December 13, 2023

# PhillyFreightFinder

Freight Data Portal for the Delaware Valley

**Baltimore Regional Transportation Board Freight Movement Task Force** 



Kristen Scudder
Freight Program Manager
Delaware Valley Regional Planning Commission

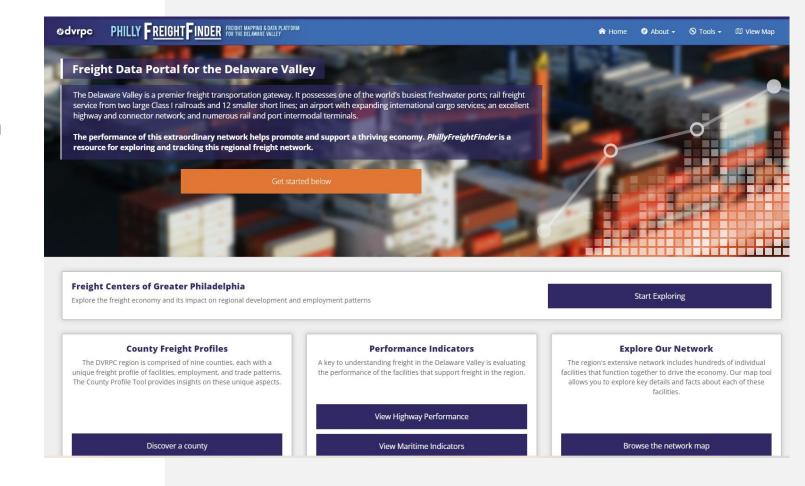
# Background



An **online**, **interactive** platform for sharing freight network **data to enhance the understanding** of performance and value of freight in the regional economy

### **LAUNCHED IN 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.



# 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



September 13, 2023

# Value to our partners and to us



- 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

# Components of PhillyFreightFinder



## FRONTEND APPLICATION

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



## **BACKEND DATA WAREHOUSE**

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



# Data, data, and more data!



## PRIORITIZE DATA

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



4 internal

4 private

11 public

# **Evaluation of Data**



### CONSIDERATIONS

- Practical use or application
- Cost to acquire
- Time/cost of processing
- Computational requirements
- Utility and availability over time

## 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

### **TOOLS WE USE FOR DATA MANAGEMENT**







PostgreSQL



# Schema Design



- Helpful step to understand context/relationships
- Key for planning optimization
- Provides documentation
- Foundation for Extract-Transform-Load process



# Extract + Transform



- Only what we need
- Optimize for analysis/use
- Data validation checks

# WHAT SHOULD WE AUTOMATE?

```
from operator import itemgetter
import yaml, csv
csa_data = []
top_twofive = []
port_lookup = []
url = 'http://api.census.gov/data/2013/acs5?
get=NAME,B01001_001E&for=metropolitan+statistical+area/micropolitan+statistical+area:*&key=f1ebba0078fa76b97
94f7070402b4b72095564b1'
response = urllib2.urlopen(url).read()
parsed_json = yaml.safe_load(response)
for msa in parsed_json[1:]:
    csa_data.append([msa[0],int(msa[1]),msa[2]])
sorted_msa = sorted(csa_data, key=itemgetter(1), reverse=True)
for msa in sorted_msa[:25]:
    top_twofive.append(msa[2])
print top_twofive
with open('port-msa-match.csv', 'rb') as f:
    reader = csv.reader(f)
    for row in reader:
        if row[5] in top_twofive:
            port_lookup.append(row)
    print port_lookup
```

