

Using I-95 During Reconstruction

Overview

Update

Congestion Management

Communications

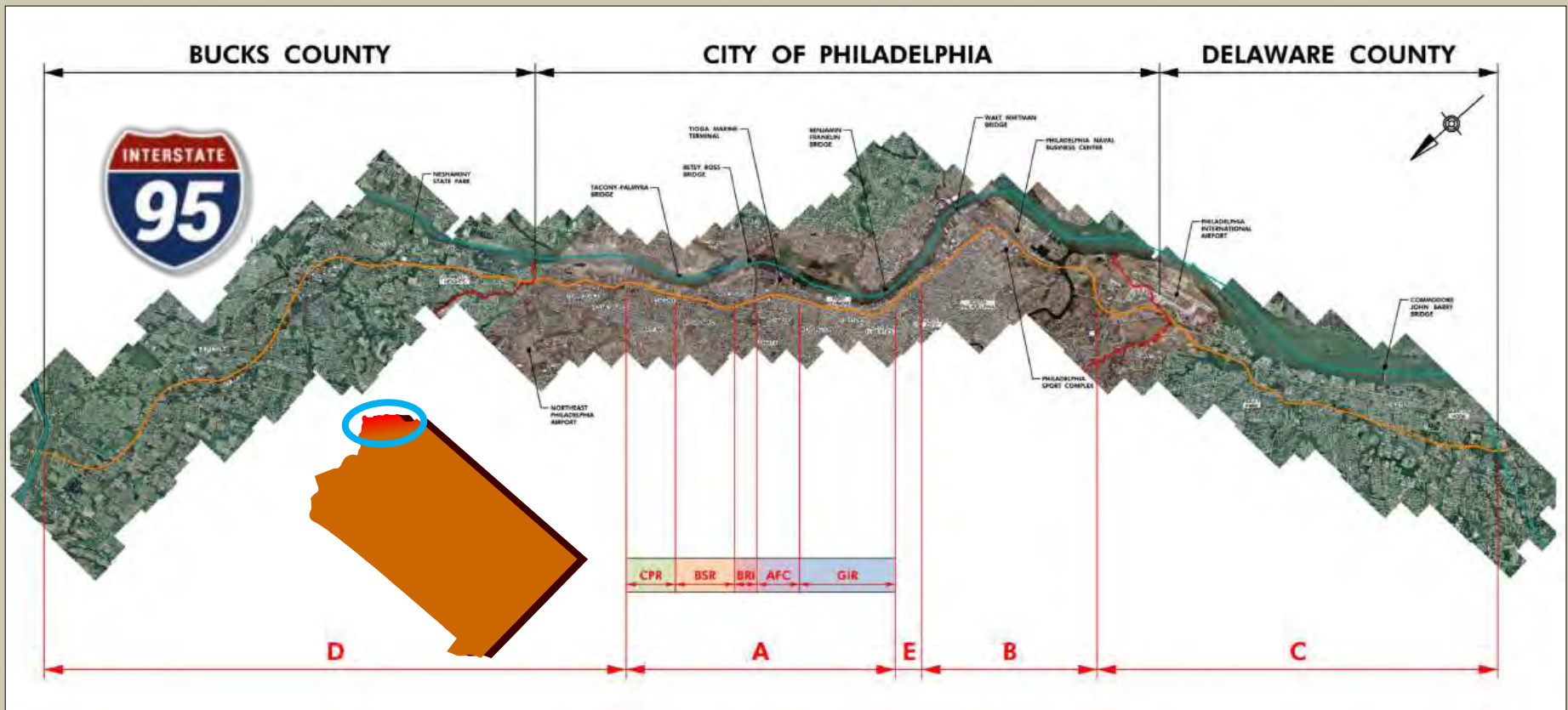


Elaine Elbich, PE
Pennsylvania Department of Transportation

Delaware Valley Regional Planning Commission
Goods Movement Task Force
October 16, 2013

I-95 Corridor Conditions

- 5 “Sectors” in Bucks, Philadelphia and Delaware Counties
- 51 Miles, 325 Lane Miles, 210 Bridges, 55,000 to 190,000 Annual Average Daily Traffic
- Priority Based on Physical Conditions and Accident History
- Estimated Total Cost to Rebuild: \$8-10 Billion



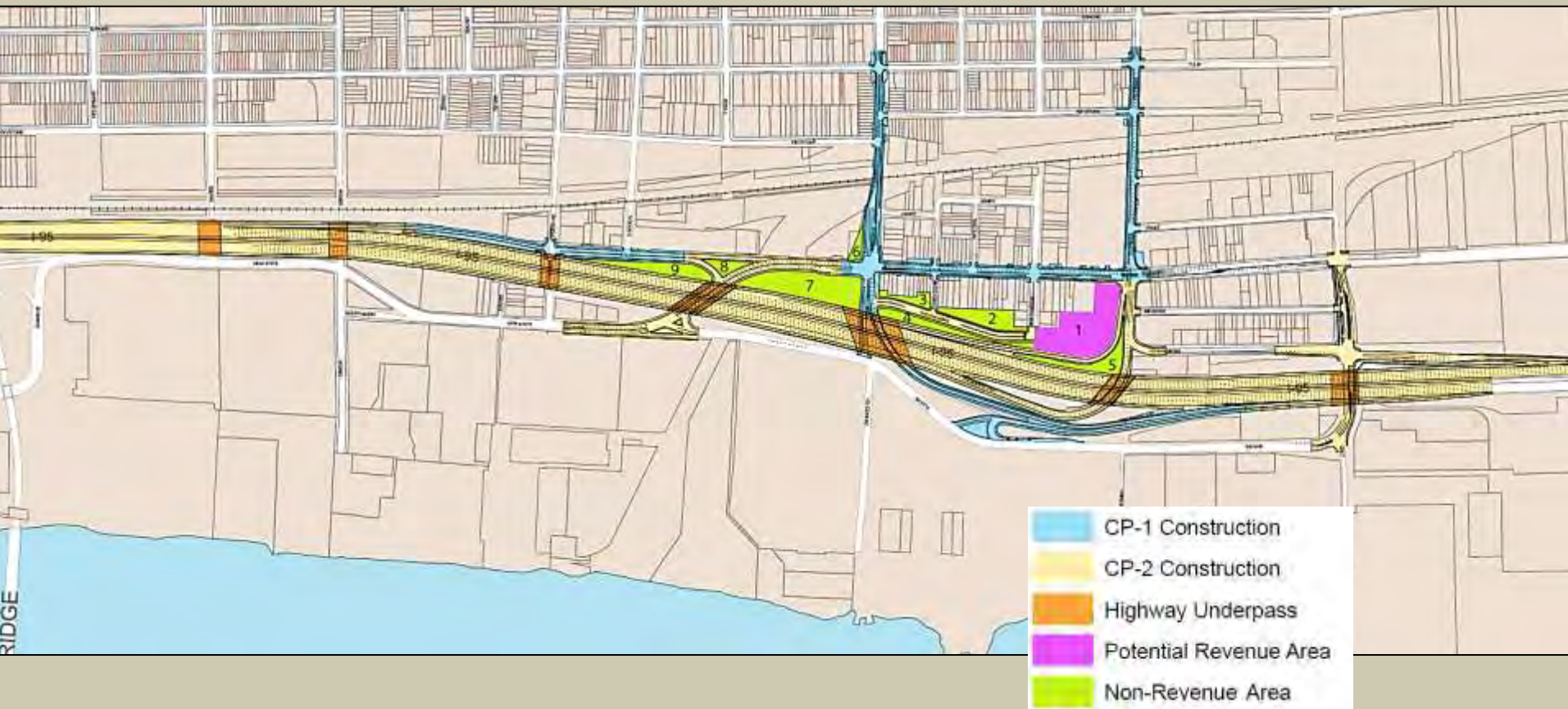
Sector A Design and Construction

- Limits: I-676 Interchange to Cottman Princeton Interchange
- Approximately 8 Miles in Design or Construction
- Five Separate Design Sections Began in 1999
- Scheduled Construction from 2009 to 2025



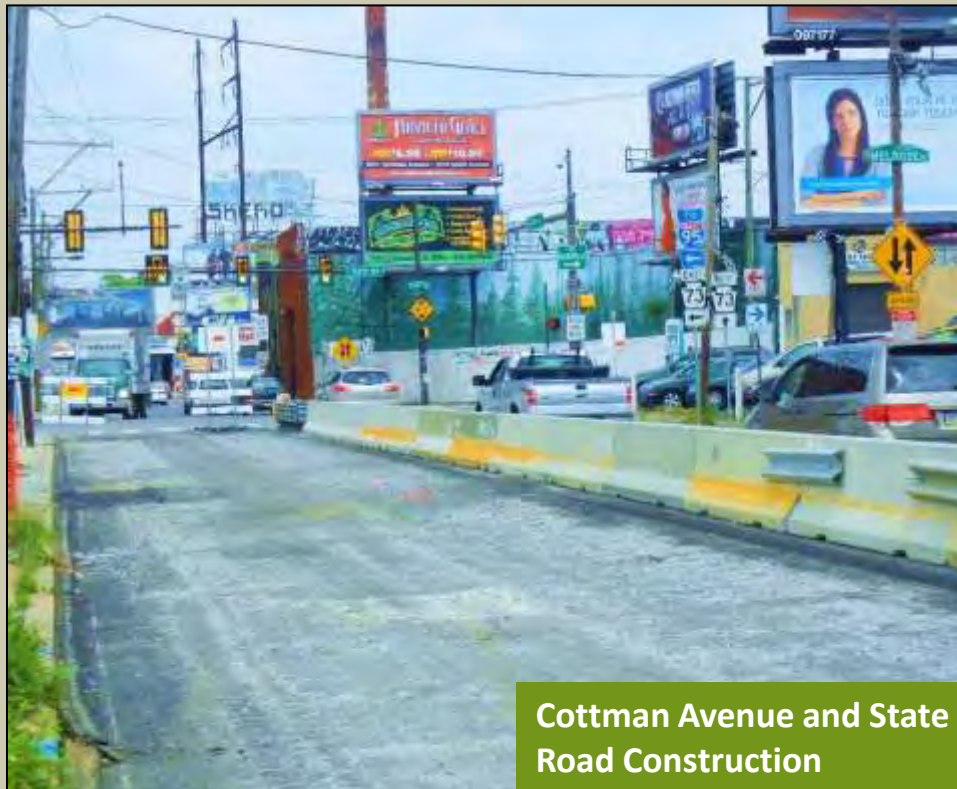
Construction Update, Section CPR

- Project Construction Cost: \$290 Million
- 1.4 Miles of New Pavement, Rebuild 7 Mainline bridges
- Restore Dropped Mainline Lanes
- New Interchange Ramps on the Eastside of Mainline
- Section CP1 Completed and CP2 under Construction with Completion in 2017



Construction Update, Section CPR

- CP2 Phased Maintenance and Protection of Traffic Stages
 - Stage 1: (Late 2012 to Early 2013) on Mainline Shoulder Paving and Preparation
 - Stage 2: (Early 2013 to Mid 2013) on Mainline Median
 - Stage 3: Mid 2013 to Mid 2014, Work on Southbound Mainline
 - Stage 4: Mid 2014 to Late 2015 Work on the Mainline Median



Construction Update, Section CPR

- CP2 Phased Maintenance and Protection of Traffic Stages Continued
 - Stage 5: Late 2015 to Late 2016 work on Northbound Mainline
 - Stage 6: Late 2016 to Late 2017 work on the Mainline Median
 - Ramp from I-95 SB to Cottman Closed until Mid 2014
 - New State Road Construction, Utility Cross Cuts and Temporary Closures
 - **Construction is Complete at the End of 2017**



State Road Viaduct Widening

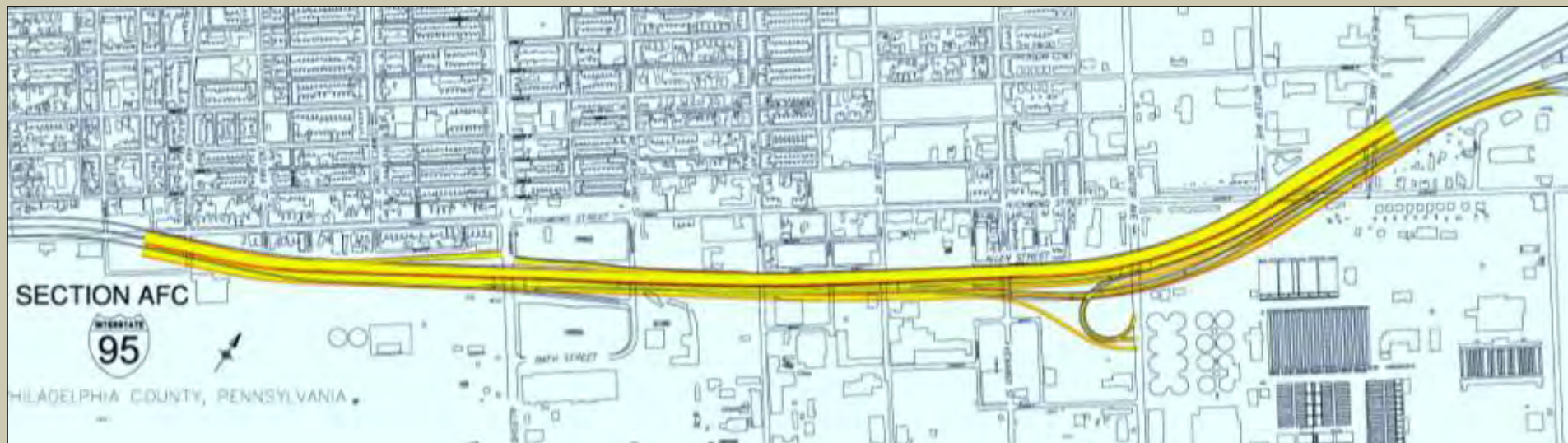
Sections BSR/BRI

- Estimated Project Construction Cost: \$788 Million
- 3 Miles of Roadway Reconstruction and 19 New Bridges
- Completing Betsy Ross Bridge Connection
- Adams Avenue Connector Improvements
- BR0, BR2, BR3: 2014 – 2020
- BS1, BS2, BS3: 2016 – 2021



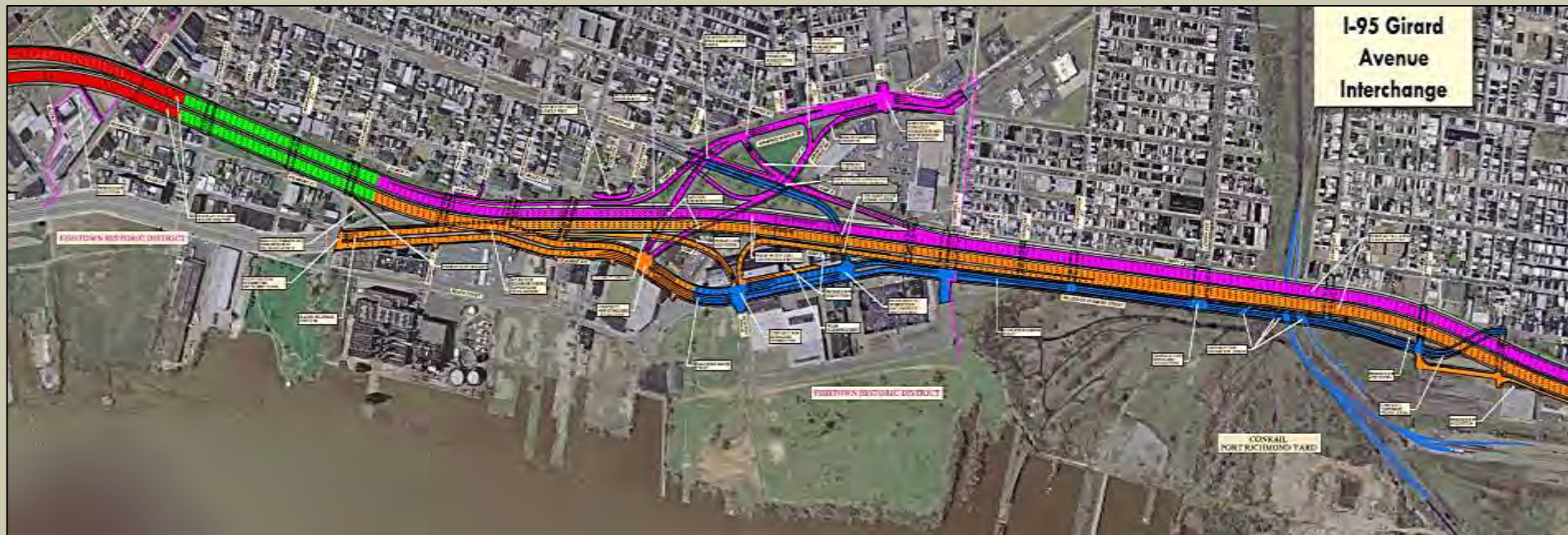
Section AFC

- Estimated Project Construction Cost: \$275 Million
- 1.8 Miles of Pavement Reconstruction and 10 New and Reconstructed Bridges
- Coordinating Freight Traffic from Tioga Marine Terminal
- Betsy Ross Bridge Ramp Connections
- AF1, AF2: 2017 – 2023



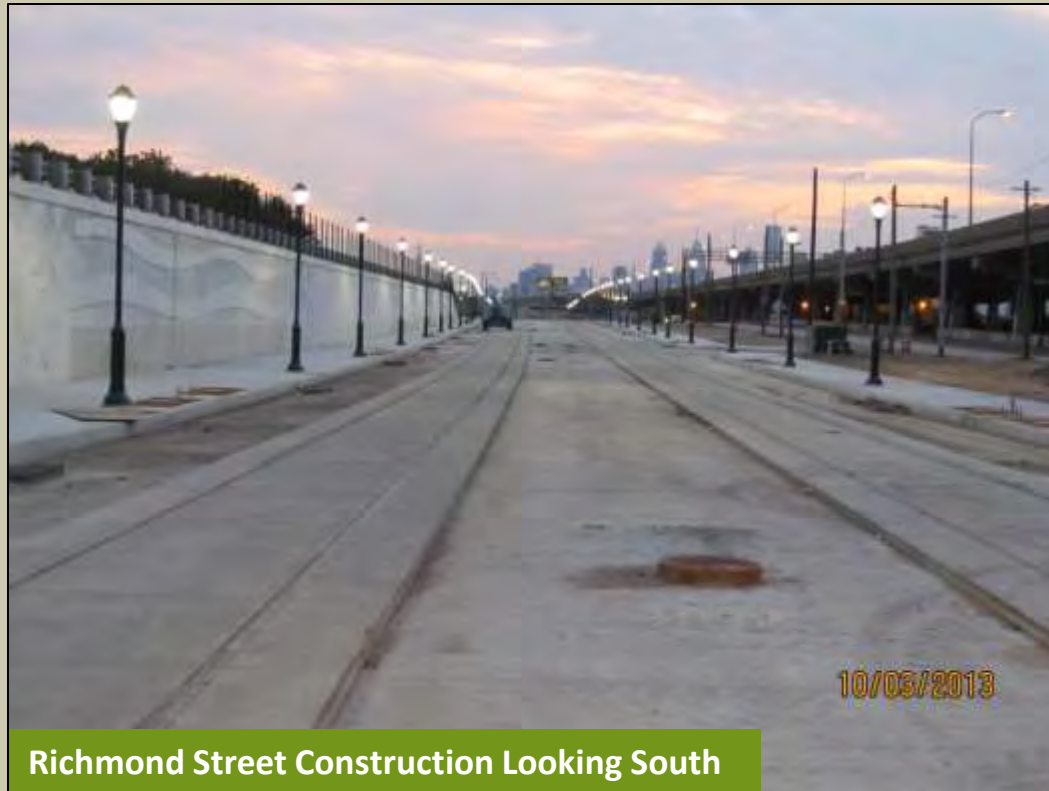
Construction Update, Section GIR

- Limits: I-676 Interchange to Allegheny Avenue Interchange
- Estimated Project Construction Cost: \$1.0 Billion
- 3 Miles Mainline Reconstruction with 1.3 Miles of Viaduct
 - GR0: Complete
 - GR1: 2011-2016
 - GR2: 2012-2015
 - GR3: 2013-2018
 - GR4: 2017-2021
 - GR5: 2019-2023



Construction Update, Section GIR

- GR1 Street Closures
 - Girard Avenue from Aramingo to Richmond Street until December 2013
 - New Girard Avenue Bridge Opens, Existing Girard Avenue NB Ramp will Close Permanently
 - Richmond Street from Lehigh to Allegheny from December 2013 until Fall 2015



Richmond Street Construction Looking South

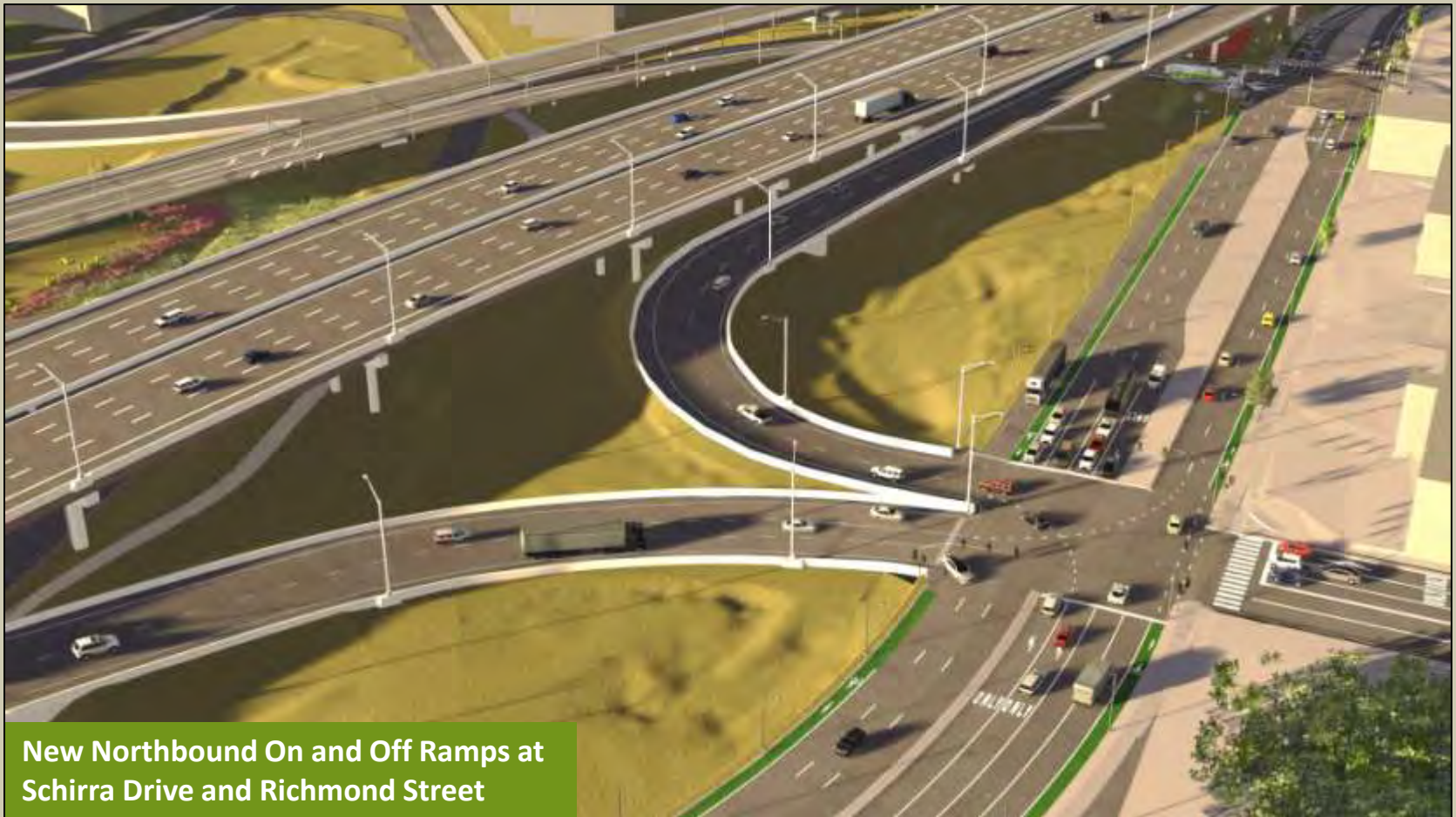
Construction Update, Section GIR

- GR2 Mainline
 - North and South Bound to Mid 2014, North Bound to Mid 2015 and
 - Median to Late 2015
- GR2 Completion Late 2015, GR1 Completion Spring 2016



Construction Update, Section GR

- GR3 Let October 31, 2013
- GR3 Construction Scheduled Early 2014 to Mid 2018



New Northbound On and Off Ramps at Schirra Drive and Richmond Street

Congestion Management

- Congestion and Transportation Management Improvements (2000-2012)
- Traffic Signal Upgrades to the City Street Grid-**\$22.4 Million**
 - Torresdale, Holme, Frankford, Allegheny, Tyson Avenues
 - Academy, Knights, New State Roads
 - Broad, Tacony Streets
 - Roosevelt Boulevard
- Transit Improvements-**\$26.2 Million**
 - Bensalem Park and Ride Lot
 - Cornwell Heights Shuttle
 - Trevoise, Bensalem, Yardley, Woodbourne, Philmont Station Parking
 - Additional Train Cars, Signal and Track Improvements
- Corridor Intelligent Transportation Systems Expansion-**\$58.5 Million**
 - Cameras
 - Dynamic Message Signs on Mainline, Arterials and City Streets
 - Vehicle Detectors

