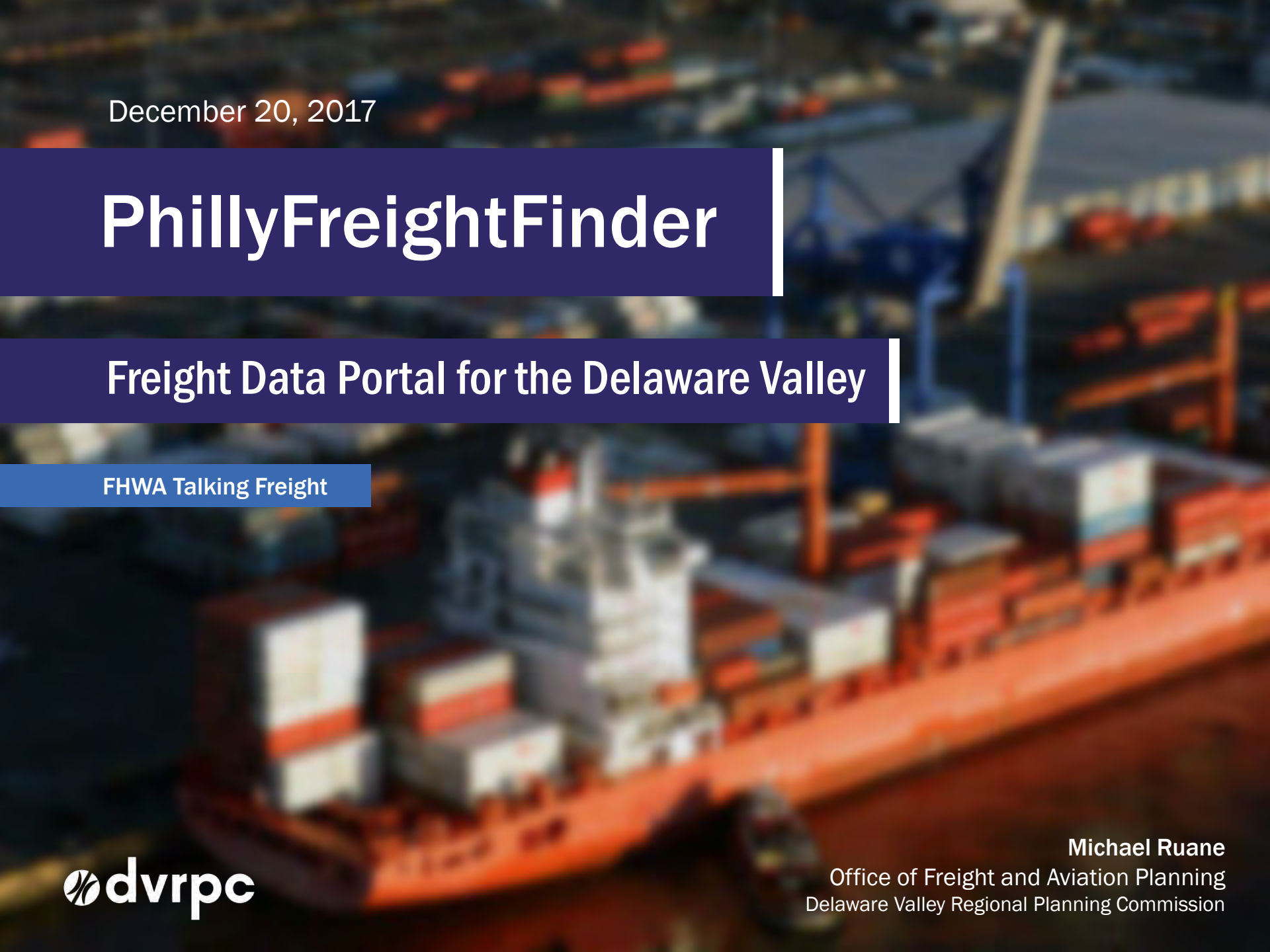
December 20, 2017

PhillyFreightFinder

Freight Data Portal for the Delaware Valley

FHWA Talking Freight

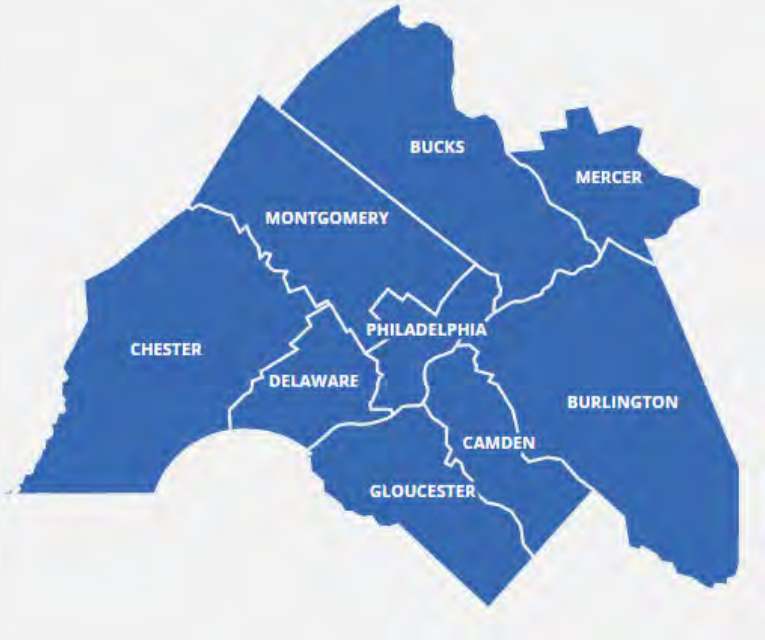


Michael Ruane
Office of Freight and Aviation Planning
Delaware Valley Regional Planning Commission

dvrpc

Project Overview

- Background on PhillyFreightFinder
- Impetus for development
- Technical overview
- Data, data, and more data
- Replication of PhillyFreightFinder



The Delaware Valley is a premier freight transportation gateway. The performance of its extraordinary network helps promote and support a thriving economy.
PhillyFreightFinder is a resource for exploring and tracking this Philadelphia-Camden-Trenton regional freight network.

DVRPC Region
MPO for Greater Philadelphia

9 county, bi-state region (PA,NJ)

Background

AN **ONLINE, INTERACTIVE** PLATFORM FOR SHARING FREIGHT NETWORK **DATA TO ENHANCE THE UNDERSTANDING** OF PERFORMANCE AND VALUE OF FREIGHT IN THE REGIONAL ECONOMY

LAUNCHED 2013

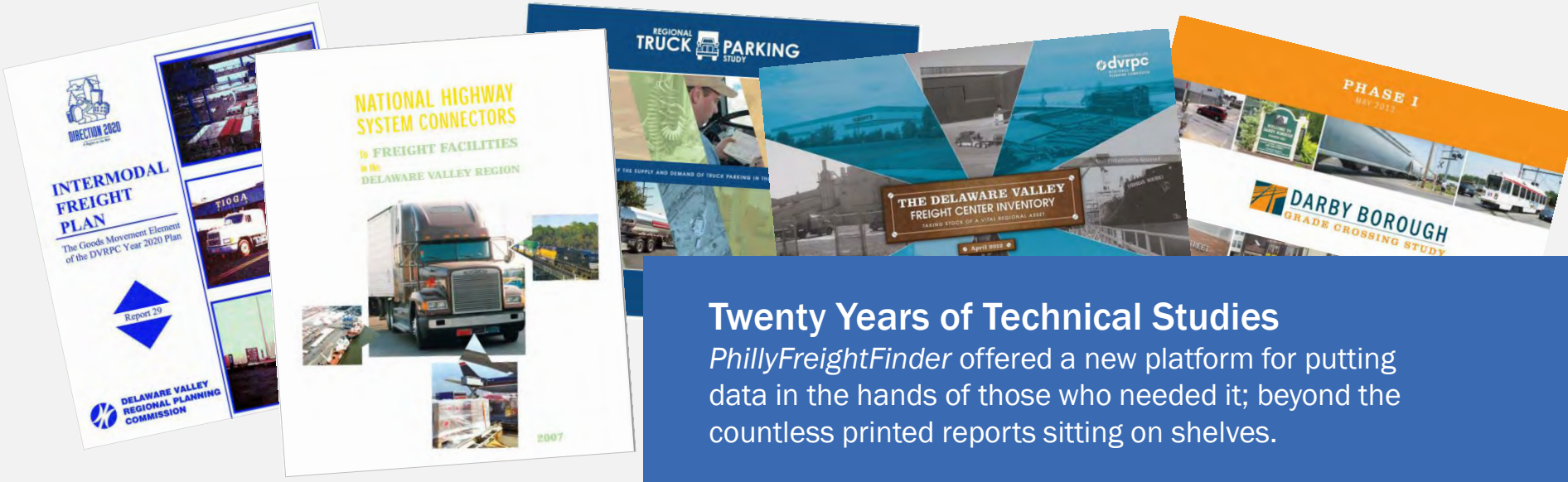
With support from the DVRPC Freight Advisory Committee, the initial product was made public in 2013. The FAC assisted with identification of data and included a mix of public and private-sector members.

DVRPC FREIGHT

PhillyFreightFinder was built internally through the DVRPC freight office, building on a foundation of technical work that was conducted over 20+ years. The project remains an integral part of the annual work of the DVRPC Office of Freight.

Why build *PhillyFreightFinder*

- **Expand reach** of freight planning efforts
- Improve **visibility + availability** of freight data
- **Educate** regional planners and the public
- Develop **better data sharing** with public- and private-sectors



Twenty Years of Technical Studies

PhillyFreightFinder offered a new platform for putting data in the hands of those who needed it; beyond the countless printed reports sitting on shelves.

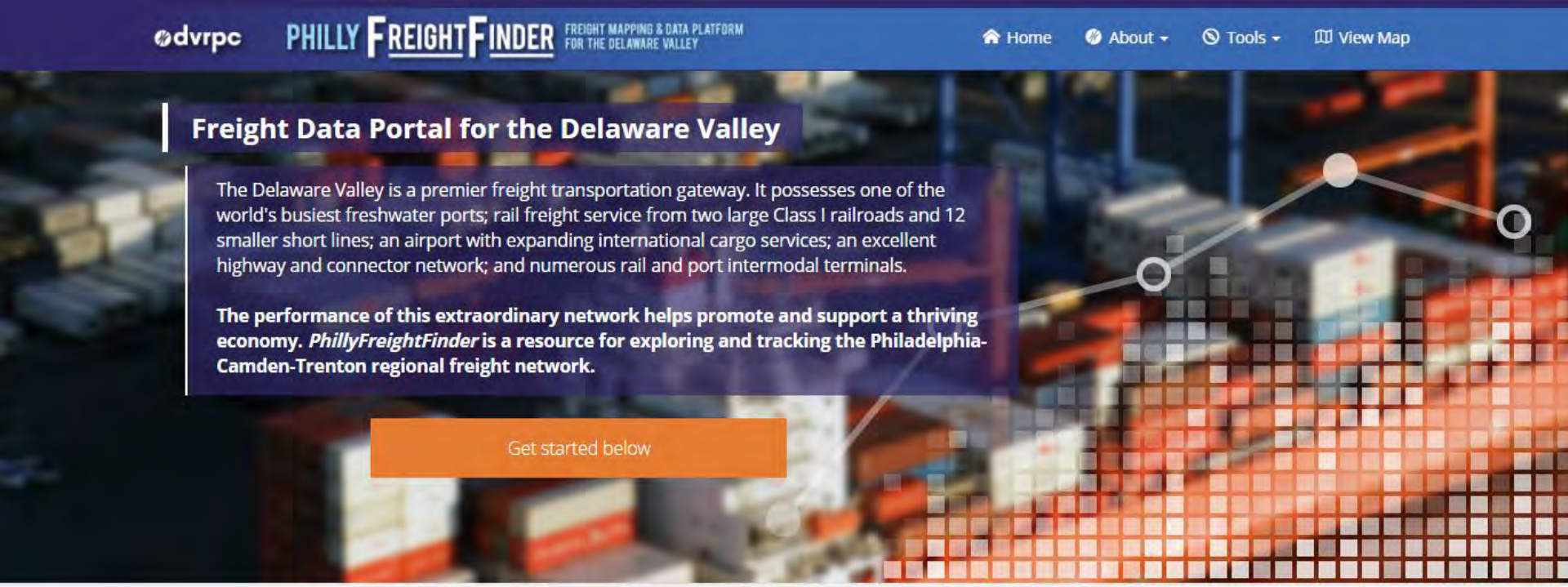
Technical Overview

FRONTEND APPLICATION

- Built 100% in-house
- Flexible, lightweight
- Open Source code
- Independent of Esri stack

BACKEND MANAGEMENT

- ArcGIS Server
- Python for data intake
- Automation of data updates built-in to workflow



County Freight Profiles

The DVRPC region is comprised of nine counties, each with a unique freight profile of facilities, employment, and trade patterns. The County Profile Tool provides insights on these unique aspects.

Explore a county

Performance Indicators

A key to understanding freight in the Delaware Valley is evaluating the performance of the facilities that support freight in the region.