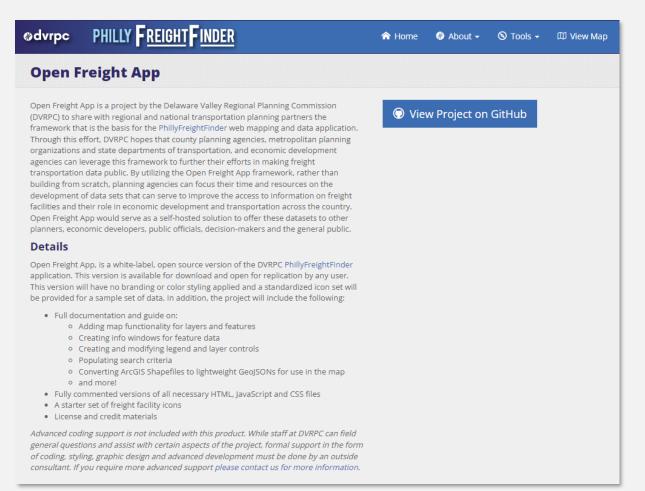
### **KEY CONSIDERATIONS**

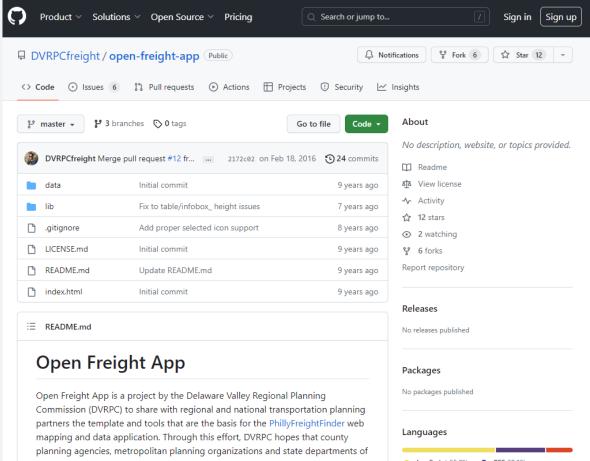
automation is an effective tool to reduce future work **but** dependent on data source consistency. Error reporting and log tables are essential