Congestion Management

- **Vehicle Probe Project Suite**

- Developed by I-95 Corridor Coalition
- Available Free to Member Agencies
- Archived Real-Time Speed and Travel Time Data
- Enables Rapid Analysis of Performance

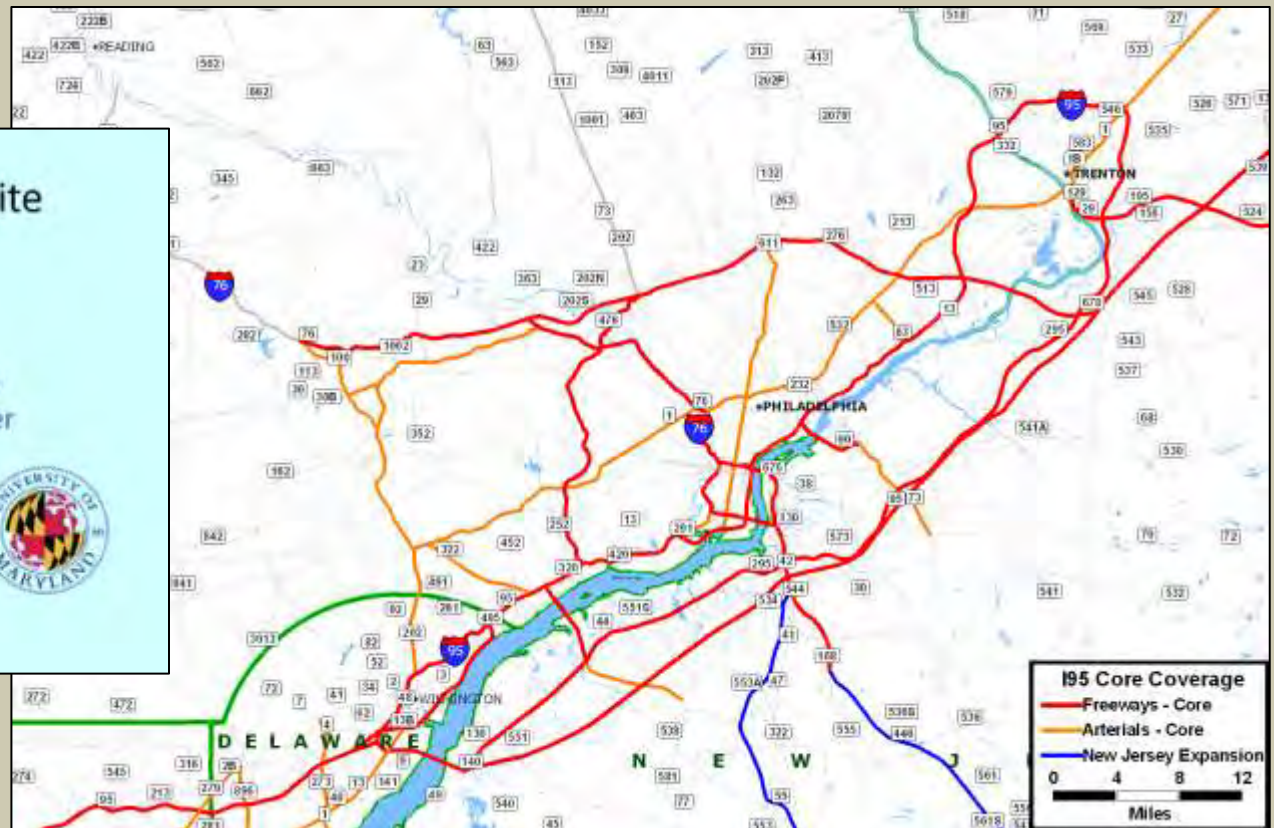
**Vehicle Probe Project Suite
Update**

April 14th, 2011

Michael VanDaniker, CATT Lab
Visualization Programs Manager

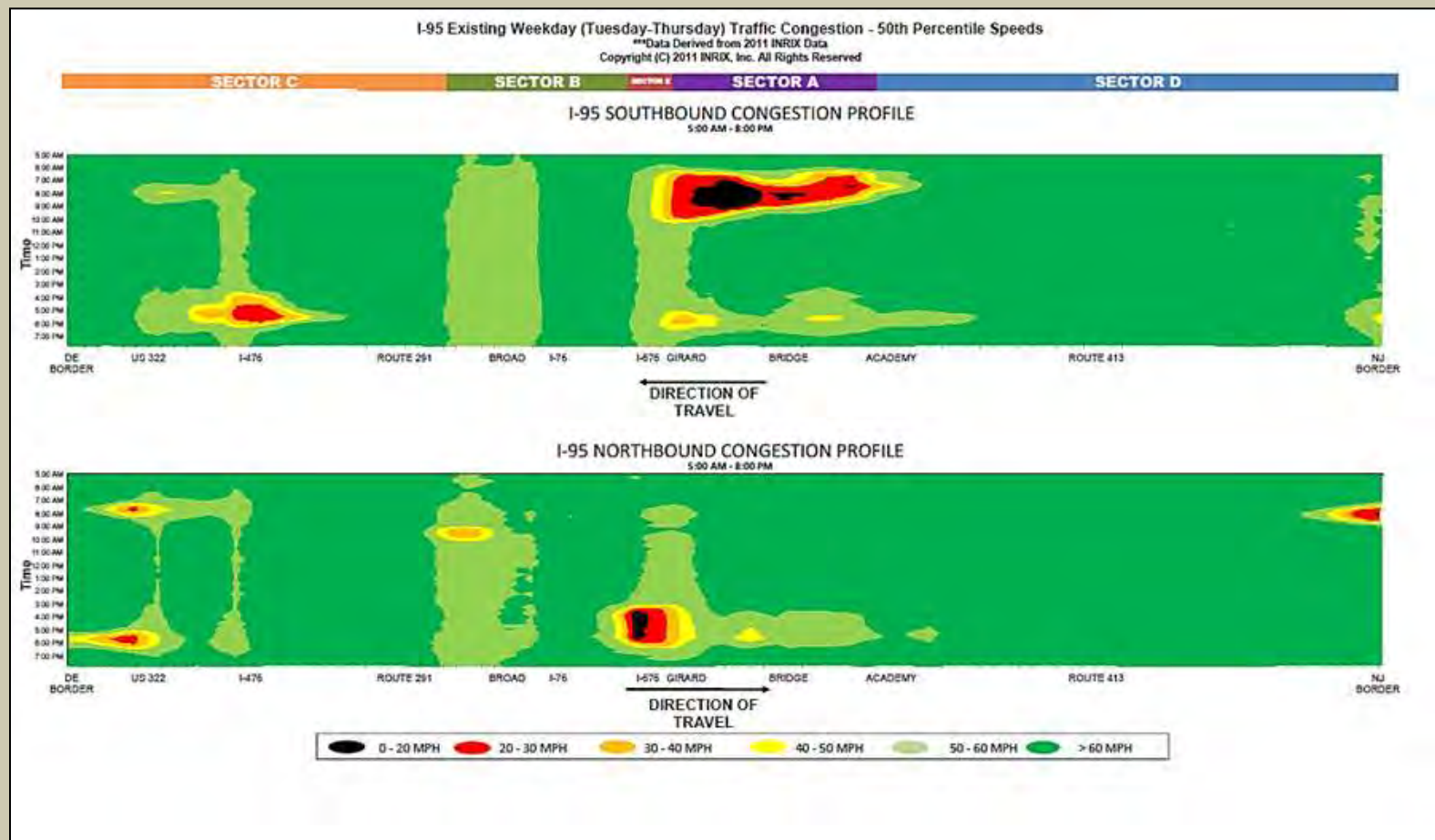


© 2011 I-95 Corridor Coalition



Congestion Management

- Strategies for Managing Work Zone Impacts of a Project
- Serve Mobility and Safety of Motorists, Workers, Business, and Community
- **City Street Network Improvements Prior to Mainline Construction**
- **Three Lanes of Traffic Maintained in Each Direction**



Travel Time

Average Speed for I-95 Construction - and a bit beyond - Southbound

Averaged for every weekday

Jan 2013 (every weekday)

Feb 2013 (every weekday)

Mar 2013 (every weekday)



0 - 10 10 - 20 20 - 30 30 - 40 40 - 50 > 50

Planning Time Index

Planning Time Index for I-95 Construction - and a bit beyond - Southbound

Averaged for every weekday

Jan 2013 (every weekday)

Feb 2013 (every weekday)

Mar 2013 (every weekday)

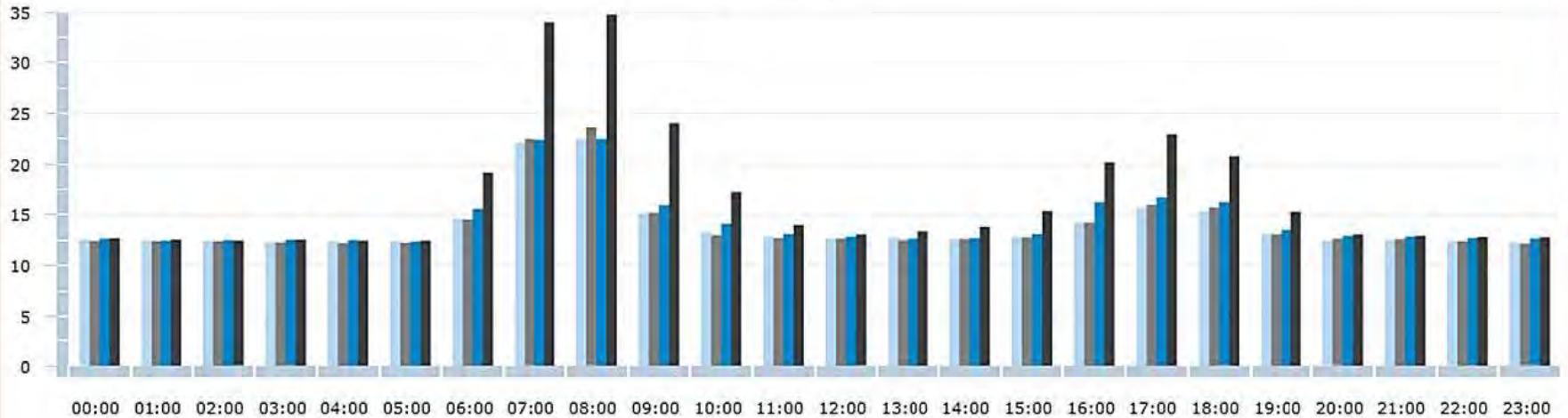


Travel Time

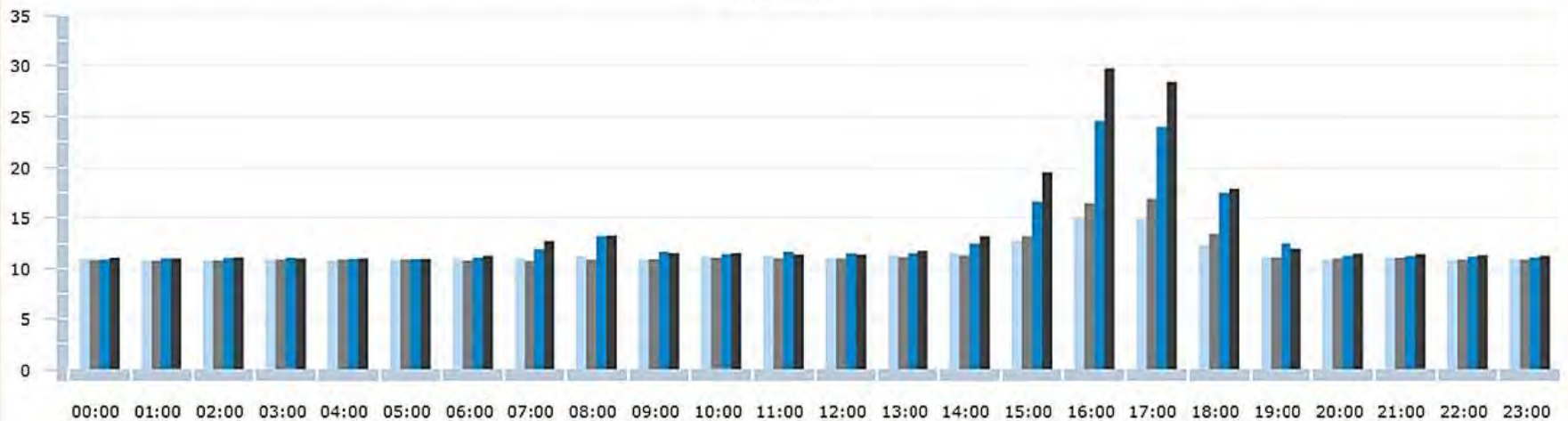
Travel Time (minutes) over Hour of day for I-95 between I-676/US-30/Exit 22 and Academy Rd/Exit 32

Averaged for every weekday

Southbound



Northbound



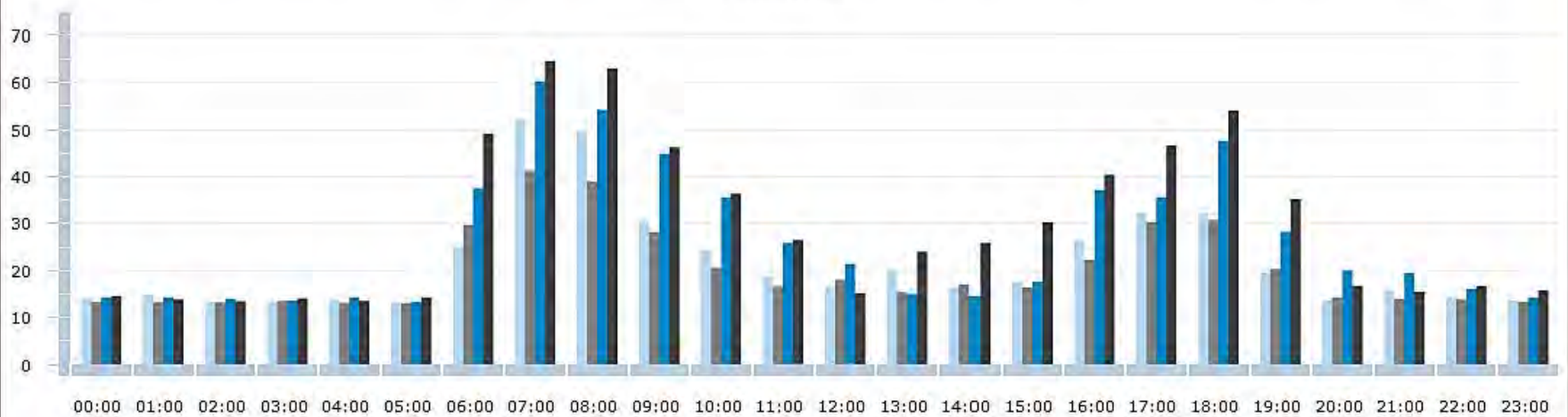
■ Jan 2012 (every weekday)
 ■ Feb 2012 (every weekday)
 ■ Jan 2013 (every weekday)
 ■ Feb 2013 (every weekday)

Planning Time Index

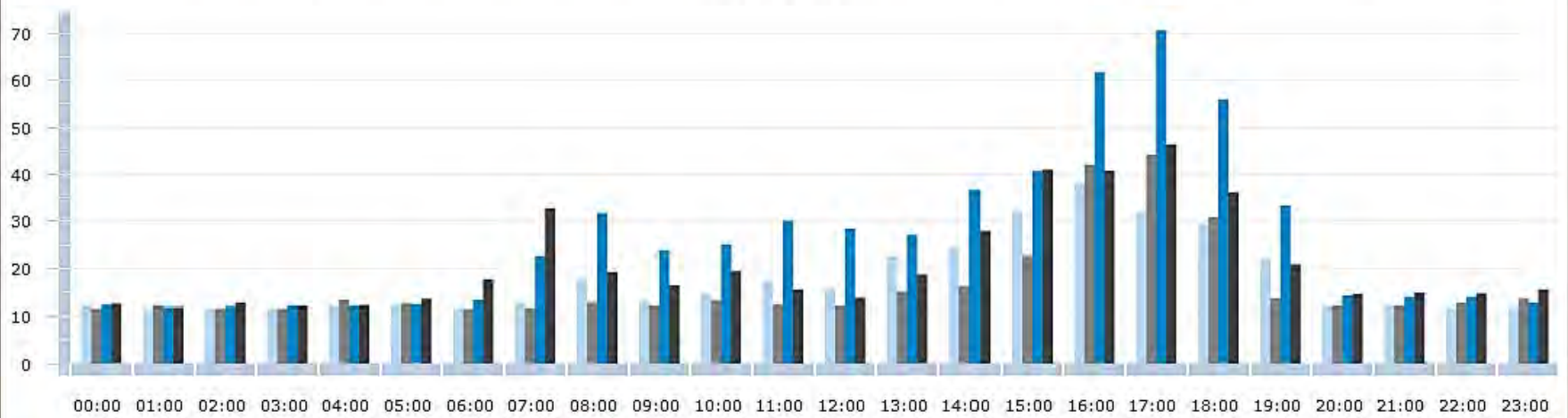
Planning Time (minutes) over Hour of day for I-95 between I-676/US-30/Exit 22 and Academy Rd/Exit 32

Averaged for every weekday

Southbound



Northbound



■ Jan 2012 (every weekday)
 ■ Feb 2012 (every weekday)
 ■ Jan 2013 (every weekday)
 ■ Feb 2013 (every weekday)

Congestion Management Partners

Federal Highway Administration

City of Philadelphia

- Ongoing Construction Phasing and Interchange Detour Routes
- Additional Intersection Signal Adjustments
- Improved Network Intermodal Accessibility

Delaware River Port Authority

Philadelphia Regional Port Authority

SEPTA

- Cornwell Heights Park 'n Ride and Station Improvements
- Additional Trenton Line Station Parking and Rolling Stock Purchases

DVRPC

- Leads FHWA Congestion and Incident Management Process Coordination
- Provides **Regional Integrated Multimodal Information Sharing (RIMIS)**

Additional Partnering Opportunities

- Community and Business Association Outreach
- Participate in Stakeholder Information Sessions with DVRPC and TMAs
- Communicate with Industry Regarding Goods Movement Impacts
- Promote Alternate Work and Hauling Schedules
- Other Possibilities?



Communications

Press Releases

I-95 Revive Website

- Design and Construction Sector A
- Updates, Renderings, Photos
- Future Improvements
- Contact Information

511PA Travel Information

Newsletters

- Published Twice Each Year

Twitter

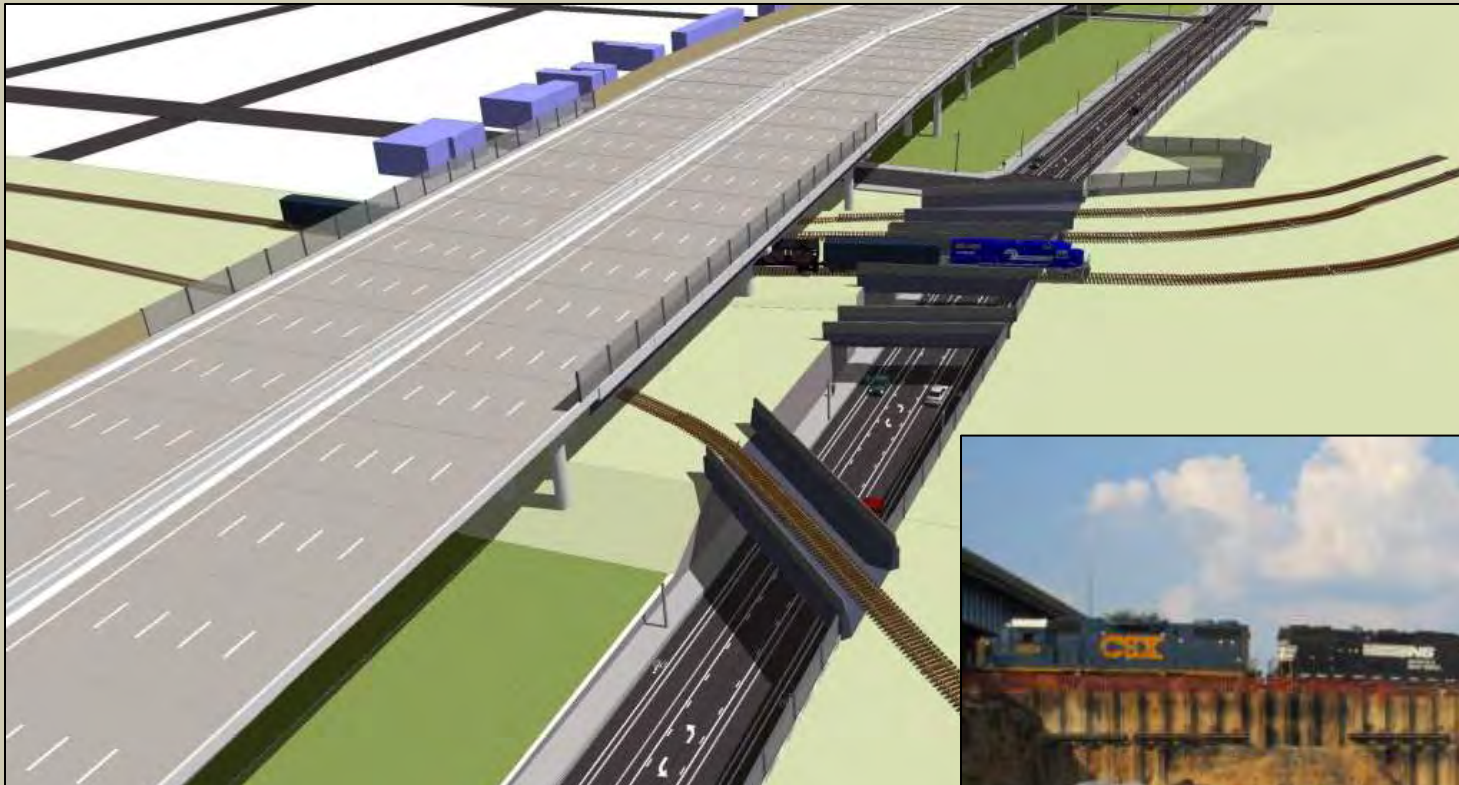
- Real Time Updates
- Accessible by Smartphone
- Linked to Project Website



A screenshot of the 95 Revive.com website. The header features the '95 Revive.com' logo and navigation links for 'ABOUT PENNDOT', 'RELATED SITES', 'FAQ', and 'CONTACT US'. Below the header, there are sections for 'Your Commute on I-95' (listing options like Traffic Conditions & Cameras, Public Transit, Ride Sharing, Travel Advisories, and Wireless Alerts), 'Your Community' (listing Current Construction, Completed Improvements, Schedules Improvements, and Public Meeting Schedule), and 'Project Highlights' (with a link to follow PennDOT on Twitter). A large banner image shows a city skyline with the text 'Reviving Interstate 95 at a Glance...'. Below this, a paragraph describes the multi-phase infrastructure initiative to improve and rebuild I-95 in Pennsylvania. A 'News Releases' section lists updates on Girard Point Bridge, street surveys near B. Ross B., and construction updates on Cottman Ave. Int. and Girard Ave. Int. A 'TRAVEL ADVISORIES' section lists lane closures and street closures. A 'Sustainable Initiatives' sidebar on the right encourages learning about projects in the community. A 'Program Overview' sidebar offers a newsletter subscription and a quick poll.



Questions



Construction of Conrail Bridges over Richmond Street and Rendering Looking North



Delmarva Freight Study

DVRPC
Goods Movement Task
Force
October 16th, 2013



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Maryland Department
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Agenda

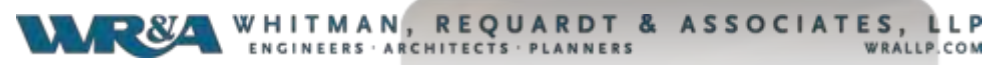
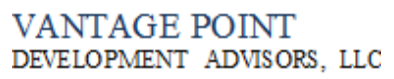
1. What is the Delmarva Freight Study?