View Highway Performance

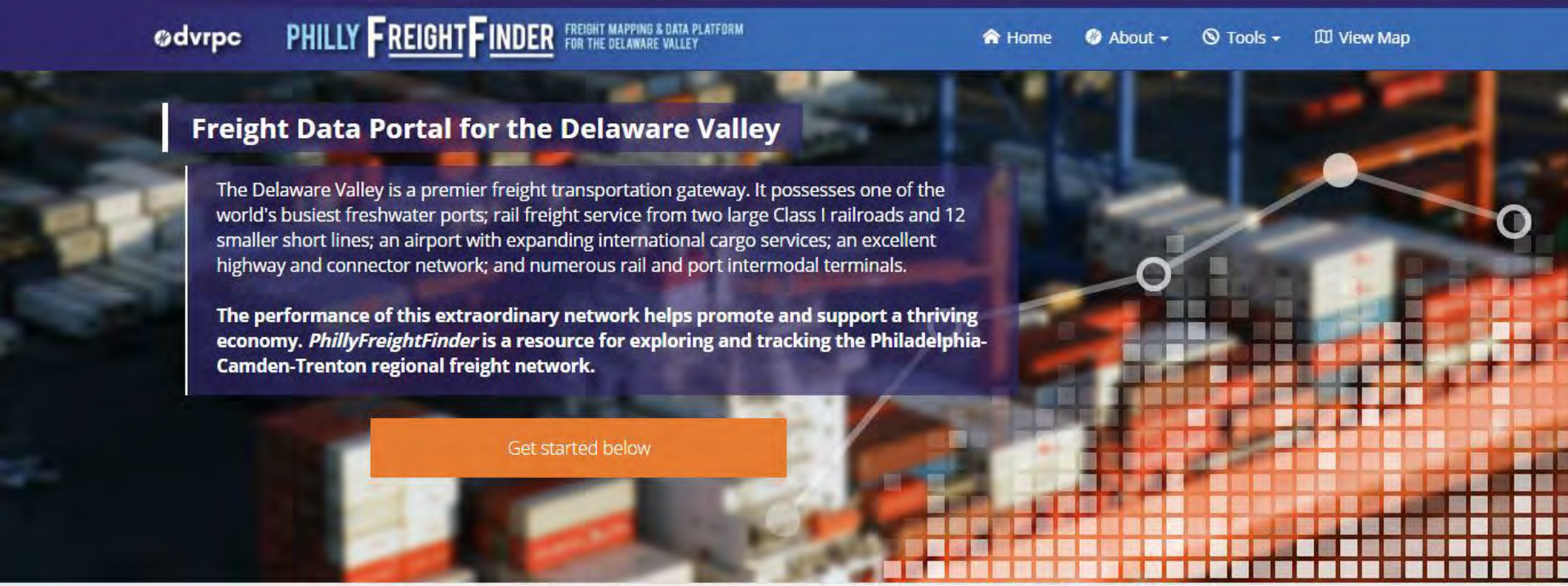
View Maritime Indicators

Explore Our Network

The region's extensive network includes hundreds of individual facilities that function together to drive the economy. Our map tool allows you to explore key details and facts about each of these facilities.

Browse the network map

www.dvrpc.org/webmaps/phillyfreightfinder



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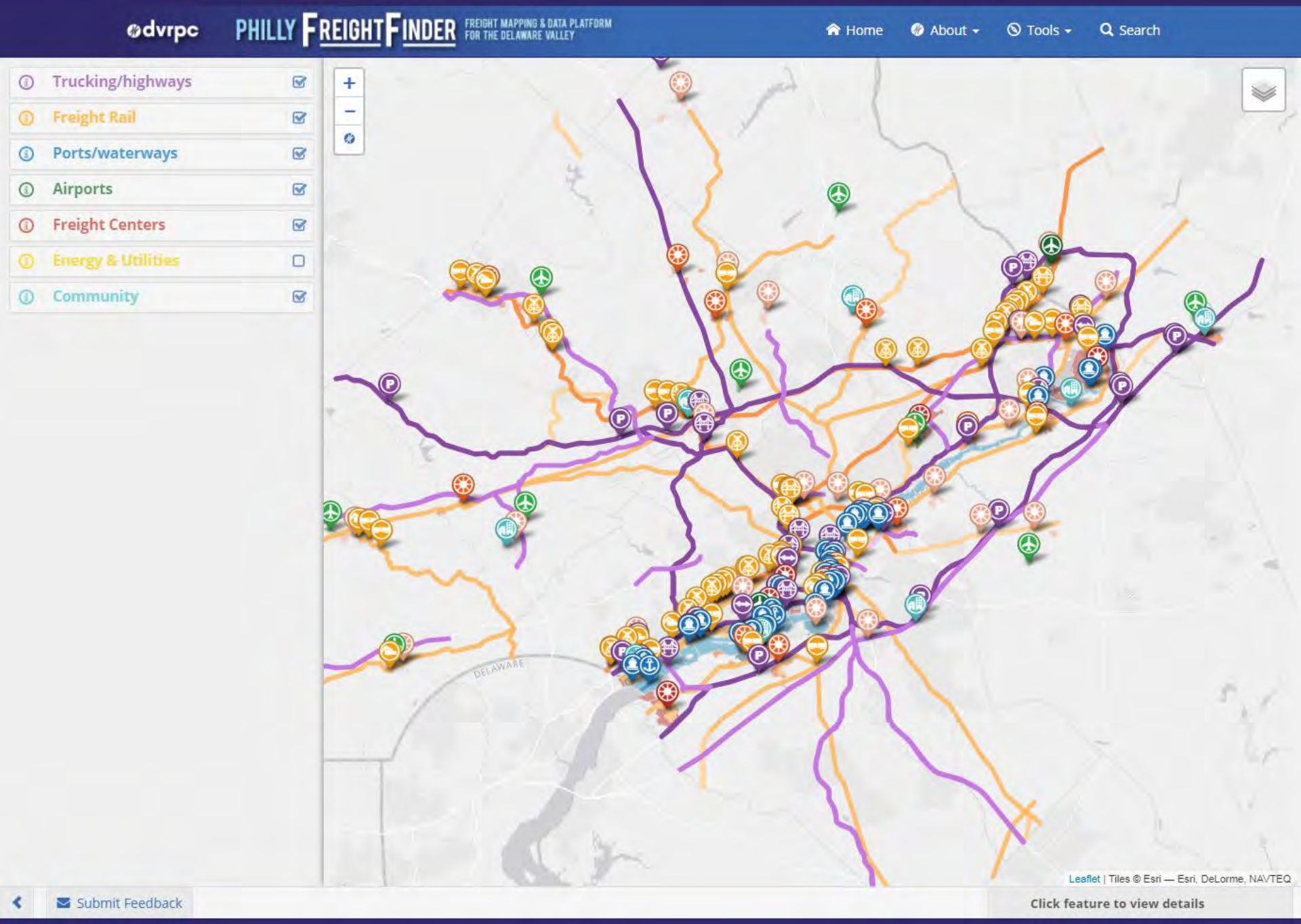

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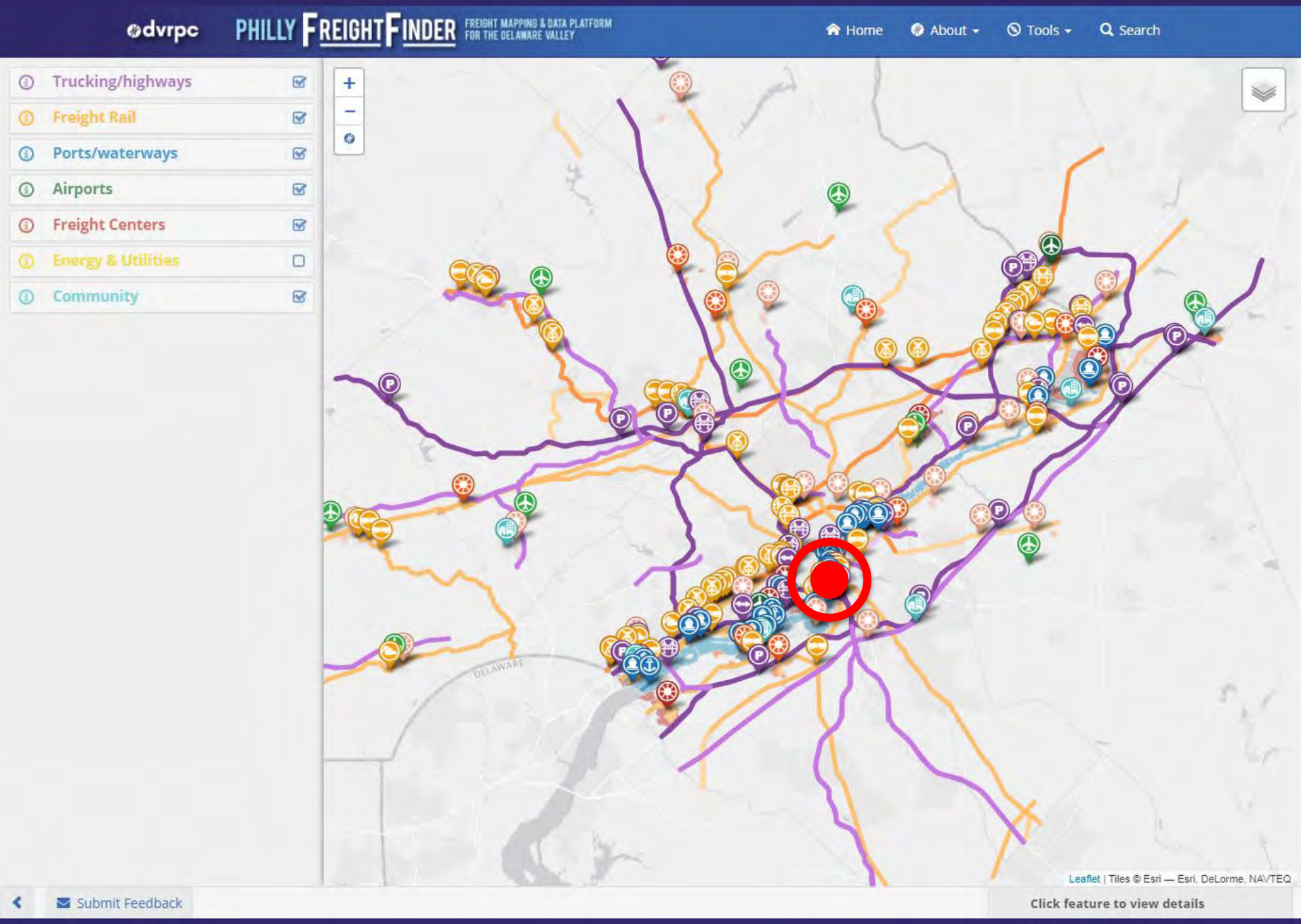

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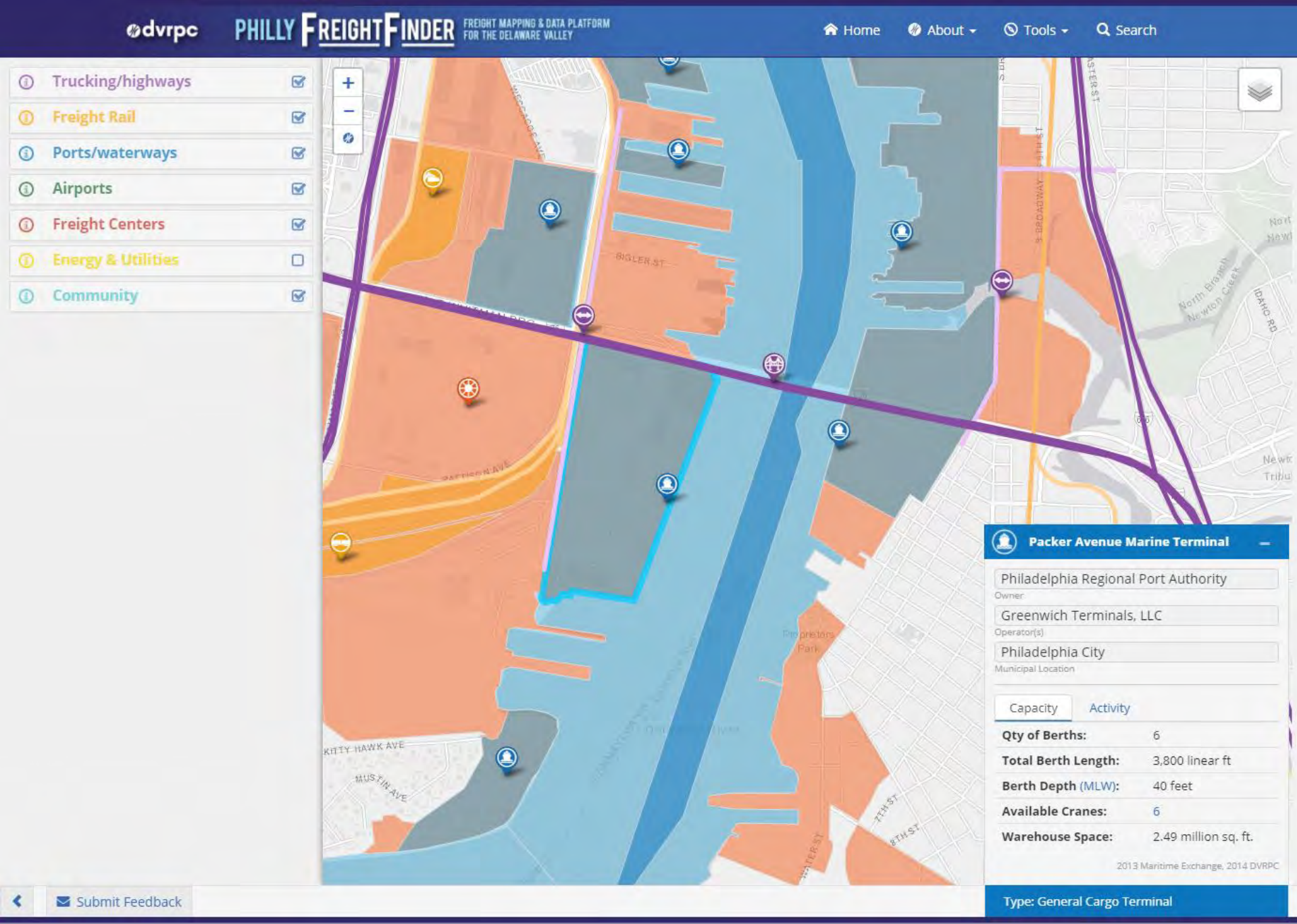

