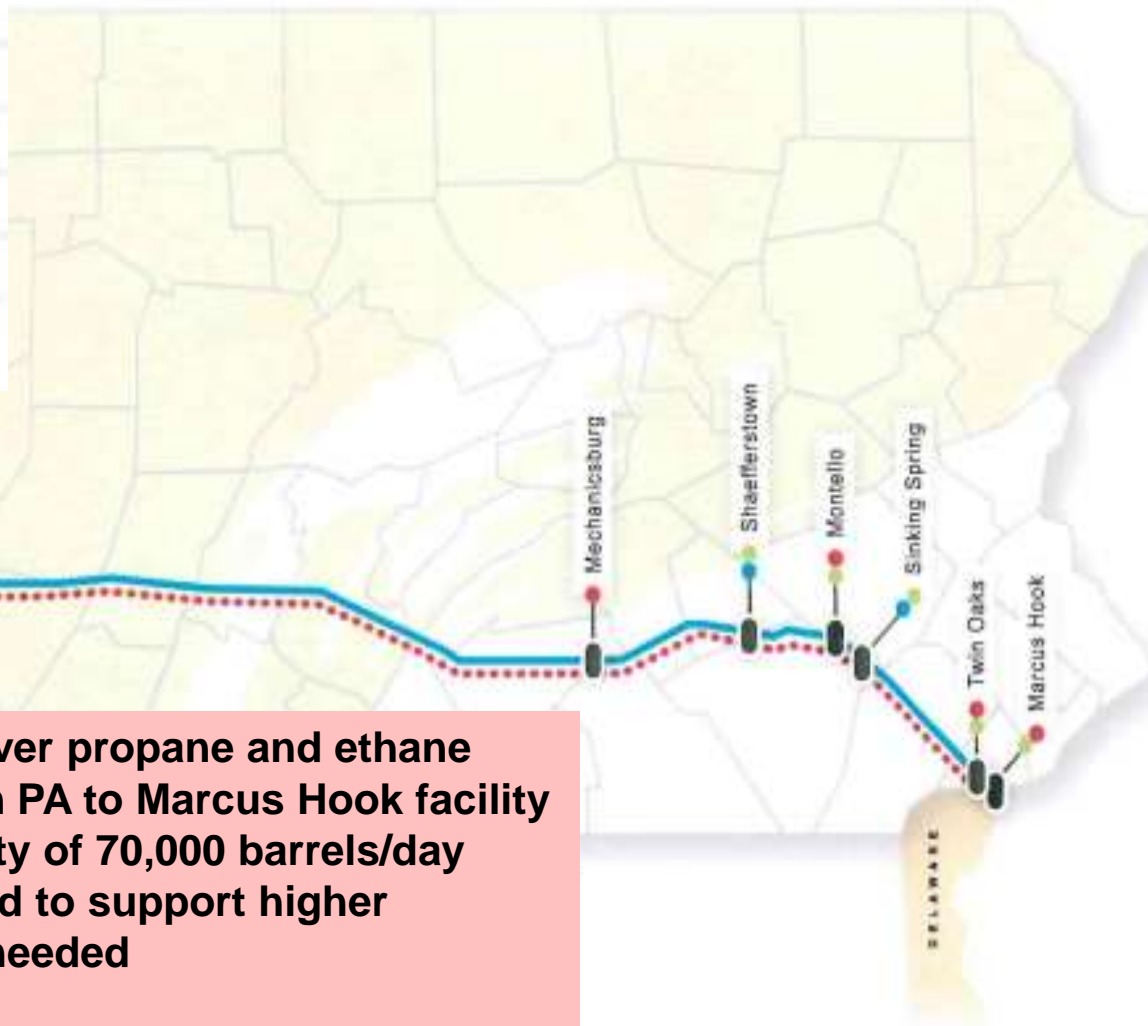
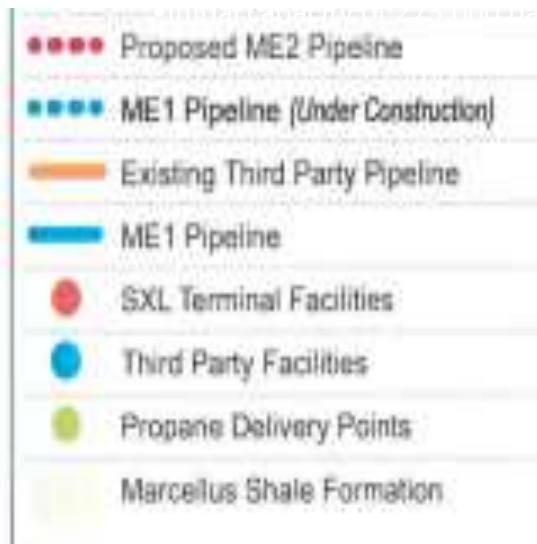
- **Current inbound and outbound commodity flow forecasts estimated for this study suggest continued modest growth of regional chemicals production, especially high-value, low-weight specialty chemicals, plastics, and pharmaceuticals.**
- **A revival of regional basic chemicals and derivatives manufacturing is possible if NGL/natural gas pipeline are developed towards the Delaware Bay and manufacturers see cost benefits to locating production near potential markets and the Northeast US, Europe, and (possibly) Asia. Scenarios analyzed include:**
 - **Scenario 1A: A best-case scenario would include the development of an ethylene cracker facility near Marcus Hook and/or propane- or methane-based derivative plants, reviving regional basic chemicals manufacturing.**
 - **Scenario 1B: If Shell builds an ethylene cracker in Western PA, the Delaware River/ Bay region could see increased downstream chemicals manufacturing and limited basic chemicals growth.**
 - **Scenario 1C: If no ethylene units are not built in the Northeast, there may be some opportunities for chemicals industry growth in energy-intensive industries which will still benefit from low-cost natural gas such as chlor-alkali, as well as NGL transportation activities centered on export.**
 - **Scenario 2: In a worst-case scenario, either production levels do not materialize or nearly all activities and benefits accrue to the US Gulf Coast, Canada, or North Dakota. Delmarva area chemicals manufacturing would then likely resume previous trends favoring specialized chemicals and R&D but off-shoring or relocation of other chemicals manufacturing.**

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- Delmarva Chemical Supply Chain Analysis