2. Efforts to date

- Economic/Industry Factors
- Data Collection
- Development of CUBE Cargo

3. Scenario Analysis

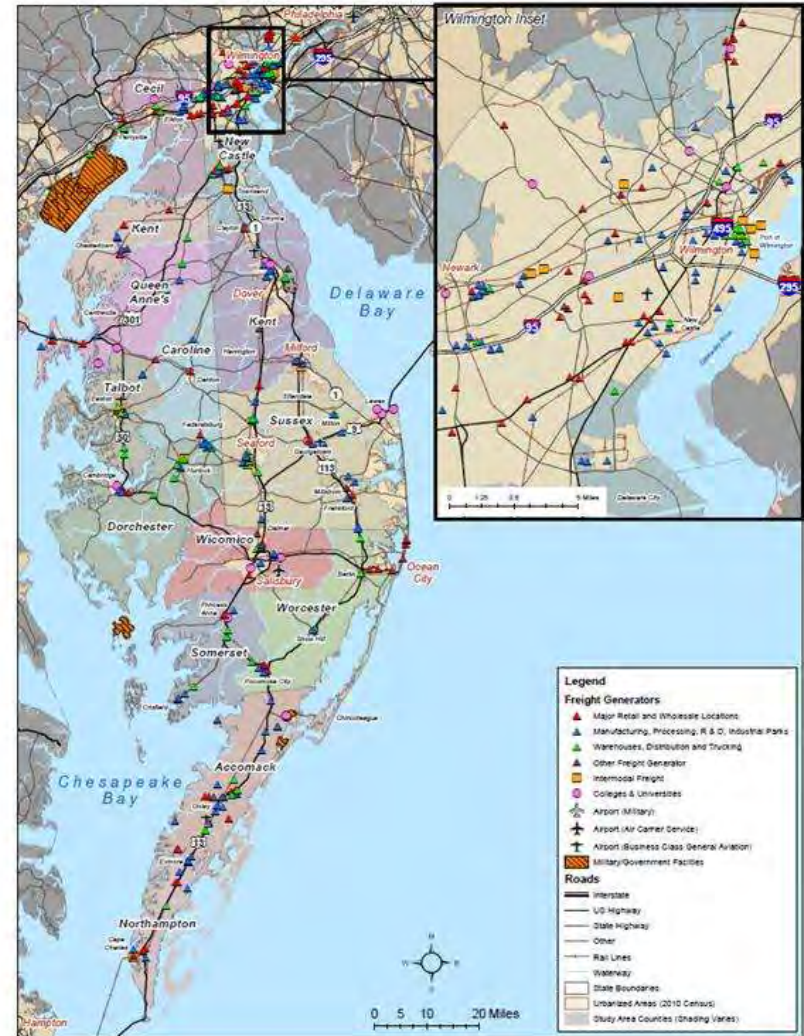
4. Status/Next Steps



DELMARVA FREIGHT STUDY

What is the Delmarva Freight Study?

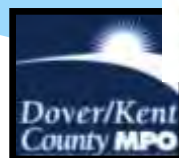
- A **multi-state, multi-MPO** effort to develop a comprehensive, multi-modal evaluation of the freight transportation system and its operations along the Delmarva Peninsula.
- According to MAP-21, States are **highly recommended** to have a freight plan which can improve their ability to meet National Freight Policy goals & objectives.
- Not a requirement, but in order for some projects to be eligible for fed \$, they **must come from a freight plan!**



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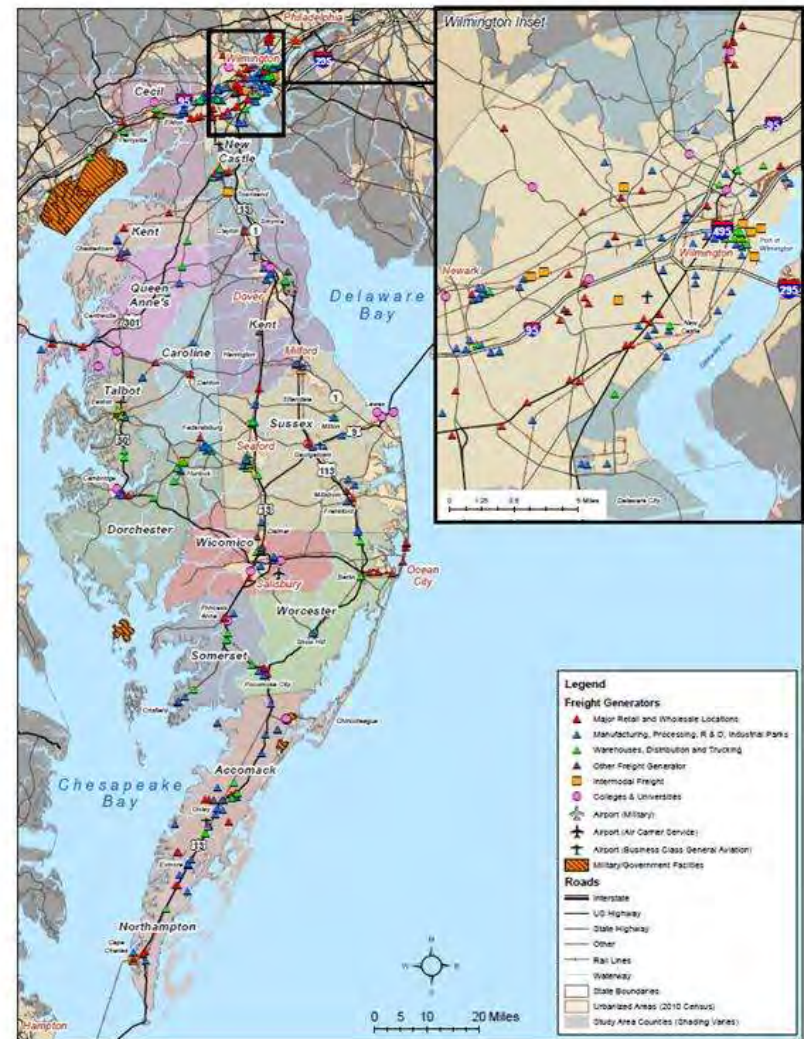
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Key Functions of Study

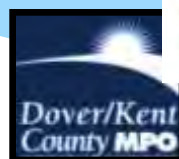
- Collect Most Recent Commodity Flow Data:
 - Transearch, FAF3,
 - STBWaybill
- Conduct Outreach (Agencies, Industries & Shippers)
- Develop CUBE Cargo Model
- Generate Current/Future Freight Forecasts for Multiple Modes (Truck, Rail, Water, Pipeline)
- Analyze Future Freight Scenarios



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DELMARVA FREIGHT STUDY

ECONOMIC/ INDUSTRY FACTORS

Freight traffic in Delmarva region is highly concentrated. Five commodity groups constitute over 70% of the region's truck traffic.

Commodity	Millions of Tons*	Cumulative %
50 Secondary Traffic	12.8	20%
32 Clay, Concrete, Glass, Stone	12.6	40%
20 Food and Kindred Products	6.6	51%
29 Petroleum and Allied Products	6.6	61%
28 Chemical or Allied Products	7.4	73%
33 Primary Metal Products	2.9	78%
24 Lumber or Wood Products	2.3	81%
37 Transportation Equipment	1.5	84%
26 Pulp, Paper and Allied Productst	1.1	86%
34 Fabricated Metal Products	0.7	87%
Else	8.4	100%
TOTAL	62.9	

* Includes inbound, outbound, and local truck tons



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Industrial Outlook

- U.S. Spends Only 1.7% of its GDP on Transportation Infrastructure while Canada Spends 4% & China Spends 9% . (Source: KC Smartport Supply Chain Centered)
- Infrastructure Deficiency Decreases Productivity Per Worker, Critical Job Opportunities are Lost in Highly Skilled & Well-Compensated Non-Transportation Sectors Throughout the Economy. (Source; Report by American Society of Civil Engineers, 2011)
- **Implications for Delmarva:** With the Major Congestion Issues, Residential Encroachment, the Need for Improved Motor Freight, Barge & Potential Rail Service is Critical, there is a Strong need to Address the Infrastructure Deficiencies & Provide Support / Improvement Where Possible.
- Peak Seasonal Traffic Coincides with the Need for Motor Freight Traffic to Serve Peak Seasonal Population, Creates Additional Congestion Issues Related to Freight Movement, Economic Stability & Quality of Life.



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Data Collection

Transearch (IHS Global Insight)
FAF 2, FAF 3
STB Waybill (Rail)



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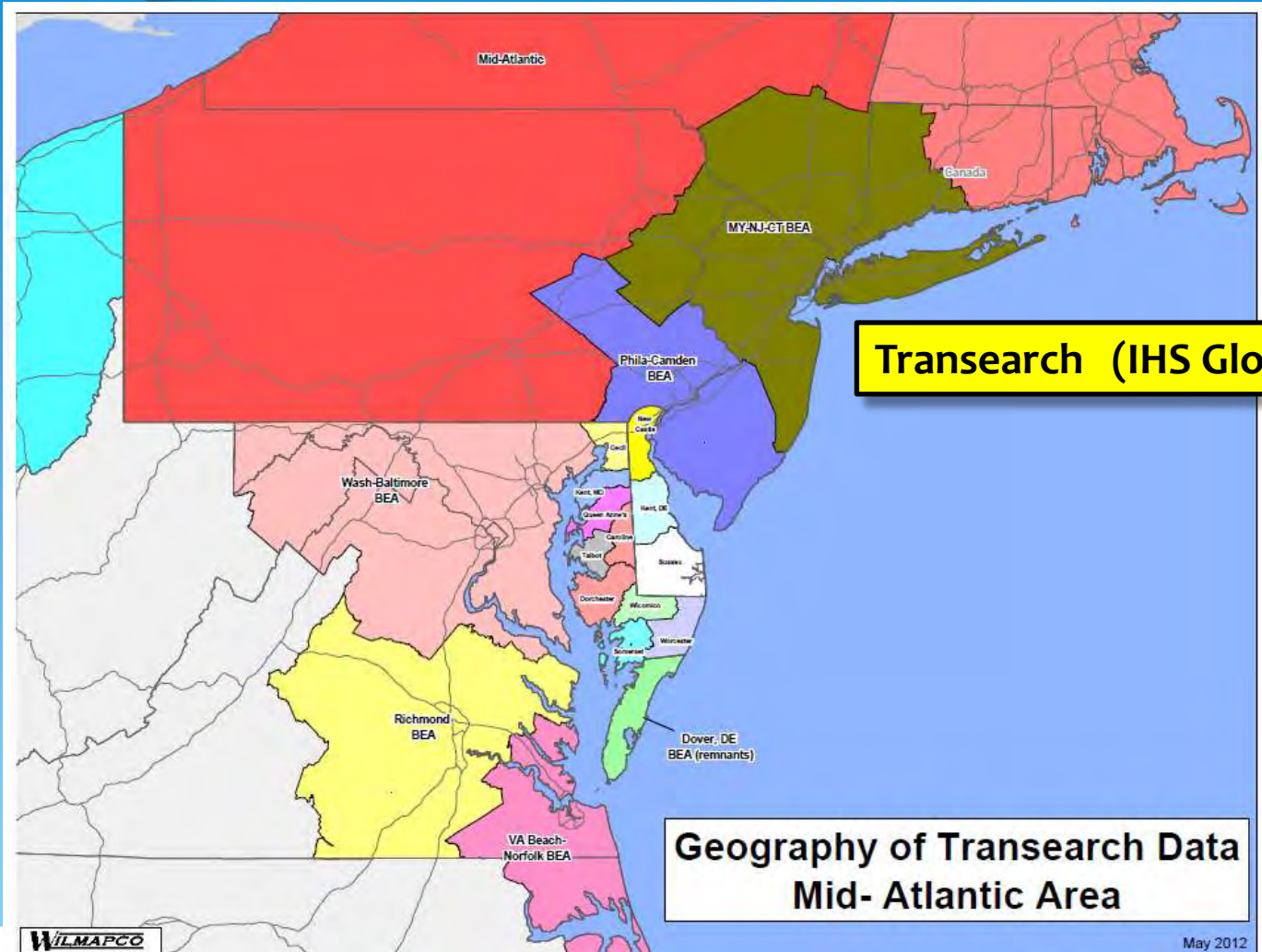
Data Collection

Commodity Flow Data

Transearch	FAF
County-level data	Larger regions



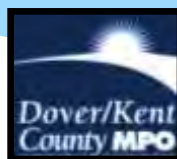
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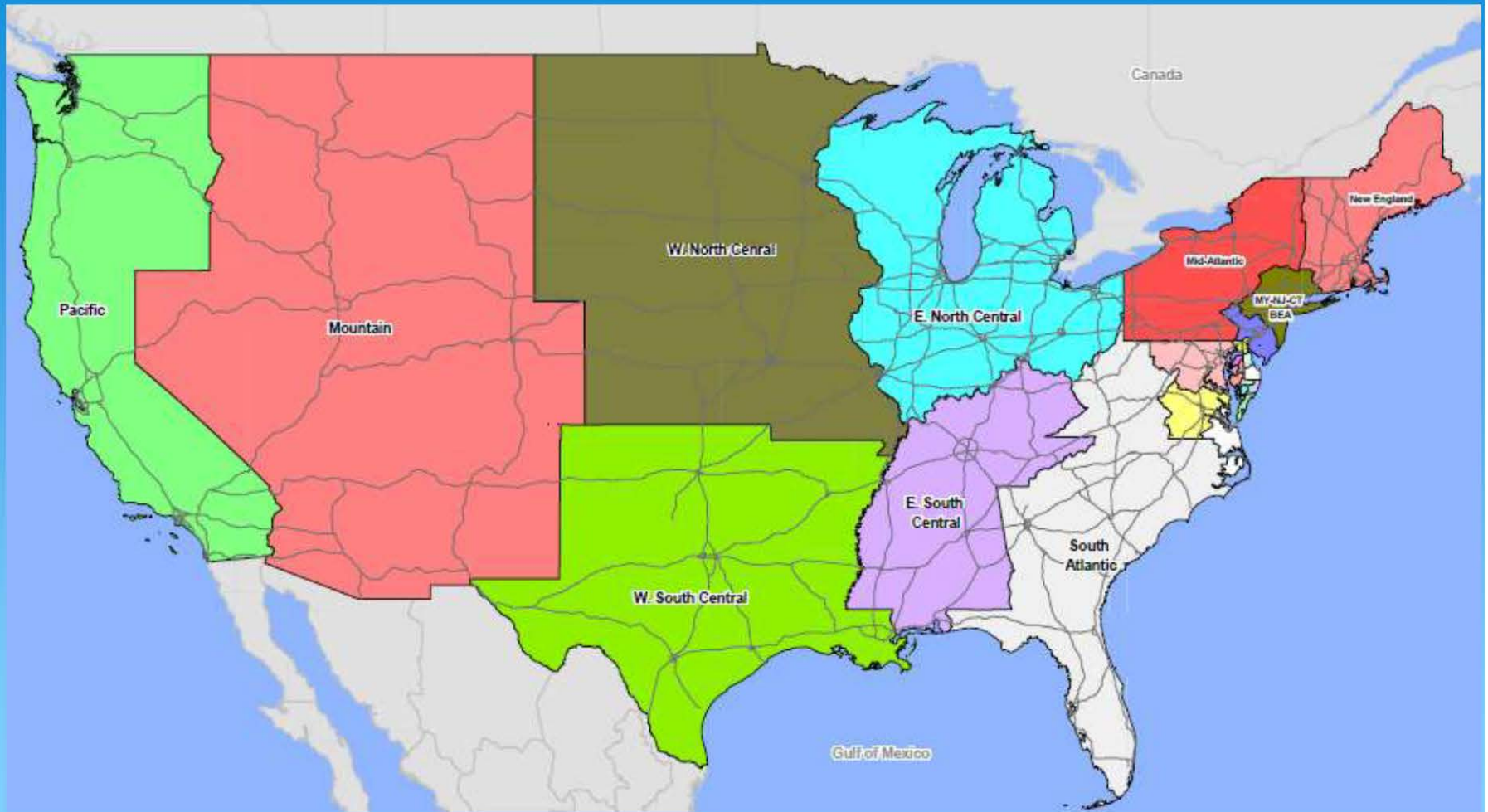


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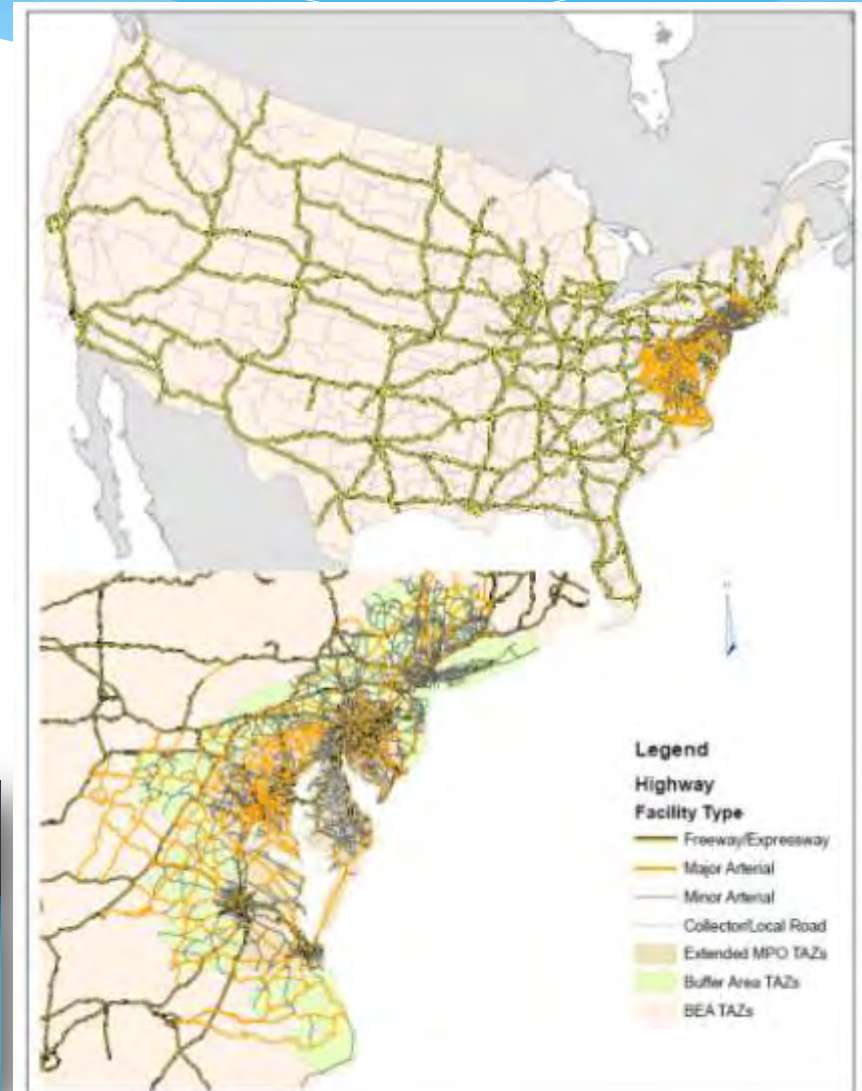
Model Boundaries

- ❖ Based on IHS Transearch Regions
- ❖ 6 BEA's
- ❖ Additional counties added to span gaps between:
 - *Washington-Baltimore-Northern Virginia*
 - *Philadelphia-Camden-Vineland*



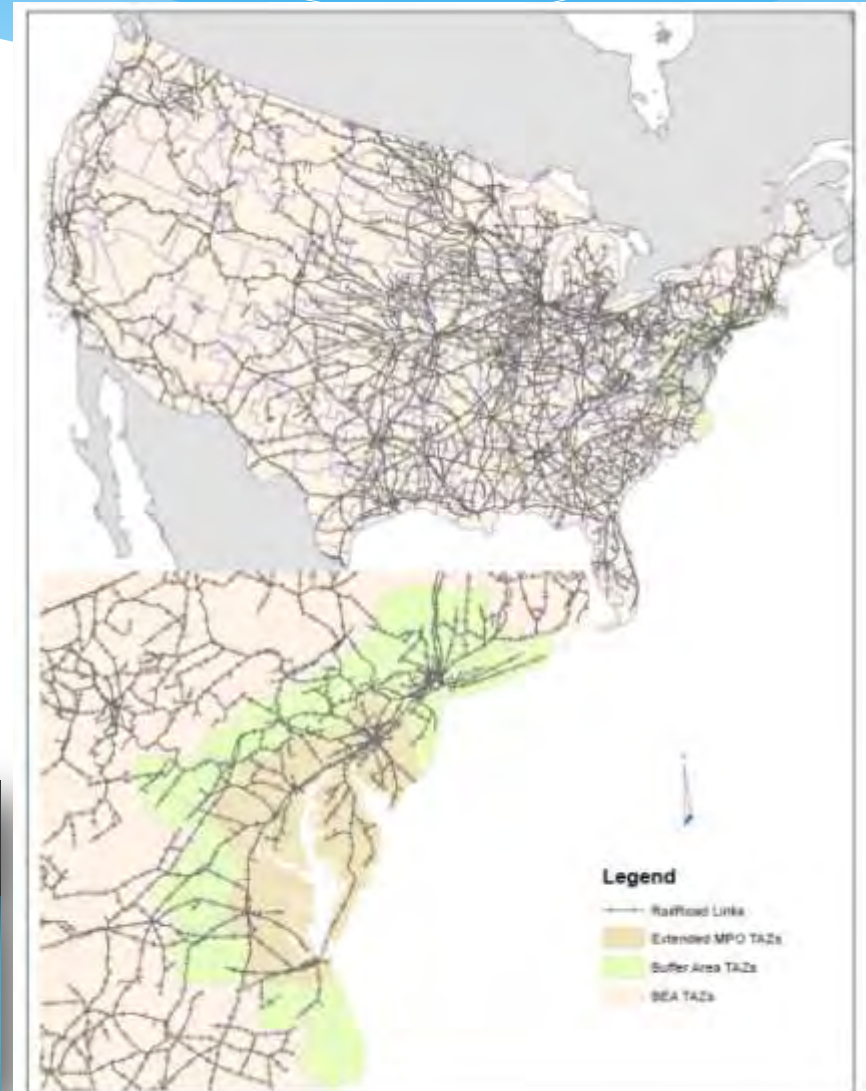
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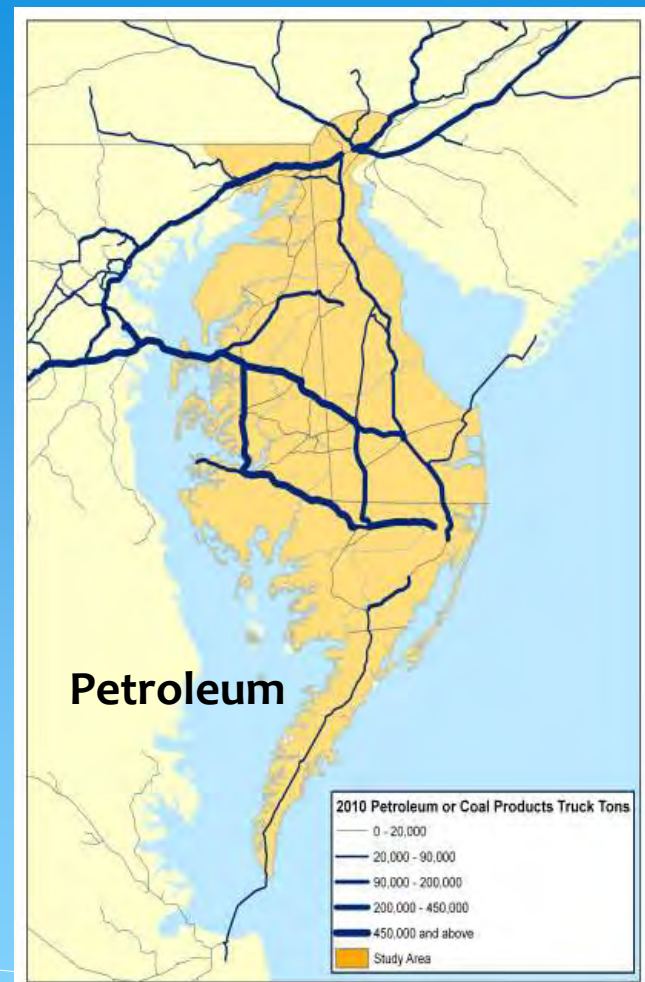
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DELMARVA FREIGHT STUDY

Delmarva's Major Industries Have Different Freight Flow Characteristics:



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Analysis and Stakeholder Research



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Status Updates

Stakeholder Outreach

❖ Online Survey: General Comments

- 36% Miscellaneous Infrastructure Improvements
- 25% Truck Restrictions (height, weight, width, hazmat)
- 17% Northeast Corridor Constraints
- 11% Rail Restrictions (height, weight, width)
- 11% Short Line Railroad Support



SurveyMonkey.com
because knowledge is everything

Areas of Concern (from Outreach):

Rail

- NEC / Chesapeake Connector
- Delmarva Secondary / Indian River Coal
- 75 Rail Car Capacity
- Cape Charles Rail Car Float

Ports

- Post-Panamax
- New Markets

Inland Waterways

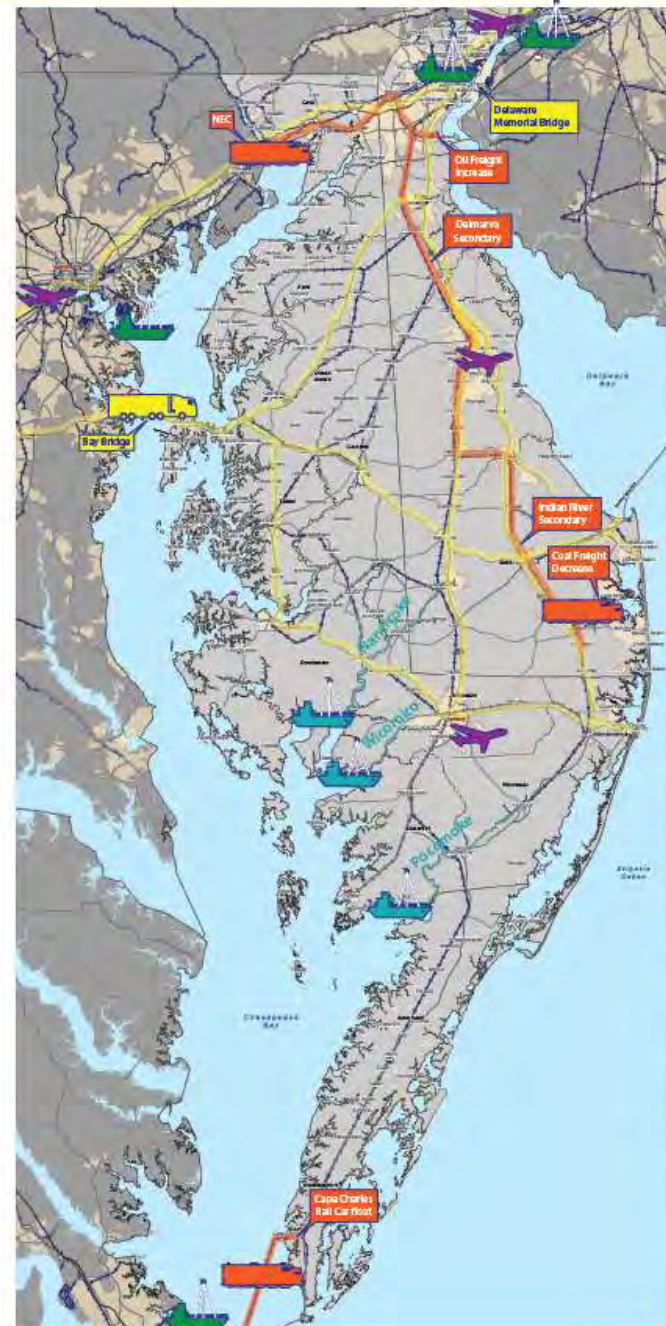
- Nanticoke & Wicomico Rivers
- Spoil Sites for Dredged Materials