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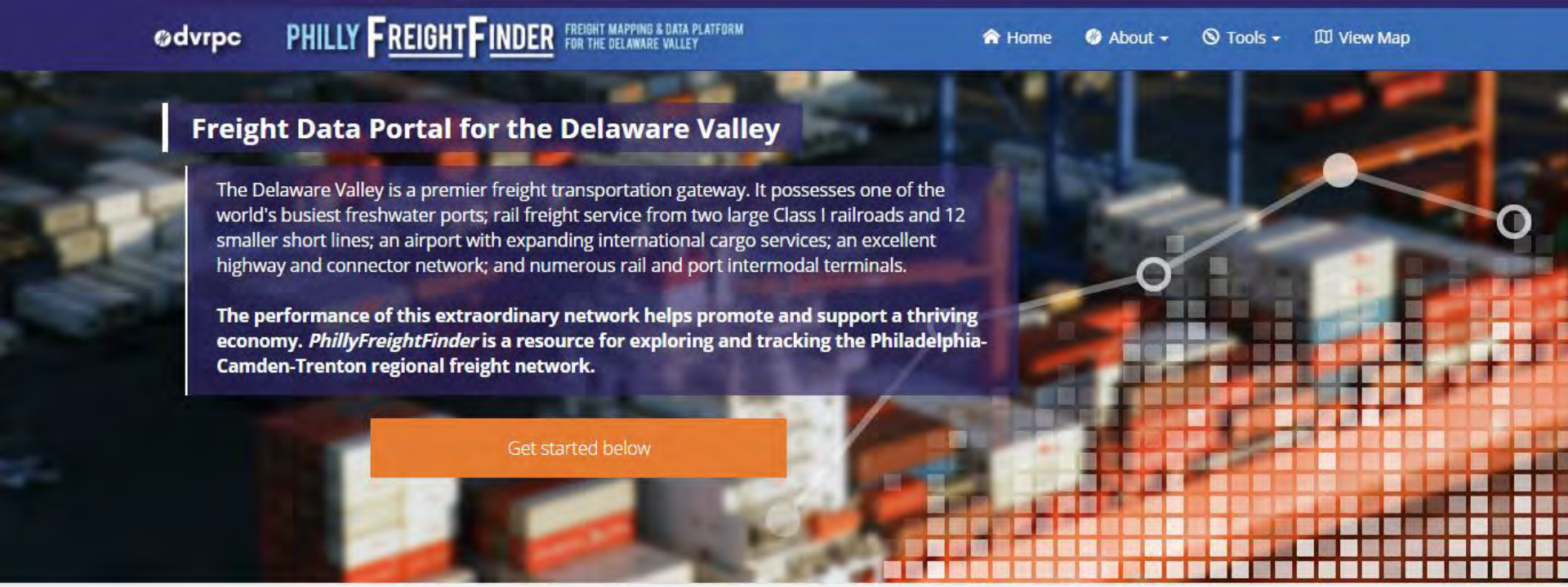

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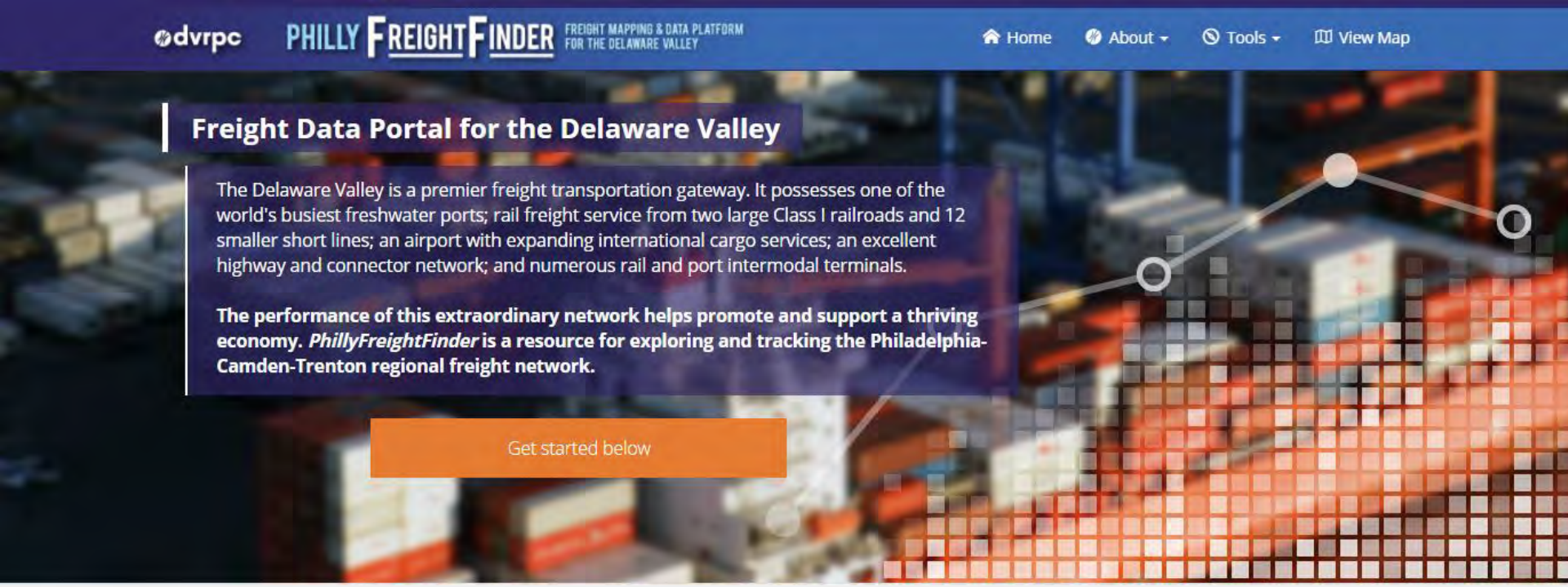

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DVRPC Region | Overview

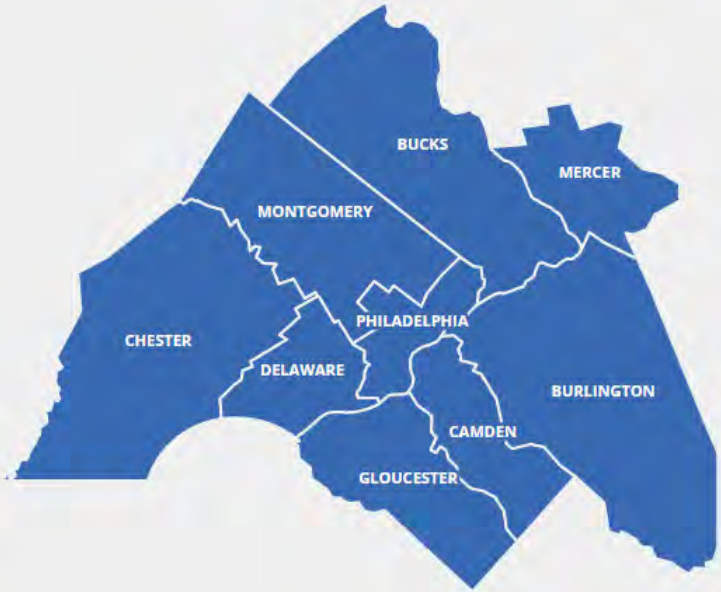
overview network trade patterns

The Delaware Valley region consists of nine counties: Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania, and Burlington, Camden, Gloucester and Mercer in New Jersey.

The DVRPC region contains an impressive freight transportation network consisting of highways, rail lines, ports, airports, and pipelines. These key linkages unite an expansive list of facilities including warehouses, manufacturing sites, rail yards, and truck stops.

Strategically positioned in the middle of the densest population center in the United States: over 100 million people live within a 500-mile radius of Philadelphia, representing a vast consumer base and making the region ideally situated as a manufacturing and distribution hub.

Explore freight facilties and activity by county
(select a county of interest)



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Philadelphia County | Network

Like powerful Internet networking tools, Philadelphia, Pennsylvania's freight system affords rapid, productive, and global connections. Once known as the *Workshop of the World*, Philadelphia now serves as the calling card of the Delaware Valley region's impressive freight assets. For even the casual observer, the City's prominence in international commerce is abundantly evident: mammoth container cranes, multi-cultural company logos, and non-stop daily pick-up and delivery patterns dot the landscape.

A Ship being unloaded at Packer Avenue Marine Terminal

Freight Network Statistics

HIGHWAY STATISTICS

- **39** MILES INTERSTATE ROUTES
- **91** MILES NATIONAL HIGHWAY
- **4** NHS CONNECTORS
- **26** INTERSTATE HIGHWAY INTERCHANGES
- **0** TRUCK STOPS AND REST AREAS

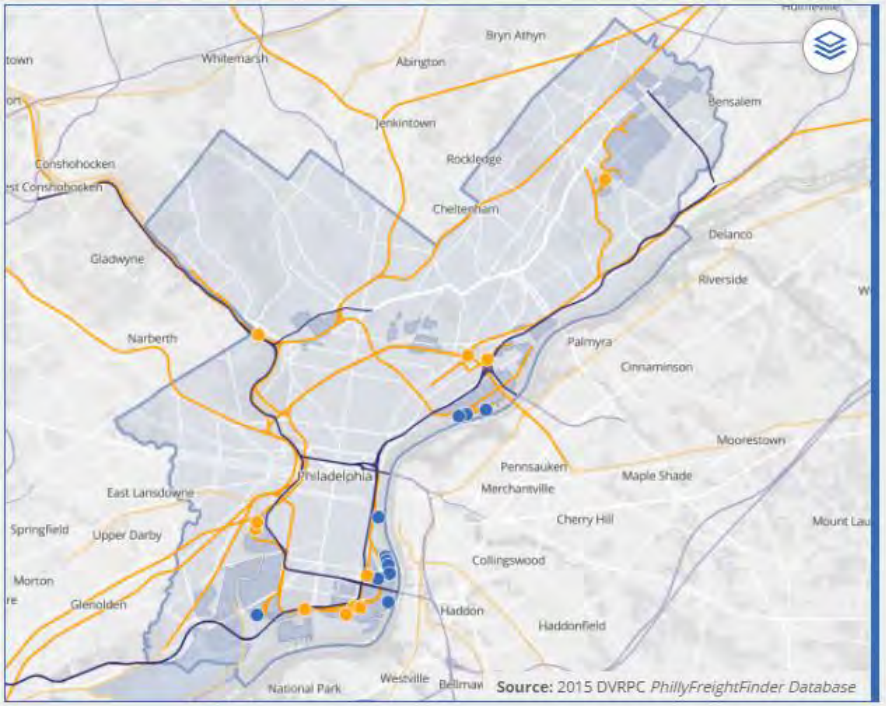
FREIGHT RAIL STATISTICS

- **105** MILES FREIGHT TRACKAGE
- **11** YARDS AND INTERMODAL TERMINALS

MARITIME STATISTICS

- **10** PORT TERMINALS
- **734** ANNUAL SHIP CALLS

- **8** UNIQUE FREIGHT
- **37.3 k** EMPLOYMENT FREIGHT



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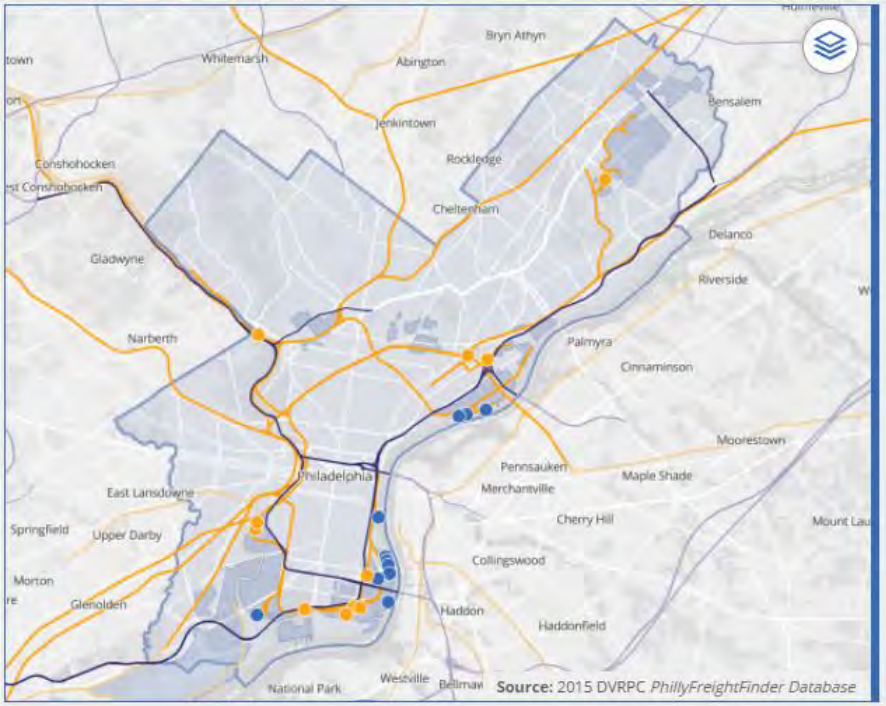

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Philadelphia County | Domestic Trade Patterns

overview | network | trade patterns

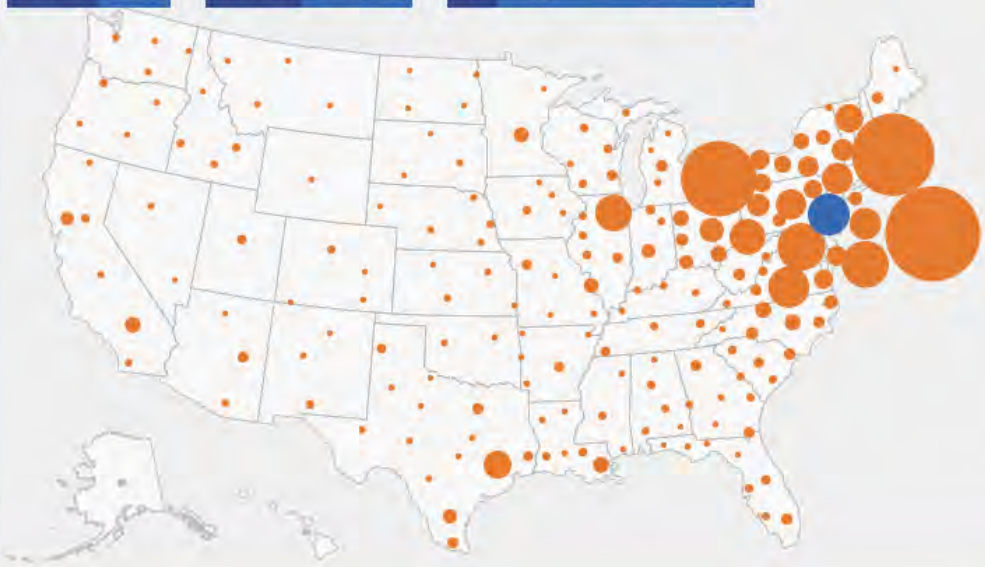
Top Trading Partners

Southern New Jersey	4,176.2 ktons
New York Metro Area	3,244.9 ktons
Harrisburg, PA	2,759.6 ktons
Delaware County, PA	1,195.9 ktons
Gloucester County, NJ	1,151.4 ktons
Washington DC Metro Area	903.2 ktons
Chicago, IL	719.0 ktons
Pittsburgh, PA	688.2 ktons
Chester County, PA	537.0 ktons
Bucks County, PA	518.4 ktons