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# Open Freight App



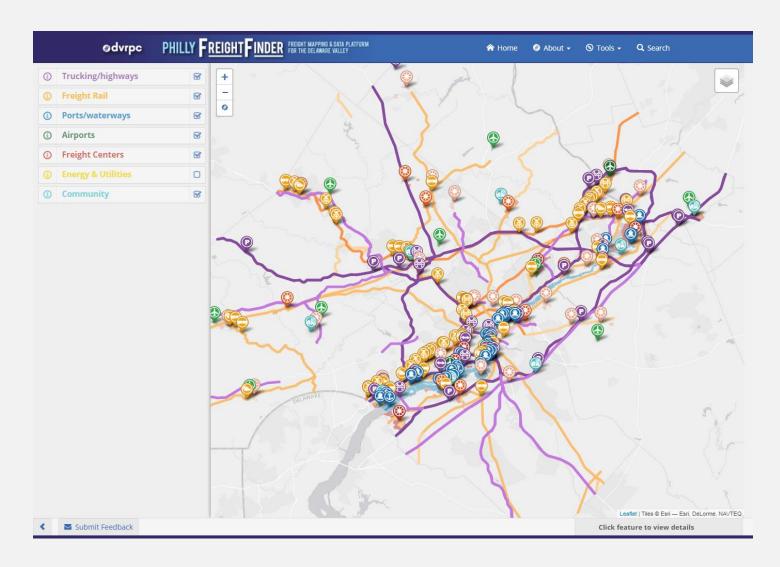




# Evolution of Philly Freight Finder



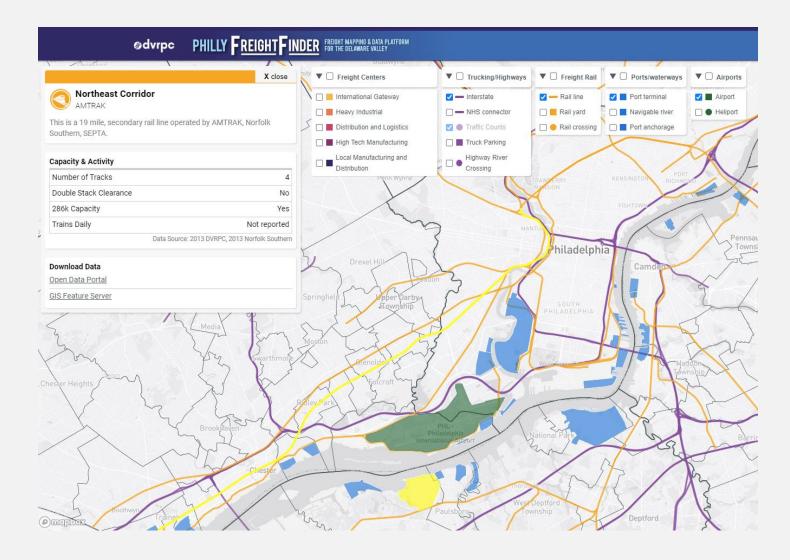
- Addition of tools over time
  - County Profiles
  - Maritime Indicators
  - Highway Performance Measures
  - Freight Center Interactive Story
- Data updates- challenge to maintain regular maintenance
- New and better data practices
- Other agency data center tools
- What's next?