Motor Freight

- Seasonal / Tourist-Based Congestion
- Secondary Roads / Bridges
- Fuel Taxes / Toll Rates / Weight Limits
- Parking & Rest Areas

Air Freight

Freight-Related Areas of Concern*



* as identified by project-specific outreach to-date

-  **Rail**
 - NEC / Chesapeake Connector
 - Delmarva Secondary
 - Delaware City Refinery / Oil Freight
 - Indian River Secondary / Coal Freight
 - 75 Rail Car Capacity
 - Cape Charles Rail Car Float
-  **Ports**
 - Access to Key Ports (Wilmington, Baltimore, Norfolk, or Philadelphia)
 - Post - Panamax
 - New Markets
-  **Inland Waterways**
 - Nanticoke / Wicomico / Pocomoke Rivers
 - Spoil Sites for Dredged Materials
-  **Motor Freight**
 - Highway - Rail Grade Crossings
 - Seasonal / Tourist-Based Congestion
 - Secondary Roads / Bridges
 - Fuel Taxes / Toll Rates / Weight Limits
 - Parking & Rest Areas
-  **Air Freight**
 - Access to Key Airports
 - Access to DAFB Civil Air Terminal

Areas of Opportunity (from Outreach):



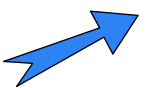
Growth & Industry

- Cecil County
- New Castle County
- Sussex County
- Wicomico County
- DAFB Civil Air Terminal



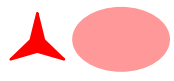
Site-Specific Issues

- PBF Energy Rail Expansion
- Dogfish Head Brewery Expansion
- Seaford Multimodal Connectivity
- Salisbury Multimodal Connectivity
- NASA Wallops Flight Facility



Import-Export

- Fracking Materials to Marcellus Shale
- Crude Oil from Canada or Midwest
- Grain from Midwest
- Frozen Poultry to Russia



Enterprise Zones / Other Incentives

Freight-Related Areas of Opportunity*



*As identified by project-specific outreach to date

Growth & Industry

- Cecil County / I-95 / NEC
- New Castle County / I-95 / NEC
- Sussex County / Seaford Hub
- Wicomico County / Salisbury Hub

Site-Specific Issues

- PBF Energy Rail Expansion
- DAFB Civil Air Terminal
- Dogfish Head Brewery Expansion
- Seaford Multimodal Connectivity
- Salisbury Multimodal Connectivity
- NASA Wallops Flight Facility

Import - Export

- Fracking Materials to Marcellus Shale
- Crude Oil from Canada or Midwest
- Oil Product Exports
- Grain from Midwest
- Frozen Poultry Exports
- Other International Trade

Economic Development Strategies

- Enterprise Zones
- Economic Incentives
- Business Programs

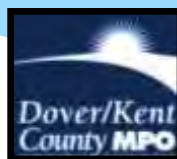
Scenario Development



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Scenario Planning

Performance Based Approach

- ❖ Include **performance measures** to guide freight-related transportation decisions
- ❖ Retain consistency w/ the **National Freight Strategic Plan**
- ❖ **Tie each measure to each goal** to indicate how well the system is achieving that goal
- ❖ Reflect measures of **conditions** of infrastructure and of **service performance**
- ❖ Reflect outcomes that are directly important to **system users and the general public**
- ❖ Avoid measures that are not of direct importance to users or the general public

Scenario Planning

Economic Evaluation

- ❖ Qualitative screening relative to scenario-specific issues
 - Review of low-medium-high levels of impact
 - Review of global factors or unknowns vs. potential for “missed” opportunities
- ❖ Address industry-specific impacts of changes in:
 - Freight costs, availability, reliability, and time
 - Related impacts on jobs and payrolls
 - Secondary / multiplier effects on jobs and payrolls
 - Secondary / multiplier effects on fiscal and tax impacts
- ❖ Add'l research: cost of goods movement as a % of overall costs
- ❖ Add'l research: industry-specific elasticities (e.g., tourist impact vs. congestion)

Scenario Planning

Cube Cargo Evaluation

- ❖ Potential Measures of Effectiveness include:
 - **Travel Time** to Market by Mode
 - Level of Service
 - **Delay**
 - Transportation Cost by commodity and mode
 - **Emissions**
 - **Truck Volumes** on Roadways
 - **Freight Demand by Mode**
- ❖ Add'l research: Cost assumptions for freight movement by mode

DELMARVA FREIGHT STUDY

Potential Scenarios: Two Types

**POLICIES
&
PROJECTS**

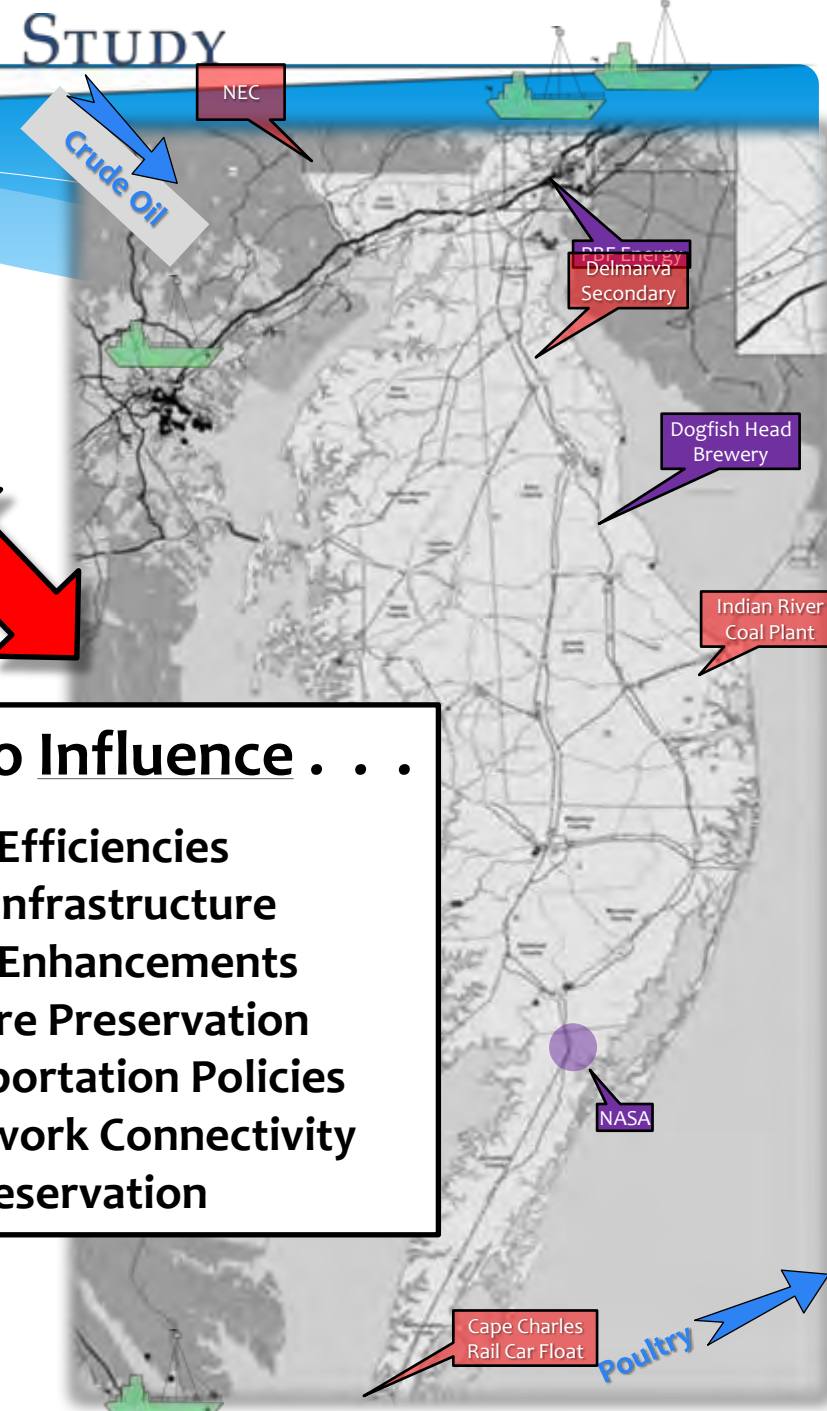


Factors to React to . . .

- Rail Service Loss
- Port Expansion or Market Shifts
- Post-Panamax Impacts
- Inland Waterway Loss
- Truck Transportation Costs
- Energy Market Trends (Coal, Oil)
- Fulfillment Services Trends

Factors to Influence . . .

- Rail Service Efficiencies
- Intermodal Infrastructure
- Port Access Enhancements
- Infrastructure Preservation
- Truck Transportation Policies
- Freight Network Connectivity
- Land Use Preservation



Possible multi-modal improvements, such as:

- Expansion/Improve Rail facilities
 - Chesapeake Connector
 - Weight/speed improvements
- Increased carfloat capacity
- Increased intermodal facilities in key locations along Peninsula

Multimodal Enhancement Scenario



What would the future look like if freight transportation on the peninsula was enhanced or expanded by key multimodal elements or opportunities?

For example, WHAT IF...

- 1 ... a completed Chesapeake Connector expanded freight rail access along/across the NEC?
- 2 ... coal freight losses to the Indian River power plant were offset by other/new rail demand?
- 3 ... the NS Indian River Secondary became a shortline railroad (from Harrington to Frankford)?
- 4 ... the peninsula's rail network was enhanced (e.g., removal of speed/weight restrictions or bottlenecks)?
- 5 ... the Seaford Rail Bridge was reconstructed?
- 6 ... a new intermodal facility was strategically located (e.g. near Newark, Seaford, Delmar, or Salisbury)?
- 7 ... BCRR car float operations were stabilized or expanded?
- 8 ... Post-Panamax shipping trends directly impacted the region (e.g., via Baltimore or Norfolk)?
- 9 ... short sea shipping opportunities or the marine highway concept flourished?
- 10 ... the Port of Wilmington developed a new container facility?
- 11 ... oil and gas imports/exports had more transport options?
- 12 ... higher freight volumes increased conflicts with other users (e.g., barges versus recreational water or waterfront property access; or trucks versus seasonal tourism)?

Enhancement Scenario w/ Trendline Growth:

What would this future look like in 2040 with trendline economic or demographic changes?

Enhancement Scenario w/ Accelerated Employment:

What would this future look like in 2040 with accelerated employment growth in certain industries?



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WR&A - 4-24-2015

Possible future constraints, such as:

- Decreased rail access to Peninsula
- Less capacity due to less dredging
- Car float operations reduced
- Increased reliance on truck mode

Multimodal Constraint Scenario



What would the future look like if freight transportation on the peninsula was constrained by a loss or reduction of key multimodal elements or opportunities?

For example, WHAT IF...

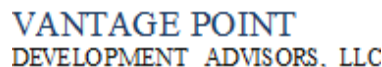
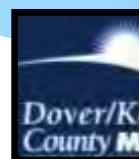
- 1 ... freight rail access across/along the NEC continues to be restricted to a narrow window of time?
- 2 ... coal freight demand to the Indian River power plant ceased?
- 3 ... at-grade rail / highway crossing conflicts increased?
- 4 ... the NS Delmarva Secondary became a shortline railroad (from Porter to Pocomoke City)?
- 5 ... the NS Indian River Secondary became a shortline railroad (from Harrington to Frankford)?
- 6 ... the BCRR car float operations permanently ceased?
- 7 ... Wicomico River barge travel was restricted due to funding / dredging constraints?
- 8 ... Pocomoke River barge travel was restricted due to funding / dredging constraints?
- 9 ... oil and gas imports/exports had fewer transport options?
- 10 ... truck volumes and roadway maintenance needs increased substantially?

Constraint Scenario w/ Trendline Growth:

What would this future look like in 2040 with trendline economic or demographic changes?

Constraint Scenario w/ Accelerated Employment:

What would this future look like in 2040 with accelerated employment growth in certain industries?



Performance Measures

Performance Measure	Measurement Details
Regional Intermodal Connectivity	Travel Time to select cities <i>(Philadelphia, Harrisburg, Baltimore, Washington D.C., Hampton Roads)</i>
Local Intermodal Connectivity	Population near select distribution centers <i>(within 15-30-45 minutes of Amazon, WalMart, FedEx, UPS, Sysco)</i> Employment near select freight transfer hubs <i>(within 15-30-45 minutes of Port of Wilmington, NS Newark Yard, NS Jello Yard, NS Harrington Yard, NS Seaford Yard, Perdue Farms)</i>
Roadway Congestion	Truck VMT @ LOS A-C, D, E, F Truck VHT @ LOS A-C, D, E, F
Modal Split	Freight Tonnage by Mode



Delaware Department
of Transportation



Maryland Department
of Transportation



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- Provide detailed analysis on 5 major freight corridors along Peninsula:

I-95 “Metro Corridor”

DE 1

US 13 – “Coastal Corridor”

US 113

US 50 - “Ocean City Corridor”

MD 404 - “Lewes Corridor”
DE 404

US 301 – “Bay Corridor”



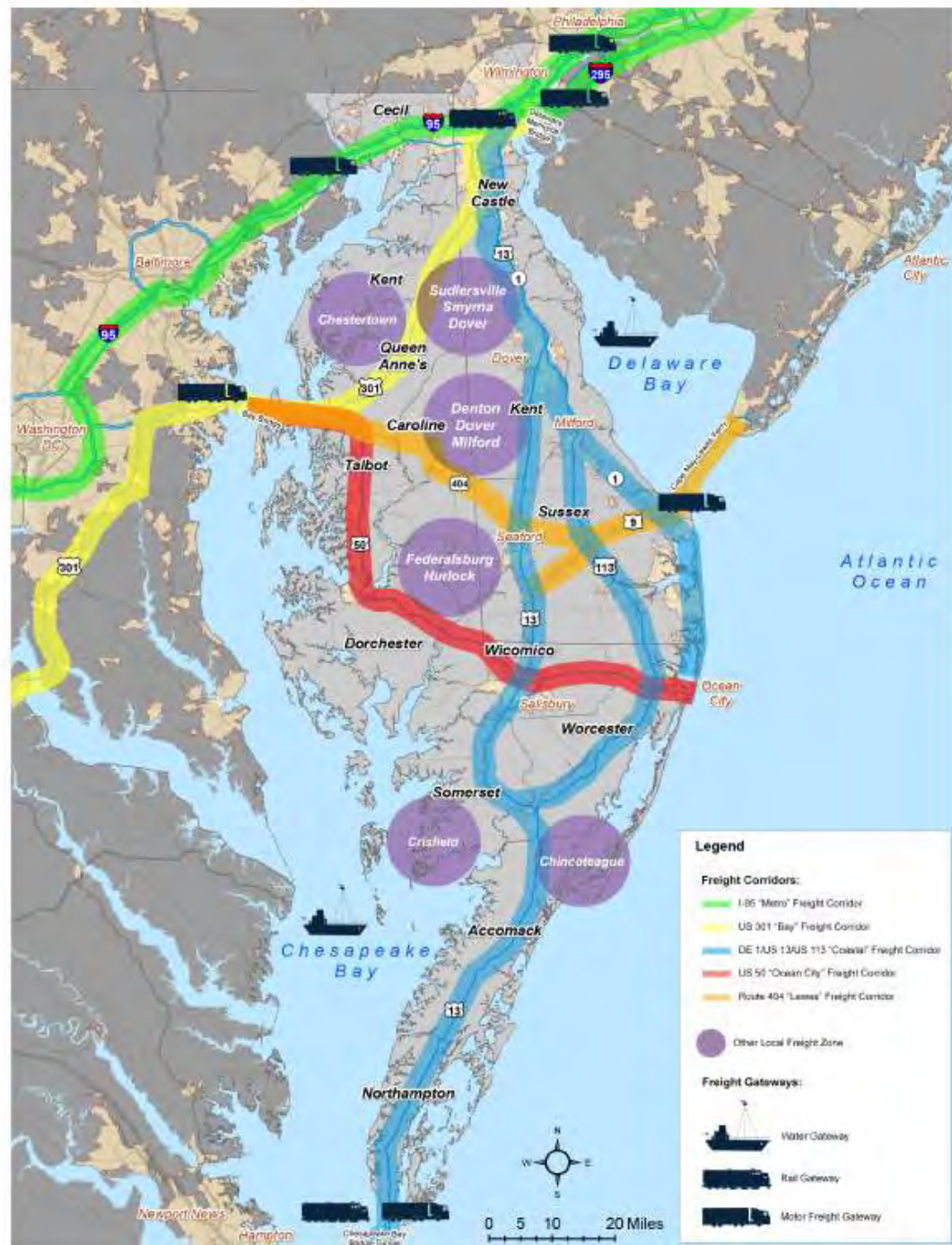
Delaware Department of Transportation



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Other Steps

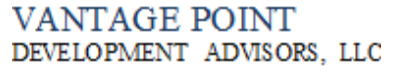
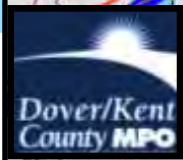
- **Delaware Chemical Supply Chain Analysis**

Produce detailed supply flows into Delaware's chemical supply chains and 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.

- **Potential Supply Chain Analyses**
 - Agriculture / Poultry
 - Secondary Traffic
 - Export-Related Locations
 - Others !



Representative Inbound Supply Chain Network for Small Associates Inc in Wilmington, DE



Schedule:

- Fall 2013: Complete Scenarios and PMs
- Develop List of Freight Trends, Needs and Issues
- Jan- Feb. Finalize report
- March 2014 Complete Document



Delaware Department
of Transportation



Maryland Department
of Transportation



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Thank You!!!



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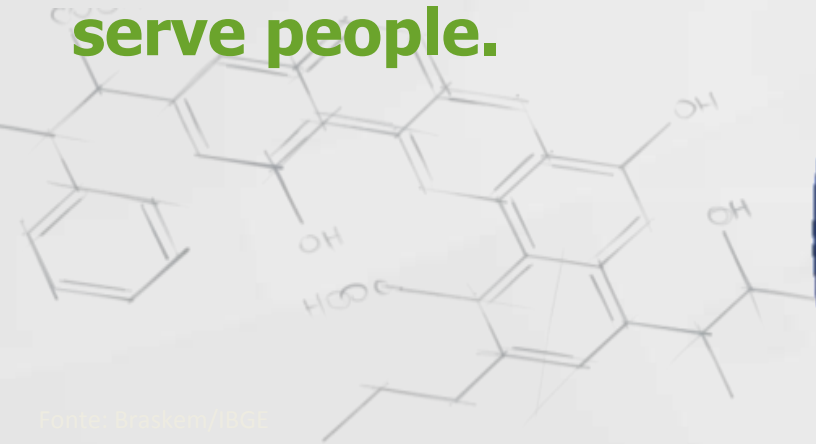


Marcus Hook Operations
Overview
October 16th, 2013

 **Braskem**

BRASKEM 2020 – Strategic Vision

To be the world leader in sustainable chemistry, innovating to better serve people.



Fonte: Braskem/IBGE

www.braskem.com.br

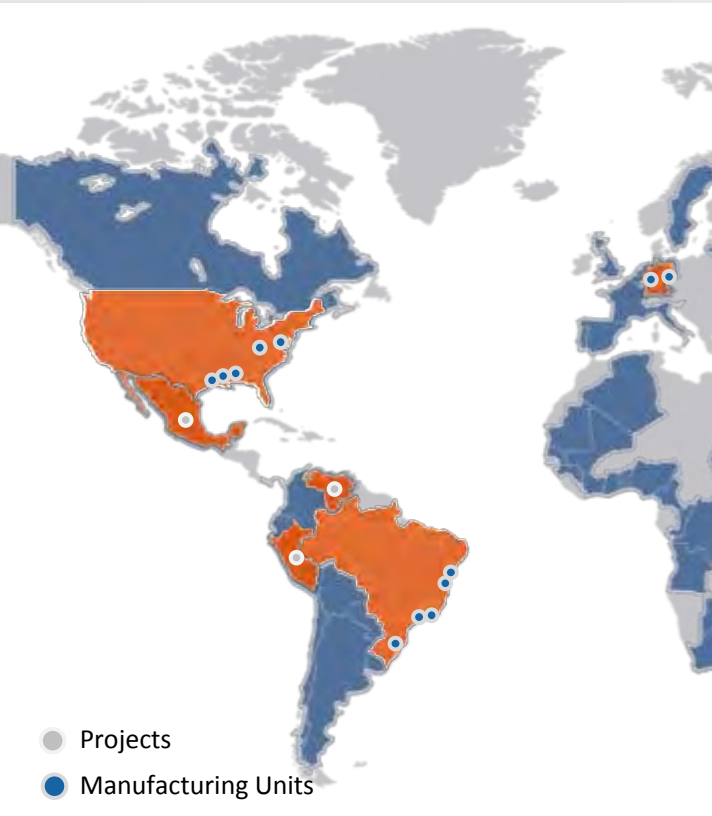


Track record of strong and consistent growth



Fonte: Braskem/IBGE

Braskem: Leader in PE, PP and PVC production in the Americas



36 Industrial Sites Worldwide

Bahia - Brazil

1 Naphta Cracker
4 PE
1 PP
1 PVC
1 Chlorine Soda

Alagoas - Brazil

2 PVC
1 Chlorine Soda

São Paulo - Brazil

2 UNIB
2 PE
2 PP

Rio de Janeiro - Brazil

1 UNIB
1 PE
1 PP

Rio Grande do Sul - Brazil

2 UNIB
5 PE
2 PP

Germany

2 PP
- Wesseling
- Schkopau

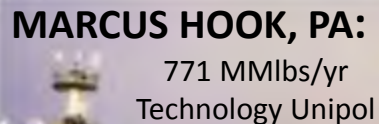
US

5 PP
- Kenova, WV
- La Porte, TX
- Freeport, TX
- Seadrift, TX
- Marcus Hook, PA

Braskem basis for growth: Braskem America



NEAL, WV:
463 MMlbs/yr
Technology: Spheripol



MARCUS HOOK, PA:
771 MMlbs/yr
Technology Unipol



PHILADELPHIA, PA:
Headquarters

TEXAS:

La Porte - 860 MMlbs/yr
Technology: Spheripol

Freeport - 705 MMlbs/yr
Technology: Spheripol

Seadrift - 408 MMlbs/yr
Technology: Unipol

PITTSBURGH, PA:

Technology &
Innovation Center

Fonte: Braskem

Key Uses of PP Resins

Compounding

Description: Compound producers for automotive industry, automotive parts, PPR pipes and SPC application.



Fibers

Description: mono and multi-filament used in carpet, upholstery, strapping, staple and geotextiles.



Nonwoven

Description: Hygiene disposables (diapers and pads) and Durables (mattress, furniture).



Film

Description: Bioriented Polypropylene Film for tapes, packaging and labels.



Rigid Packaging

Description: food containers, cups, caps and closures



Houseware / Buckets

Description: Houseware (food storage containers, garbage can, knife handles) and buckets for food and chemical industry.



Health,

Environment, Safety & Quality Policy

Braskem, an international producer of chemicals, petrochemicals and fuels, believes that sustainable development, valuing the human being, and ethical conduct are essential to achieve growing levels of business excellence.

To convert these beliefs into actions grounded on the principles of Health, Environmental and Safety, Quality and Productivity, we

Fonte: Braskem/IBGE

Não inclui Quattor e Sunoco

This policy represents the commitment of all members of the Company and its practice adds value to the businesses.