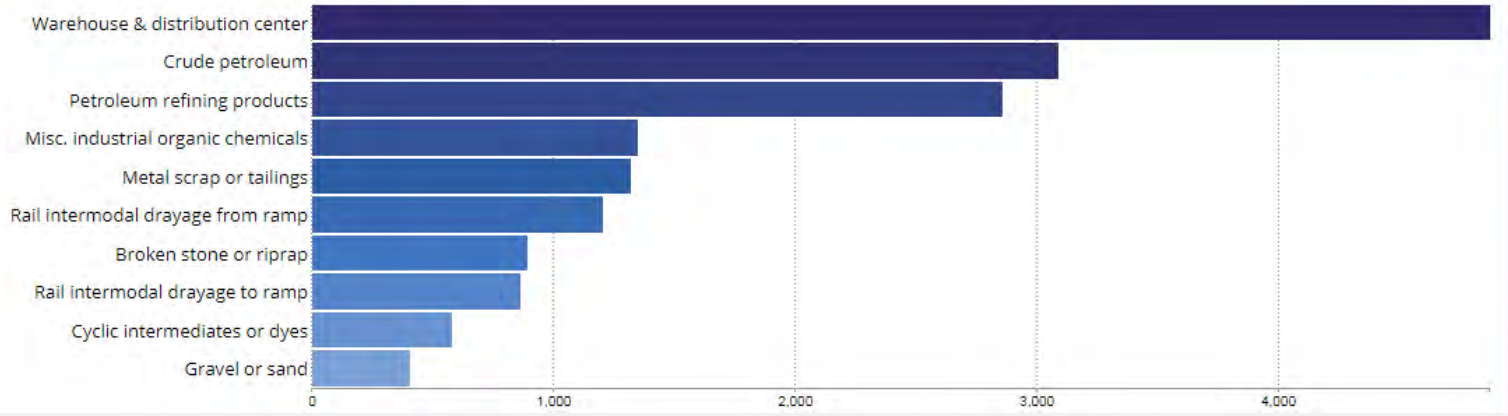
Measured by: Volume | Value

Shipment direction: Inbound | Outbound

Mode of transportation: All | Truck | Rail | Water | Air



Top Inbound Commodities by Volume



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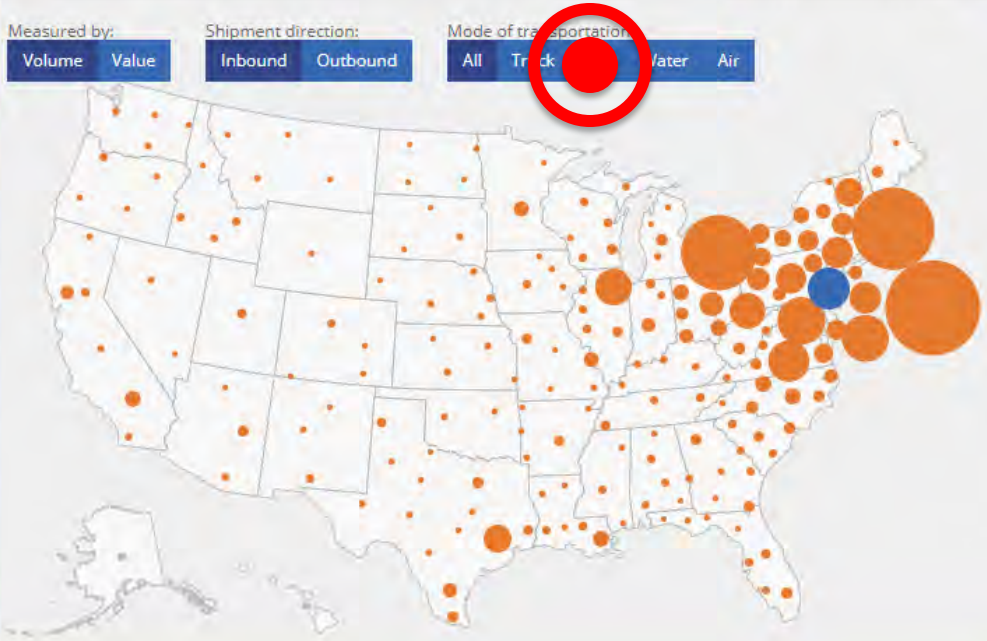

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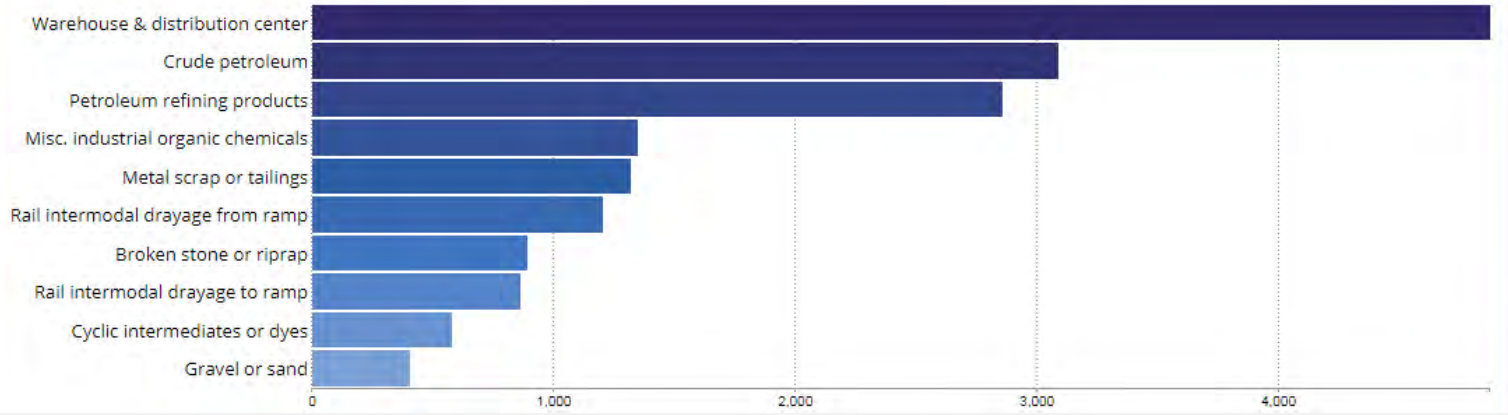

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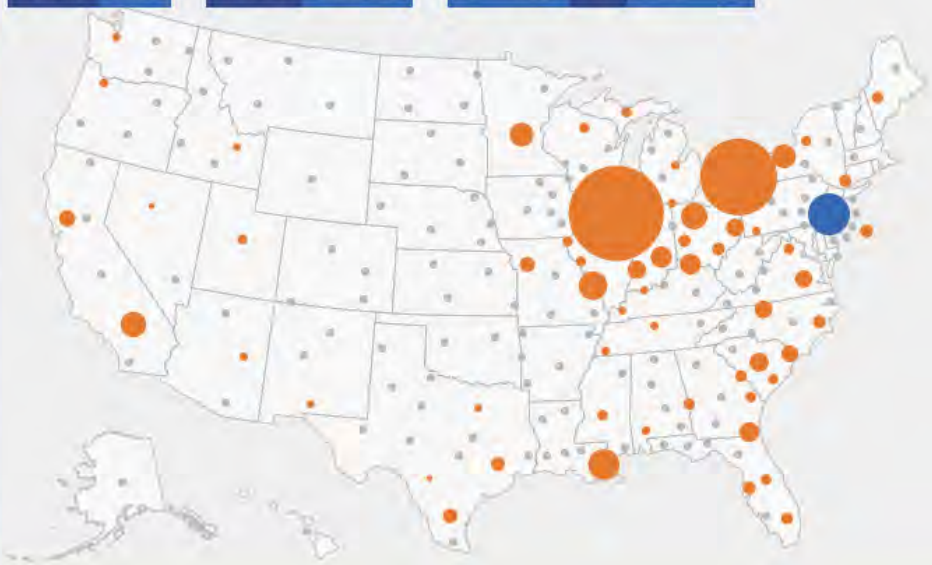
New Orleans, LA	85.8 ktons
St. Louis, MO	73.4 ktons
Toledo-Fremont, OH	62.7 ktons
Los Angeles-Long Beach, CA	58.9 ktons
Minneapolis, MN	51.0 ktons
Buffalo, NY	50.7 ktons
Indianapolis, IN	40.7 ktons
Cincinnati, OH	39.0 ktons

Measured by: Volume Value

Shipment direction: Inbound Outbound

Mode of transportation: All Truck Rail Water Air



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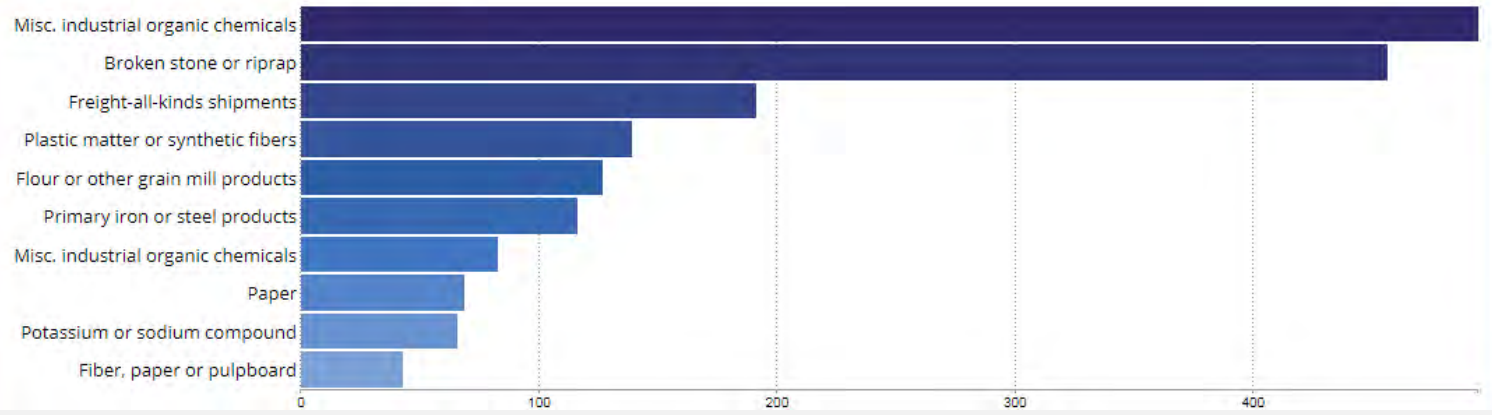

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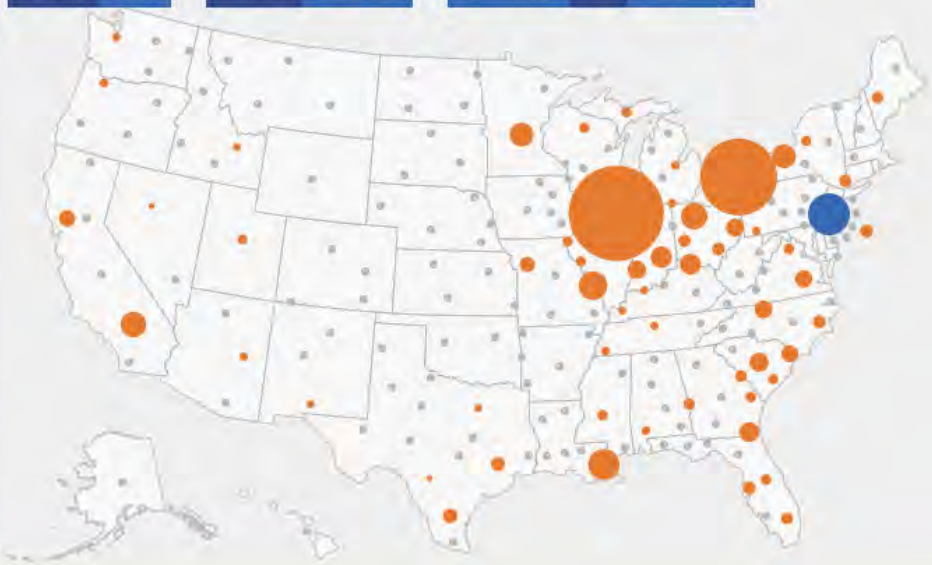

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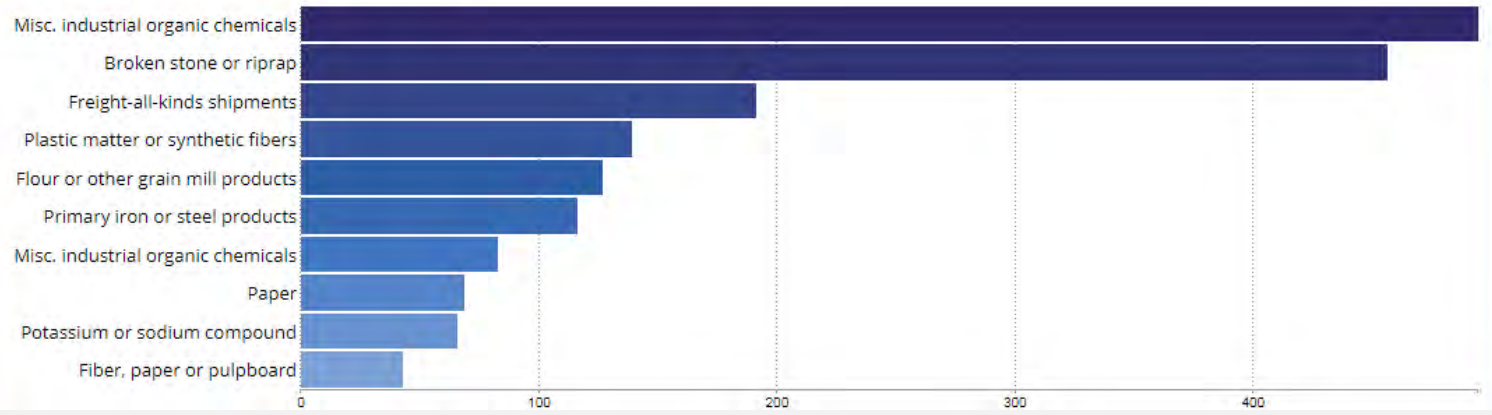