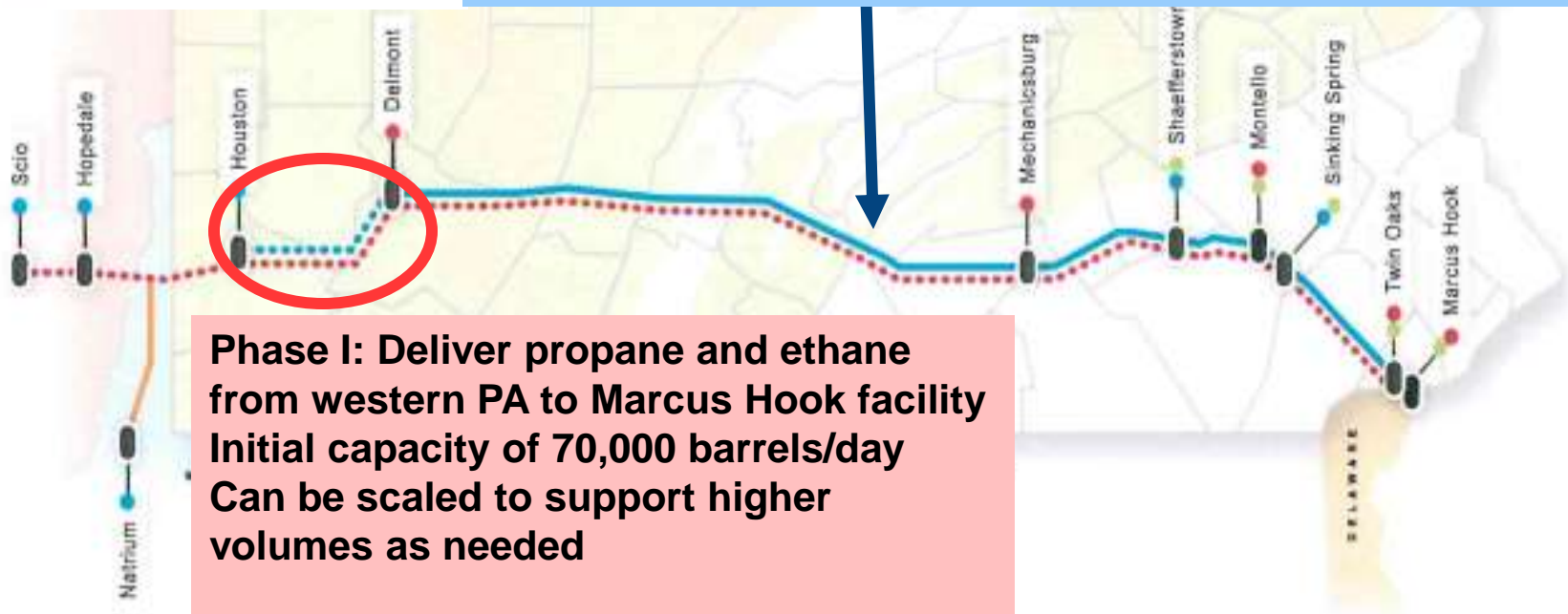
Phase I: Deliver propane and ethane from western PA to Marcus Hook facility
Initial capacity of 70,000 barrels/day
Can be scaled to support higher volumes as needed

- Delmarva Chemical Supply Chain Analysis

Phase II:

New pipeline from Ohio through West Virginia, Pennsylvania, and Delaware to Marcus Hook facility

- Scheduled to be completed in late 2016
 - Surveying completed
 - Land acquisition ongoing
 - Construction dates TBD
- Initial capacity of 275,000 barrels/day
- 345,000 barrels/day @ 42 gallons/barrel = 14,490,000 gallons/day
- Initially, most NGLs will be exported overseas via ships while some will stay local and others will be transported via barges to the Northeast



Phase I: Deliver propane and ethane from western PA to Marcus Hook facility
Initial capacity of 70,000 barrels/day
Can be scaled to support higher volumes as needed

Evaluation of transportation policy priorities



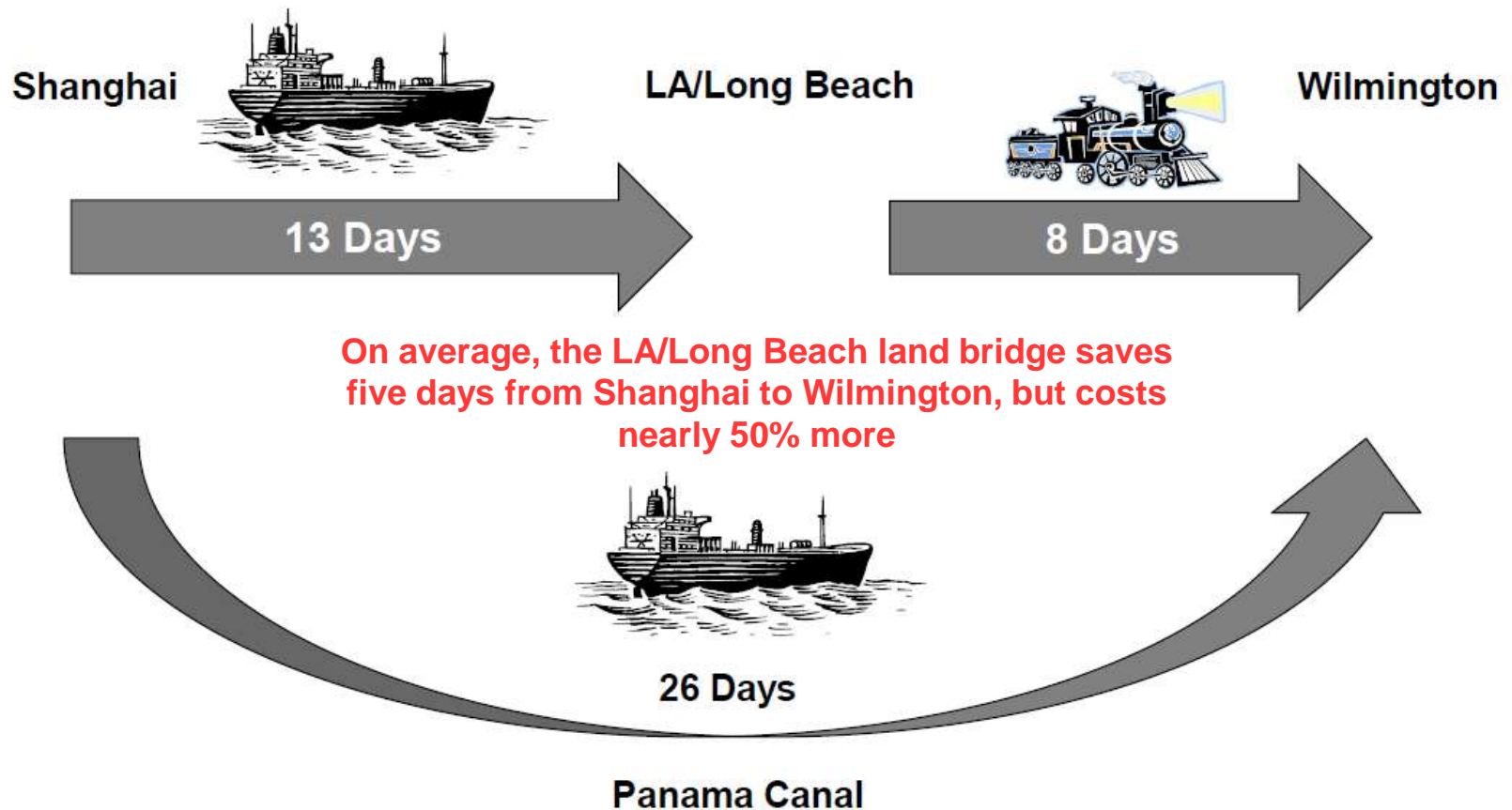
Scenario	1A	1B	1C	2
Coordination with DVRPC on planning/marketing	Green	Green	Yellow	Yellow
Chesapeake Connector	Yellow	Yellow	Yellow	Yellow
Rail congestion alleviation in New Castle County	Green	Green	Yellow	Red
Highway capacity and congestion mitigation	Green	Green	Green	Green
Secondary rail service to Lower Delmarva	Green	Yellow	Red	Red
Delaware Bay dredging to 45+ feet	Green	Green	Green	Red
Port of Wilmington strategic investment	Yellow	Yellow	Red	Red
New Castle airport cargo operations*	Red	Red	Red	Red

Key	
High Benefit	Green
Moderate Benefit	Yellow
Minimal Benefit	Red

- **Note:** seaport and airport freight access are important to Delmarva chemicals manufacturing, but the analysis suggests current market, facilities, and community constraints to cargo operations at New Castle. The study adopts the position that efficient roadway connectivity to BWI or PHL is more viable.