Meet customer expectations

Assure cooperation and partnership with suppliers



Promote the development of people

Maintain a positive relationship with the communities where it operates



Continually improve our processes, products and services, stimulating innovation and meeting legal and other requirements

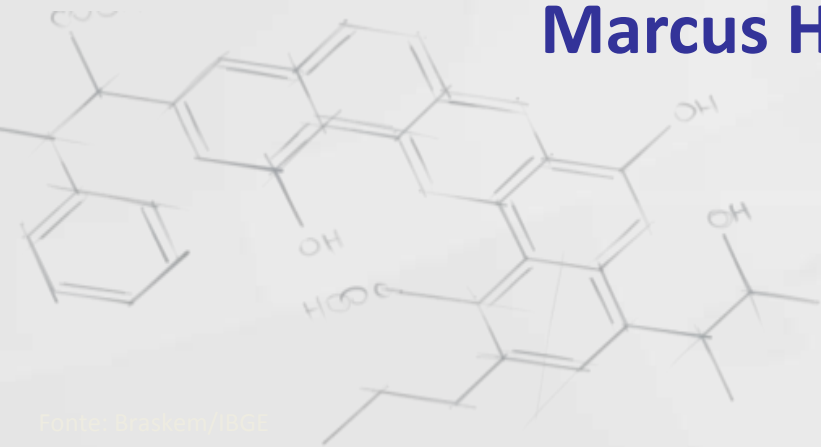
- Act preventively:
- in the quality of life and health of people
 - in the safety of people, processes, information and heritage
 - in environmental aspects and the rational use of natural resources
 - in the quality of products and services



Braskem

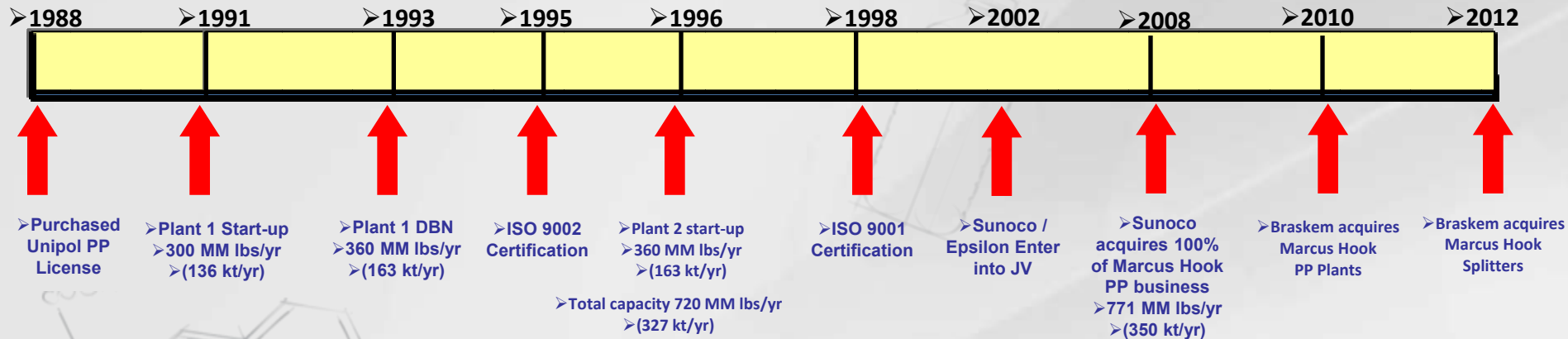
Braskem

Marcus Hook Operations



Fonte: Braskem/IBGE

Marcus Hook PP Historical Timeline



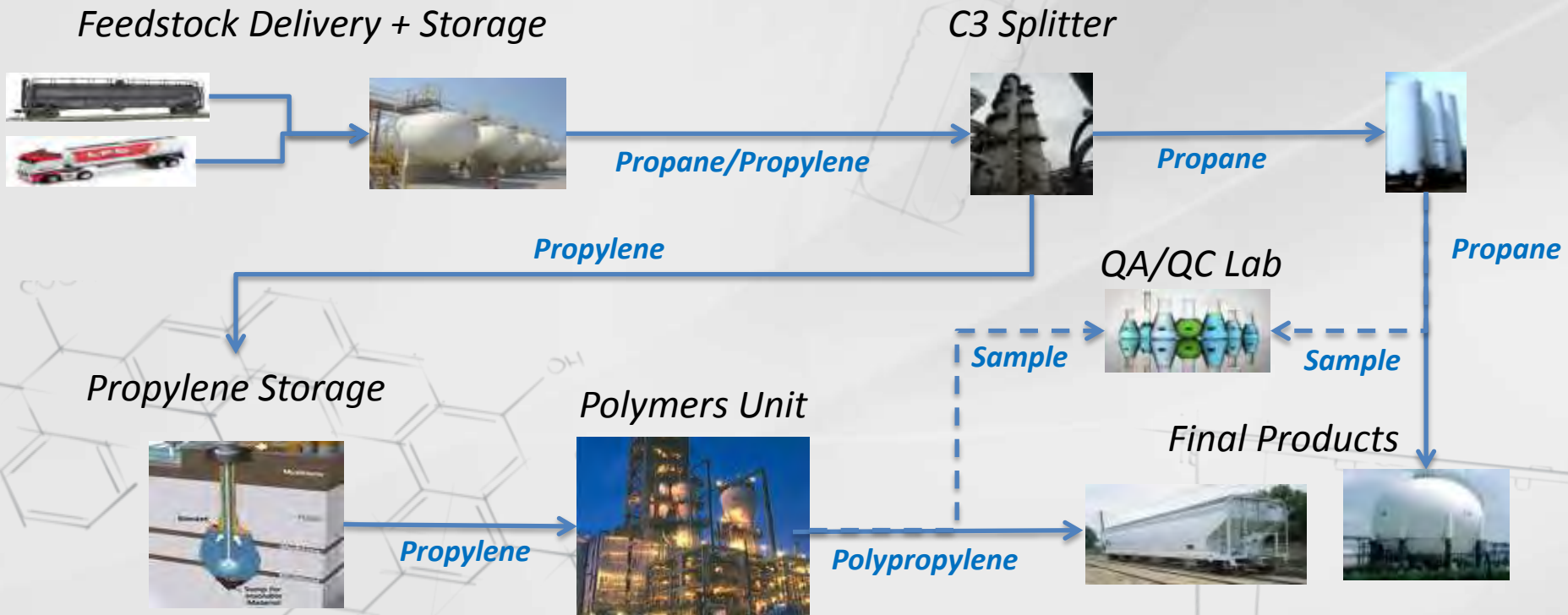
Fonte: Braskem/IBGE

General Plant Data

Highlights

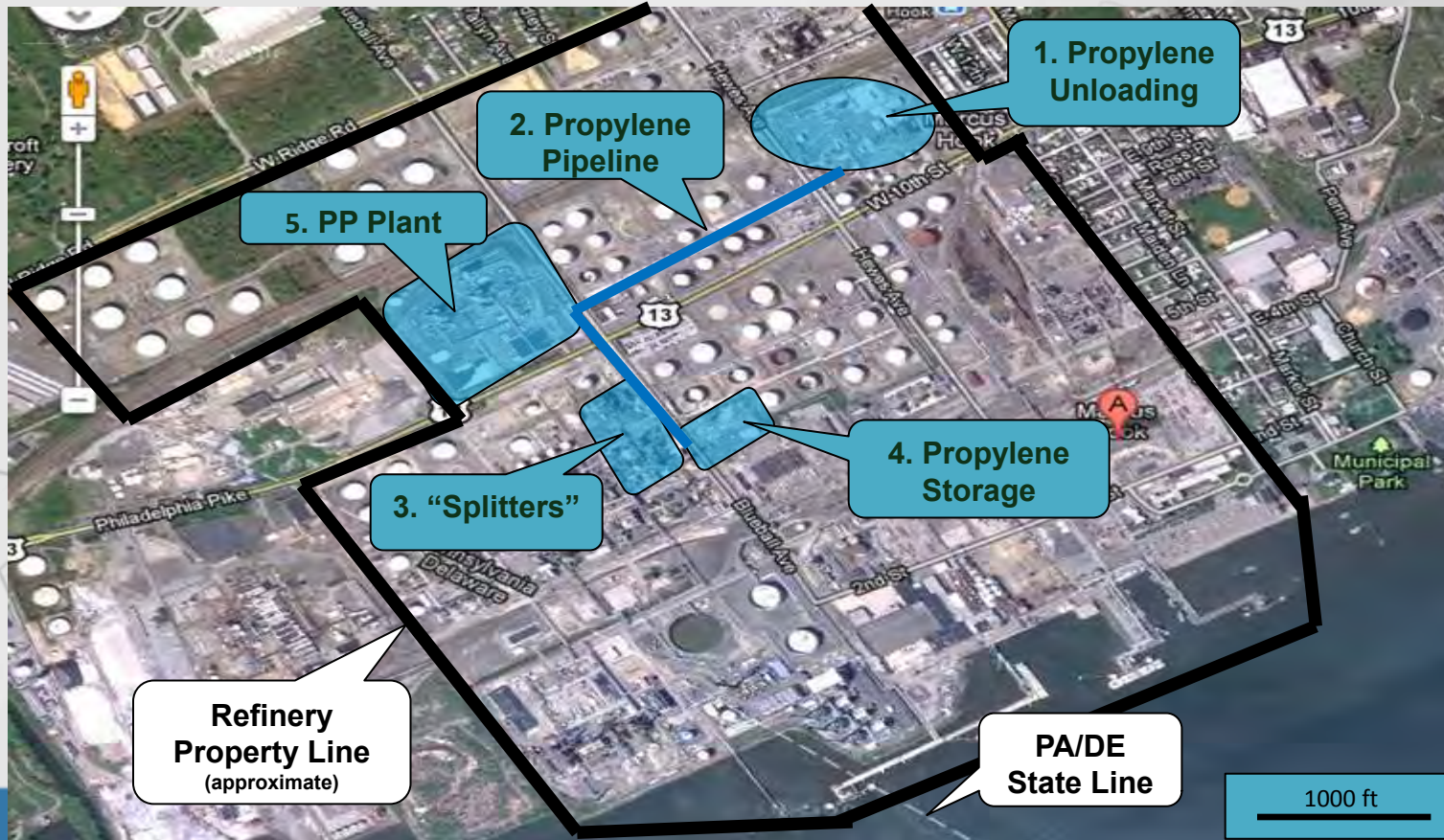
- Unipol Technology
- 2 Production Lines (770MM Lbs → 350 kton)
- ISO 9001:2008 Registered
- OSHA VPP Star
- Non-Union Facility
- Total Headcount = 146
 - MHO Employees – 116
 - Braskem America Employees – 16
 - Residential Contractors – 14

Marcus Hook Operations - Overview

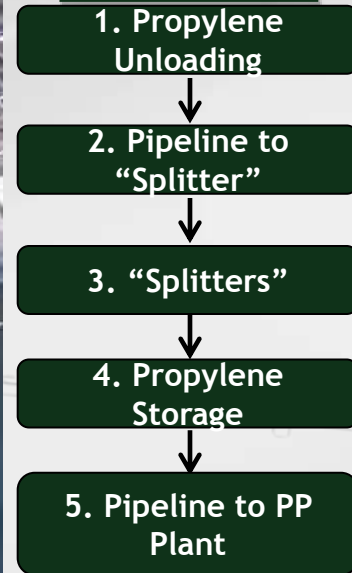


Fonte: Braskem/IBGE

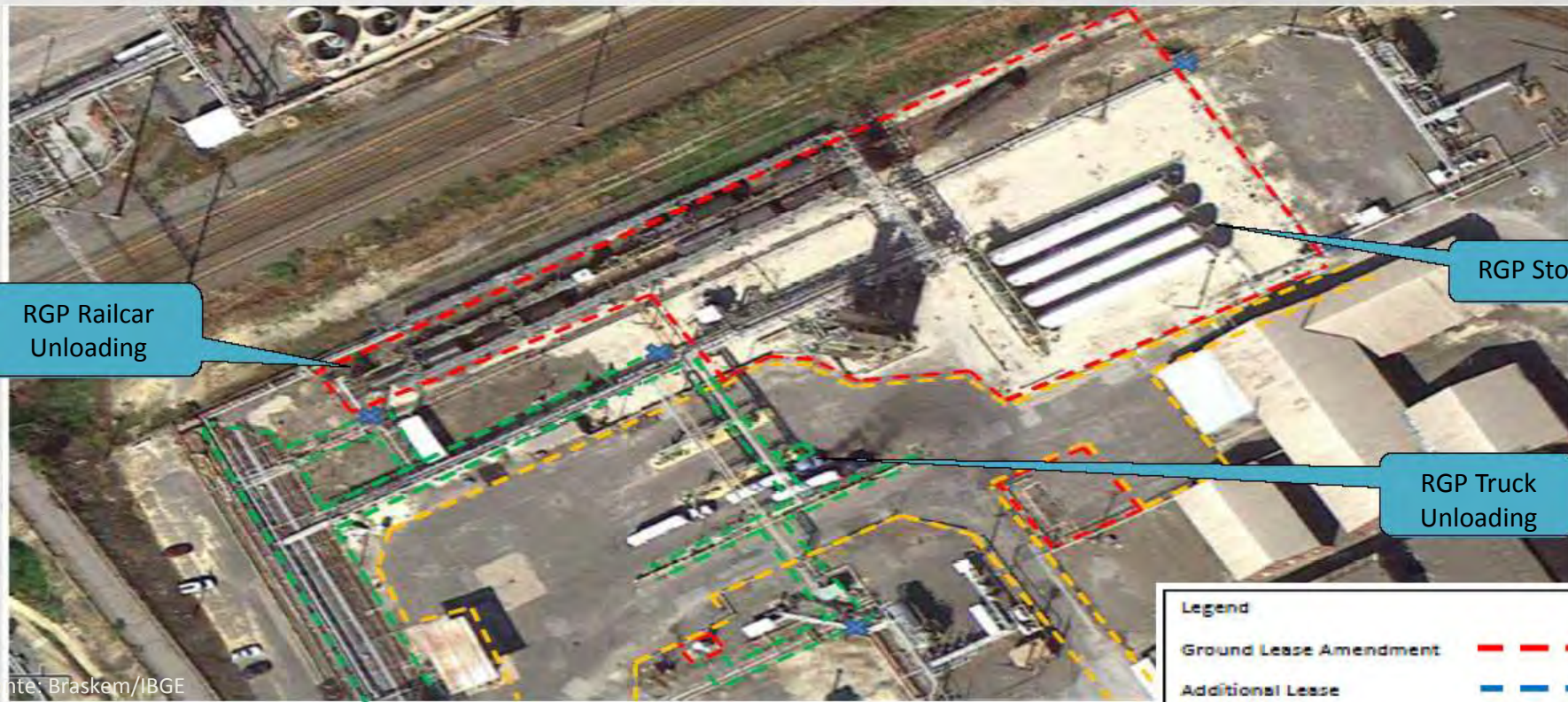
Marcus Hook Operations



Simplified Process Flow



Refinery Grade Propylene Unloading Area



RGP Railcar
Unloading

RGP Storage

RGP Truck
Unloading

Legend

- Ground Lease Amendment ---
- Additional Lesse ---
- Common Piperack ---
- Shared Areas ---

Fonte: Braskem/IBGE

Não inclui Quilômetro 5 Sulco

Propylene / Propane Splitter Area



Legend	
Ground Lease Amendment	— — —
Additional Lease	— — —
Common Piping	— — —
Shared Area	— — —

Cooling Towers

Splitters

Cavern #4

Fonte: Braskem/IBGT
Não inclui Quattor e Sunoco

Polymers Area



Hopper Car Loading

Plant 2

Plant 1

Control Room

Multipurpose Building

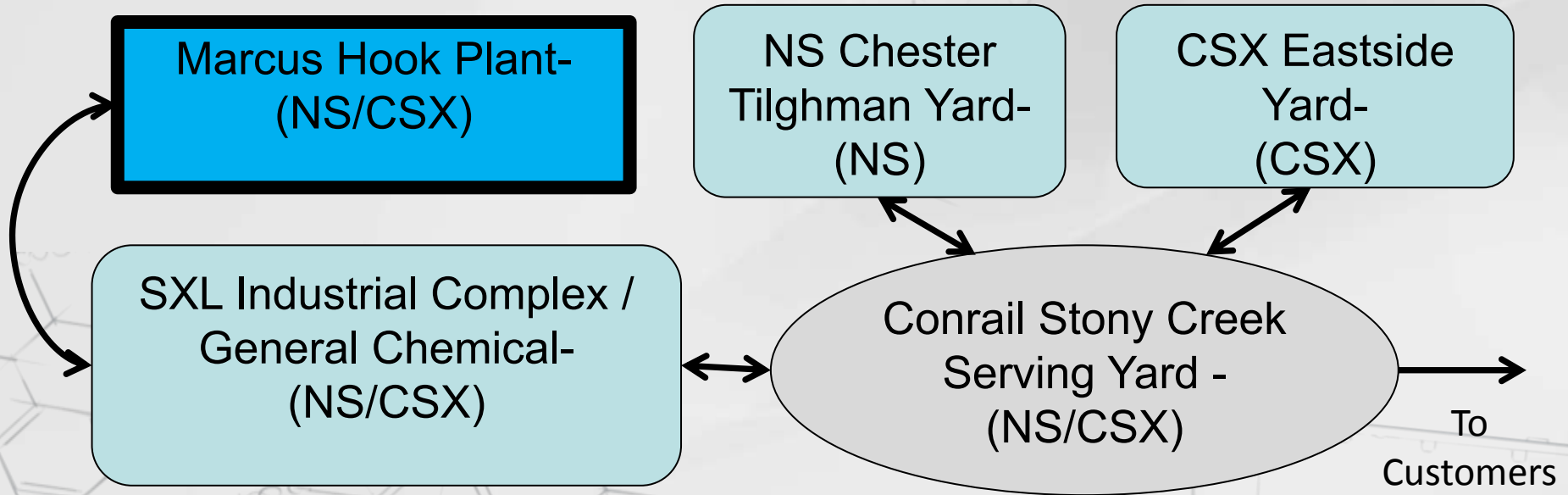
© Microsoft
NAB Inc. Quattor e 30

Microsoft
Virtual Earth

© 2007 Microsoft Corporation © 2007 Pictometry International Corp.

- **Marcus Hook, PA – Shared Assets (open to NS & CSX)**
 - Lease track within SXL Marcus Hook Industrial Complex which holds 60 railcars
 - Lease Track at General Chemical – 30 car spots
 - NS Contract provides Storage In Transit location – Chester Tilghman – 150 r/c 's

Marcus Hook PA Shipping/SIT



Rail Fleet Overview

- 3957 Covered Hopper Cars
 - 670 in Marcus Hook Fleet
- Includes “BRKX” fleet – Sale/Lease Back
 - Financial Lease
 - Midwest Railcar – MWCX/MCEX marks
- 2 Tank Cars – Ethylene – “For Sale”

Immigration in DVRPC's 28-County Extended Data Services Area



Mary E. Bell
Manager
Demographic and
Economic Analysis

October 16, 2013

Delaware Valley Goods Movement Task Force

Delaware Valley Data

- Regional Data Bulletins
- Analytical Data Reports
- Data Reference Guides
- Data Snapshots:
 - Senior Demographics
 - Regional Economics
 - Immigration

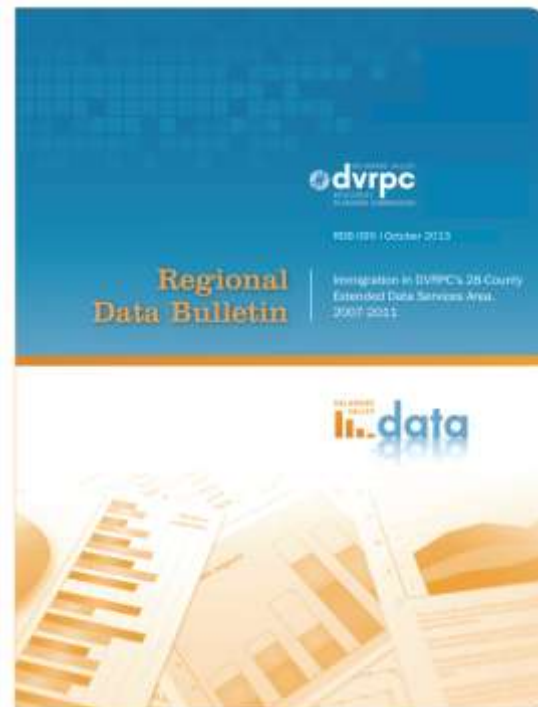
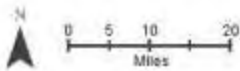
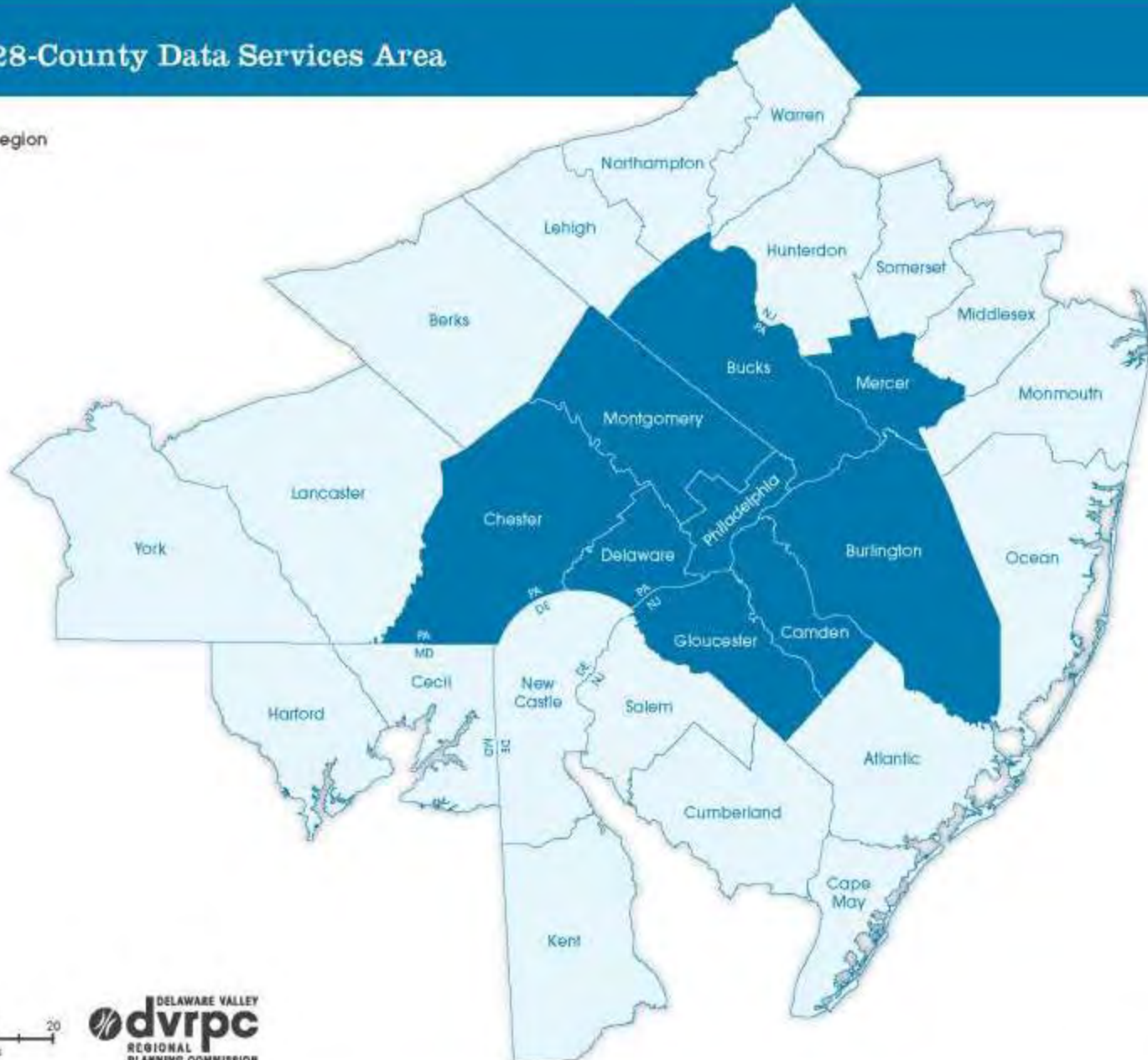


Figure 1:
DVRPC 28-County Data Services Area

DVRPC Region



Foreign-Born Population in the Nation's 10 Largest Metropolitan Statistical Areas (2006-2010)