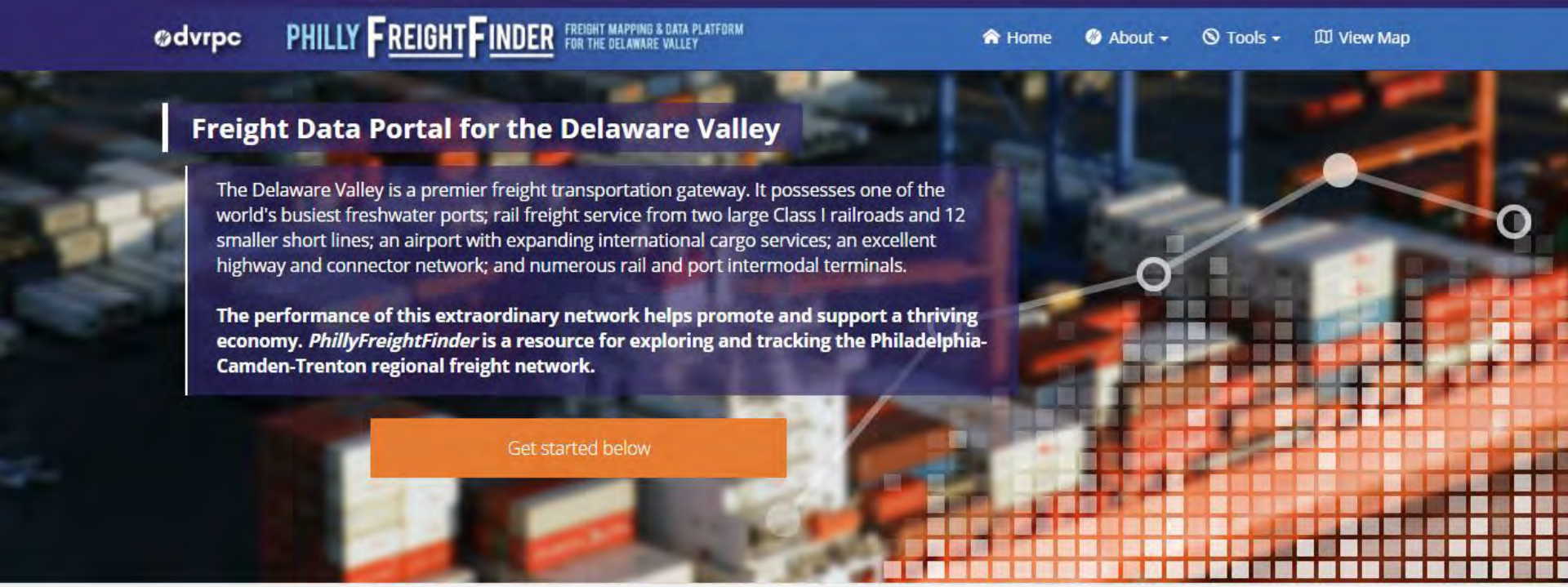

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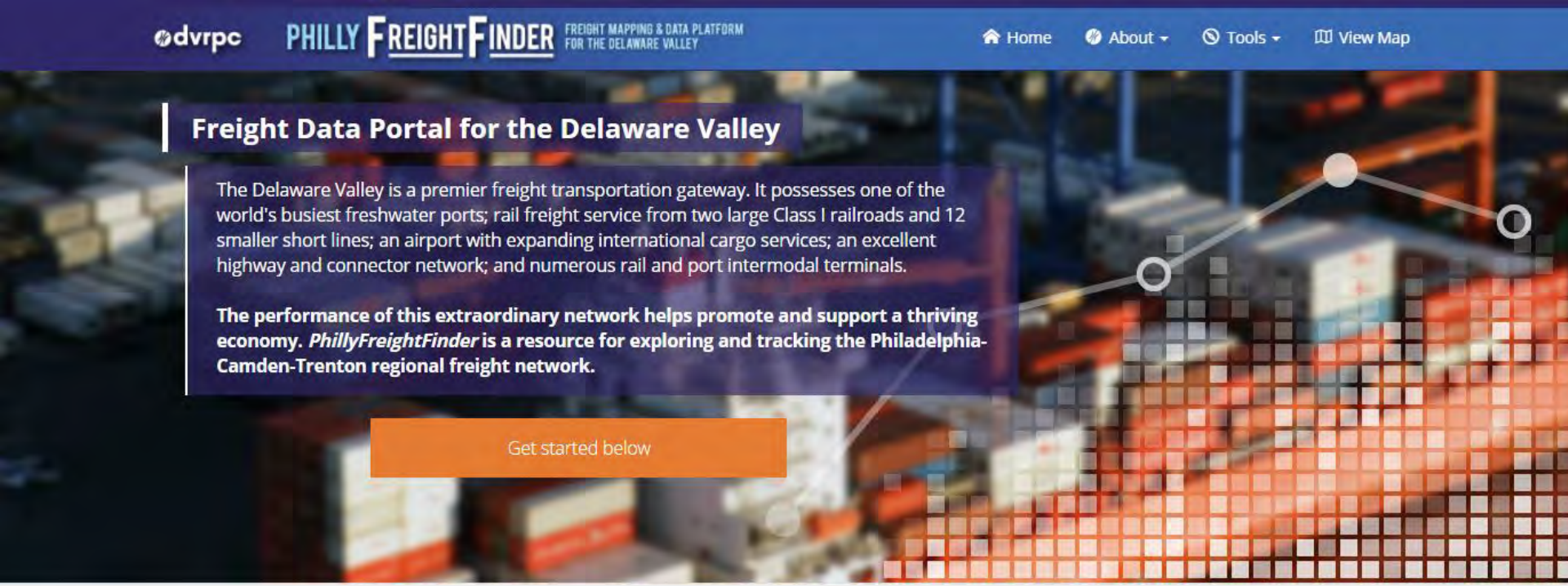

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Maritime Indicators

select a year: 2015

2015 Annual Indicators

4 regional port rank by volume

62.2 M total trade (tons)

10.0% regional change vs. **-2.3%** national change

$24 B total foreign trade

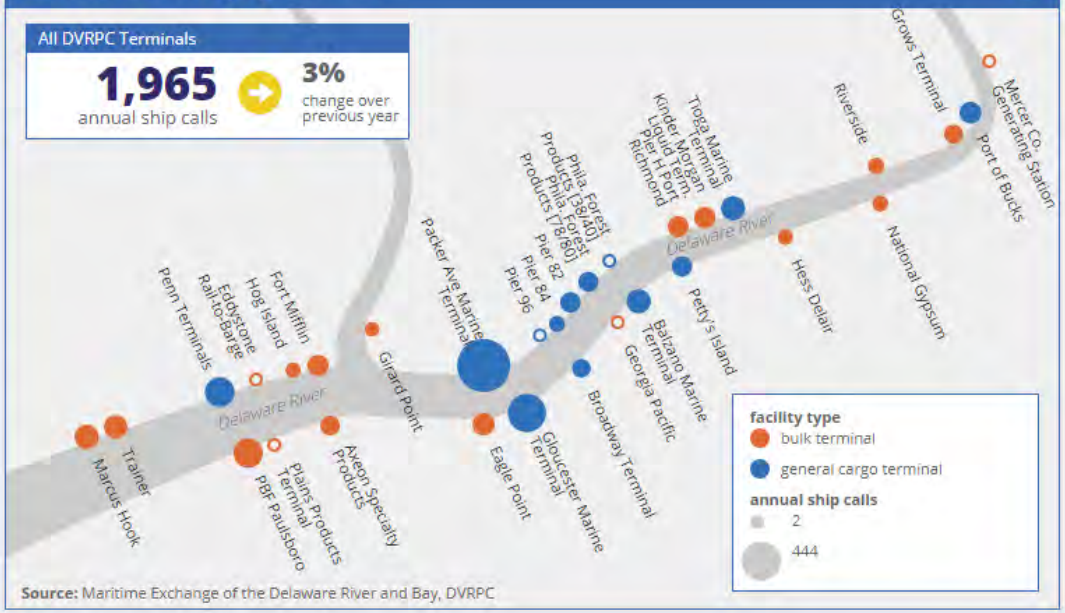
-6.1% regional change vs. **-10.8%** national change

5.4 M maritime exports (tons)

1.2% regional change vs. **-15.1%** national change

18% export share of foreign trade by volume

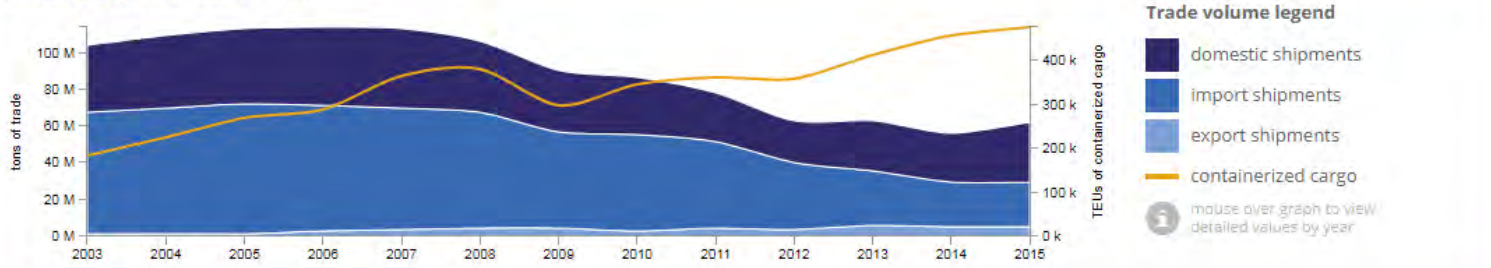
2015 vessel activity by terminal



Source: Maritime Exchange of the Delaware River and Bay, DVRPC

Maritime Activity over time

Trade type by volume 2003 - 2015



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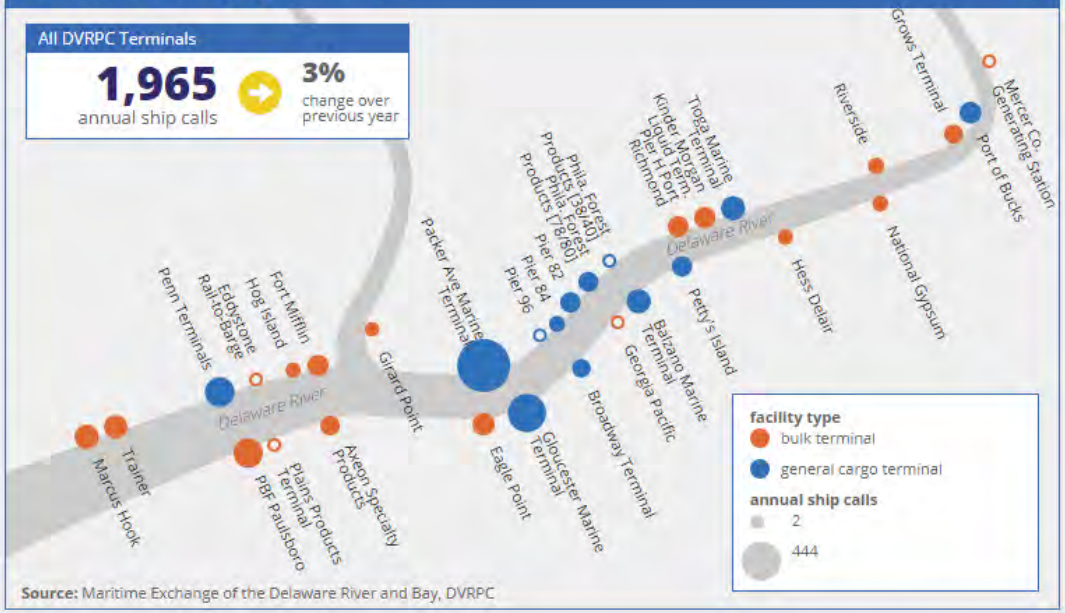

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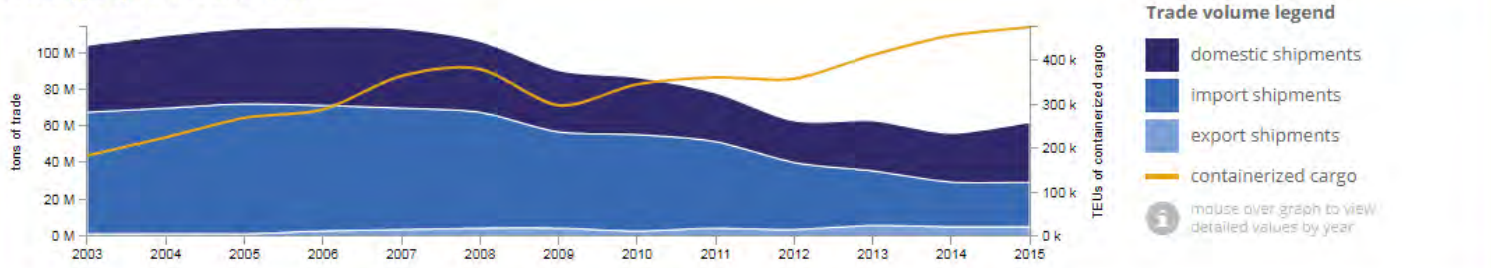

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Maritime Indicators

select a year: 2014

2014 Annual Indicators

4 regional port rank by volume

56.6 M total trade (tons)

-10.3% regional change vs. **5.2%** national change

$25 B total foreign trade

-0.7% regional change vs. **0.3%** national change

5.3 M martime exports (tons)

-13.8% regional change vs. **0.4%** national change

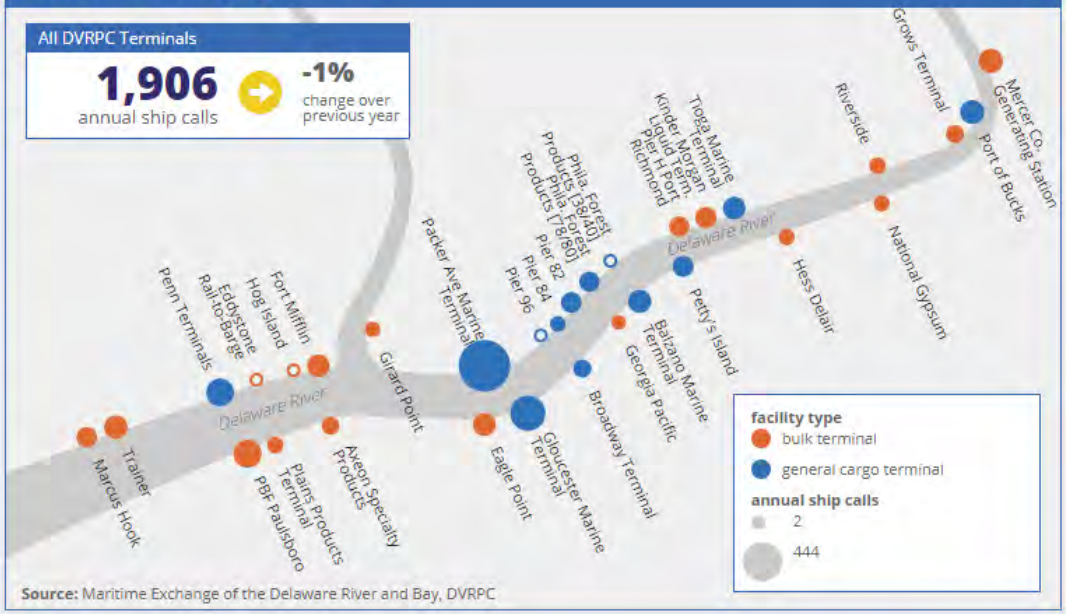
18% export share of foreign trade by volume