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# Thank You



Kristen Scudder

Freight Program Manager

Office of Freight and Clean Transportation

**Delaware Valley Regional Planning Commission** 

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215.238.2939

PhillyFreightFinder: http://dvrpc.org/webmaps/phillyfreightfinder

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



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



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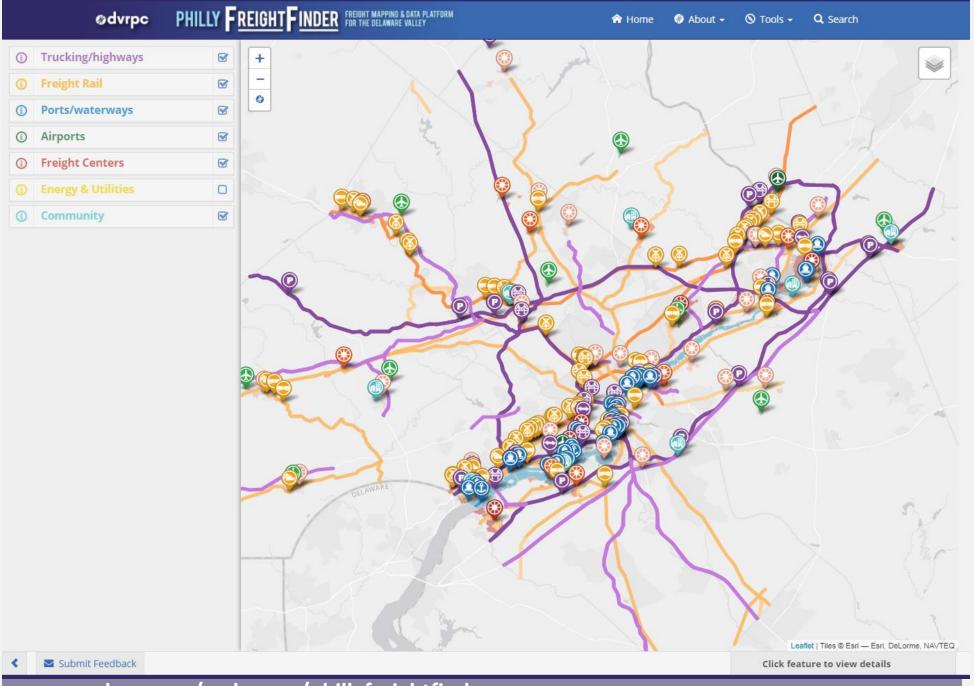
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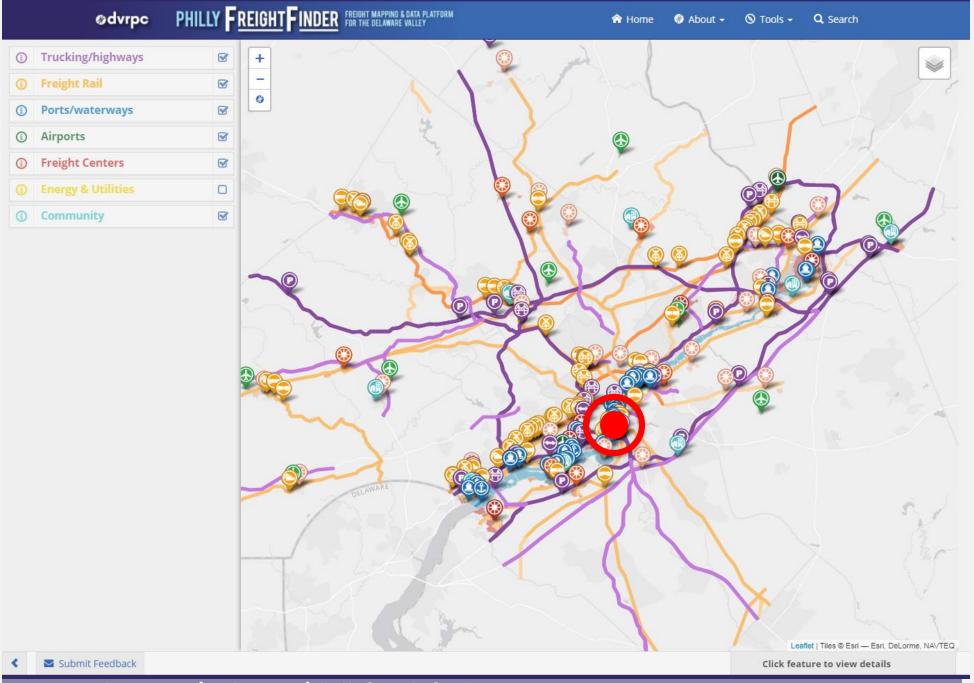
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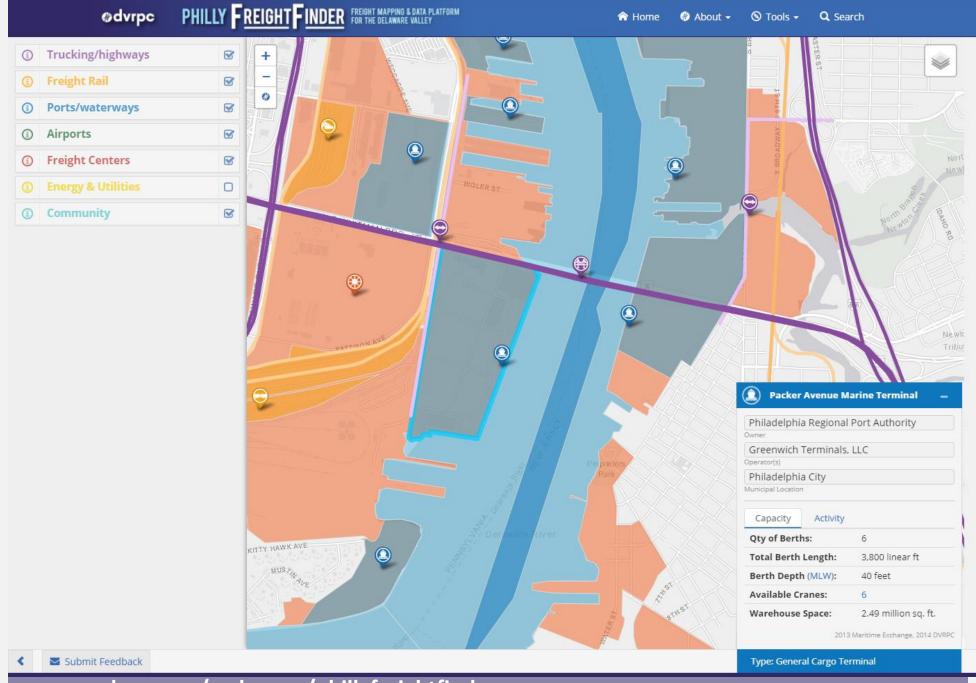
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The Delaware Valley region consists of nine counties: Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania, and Burlington, Camden, Gloucester and Mercer in New Jersey.