- Delmarva Chemical Supply Chain Analysis

- Shipments from China to East Coast through expanded Panama Canal will still take several additional days compared to rail trans-shipment via West Coast ports, but freight costs will be about 33% lower.

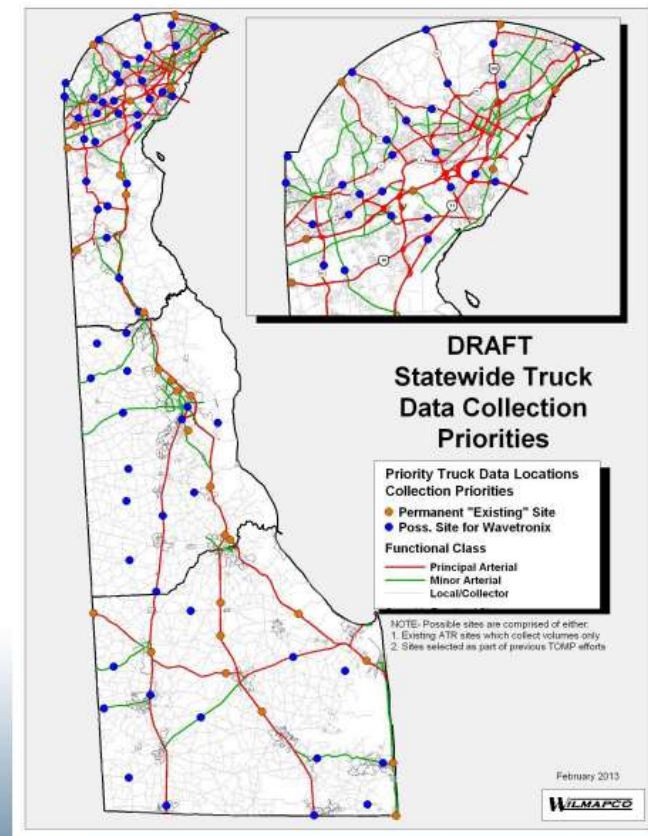


- Goods Movement and Intelligent Transportation Management Systems (12/4 Meeting)

Freight Traffic Monitoring

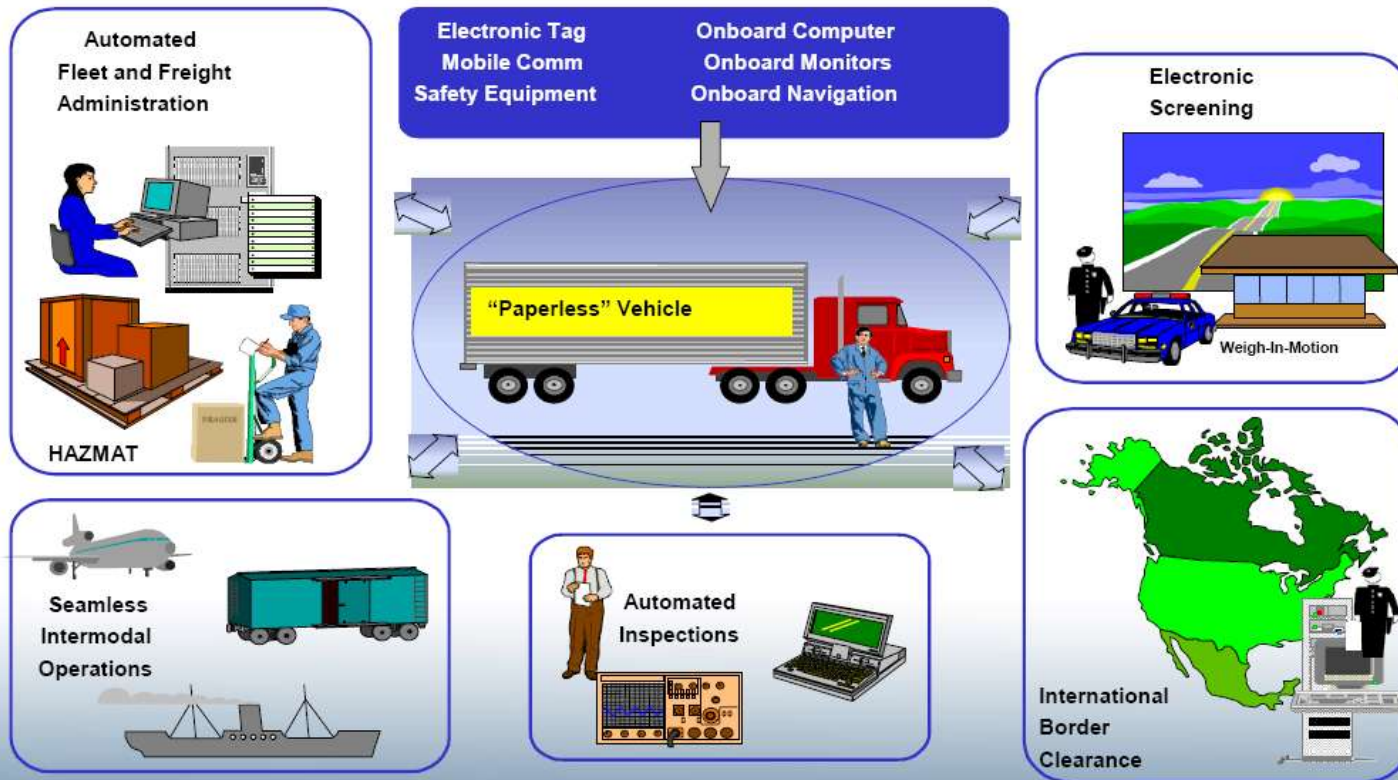


- Truck data types
 - Length
 - FHWA classification (by axle)
 - Weight
- Frequency of collection
 - Full-time/real-time
 - Full-time/historical
 - Temporary studies