2014 vessel activity by terminal

All DVRPC Terminals

1,906 annual ship calls

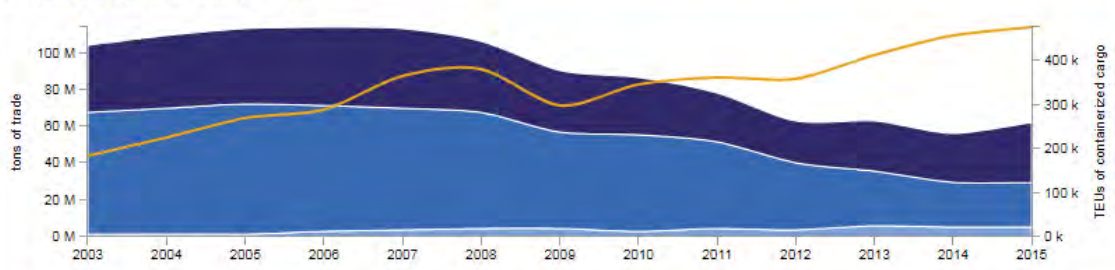
-1% change over previous year



Source: Maritime Exchange of the Delaware River and Bay, DVRPC

Maritime Activity over time

Trade type by volume 2003 - 2015



Trade volume legend

- domestic shipments
- import shipments
- export shipments
- containerized cargo

mouse over graph to view detailed values by year

www.dvrpc.org/webmaps/phillyfreightfinder

Maritime Indicators

select a year: 2014

2014 Annual Indicators

4 regional port rank by volume

56.6 M total trade (tons)

-10.3% regional change vs. **5.2%** national change

$25 B total foreign trade

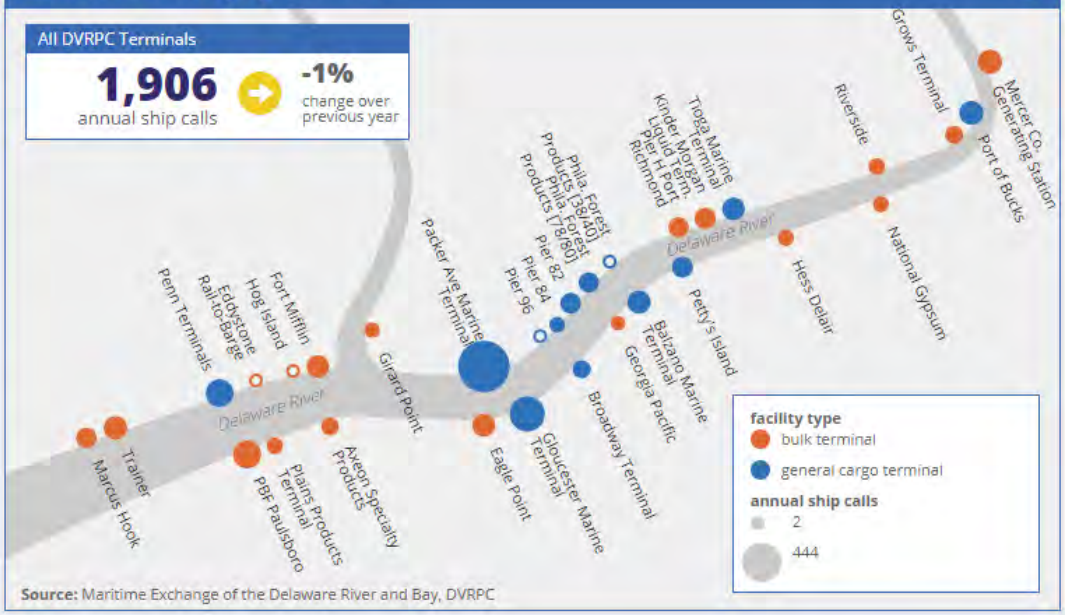
-0.7% regional change vs. **0.3%** national change

5.3 M martime exports (tons)

-13.8% regional change vs. **0.4%** national change

18% export share of foreign trade by volume

2014 vessel activity by terminal



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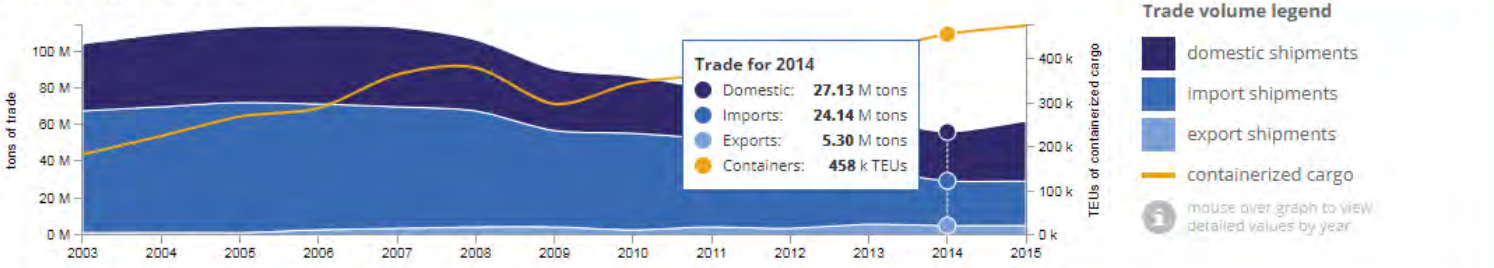
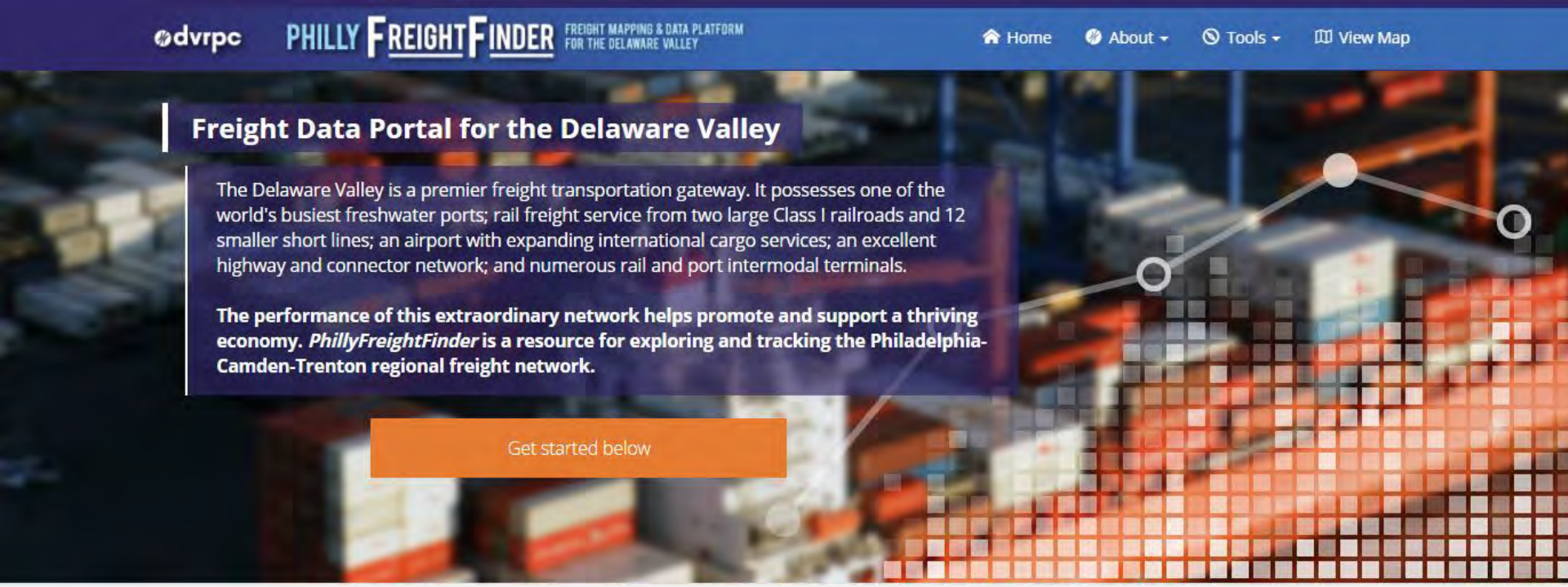




County Freight Profiles

The DVRPC region is comprised of nine counties, each with a unique freight profile of facilities, employment, and trade patterns. The County Profile Tool provides insights on these unique aspects.

Explore a county

Performance Indicators

A key to understanding freight in the Delaware Valley is evaluating the performance of the facilities that support freight in the region.

View Highway Performance

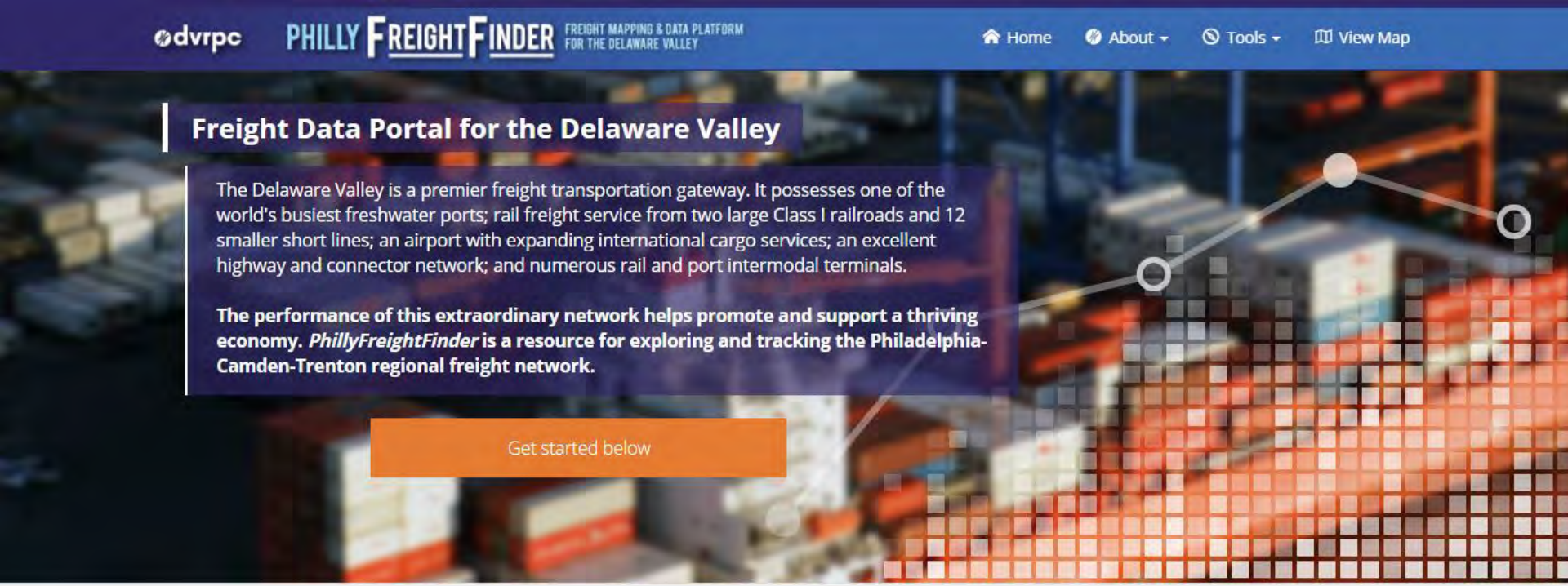
View Maritime Indicators

Explore Our Network

The region's extensive network includes hundreds of individual facilities that function together to drive the economy. Our map tool allows you to explore key details and facts about each of these facilities.

