

# DVRPC Freight Program

**2024 Delmarva Freight Summit**  
**June 5, 2024**

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## OVERVIEW

The Delaware Valley Regional Planning Commission is the federally designated Metropolitan Planning Organization (MPO) for a diverse nine-county region in two states: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.



# DVRPC FREIGHT PLANNING PROGRAM

Promote freight considerations in the planning process to encourage the development and preservation of safe, efficient multimodal transportation systems that maximize Greater Philadelphia's position in the global economy

Improve **visibility + availability** of freight data

**Educate** planners and the public

Encourage **smart, multimodal** transportation systems

**INFORM TRANSPORTATION INFRASTRUCTURE INVESTMENT**



# Our Approach



## **REGIONAL TRENDS & PERFORMANCE**

Data Collection and Development

PhillyFreightFinder – Comprehensive Freight Data Program



## **ENGAGEMENT/ADVOCACY**

Goods Movement Task Force, PA Freight Work Group, NJ Freight Advisory Committee, Industry Groups (PMTA, Traffic Club, NJRRA), Eastern Transportation Coalition, TRB Urban Freight



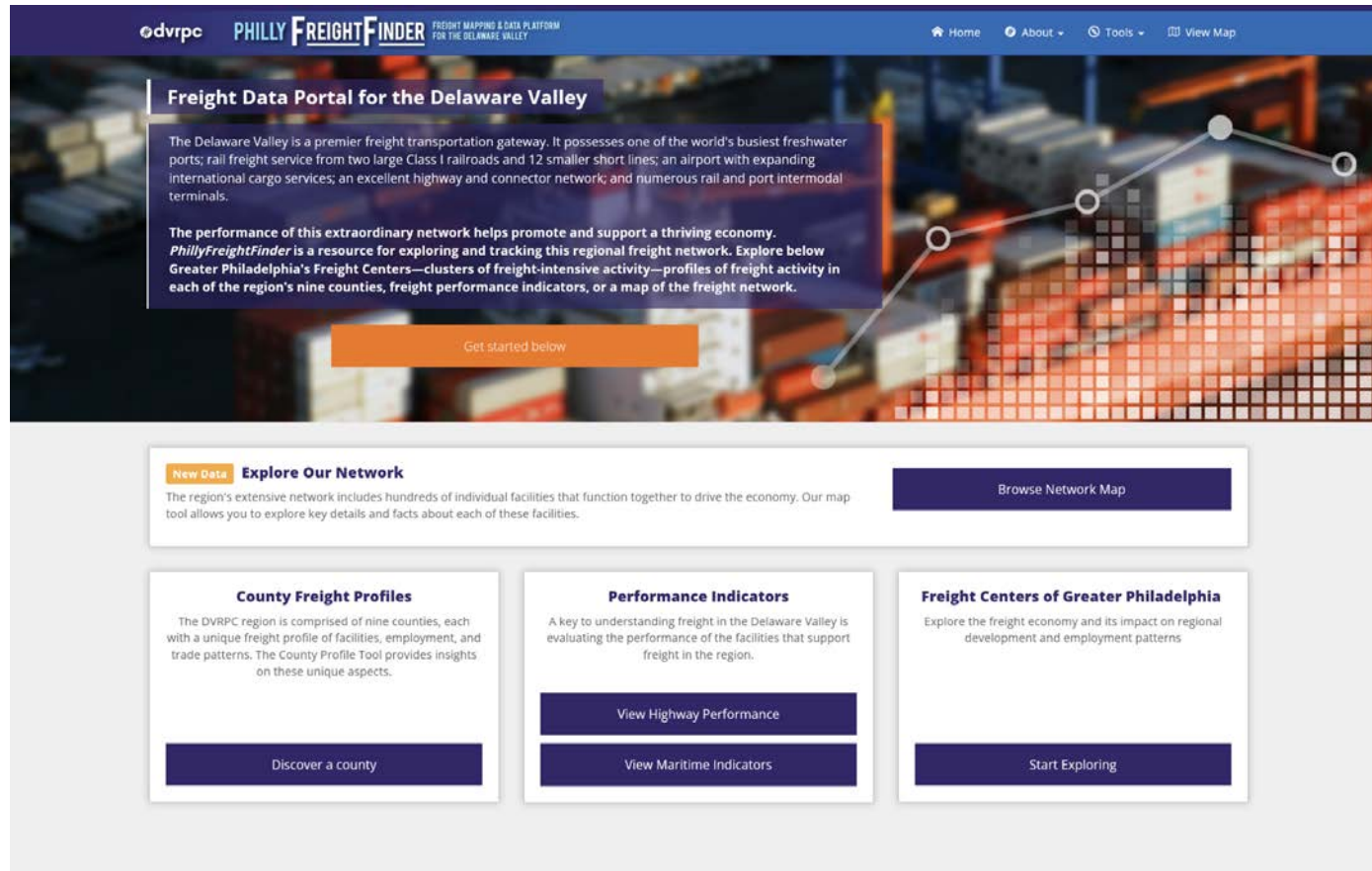
## **LOCAL TECHNICAL STUDIES & EDUCATION**