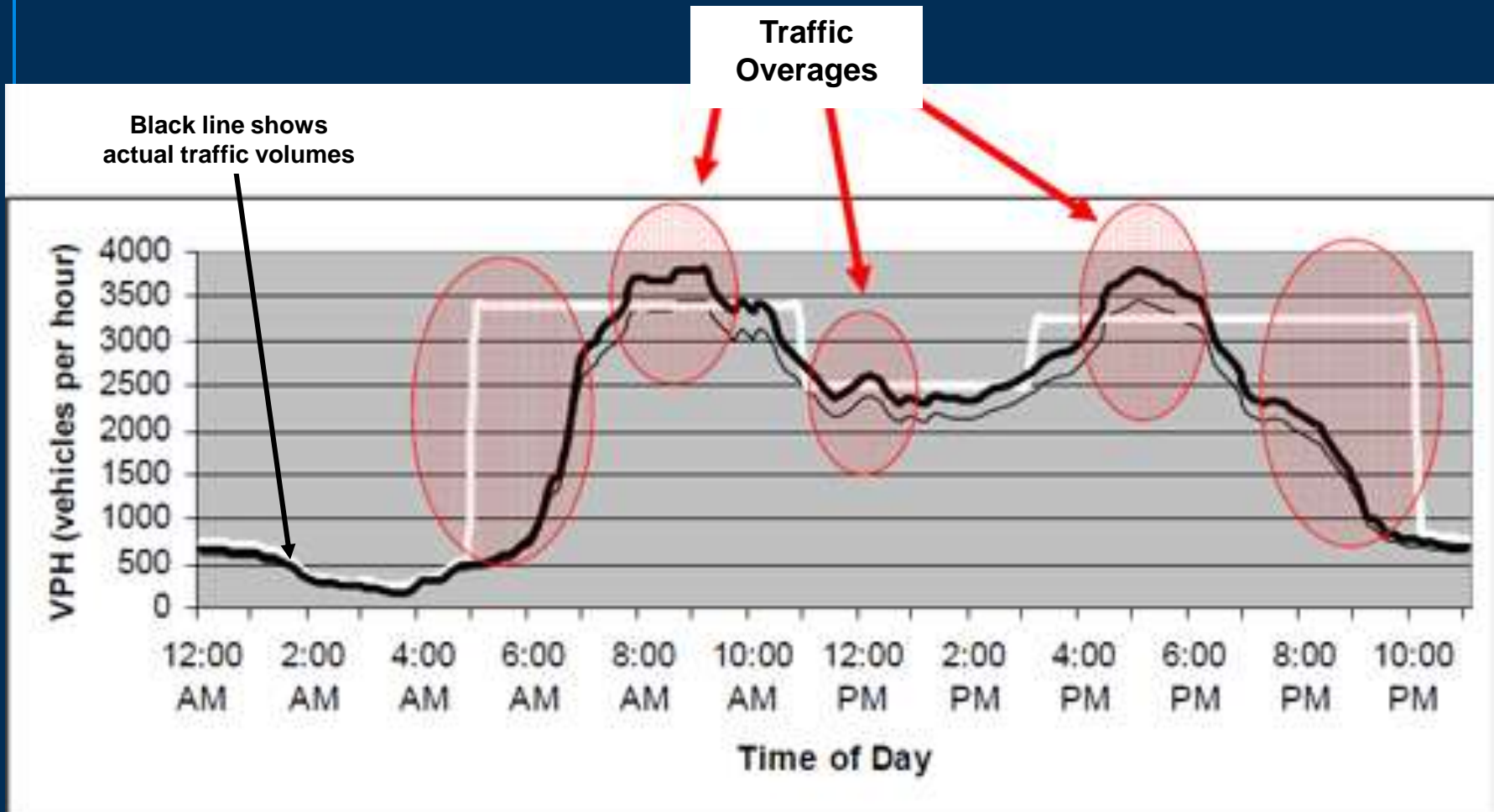
- Goods Movement and Intelligent Transportation Management Systems (12/4 Meeting)

CVISN Vision: Safe & Efficient Shipping Operations



- Goods Movement and Intelligent Transportation Management Systems (12/4 Meeting)

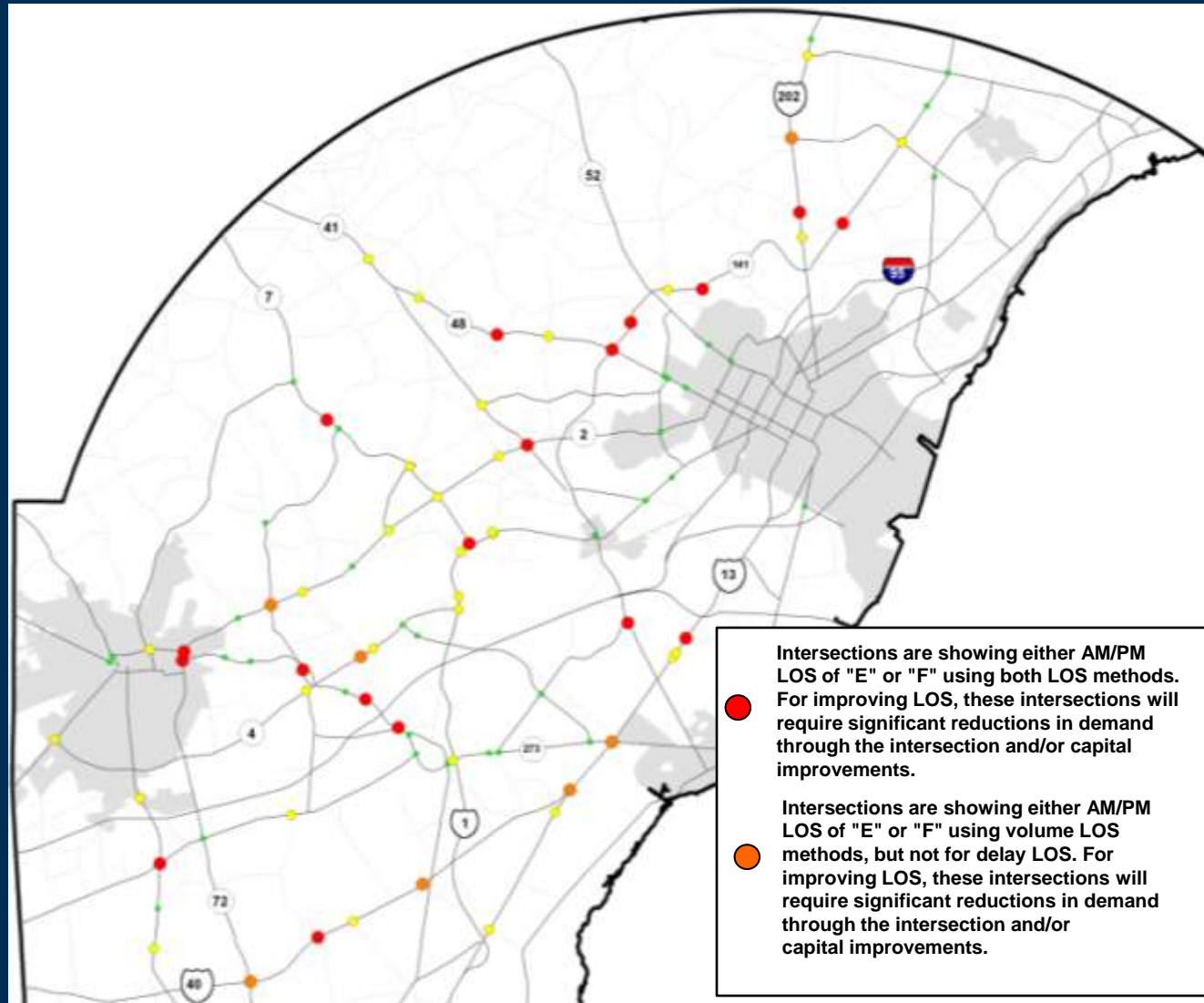
Increasing Arterial function through Traffic Responsive Signalization (TRS).