Browse the network map

www.dvrpc.org/webmaps/phillyfreightfinder



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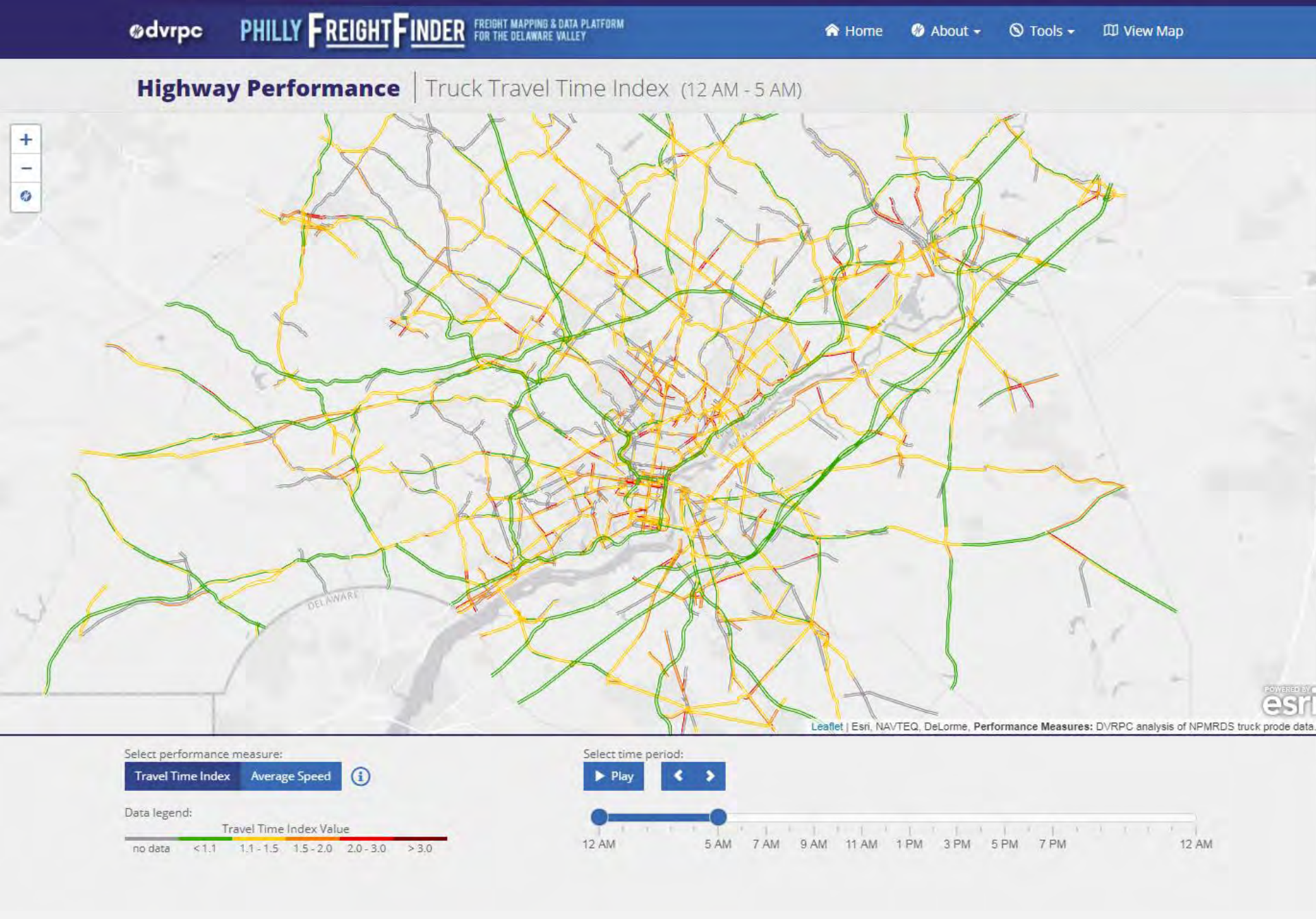

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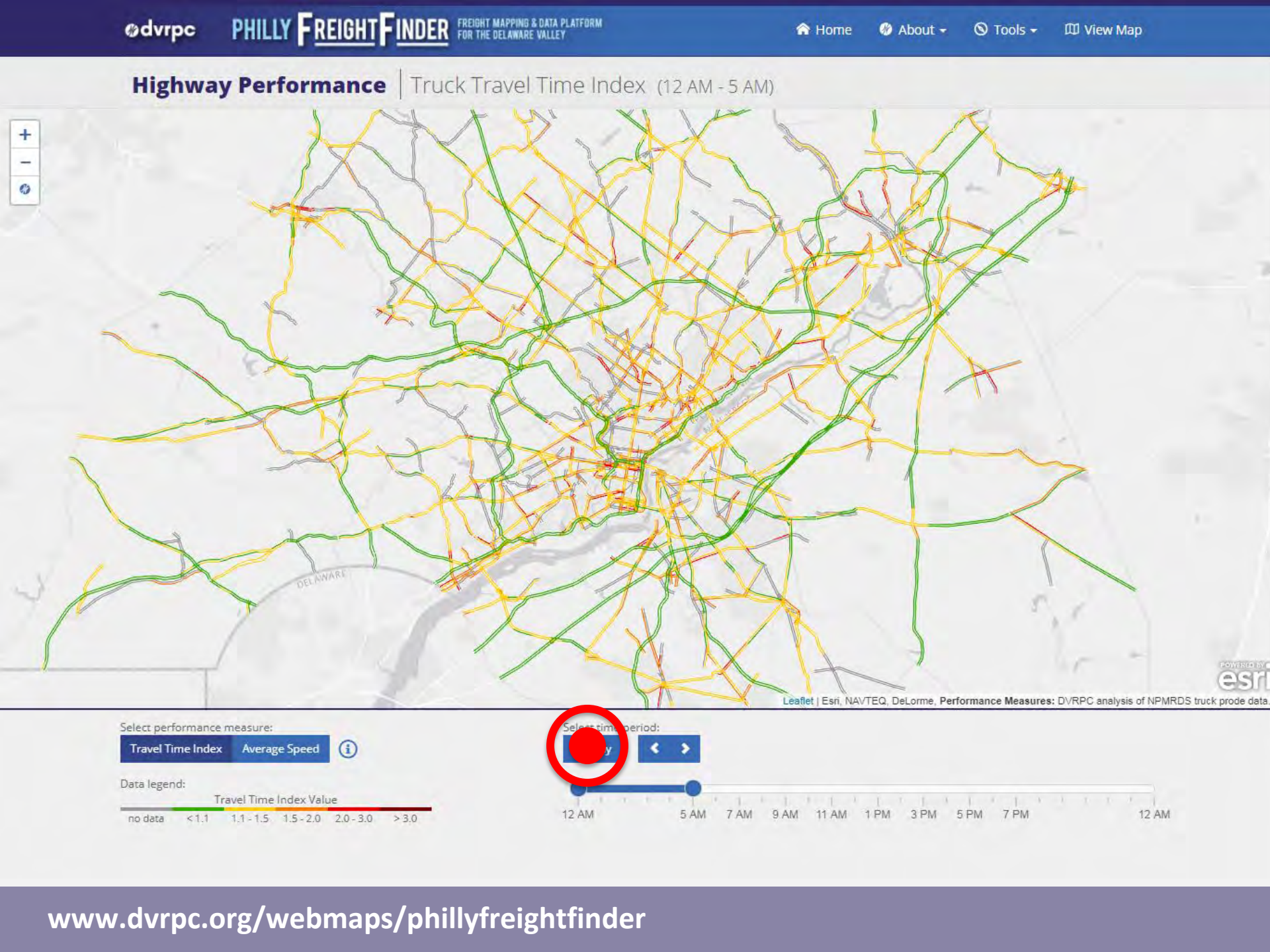

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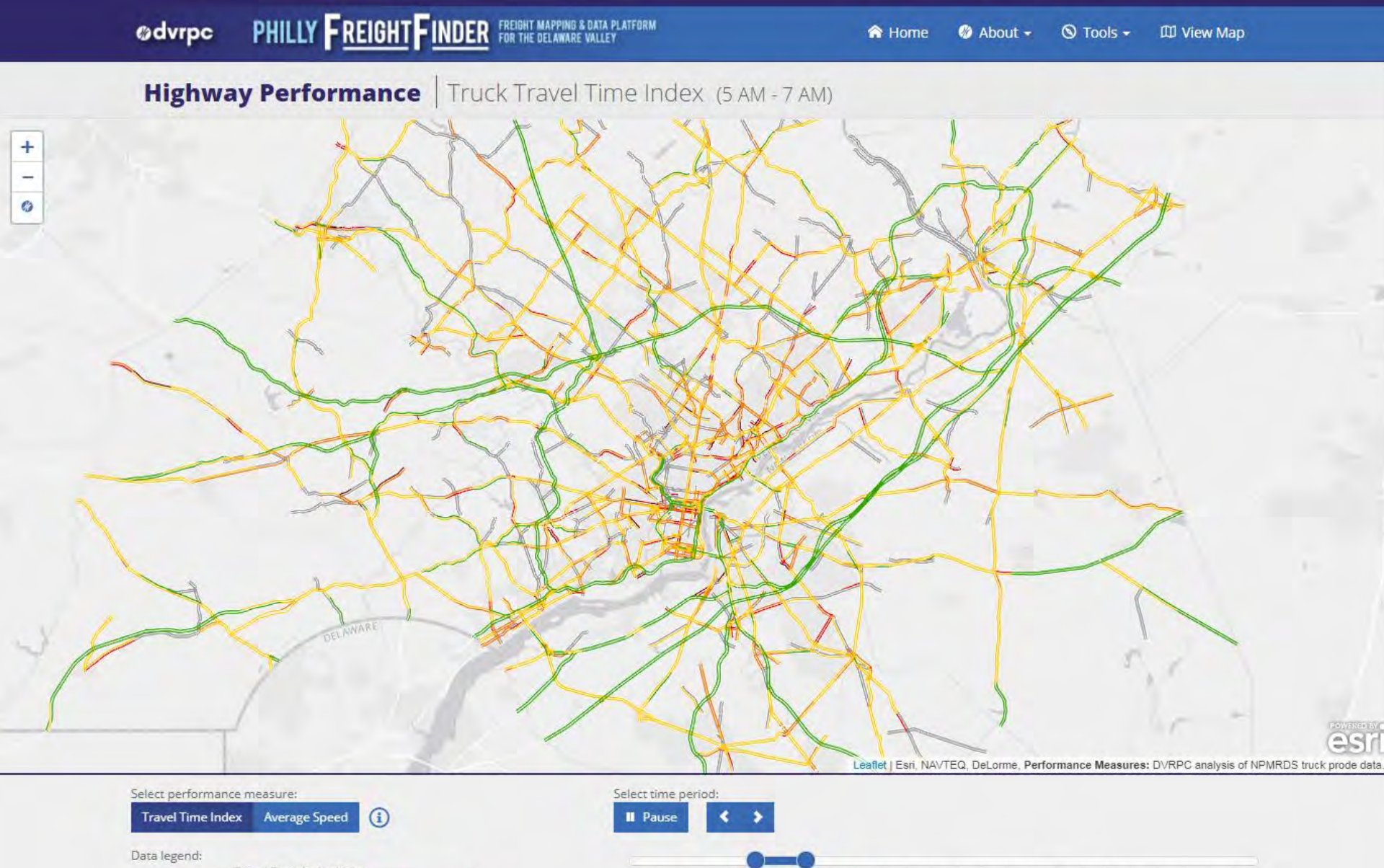

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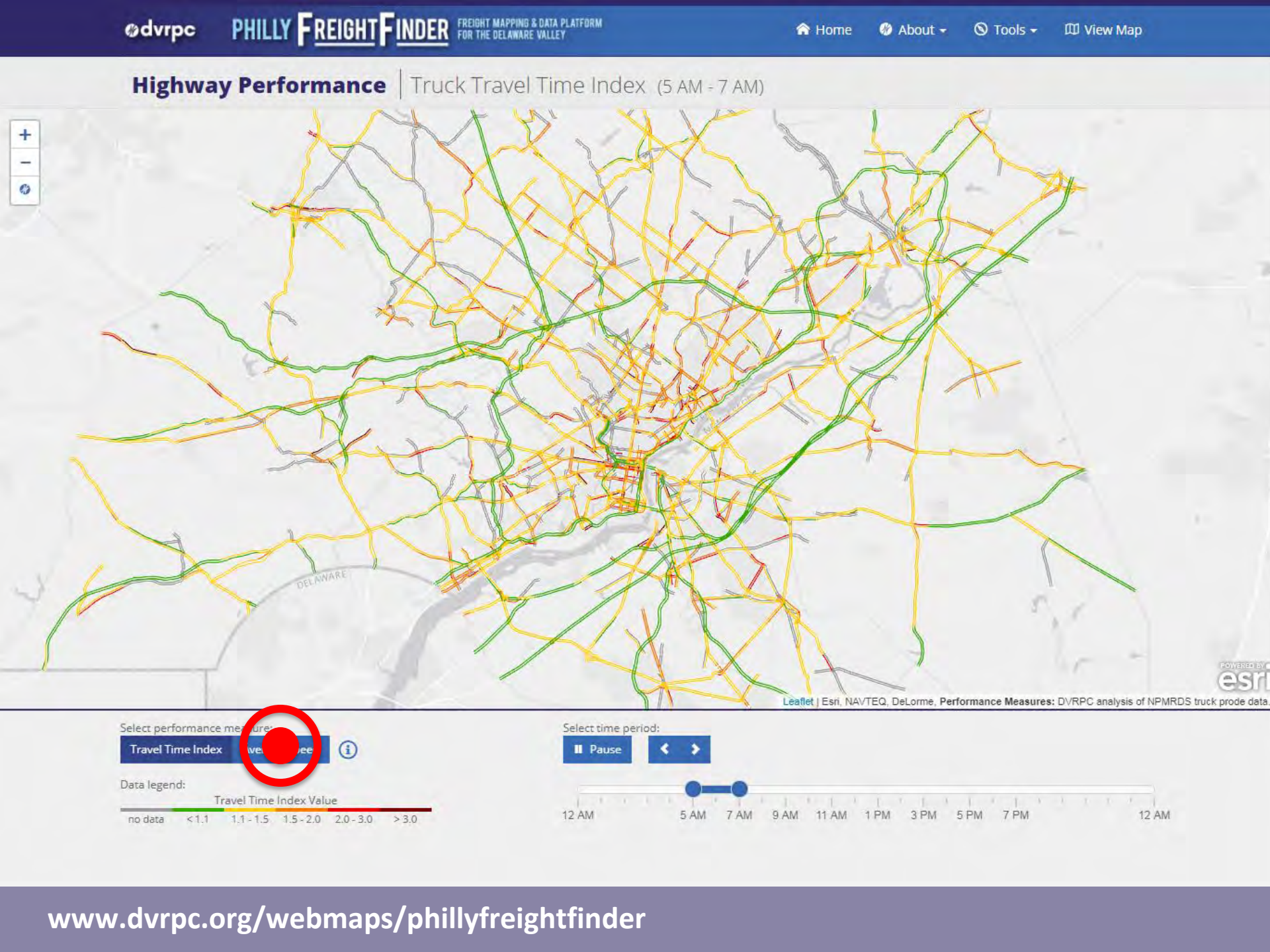