Downtown Delivery Symposia, Vision Zero Fleet Subcommittee, Urban Freight Studies

Local Technical Studies: Freight Access, Grade Crossing Safety

Commodity and Supply Chain Profiles

# What is PhillyFreightFinder?



The screenshot shows the website's header with the DVRPC logo and 'PHILLY FREIGHT FINDER' title. Below the header is a main banner with a background image of a warehouse and a line graph. The banner contains text describing the Delaware Valley as a premier freight gateway and introduces the PhillyFreightFinder tool. A 'Get started below' button is centered in the banner. Below the banner are three main content areas: 'New Data Explore Our Network' with a 'Browse Network Map' button; 'County Freight Profiles' with a 'Discover a county' button; and 'Performance Indicators' with 'View Highway Performance' and 'View Maritime Indicators' buttons. A third area, 'Freight Centers of Greater Philadelphia', has a 'Start Exploring' button.

- A **web-based resource** for exploring the Delaware Valley’s multimodal freight network
- A starting point for **understanding freight** in the region
- **Recently upgraded** with a new user interface, improved search, and truck count data

[www.dvrpc.org/webmaps/phillyfreightfinder](http://www.dvrpc.org/webmaps/phillyfreightfinder)



## Freight Center FC09

Distribution and Logistics Freight Center

X close

### Municipalities

Delran Township, Cinnaminson Township

### Employment

### Industrial Development

#### Freight

#### Non-freight

Establishments	74	104
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Employees	1,858	1,251
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Data Source: NETS 2013

### Download Data

[Open Data Portal](#)[GIS Feature Server](#)

### Freight Centers

 International Gateway Heavy Industrial Distribution and Logistics High Tech Manufacturing Local Manufacturing and Distribution