- Goods Movement and Intelligent Transportation Management Systems (12/4 Meeting)

2014 Intersection Operations Analysis

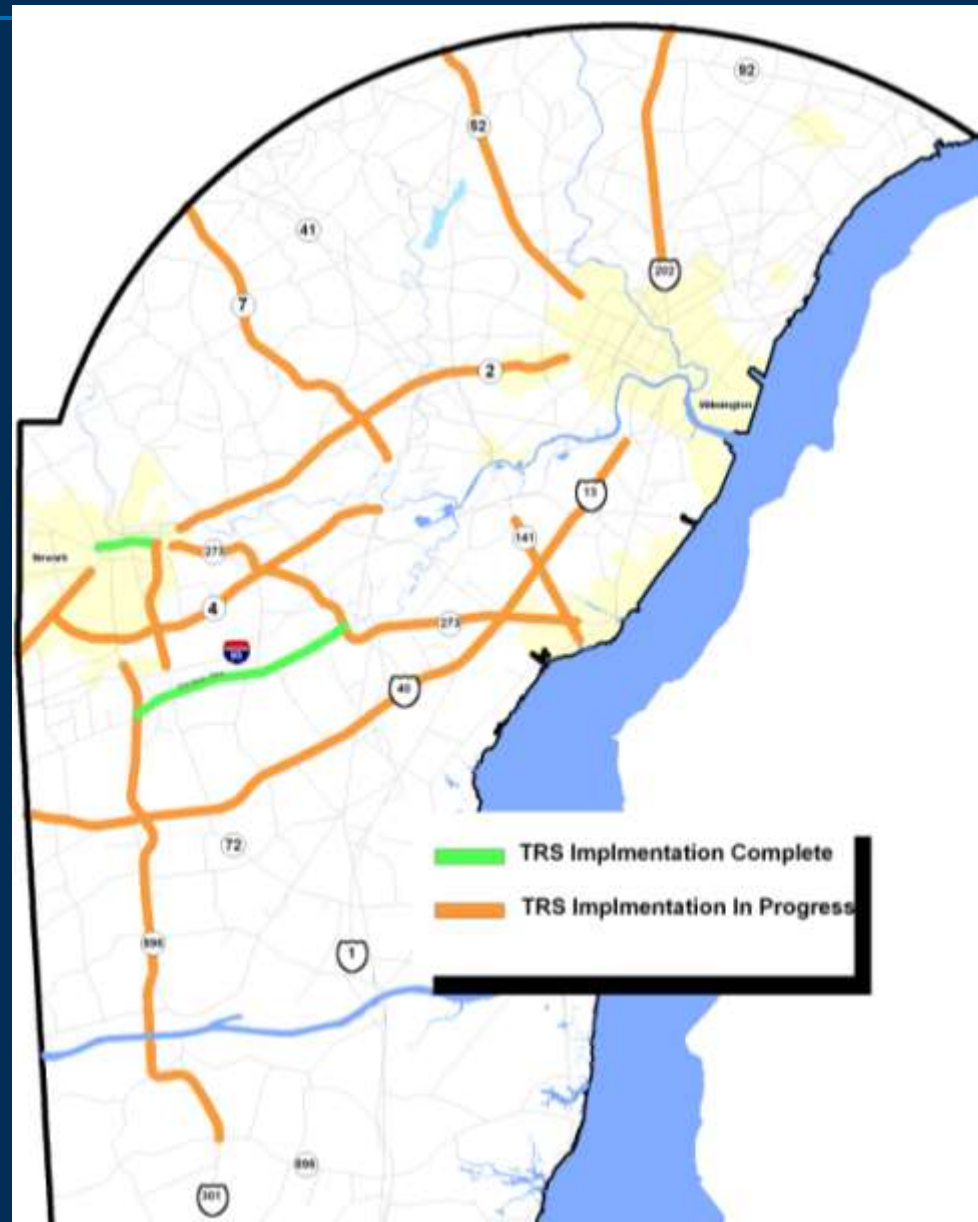
- Produce a regional delay/capacity analysis for signalized intersections along the arterial network.
- Identify which intersections have reached a point of limited capacity available to function efficiently.
- Prioritize intersections which need capital improvement, minor adjustments, or can still be addressed through signal timing efforts.



- Goods Movement and Intelligent Transportation Management Systems (12/4 Meeting)

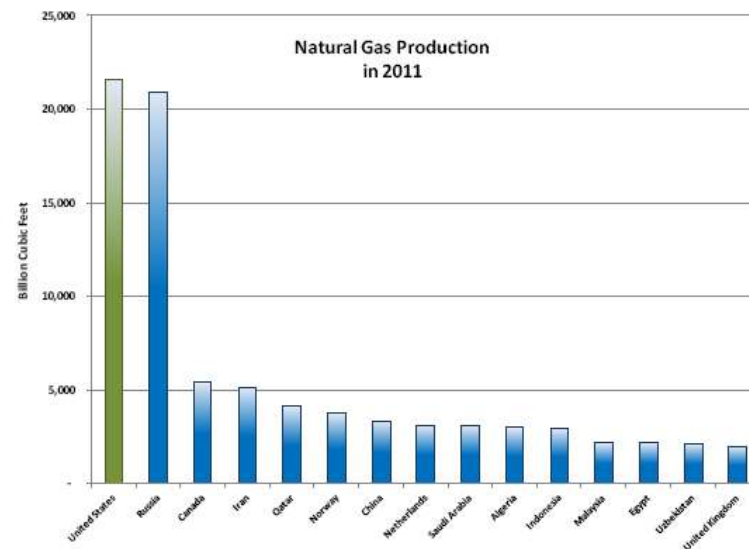
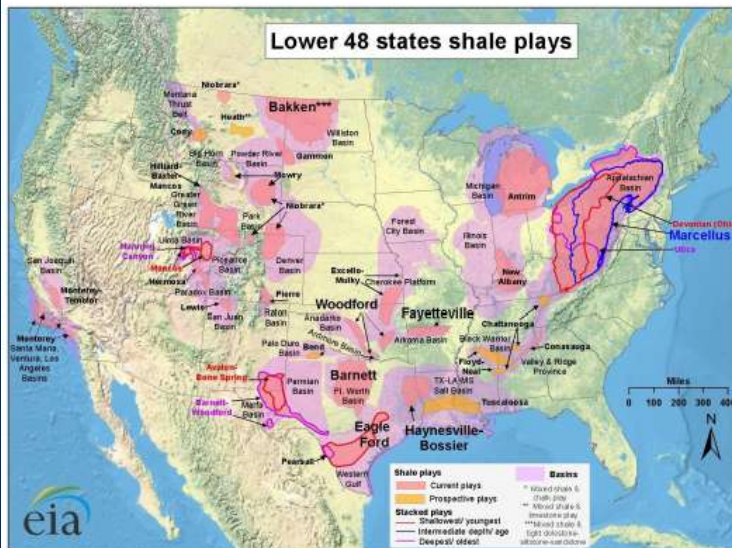
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- Clean Fuel Corridor on Delmarva (12/10 Meeting)