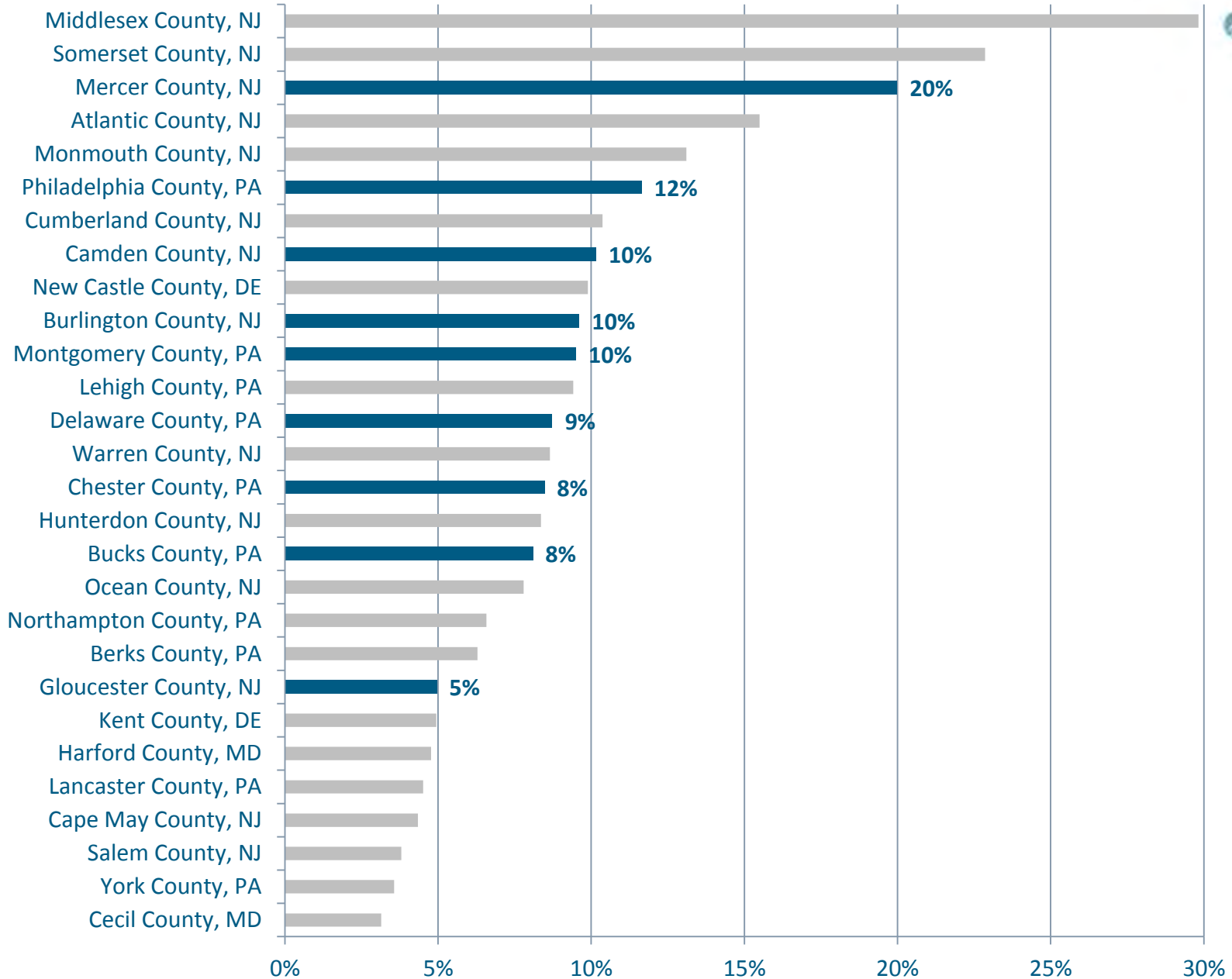
MSA	Total Population	Foreign Born Population	Percent Foreign Born	Percent Naturalized Citizens	Percent Not Yet a U.S. citizen
Miami-Fort Lauderdale	5,463,857	2,023,711	37%	47%	53%
Los Angeles	12,950,129	4,432,288	34%	43%	57%
New York	18,818,536	5,304,270	28%	51%	49%
Houston	5,542,048	1,193,931	22%	33%	67%
Washington DC	5,288,670	1,063,033	20%	42%	58%
Dallas-Fort Worth	6,006,094	1,078,552	18%	28%	72%
Chicago	9,506,859	1,695,417	18%	44%	56%
Boston	4,455,217	706,586	16%	47%	53%
Atlanta	5,134,871	665,297	13%	31%	69%
Philadelphia	5,826,742	504,317	9%	48%	52%

Foreign-Born Population and Year of Entry into the United States, 2007–2011

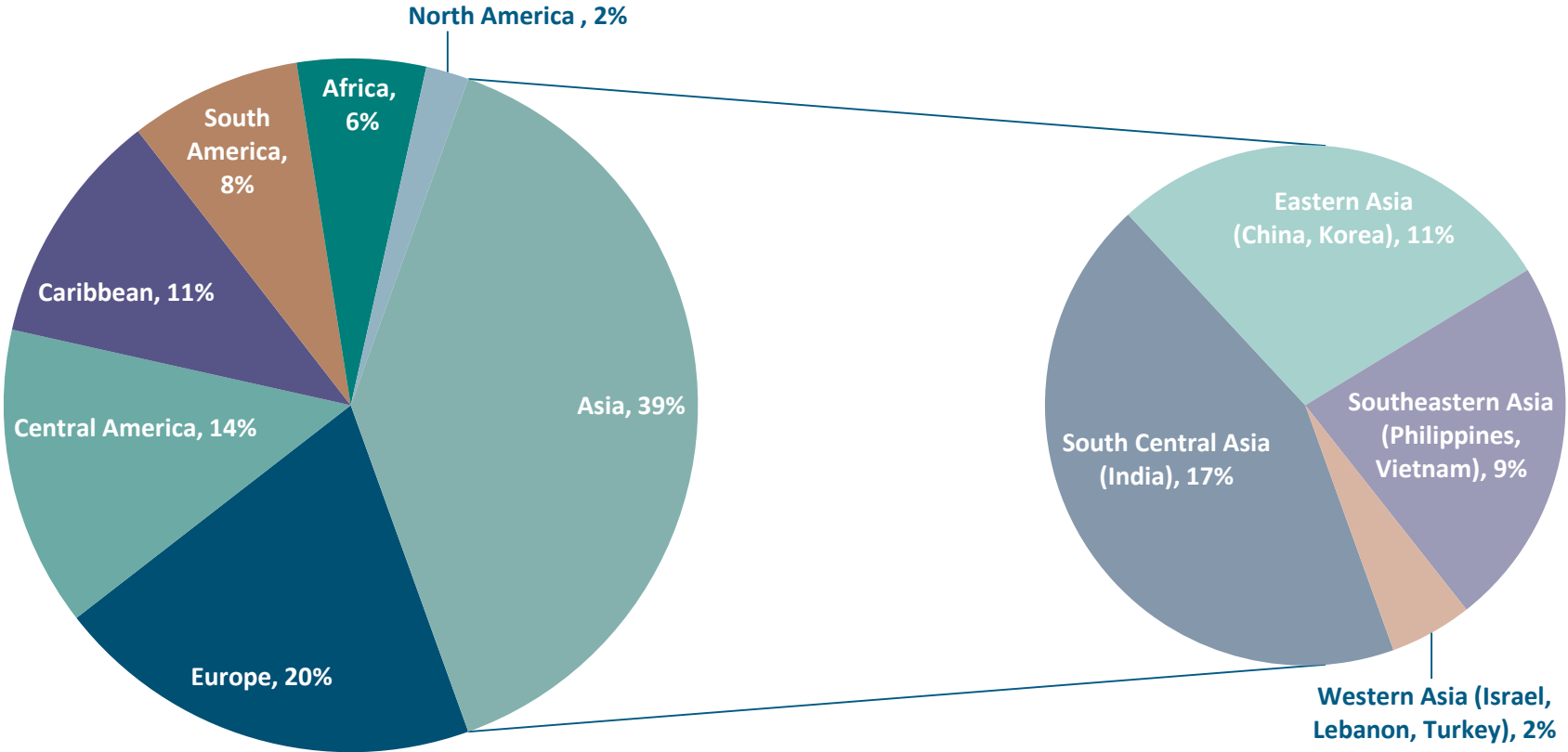


Geography	Total Population	Foreign-Born Population		Year of Entry into the United States	
		Number	Percentage	Before 2000	2000 or later
DVRPC's 28-County Data Services Area	11,800,834	1,294,052	11%	65%	35%
Two Delaware counties	696,414	60,944	9%	59%	41%
Two Maryland counties	344,671	14,806	4%	73%	27%
14 New Jersey counties	4,771,794	708,431	15%	67%	33%
10 Pennsylvania counties	5,987,955	509,871	9%	64%	36%
Nine-County DVRPC Region	5,601,058	575,844	10%	64%	36%

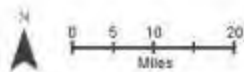
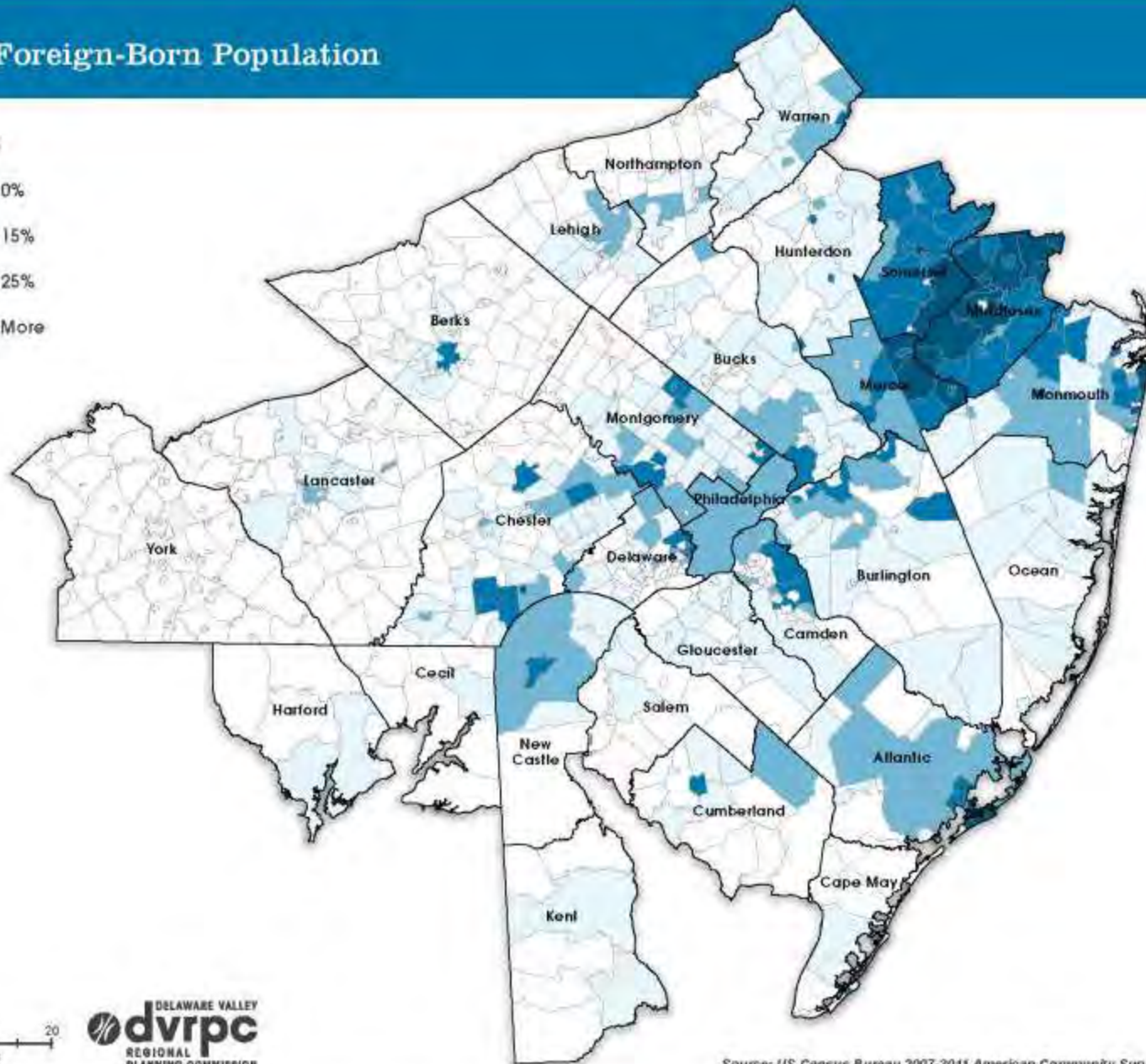
Percent Foreign-Born by County



Place of Birth of the Foreign-Born Population

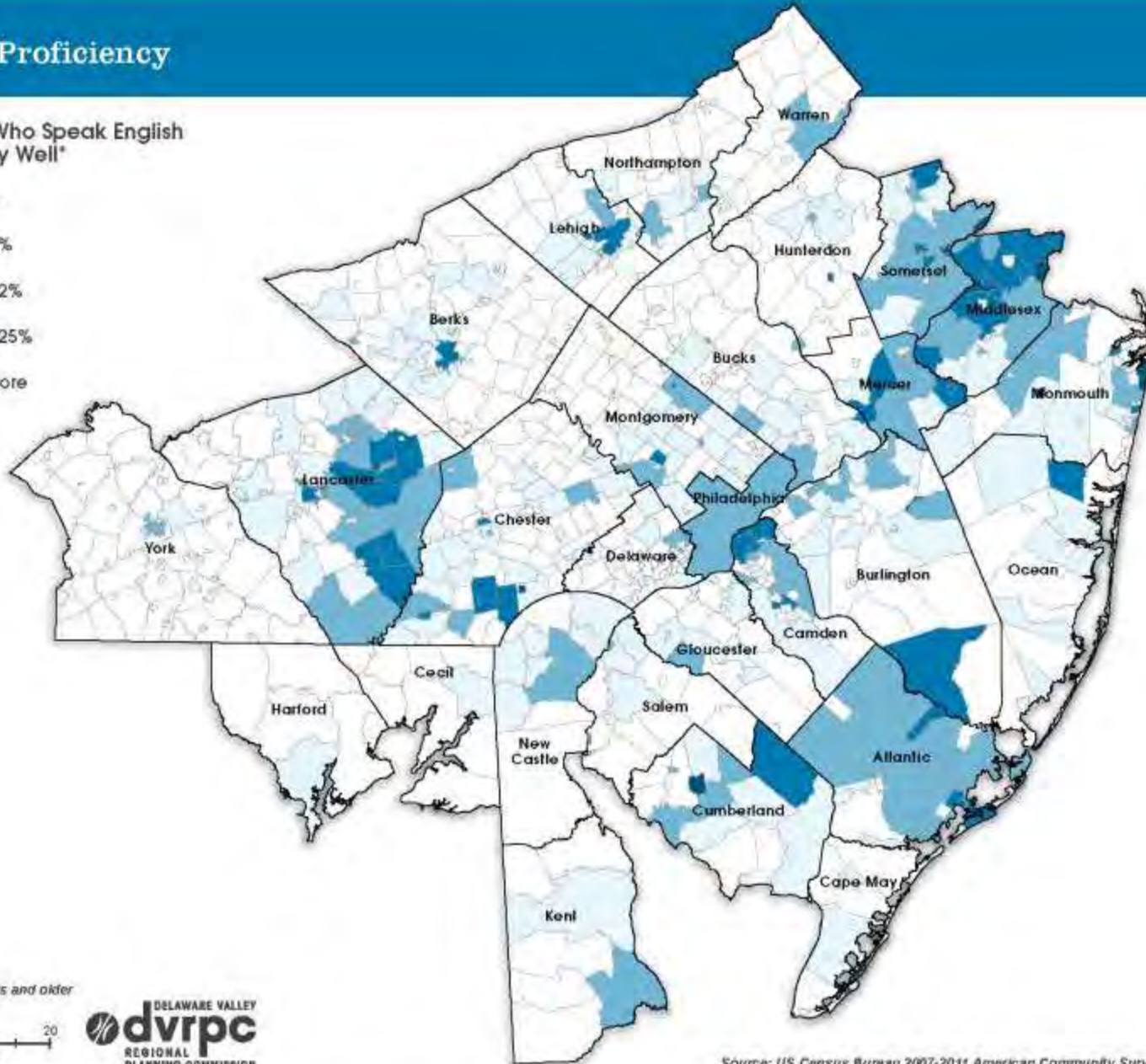
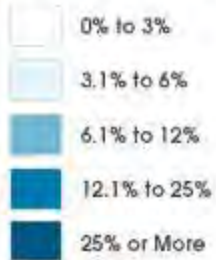


**Figure 2:
Percent Foreign-Born Population**

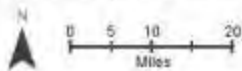


**Figure 3:
English Proficiency**

Percentage Who Speak English
Less than Very Well*

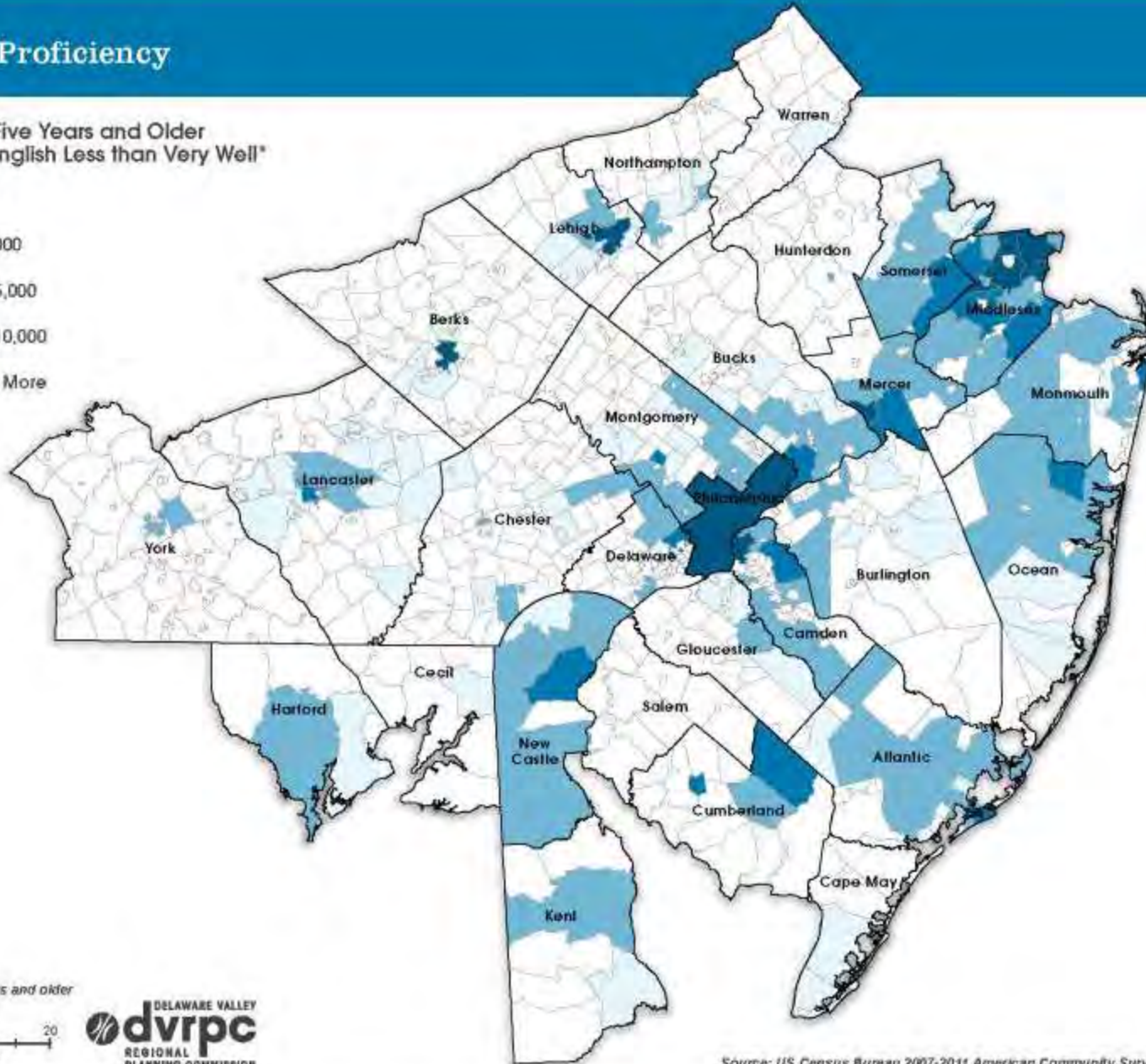


*Population five years and older

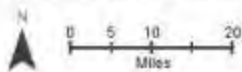


**Figure 4:
English Proficiency**

People Age Five Years and Older
Who Speak English Less than Very Well*



*Population five years and older



September 2013
Source: US Census Bureau 2007-2011 American Community Survey Five-Year Estimates

Thank You!

Questions? Comments?



Mary E. Bell
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Demographic and
Economic Analysis
215.238.2841
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For more information please visit,
<http://www.dvrpc.org>



**DATA
SNAPSHOTS**

Immigration in Greater Philadelphia

Presented by Christina Arlt
Planner, Office of Smart Growth

Presentation Outline

- How many immigrants are there?
 - Regional
 - County
 - Municipal
- Where are they from?
- When did they get to the United States?
- Socioeconomic characteristics
 - Education
 - Housing
 - Vehicle Availability
 - Median Income

Definitions

Citizen

Non-citizen

Born in US, Puerto Rico, U.S. Island Areas, or born abroad to U.S. citizen parent

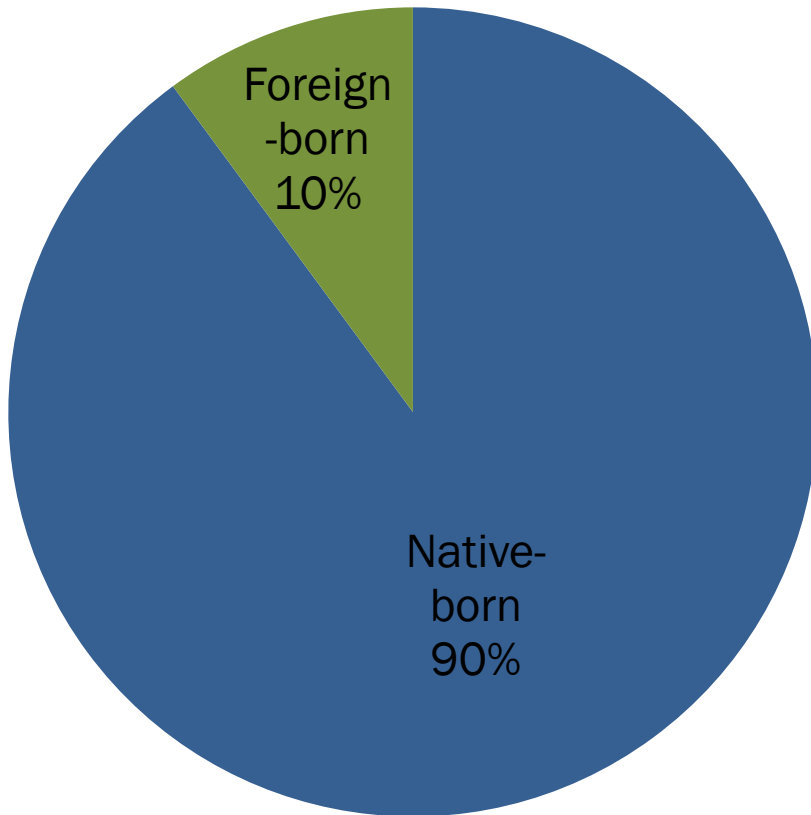
Native-born

Not born in US

Foreign-born; Naturalized citizen

Foreign-born; Not a U.S. Citizen

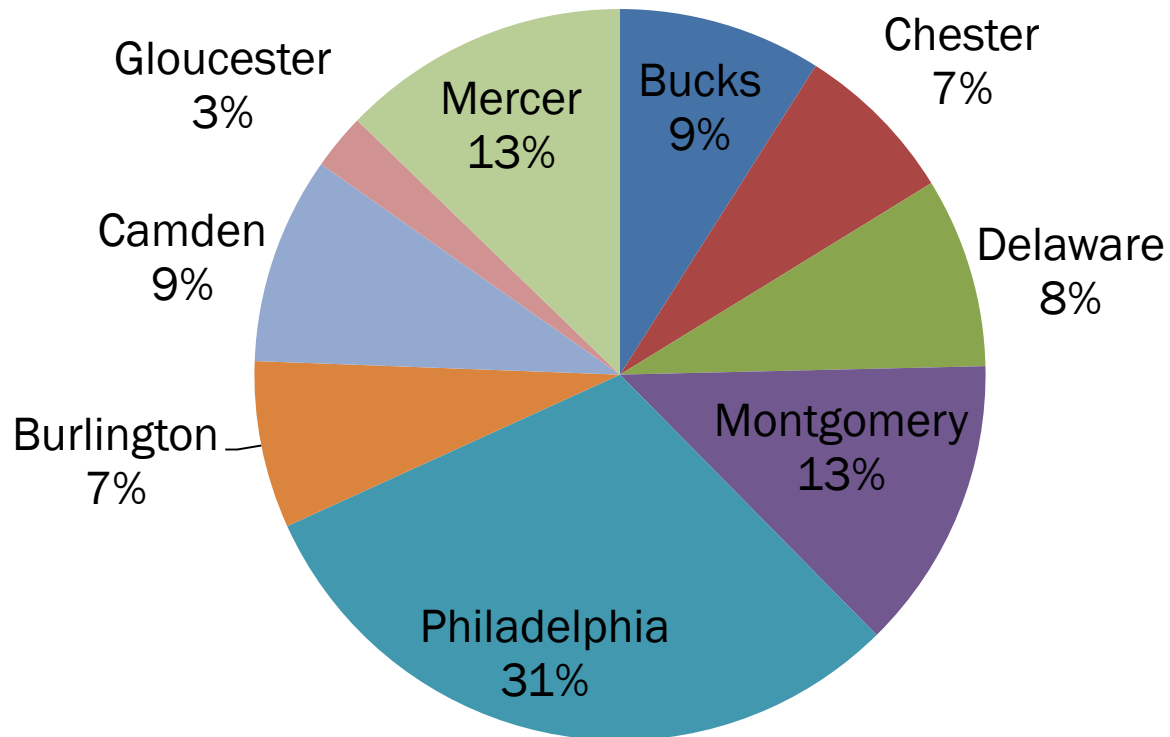
How Many Foreign-born Are There In Greater Philadelphia?