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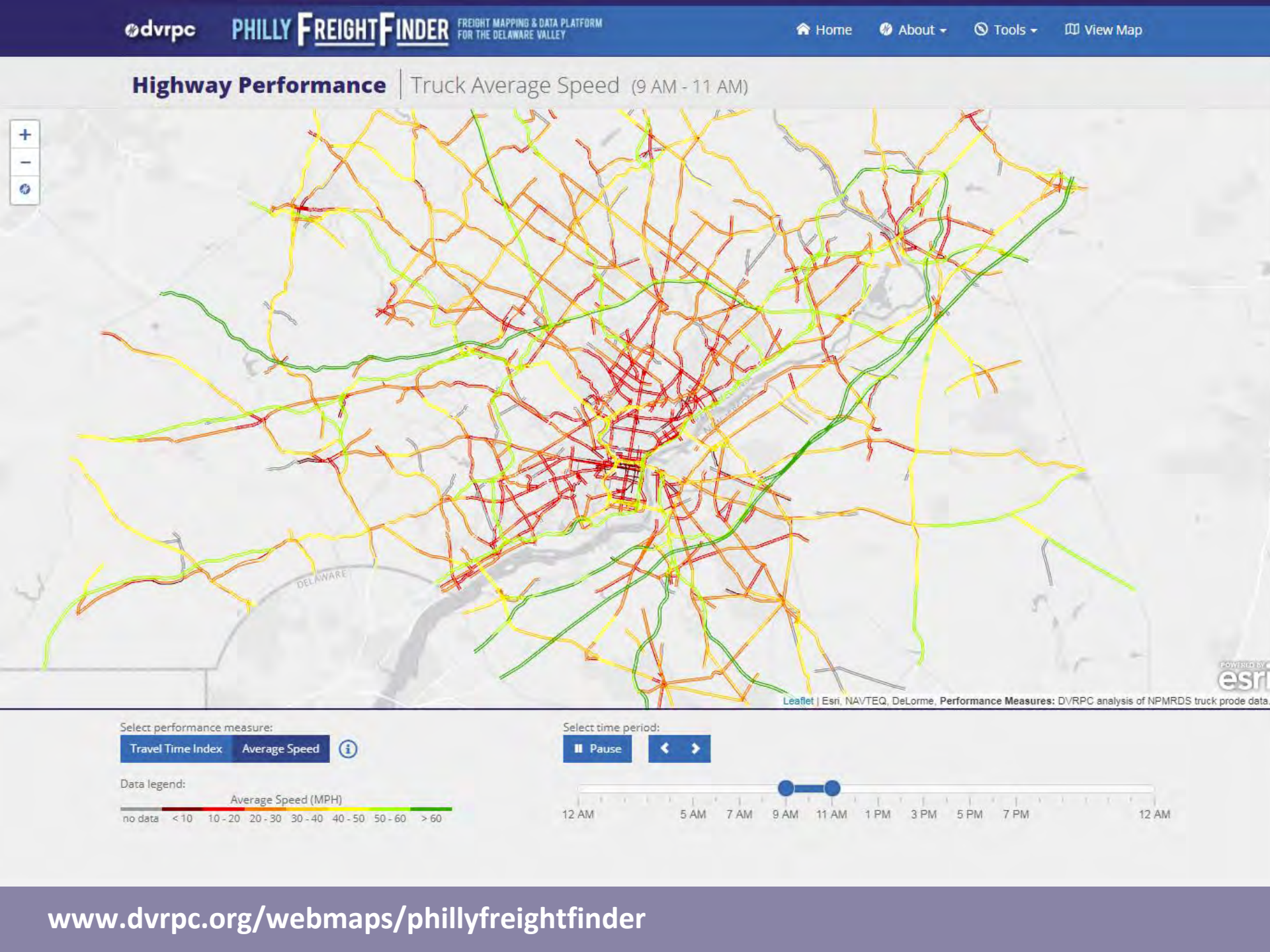

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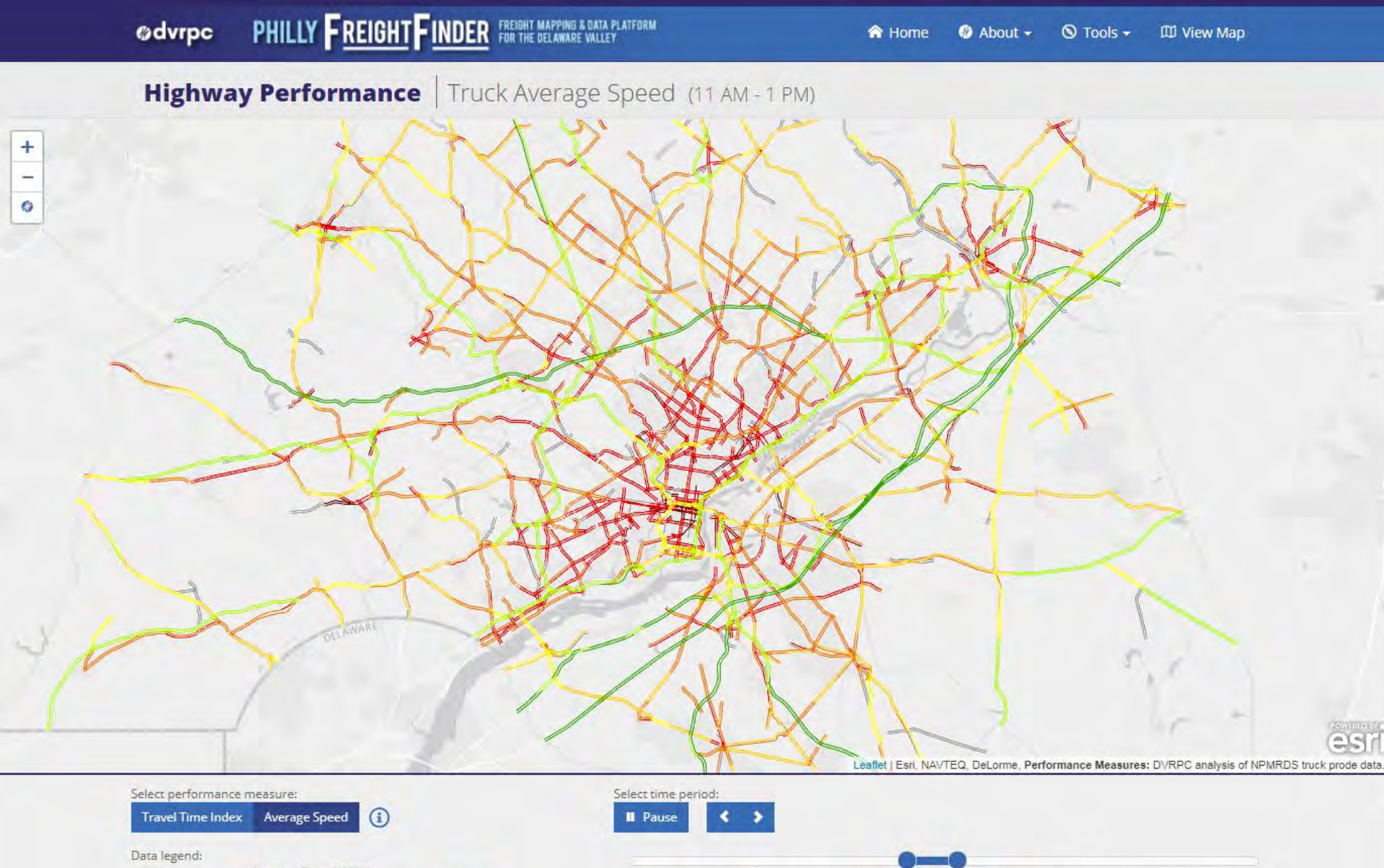


www.dvrpc.org/webmaps/phillyfreightfinder

Data, data, and more data!

WE PRIORITIZE DATA

- essential to understanding the **intermodal supply** for freight movements;
- that explains freight demand and **supply-chain logic**; and
- that measures **system performance**.

3
internal

4
private

11
public

Data, data, and more data!

WHAT WE LEARNED

- **recency/frequency** is a key consideration
- **consistency and reliability** impact the utility of data for planning and tracking purposes
- telling the story of freight with data requires an ongoing commitment

> **HAVE A PLAN**
> be clear in your practical uses of all the data you collect as it makes it easier to adapt to availability and budgetary restrictions

Value to our partners

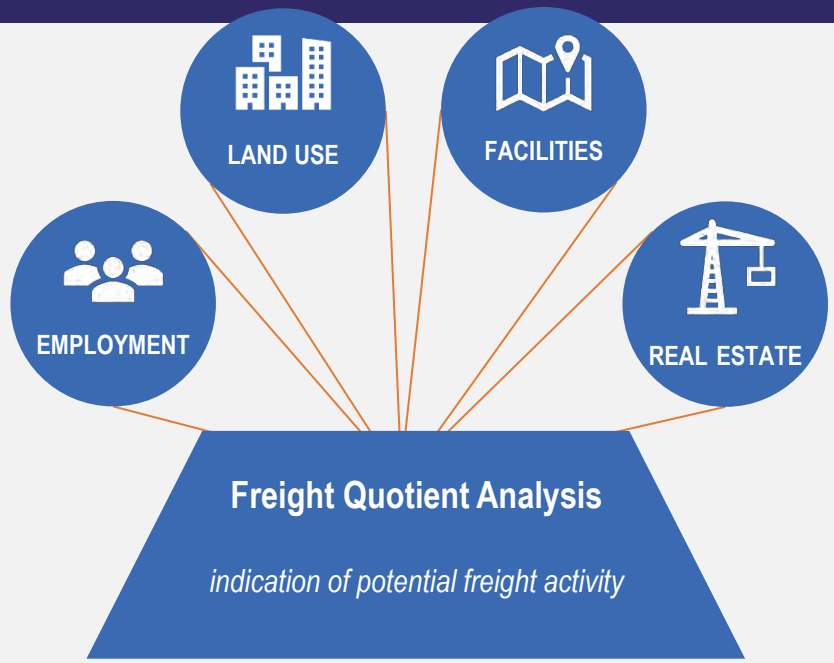
- County planners have expanded freight planning capacity
- Engaged new partners (public + private)
- Centralized, accessible data resource for region
- Foundation for additional performance measure tracking

ADDED VALUE TO OUR WORK

being a resource **improves visibility** of all our products and **improves the quality and level** of input we get in our process

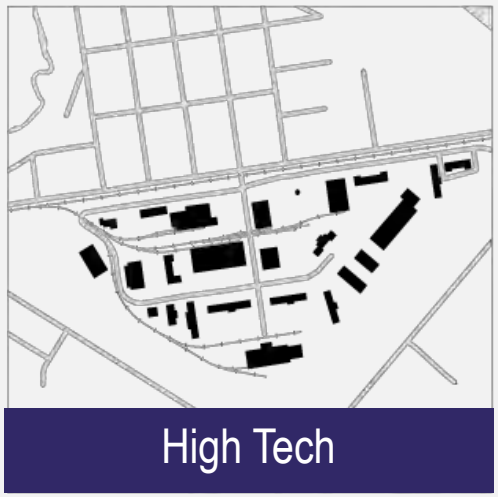
Improved Freight Center Analysis

- Better data driven process
- New typologies
  - International Gateway
  - Heavy Industrial
  - Distribution & Logistics
  - High Tech Manufacturing
  - Local Manufacturing and Distribution



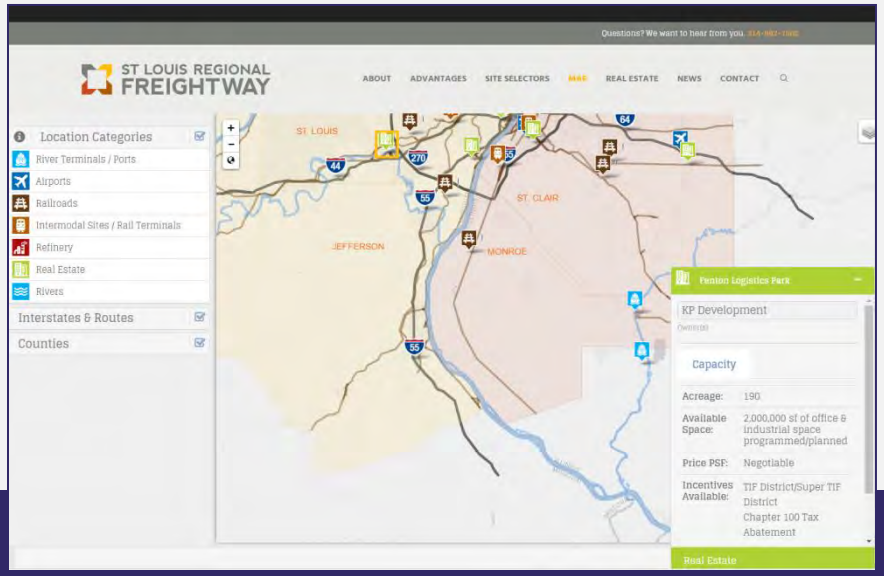
Distribution & Logistics

Local Manufacturing

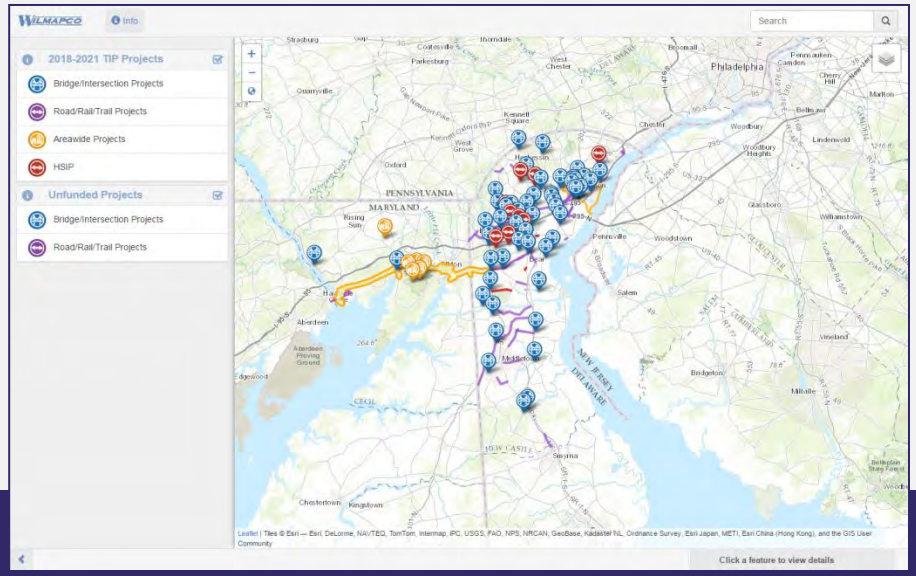

High Tech

Replicate *PhillyFreightFinder*

- Full code is available for replication
- **Open Freight App:** Documented version for simple map interface



St. Louis Regional Freightway



WILMAPCO – TIP map

http://dvrpcfreight.github.io/open-freight-app/

Thank You

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Delaware Valley Regional Planning Commission
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PhillyFreightFinder: http://dvrpc.org/webmaps/phillyfreightfinder

Open Freight App: http://dvrpcfreight.github.io/open-freight-app/