Natural Gas is Domestic & Plentiful



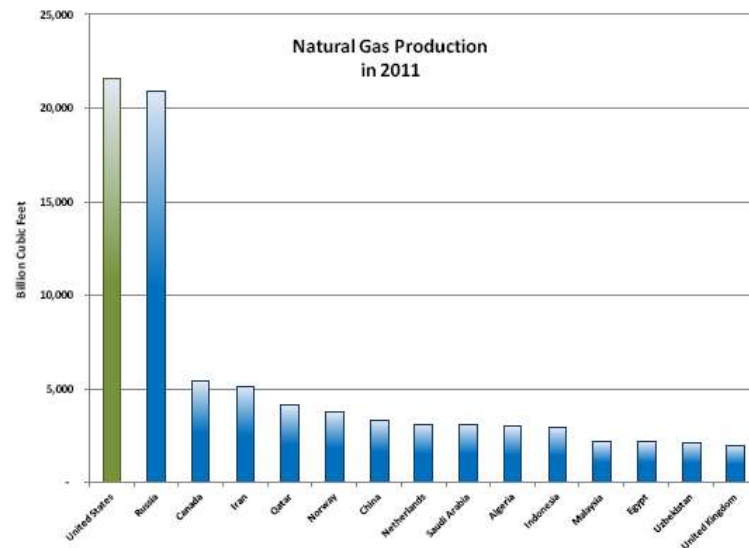
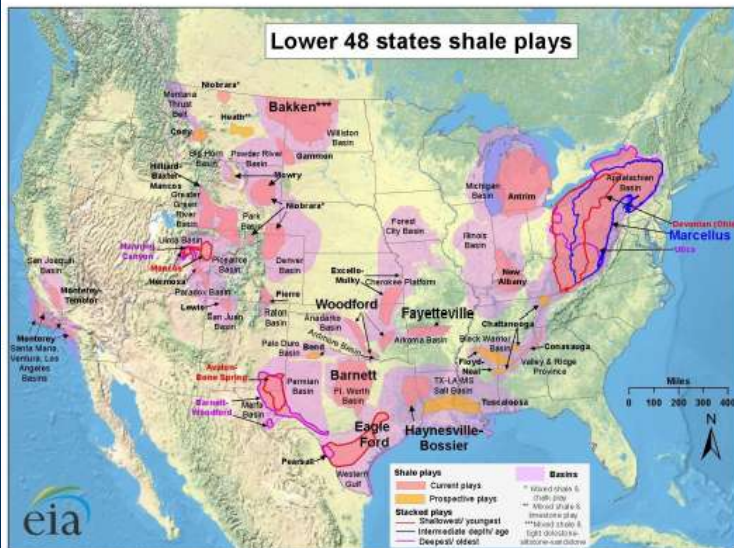
*"The United States has more natural gas
than Saudi Arabia has oil."*

- Clean Fuel Corridor on Delmarva (12/10 Meeting)

Natural Gas is Domestic & Plentiful



Trucking Industry moving toward natural gas.....



*"The United States has more natural gas
than Saudi Arabia has oil."*

Example – Waste Management



- WM of Seattle
 - 106 CNG trucks implemented in early 2009
 - Displacing 1.2 million gallons of diesel annually
 - Reducing Nox up to 25%
 - Reducing PM by 94%
 - Reducing GHG's by 20%



WM – 80% of the Class 8 trucks purchased in 2012 will be powered by natural gas

- Clean Fuel Corridor on Delmarva (12/10 Meeting)

Example Frito Lay



How has it worked?

CNG Sites 2013: 208 units = ~20% of fleet at 50% of locations



2013: 70% of new units are CNG

2014- : 80+%

- Clean Fuel Corridor on Delmarva (12/10 Meeting)



UPS – All Class 8 purchases will be NG going forward

Alternative Fuels - UPS - Heavy-Duty.pdf - Adobe Reader

File Edit View Window Help



Tools Sign Commer

U.S. Alternate Fuels and Technology

U.S. Alternative Fuel Vehicles Total: 1,424

Electric Vehicles : 6

- P70E = 4 Package Cars
- P100E = 2 Package Cars

Hydraulic Hybrid Vehicles (HHV): 5

- P10HH = 5 Package Cars

Compressed Natural Gas (CNG) Vehicles: 933 (car group = count)

- P70C = 189 Package Cars
- P80C = 49 Package Cars
- P100C = 608 Package Cars
- P10CX = 50 Package Cars
- HSC = 37 Shifters