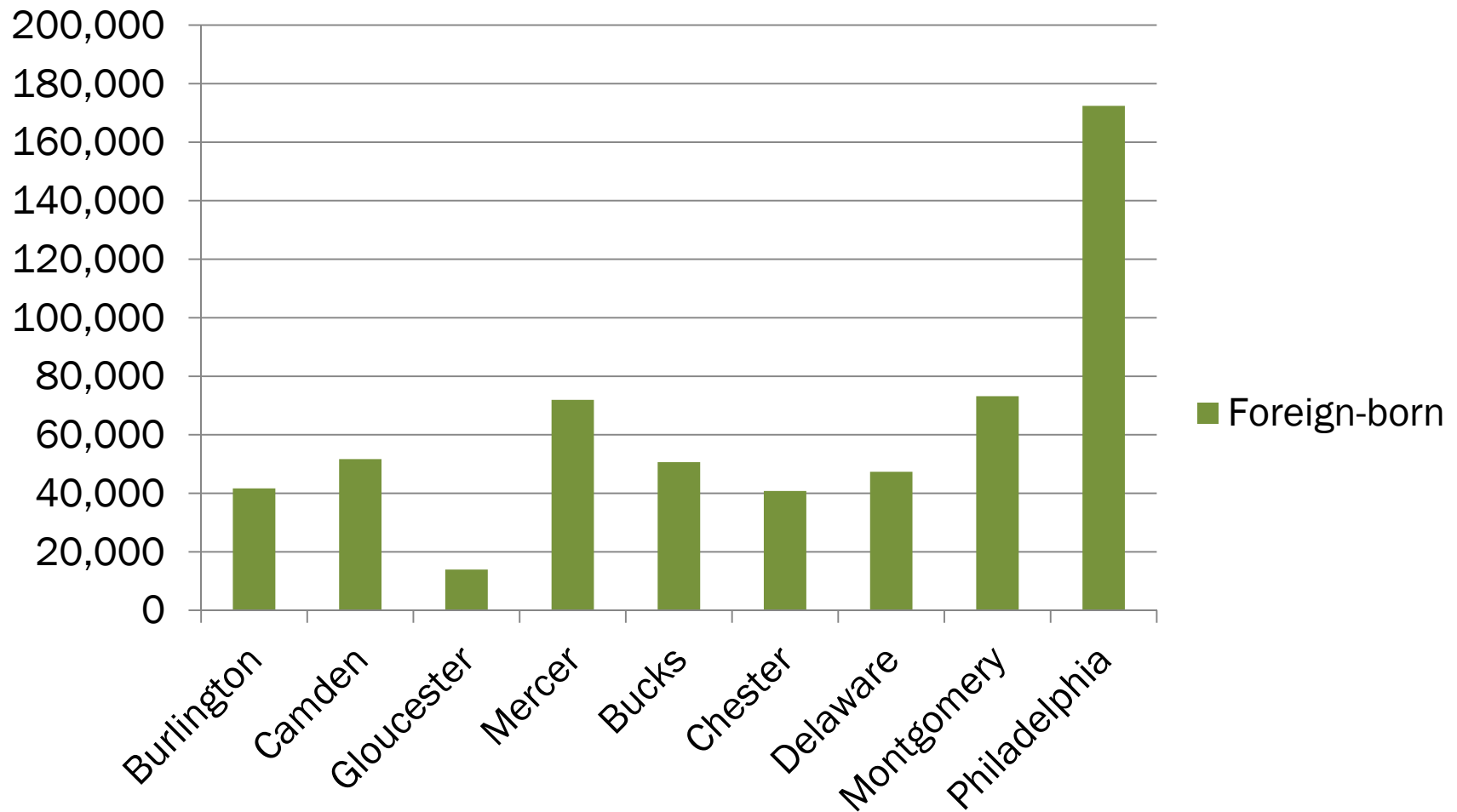
Foreign-born	563,603
Native-born	5,012,845
Total Population	5,576,448

Where do Greater Philadelphia's Foreign-born Live?

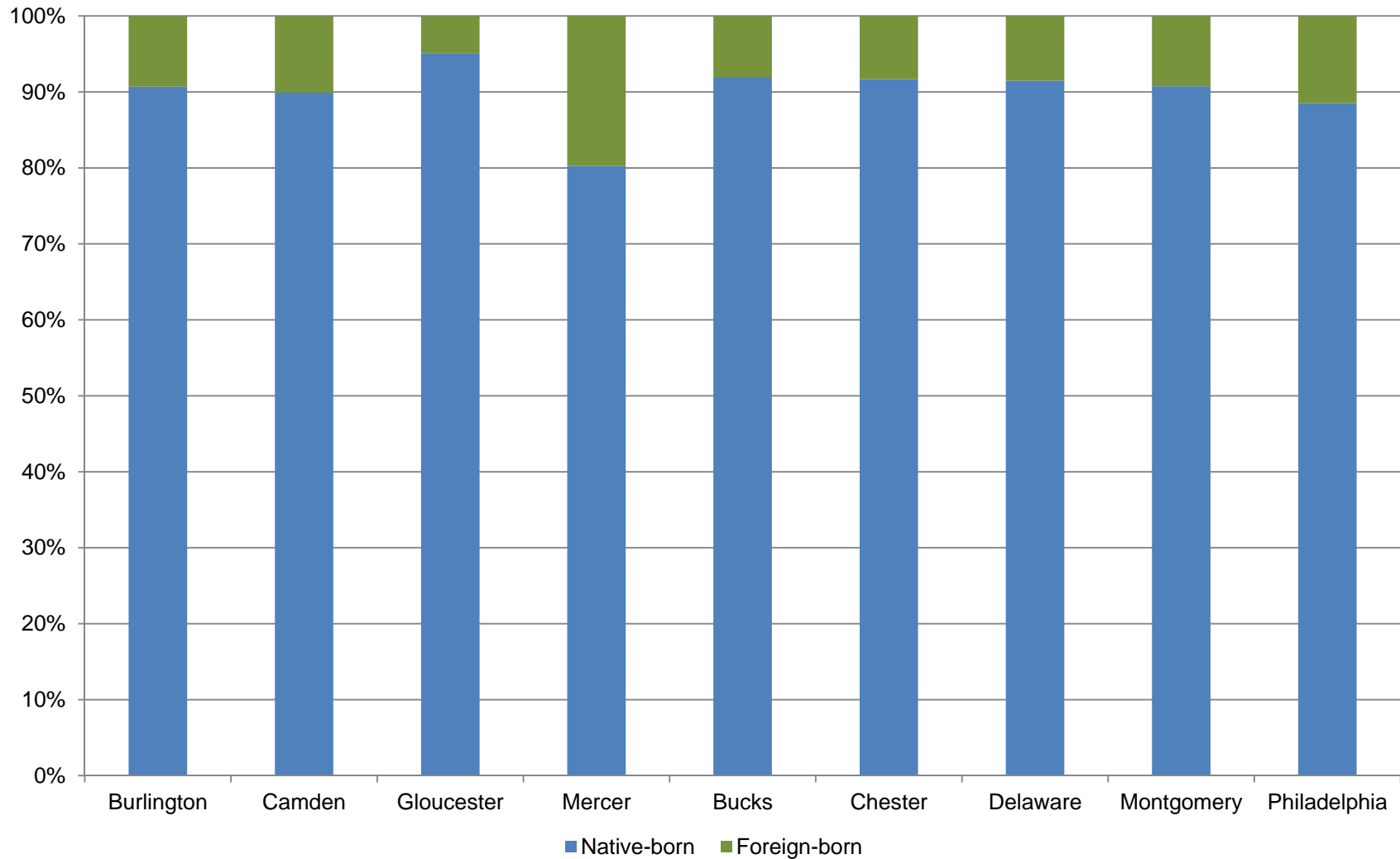
Foreign-born by County



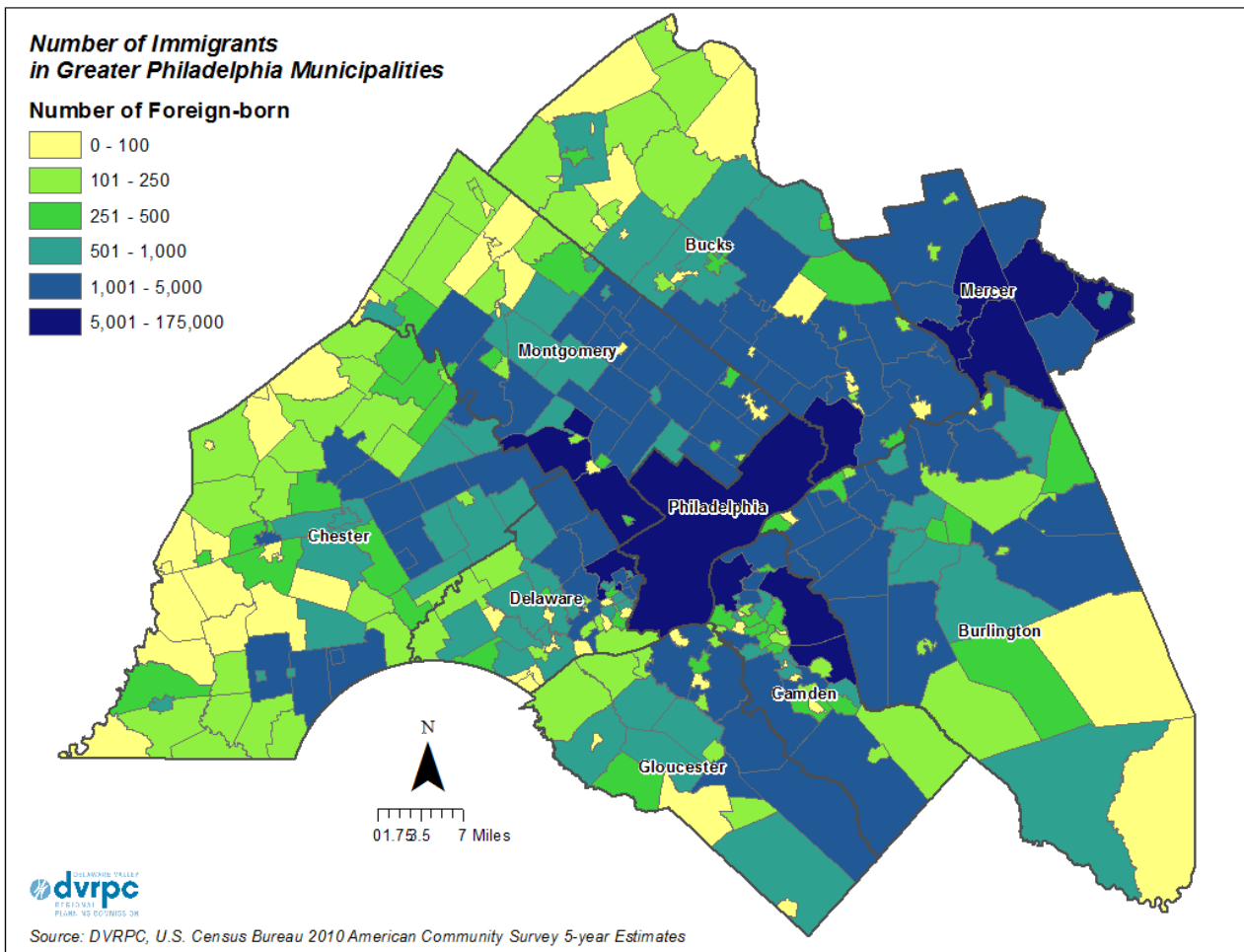
Number of Foreign-born by County



Percentage Native-Born and Foreign-born by County

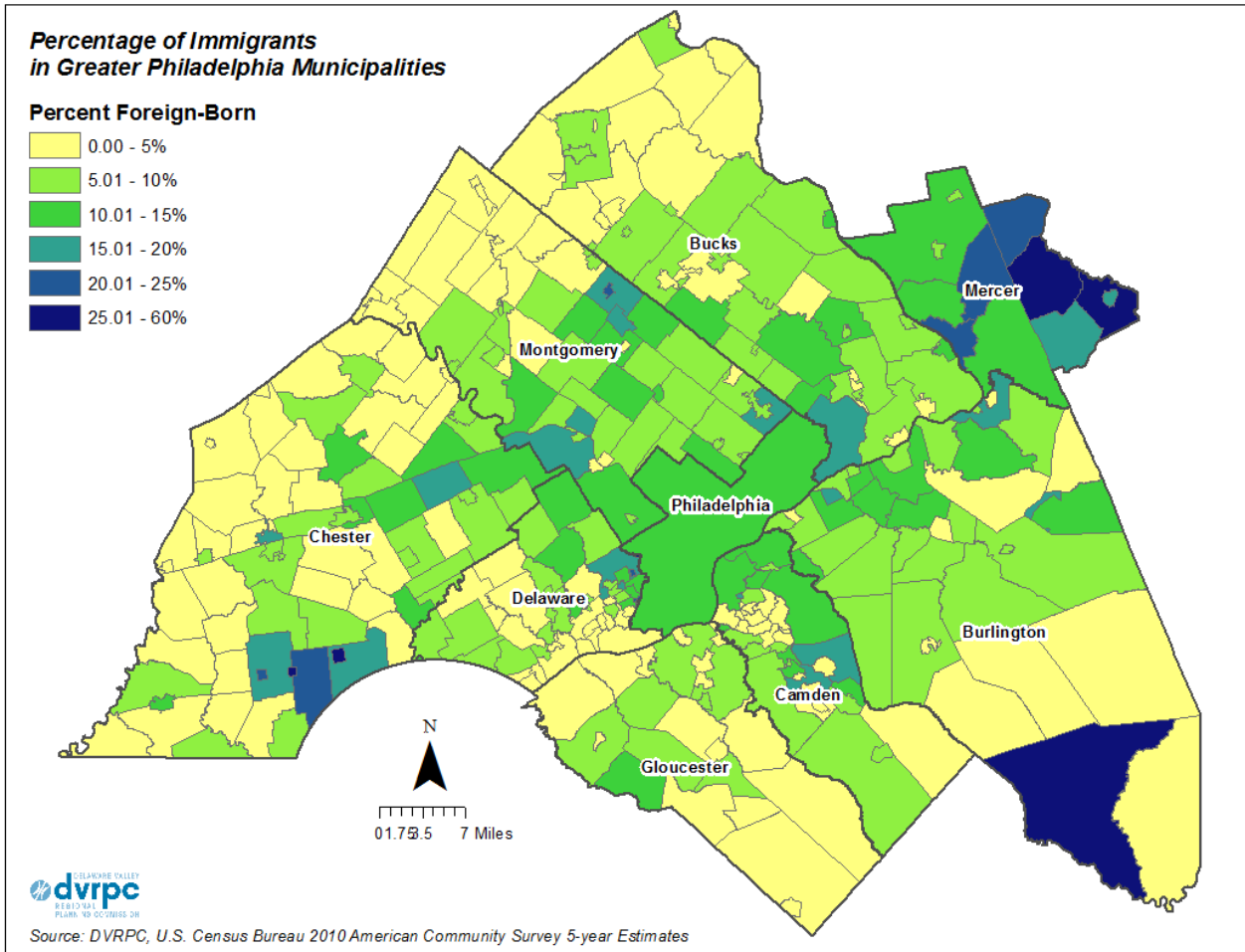


Number of Immigrants



Municipalities with Highest Number of Immigrants
Philadelphia City
Trenton City
Upper Darby Township
Hamilton Township
Camden City
Cherry Hill Township
Bensalem Township
East Windsor Township
West Windsor Township
Lawrence Township
Lower Merion Township
Norristown Borough
Upper Merion Township
Voorhees Township
Pennsauken Township

Percentage of Immigrants



Municipalities with Highest Percentage of Immigrants

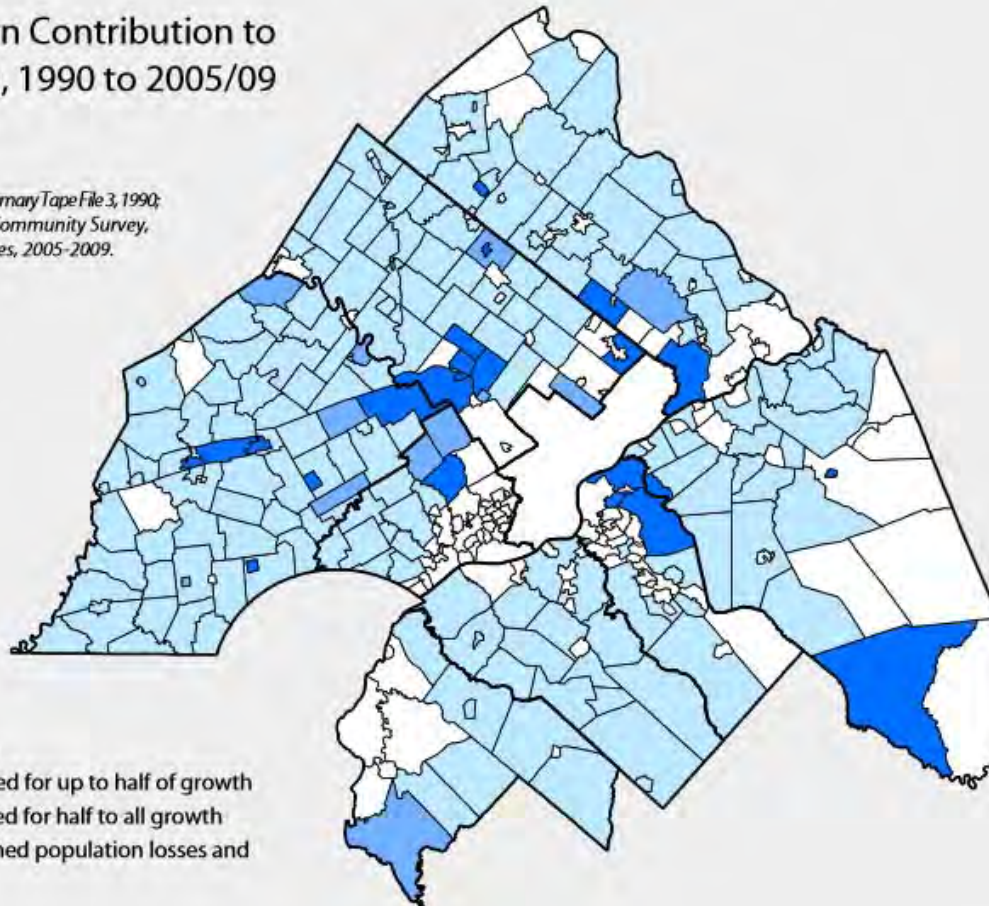
Millbourne Borough
Washington Township
Avondale Borough
Kennett Square Borough
West Windsor Township
East Windsor Township
Princeton Township
New Garden Township
Lawrence Township
Trenton City
Colwyn Borough
Hatfield Borough
East Lansdowne Borough
Princeton Borough
West Grove Borough

Foreign-born Contribution to Population Growth

Map 1: Foreign-Born Contribution to Population Growth, 1990 to 2005/09

Sources: U.S. Census, Summary Tape File 3, 1990;
U.S. Census, American Community Survey,
Five-Year Estimates, 2005-2009.

- Net Population Loss
- Immigrants accounted for up to half of growth
- Immigrants accounted for half to all growth
- Immigrants replenished population losses and provided growth



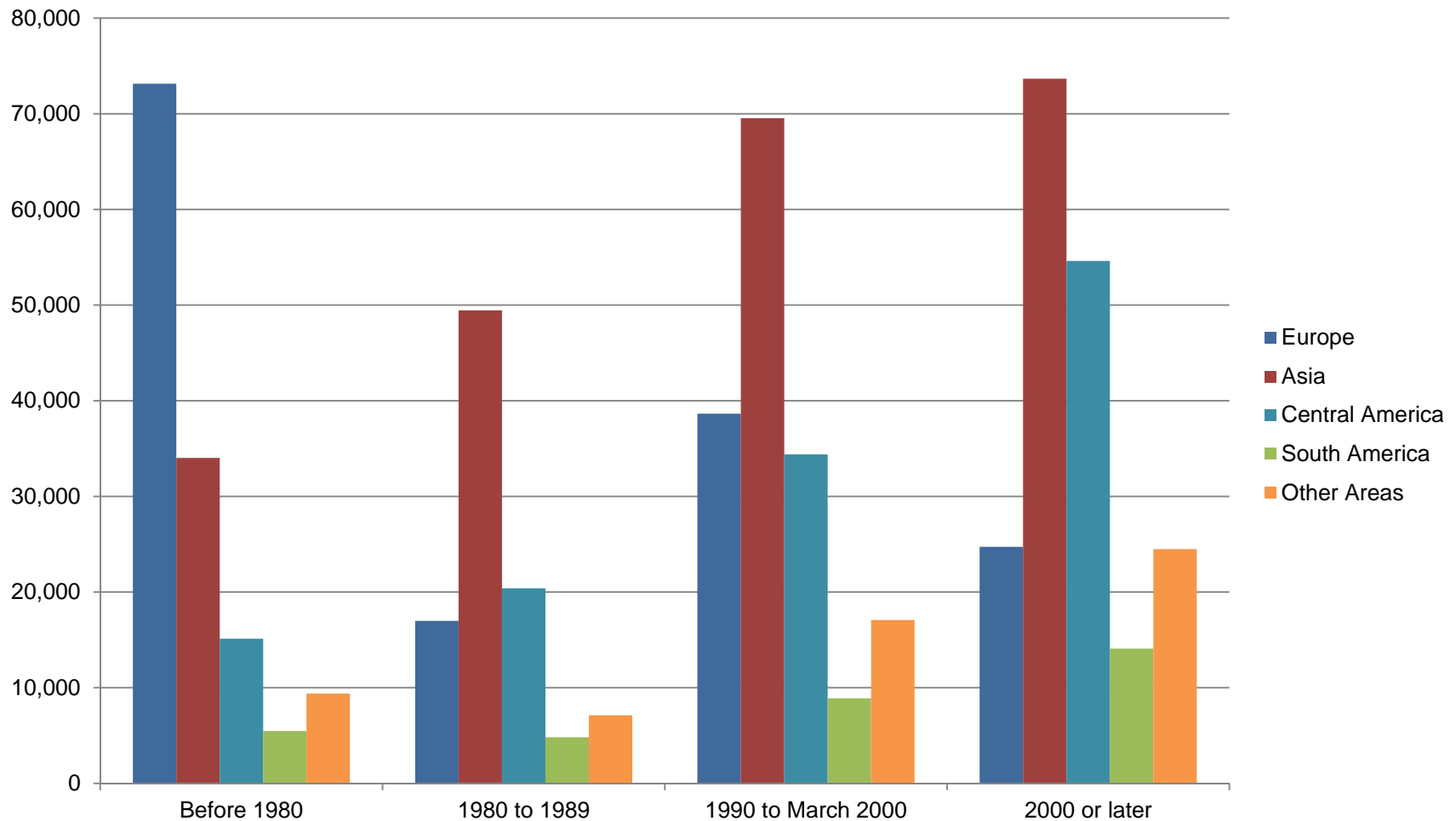
Immigrants by 2035 Planning Area

2035 Planning Area	Total # of Municipalities	Total Population	Total # of Foreign-born	% of Total Population in Planning Area Who Are Foreign-born	% of Foreign-born Living in Planning Area
Core City	4	1,702,642	204,293	12.0%	36.2%
Developed Community	199	2,446,810	246,599	10.1%	43.8%
Growing Suburb	90	1,106,471	96,194	8.7%	17.1%
Rural Area	60	320,525	16,517	5.2%	2.9%
TOTAL	353	5,576,448	563,603		

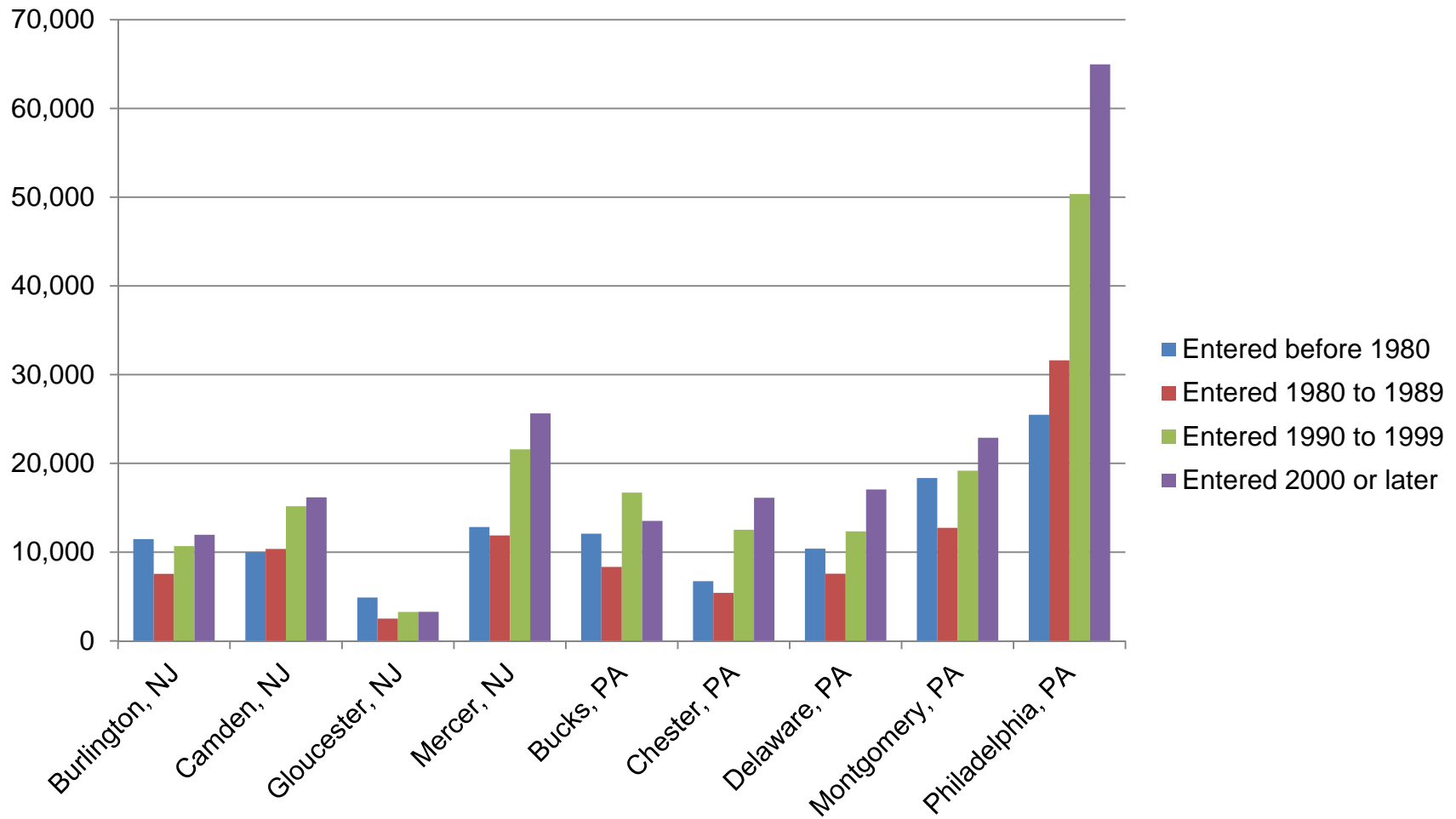
Where are Greater Philadelphia's Foreign-born From?