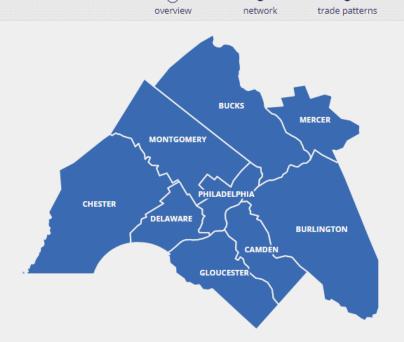
The DVRPC region contains an impressive freight transportation network consisting of highways, rail lines, ports, airports, and pipelines. These key linkages unite an expansive list of facilities including warehouses, manufacturing sites, rail yards, and truck stops.

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)



## About Tools

190 N. Independence Mall West, 8th Floor, | DVRPC Freight Planning | County Profiles | Data Disclaimer | License | Policies C



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**MERCER** 

BURLINGTON

CAMDÈN

GLOUCESTER

MONTGOMERY

DELAWARE

CHESTER

# Philadelphia County Network

overview



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** 

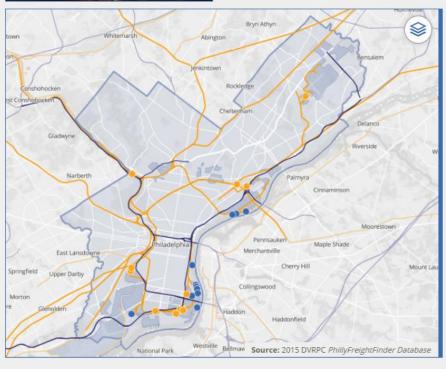
#### **Freight Network Statistics**













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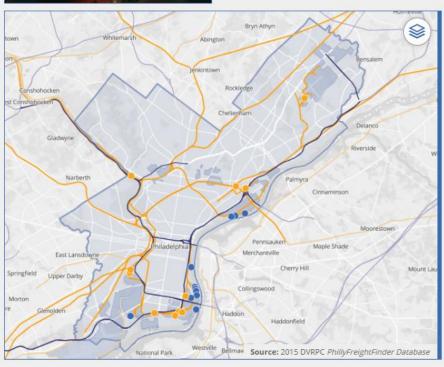
### **Freight Network Statistics**





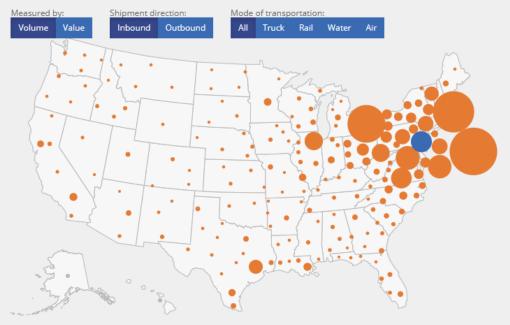


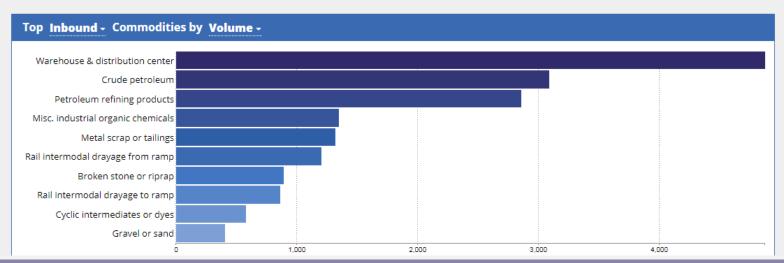












overview

network

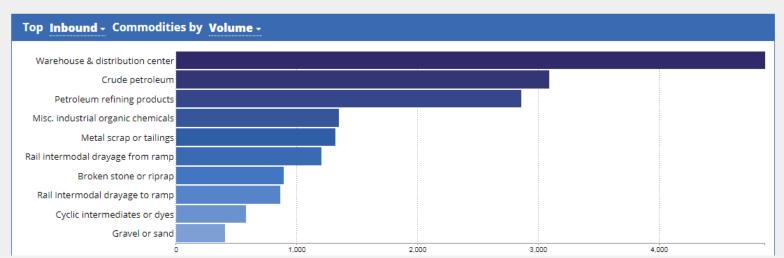
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trade patterns