### Trucking/Highways

 Interstate NHS connector Truck Counts Truck Parking Highway River Crossing

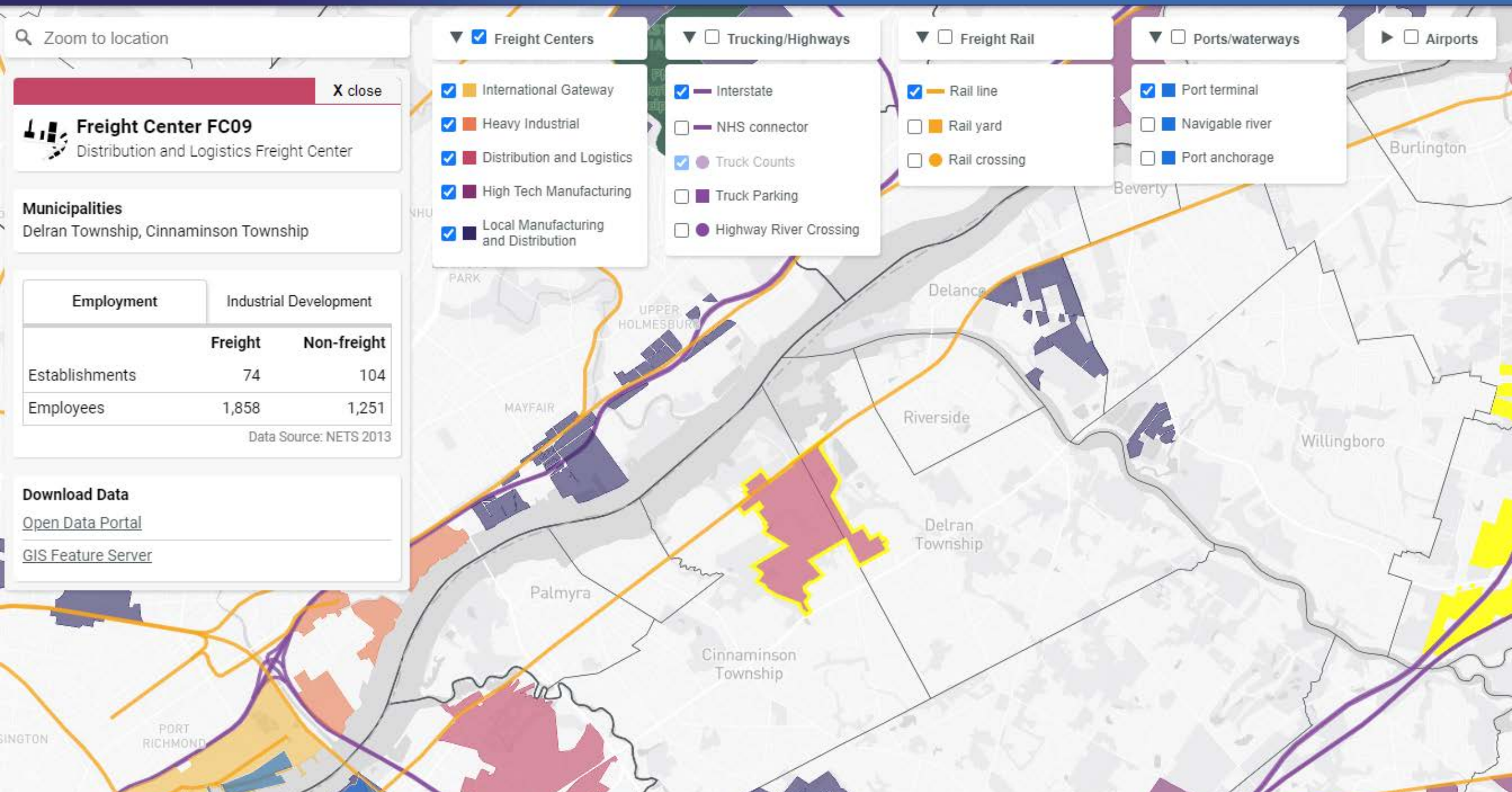
### Freight Rail

 Rail line Rail yard Rail crossing

### Ports/waterways

 Port terminal Navigable river Port anchorage

### Airports



## Connecting **INDUSTRY** and **PLANNERS** with **FREIGHT TRANSPORTATION**

The DVGMTF is a joint public-private sector initiative that allows the local freight community to participate in formulating regional policies, plans, and programs. The task force is an opportunity for sharing information and technology between public and private freight interests, promoting the region's intermodal capabilities and capacity, and developing and implementing a regional goods movement strategy

### **2024 Quarterly Meetings**

January 18<sup>th</sup>, March 13<sup>th</sup>, July 18<sup>th</sup>, October TBD

# Members of the Goods Movement Task Force

County planning, municipal planning, state DOT, and federal partners

Trucking, railroad, port, airport, shipper, freight forwarder, economic development representatives