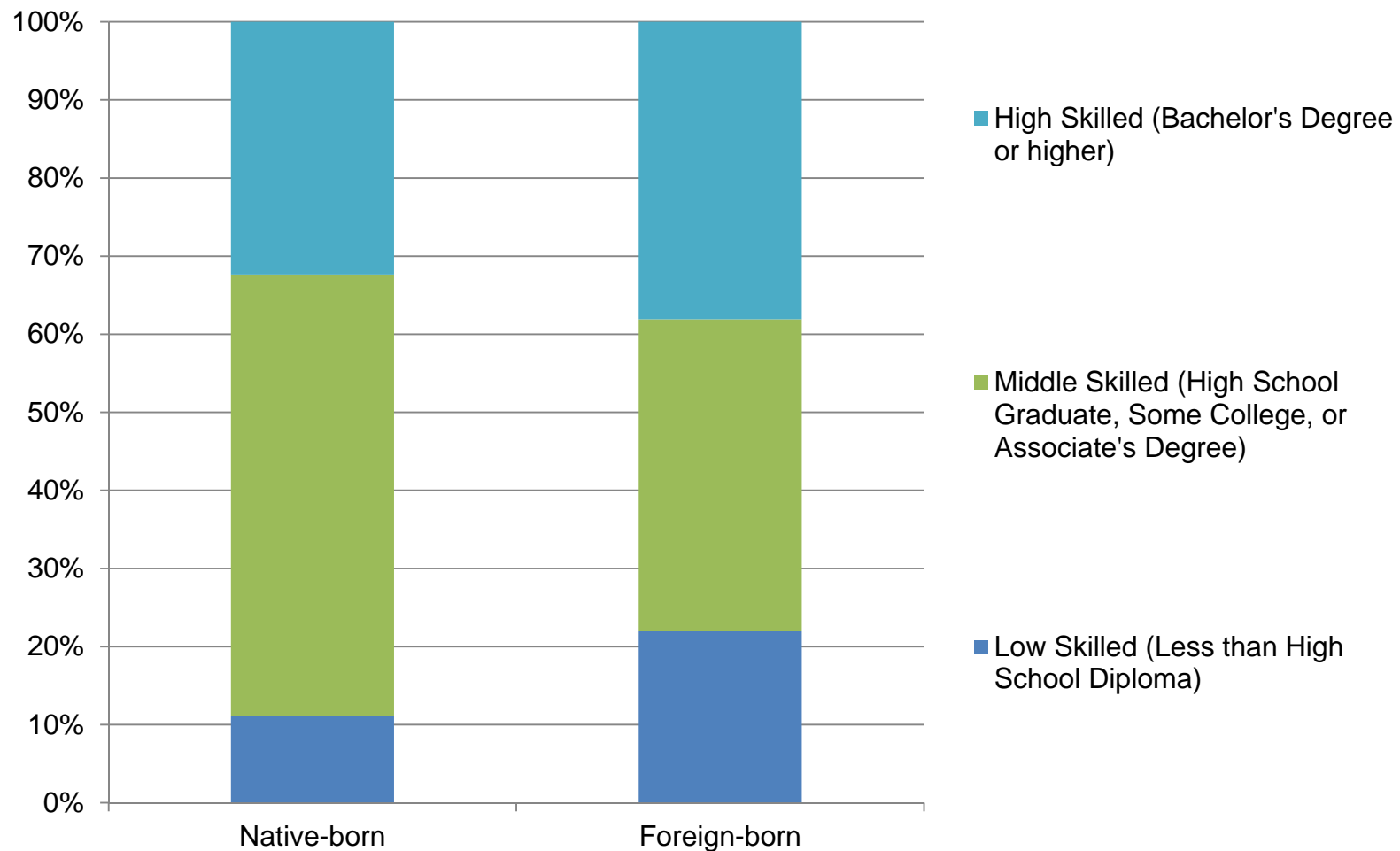
Year of Entry by Place of Birth in Greater Philadelphia



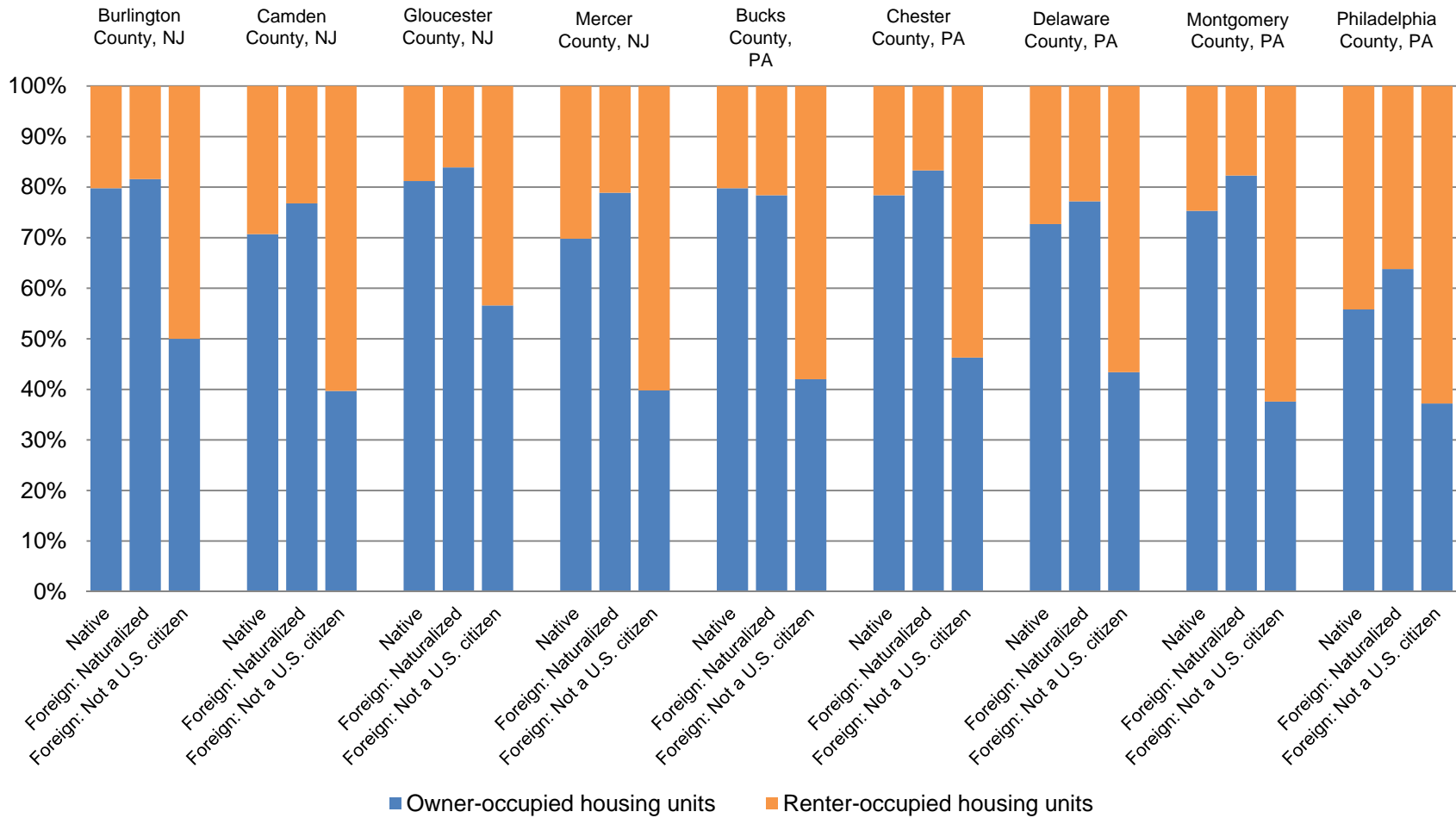
Year of Entry for Foreign-born by County



Education



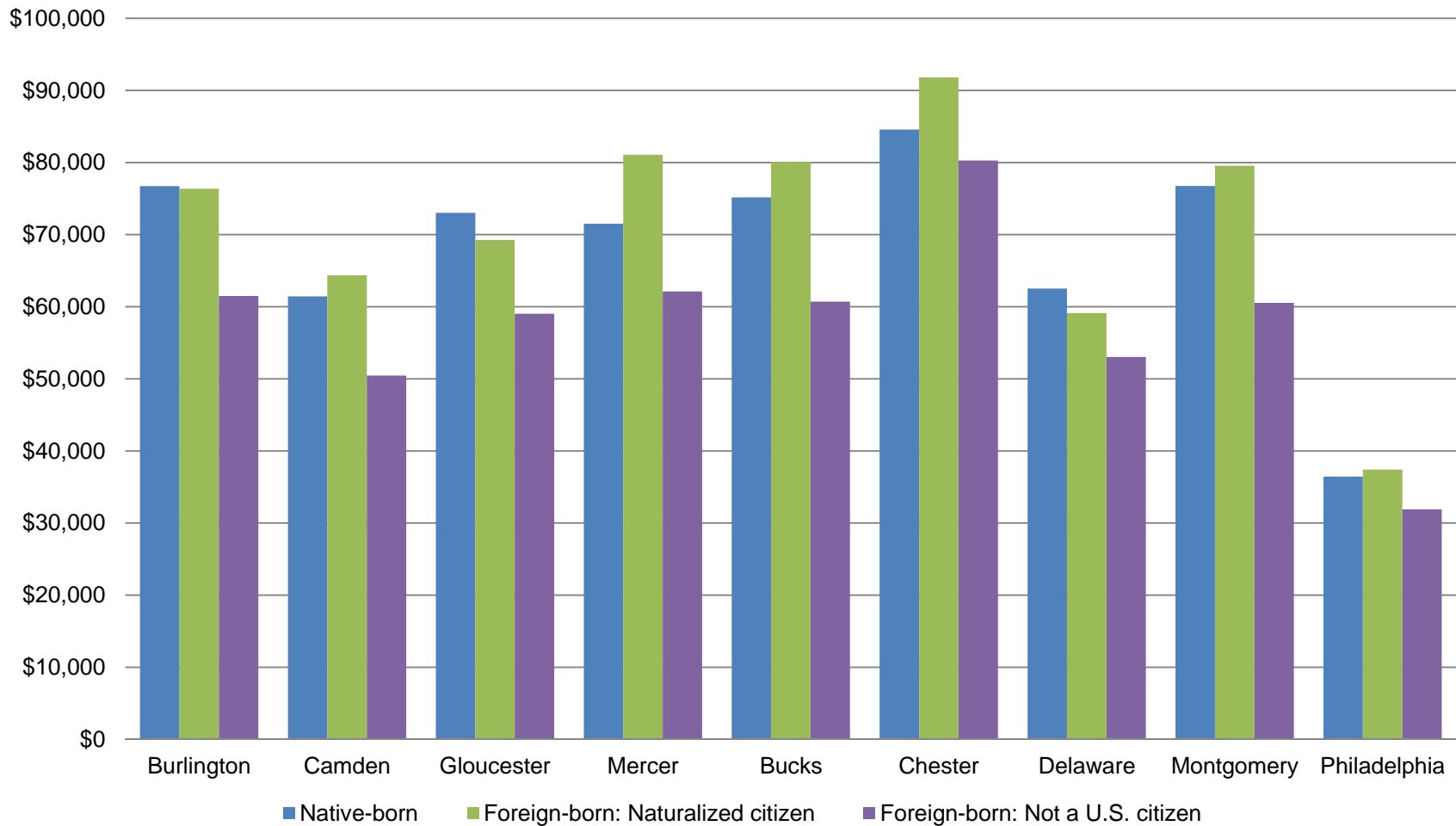
Housing Tenure in Greater Philadelphia



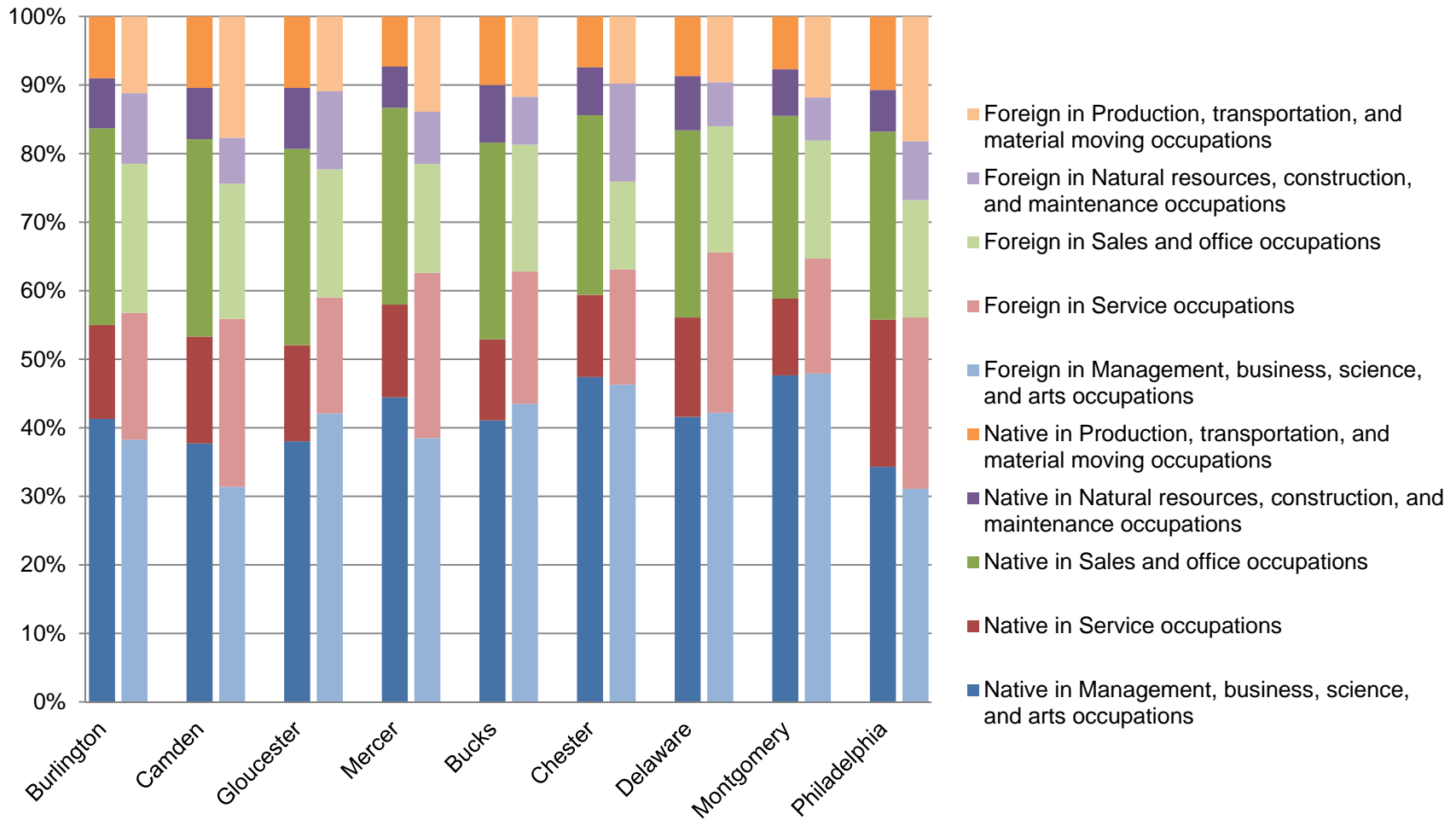
Vehicle Availability

County	Nativity	Vehicles Available		Margin of Error
		None	1 or More	
Burlington County, NJ	Native	4.7%	95.3%	+/-0.3
	Foreign-born	7.0%	93.0%	+/-1.4
Camden County, NJ	Native	11.3%	88.7%	+/-0.5
	Foreign-born	12.3%	87.7%	+/-1.8
Gloucester County, NJ	Native	5.4%	94.6%	+/-0.5
	Foreign-born	9.8%	90.2%	+/-2.9
Mercer County, NJ	Native	11.5%	88.5%	+/-0.6
	Foreign-born	11.9%	88.1%	+/-1.4
Bucks County, PA	Native	4.0%	96.0%	+/-0.3
	Foreign-born	6.0%	94.0%	+/-1.2
Chester County, PA	Native	4.6%	95.4%	+/-0.3
	Foreign-born	4.4%	95.6%	+/-1.0
Delaware County, PA	Native	10.6%	89.4%	+/-0.4
	Foreign-born	12.1%	87.9%	+/-1.9
Montgomery County, PA	Native	5.6%	94.4%	+/-0.2
	Foreign-born	6.9%	93.1%	+/-1.1
Philadelphia County, PA	Native	34.2%	65.8%	+/-0.5
	Foreign-born	28.9%	71.1%	+/-1.2

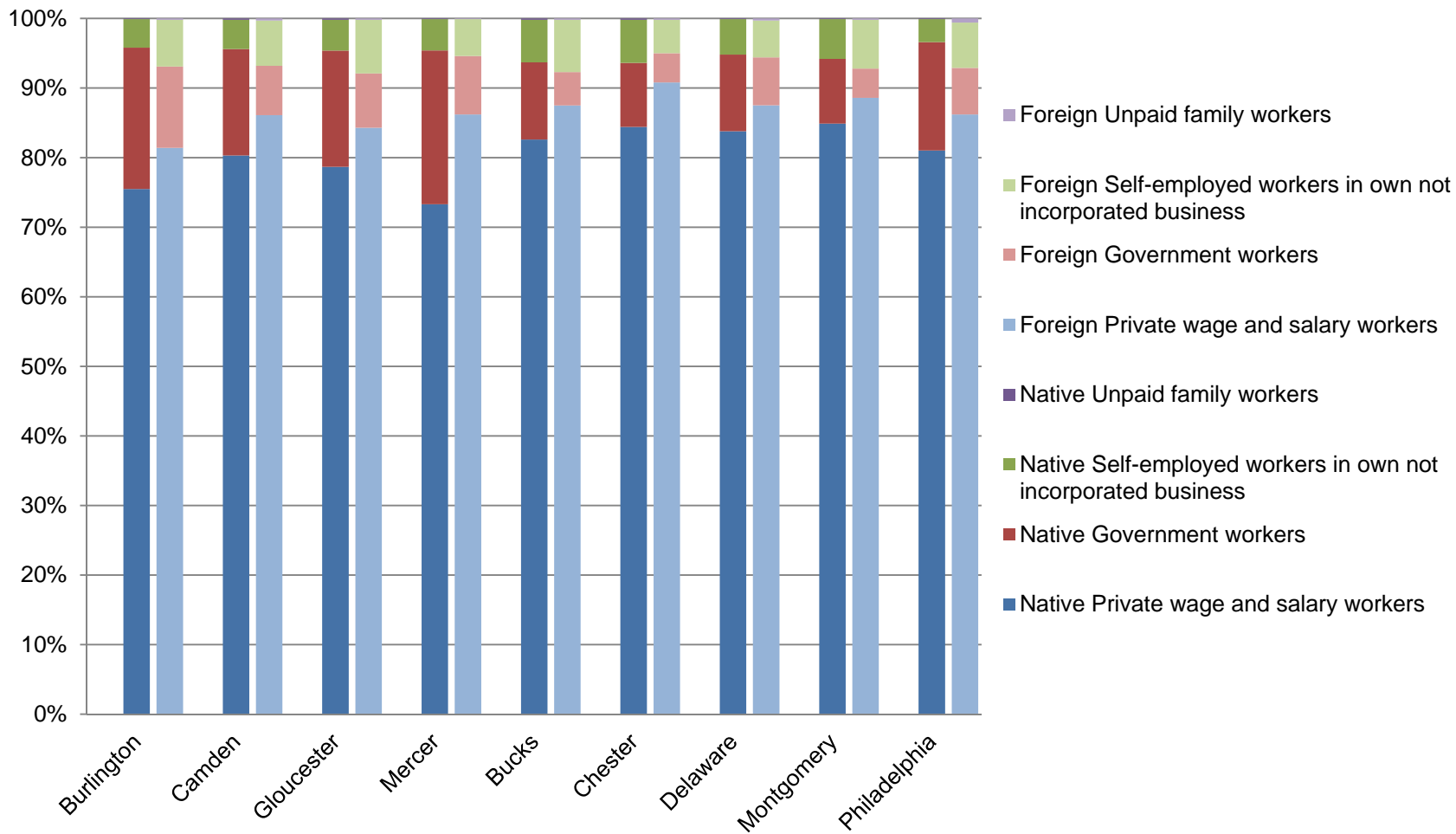
Median Household Income



Occupations



Worker Class



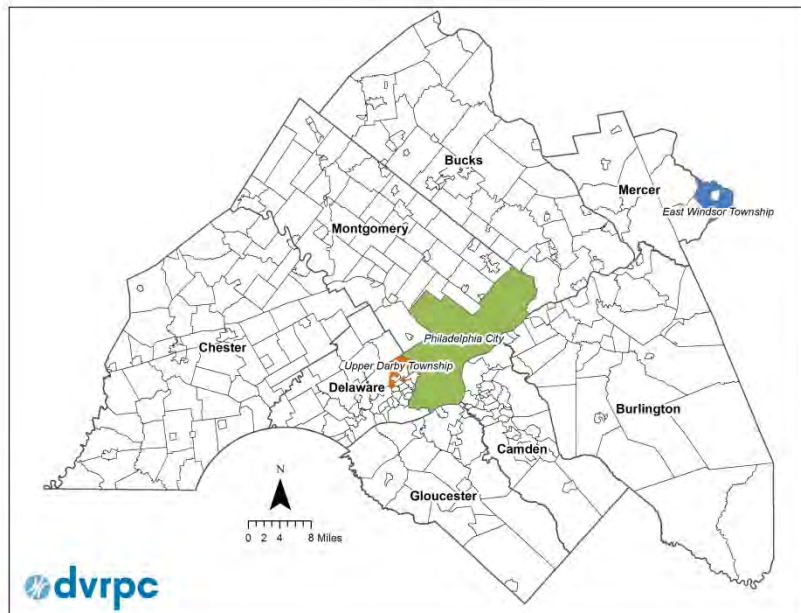
Concluding Thoughts

Greater Philadelphia's foreign-born population is:

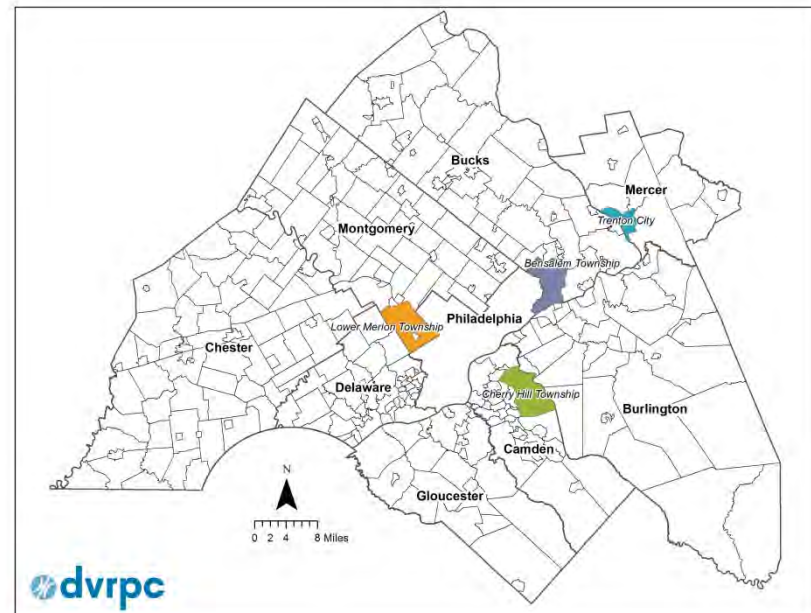
- fast growing
- extremely diverse
- not just a city phenomenon

Additional Reports

Data Snapshot #2: Philadelphia, Upper Darby and East Windsor



Data Snapshot #3: Trenton, Cherry Hill, Bensalem, Lower Merion





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Thank you for your attention

Questions?