Philadelphia County | Domestic Trade Patterns

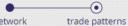
Top Trading Partners	
Southern New Jersey	4,176.2 ktons
New York Metro Area	3,244.9 ktons
Harrisburg, PA	2,759.6 ktons
Delaware County, PA	1,195.9 ktons
Gloucester County, NJ	1,151.4 ktons
Washington DC Metro Area	903.2 ktons
Chicago, IL	719.0 ktons
Pittsburgh, PA	688.2 ktons
Chester County, PA	537.0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





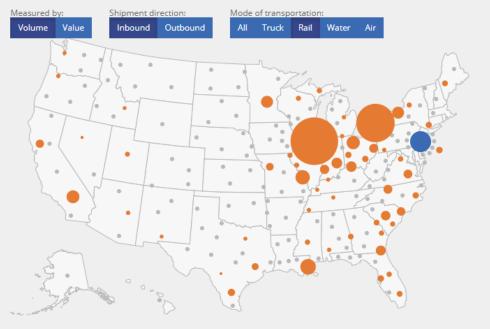
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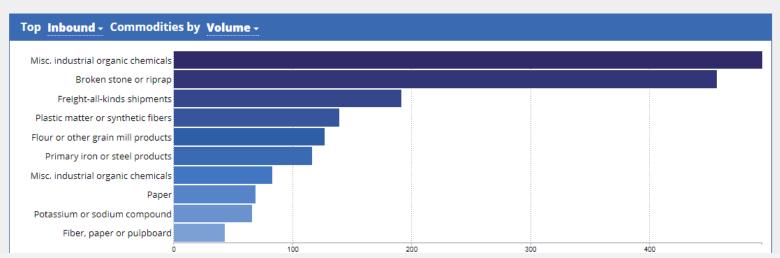










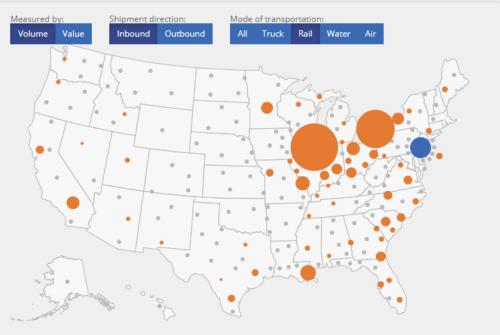


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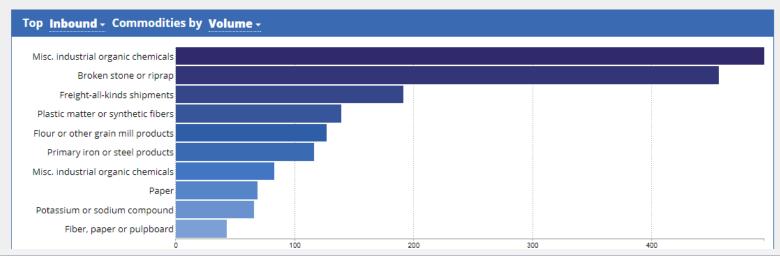
-0 trade patterns

Philadelphia County | Domestic Trade Patterns

Top Trading Partners	
Chicago, IL	664.3 ktons
Harrisburg, PA	456.2 ktons
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