Propane Vehicles : 7

- HSP = 7 Shifters

Hybrid Electric Vehicles (HEV): 380

- P70H = 25 Package Cars
- P100H = 355 Package Cars

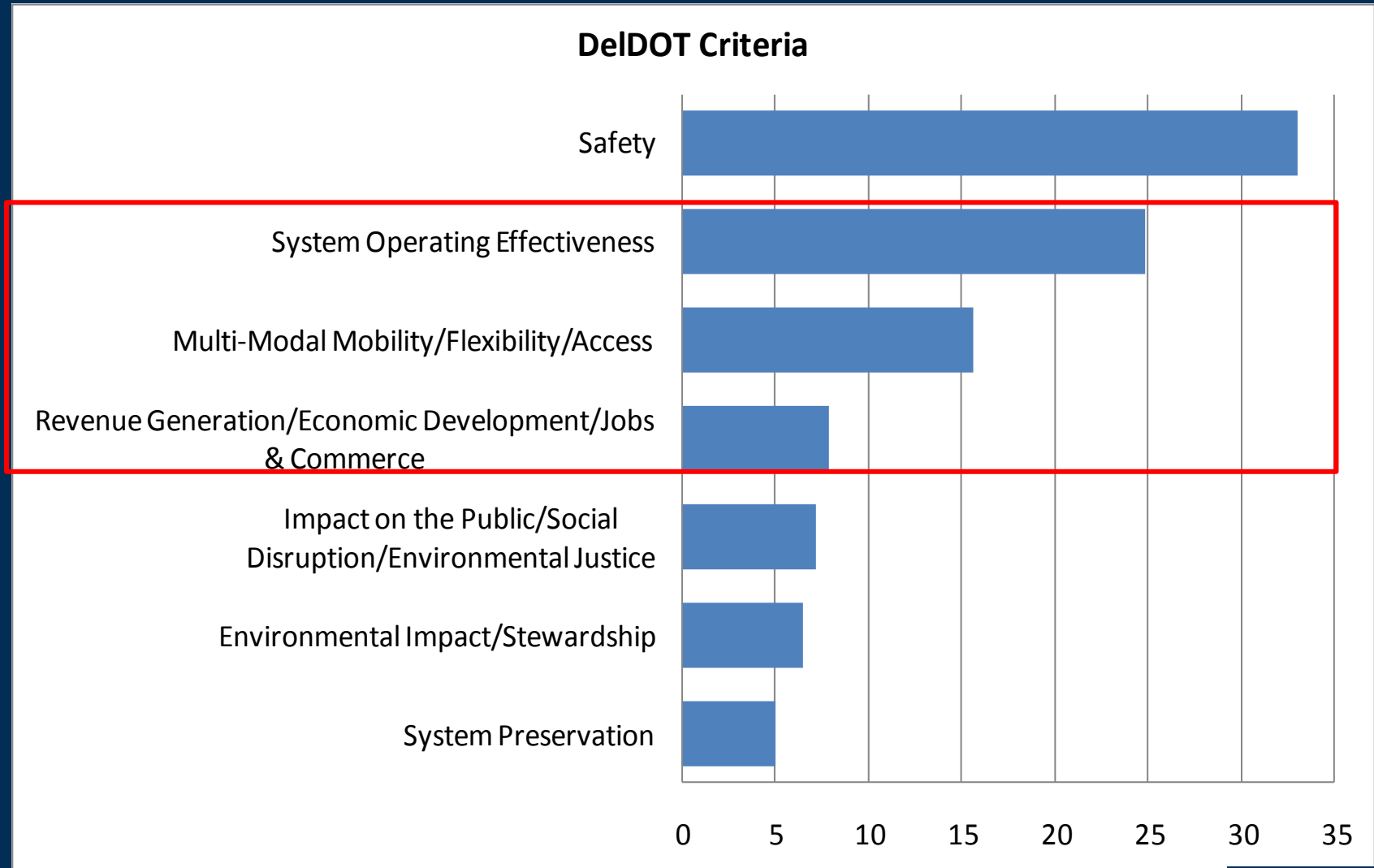


Liquid Natural Gas (LNG) Vehicles : 93

- HTLG = 81 Tractors
- HTLGT = 12 Tandem Tractors

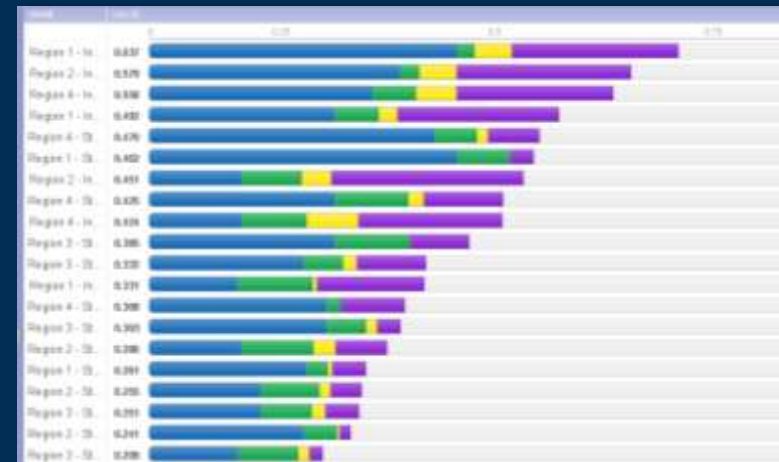
- The Role of Freight in the Delaware Statewide Project Prioritization Process

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- The Role of Freight in the Delaware Statewide Project Prioritization Process

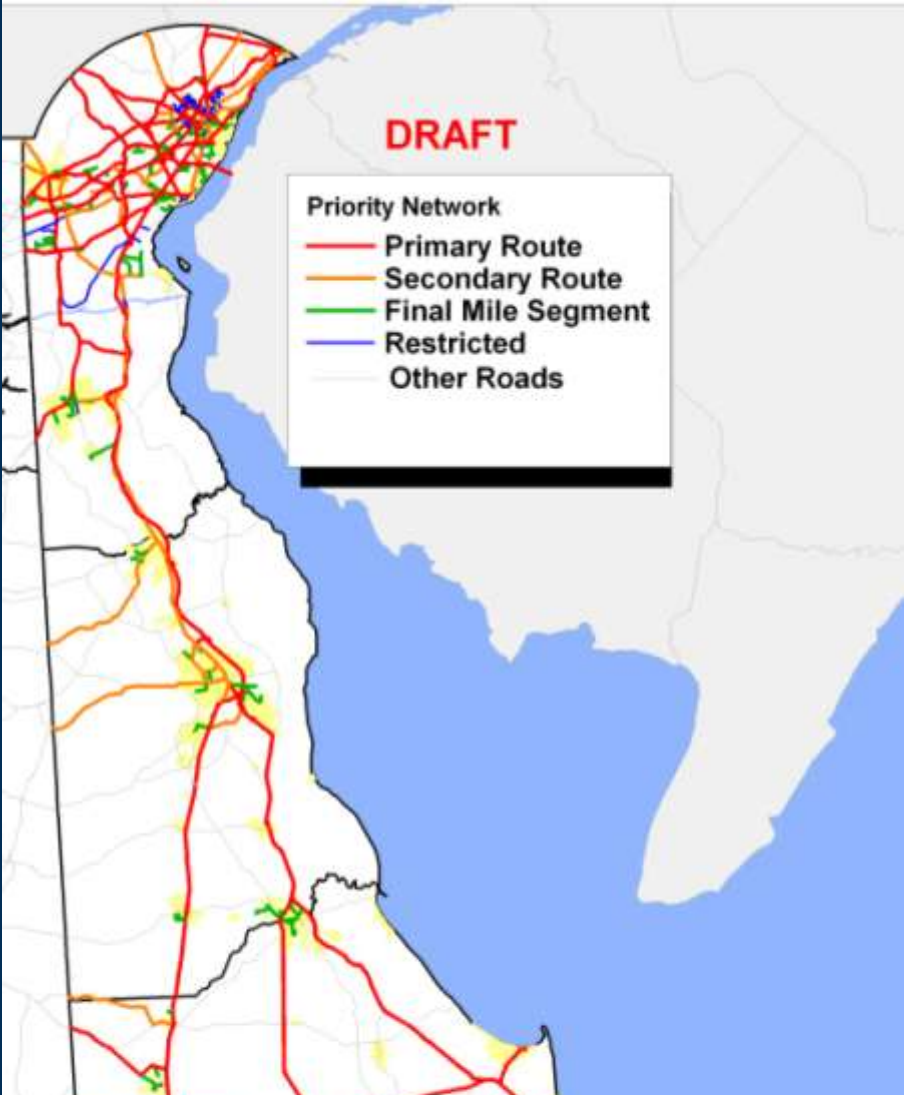
- Respected Multi Criteria Decision Analysis Process developed in 1970s
- Decision Lens built on AHP
- Model based on DelDOT's current Mission, Vision and Goals
- Qualitative and quantitative rating system to measure projects against established priorities
- Enables comparison of different project types
- Enables Evaluation of What-if Scenarios



Freight Corridor (33% weighting)

The Freight Plan has identified primary and secondary freight corridors throughout the state.

It is critical that these corridors allow the efficient movement of goods and services so that Delaware can remain competitive in attracting business to the State

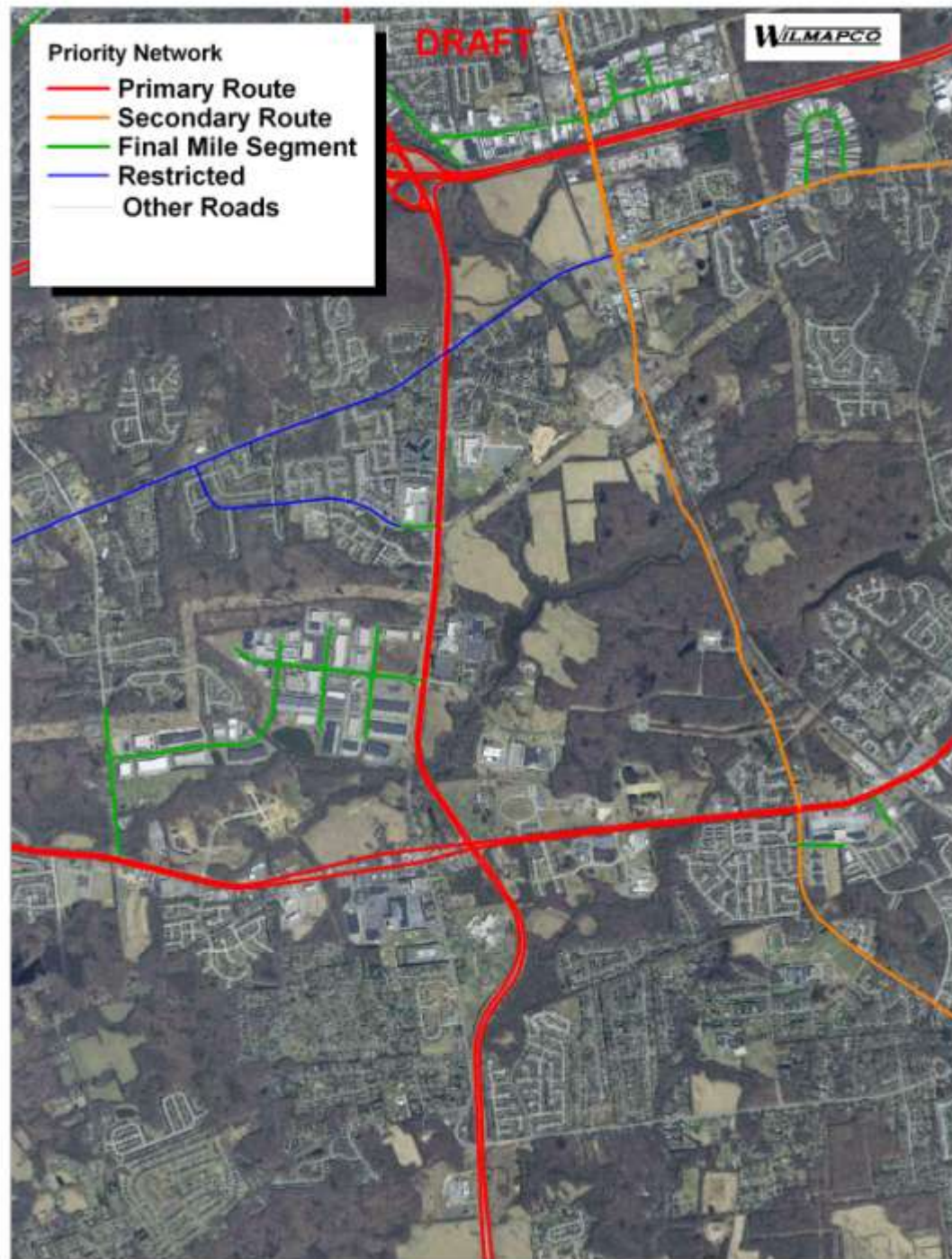


Rating Scale

The project is evaluated to determine if it resides on either a primary or secondary freight corridor. If it is not located on a freight corridor then it receives a value of zero.



“The Network”



DeIDOT/MPO Efforts – Planned for 2015

DeIDOT/MPO Efforts – Planned for 2015

- **Delmarva Agricultural Supply Chain Analysis (Underway)**

- **Similar to Chemical Analysis**

Task 1: Macroeconomic context and agriculture industry snapshot

Task 2: State of Delaware agriculture market survey

Task 3: Local Industry interviews

Task 4: Transportation supply chain analysis

Task 5: Identify economic development opportunities and investment priorities

- **DE statewide truck data collection**



DeIDOT/MPO Efforts – Planned for 2015

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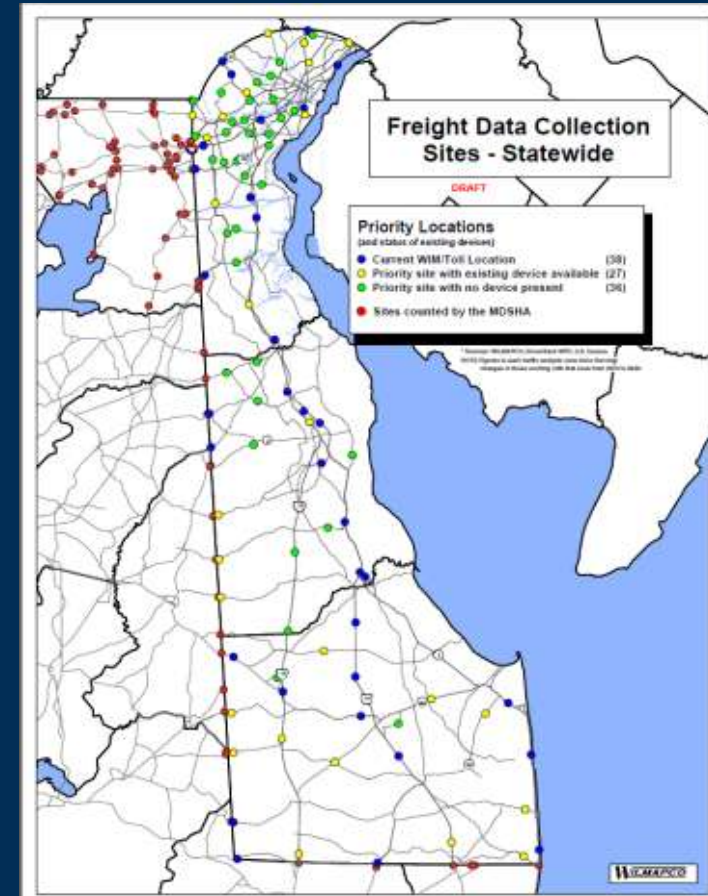
- Task 3: Local Industry interviews

- Task 4: Transportation supply chain analysis

- Task 5: Identify economic development opportunities and investment priorities

- DE statewide truck data collection

- 62 temporary, 29 permanent locations
 - Feed freight performance work
 - help maintain freight model



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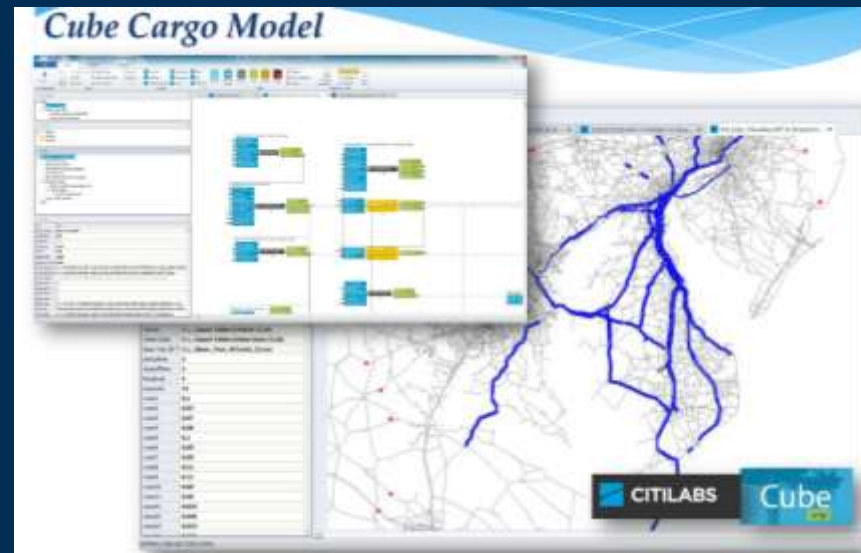
Task 5: Identify economic development opportunities and investment priorities

- **DE statewide truck data collection**

- 62 temporary, 29 permanent locations
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 - help maintain freight model

- **Maintenance and Development of CUBE Cargo Model**

- Data Hungry!



Next Steps/Feedback Any other issues to be addressed?

- Made lots of progress
- Which issues remain?
 - Is the public sector moving the right direction?
 - Are they

Next Steps/Feedback Any other issues to be addressed?

Delmarva Goods Movement Priorities: Results from 2013 Summit Exercise

Track #1: Data &
Information

Tally

Track #2: Policy,
Planning & Project
Prioritization

Tally

Track #3:
Community Issues

Tally

Track #4: Shipping
Interests

Tally

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Other items?