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Explore a county

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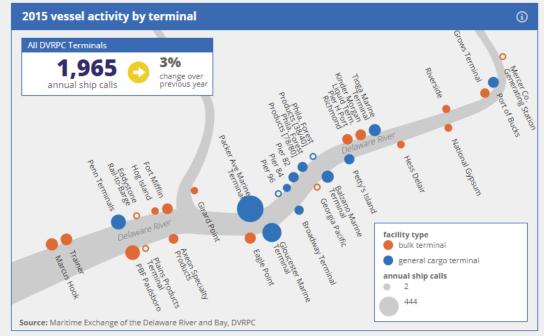
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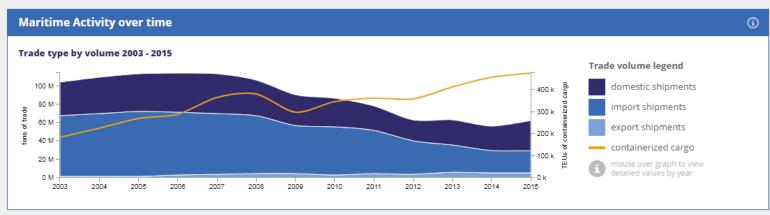
### Maritime Indicators select a year:

2015 -







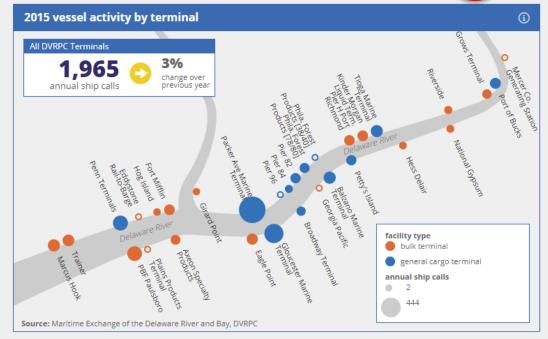


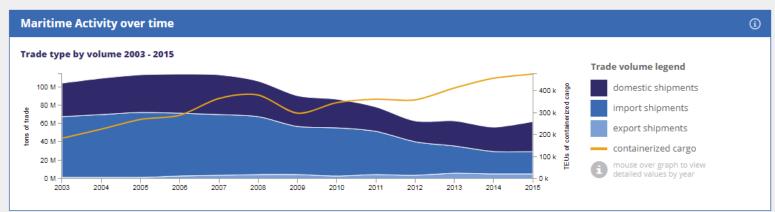
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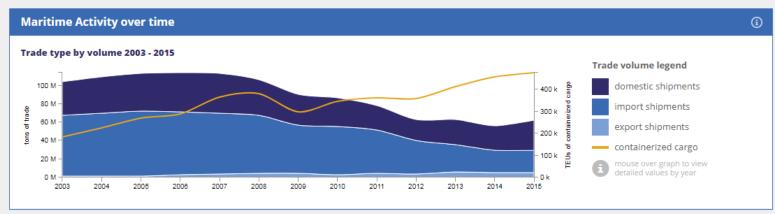


### Maritime Indicators select a year: 2014 -











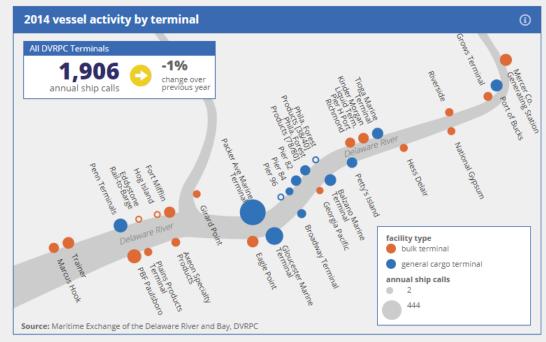
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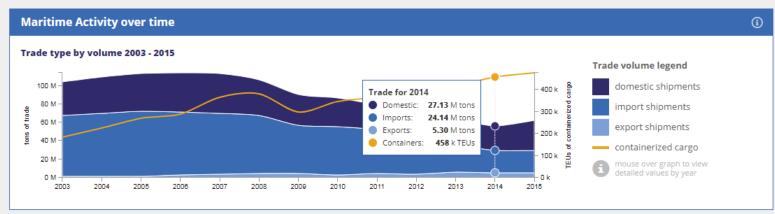
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