# Recent Reports



# Impacts of E-Commerce



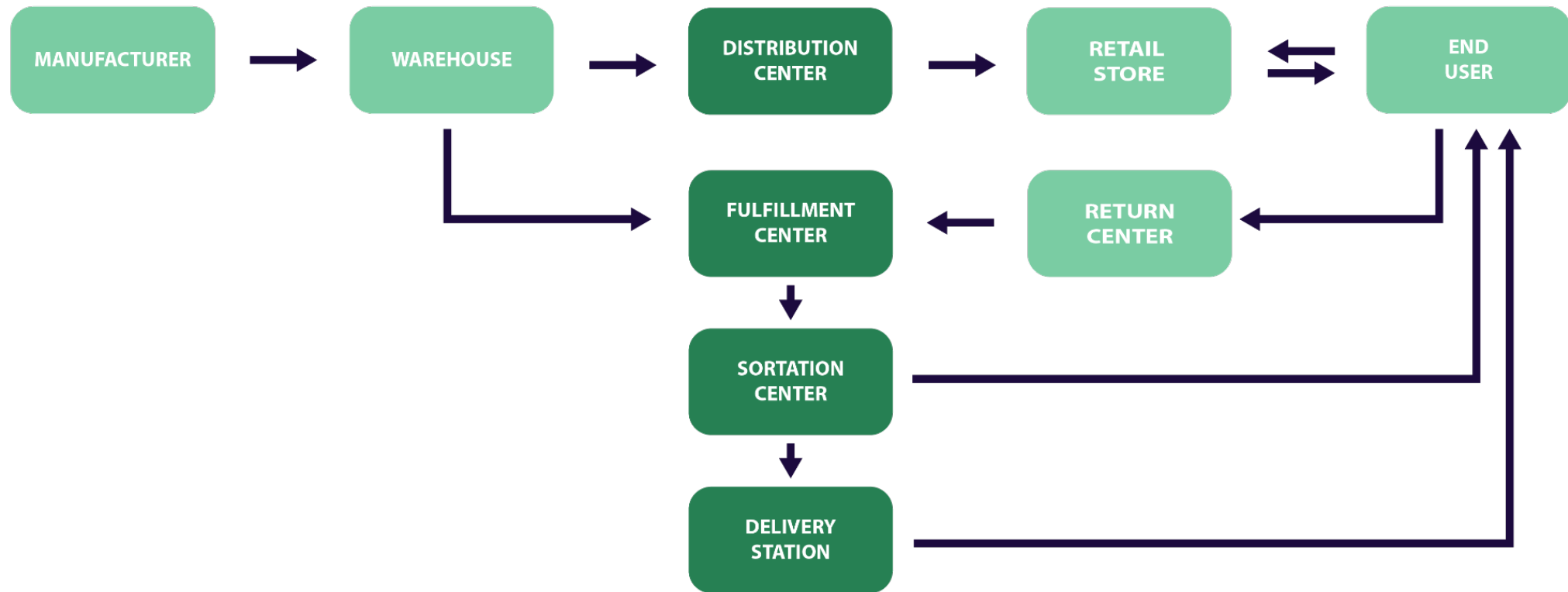
# Changing Supply Chain

Traditional Supply Chain



# Changing Supply Chain

## E-Commerce Supply Chain



# Forces Driving E-Commerce Warehouse Development

1. Consumer adoption of e-commerce
2. Consumer desire for speedy delivery
3. Proximity to dense workforce
4. Low existing industrial supply
5. Proximity to infrastructure

# Warehouse Typologies

	Distribution Center	Fulfillment Center (Sortable)	Fulfillment Center (Non-Sortable)	Sortation Center	Delivery Station	Micro-fulfillment
Function	Large orders of inventory, ships inventory to fulfillment centers	Receives orders, packages items, ships to sortation center	Bulky items, similar function as sortable fulfillment center	Sorts customer packages for delivery stations	Delivers customer packages within a short radius	Small-scale facility near consumers that serves local deliveries and pick-ups
Size <sup>(1)(2)</sup>	> 500 KSF	~800 KSF	600 KSF - 1 MSF	100-500 KSF	50-300 KSF	< 10 KSF
Employees <sup>(3)</sup>	700/ shift 3 shifts	1000/ shift 2 shifts	700/ shift 2 shifts	250/ shift 4 shifts	200	<50
Characteristics	May be high cube, not automated, often cross docked	May be high cube, often automated	May be high cube, not automated	Often cross docked for loading vehicles	Can utilize traditional warehouse space	Often in existing store or warehouse, often automated
ITE Land Use Category <sup>(4)</sup> (11 <sup>th</sup> Edition)	154: Transload	155: Short-term storage/ fulfillment center	155: Short-term storage/ fulfillment center	155: Short-term storage/ fulfillment center	156: Parcel Hub	156: Parcel Hub

Sources:

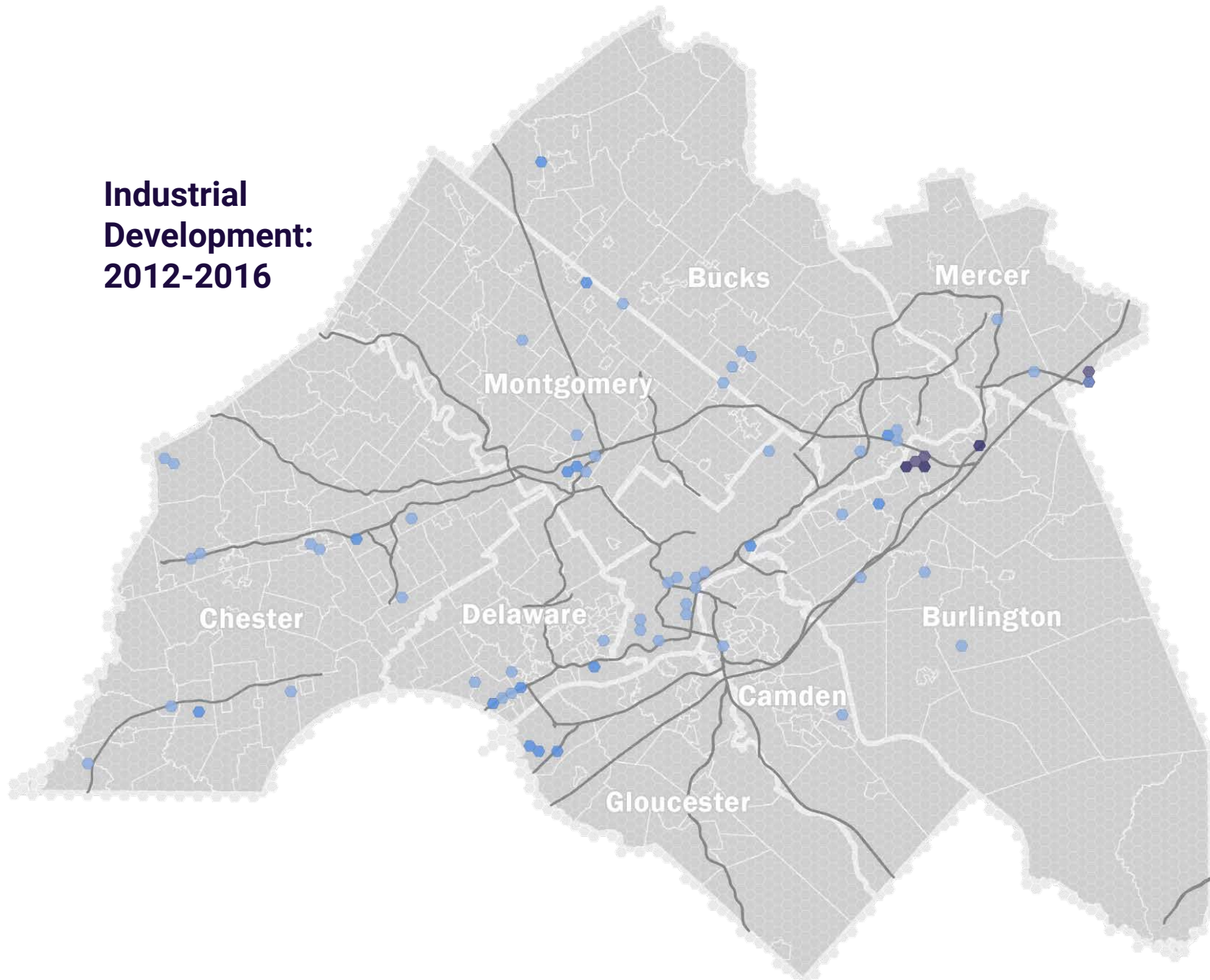
(1) "Our Facilities." Our Workplace. Amazon, September 21, 2020. [www.aboutamazon.com/workplace/facilities](http://www.aboutamazon.com/workplace/facilities).

(2) "Distribution Warehousing and Goods Movement Guidelines." NJ State Planning Commission Office of Planning Advocacy, September 7, 2022. [nj.gov/state/planning/assets/pdf/warehouse-guidance.pdf](http://nj.gov/state/planning/assets/pdf/warehouse-guidance.pdf).

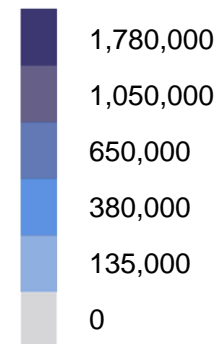
(3) DVRPC estimation. Not to be used for design purposes.

(4) 2021. Trip Generation. 11th ed. Institute of Transportation Engineers.

# Industrial Development: 2012-2016

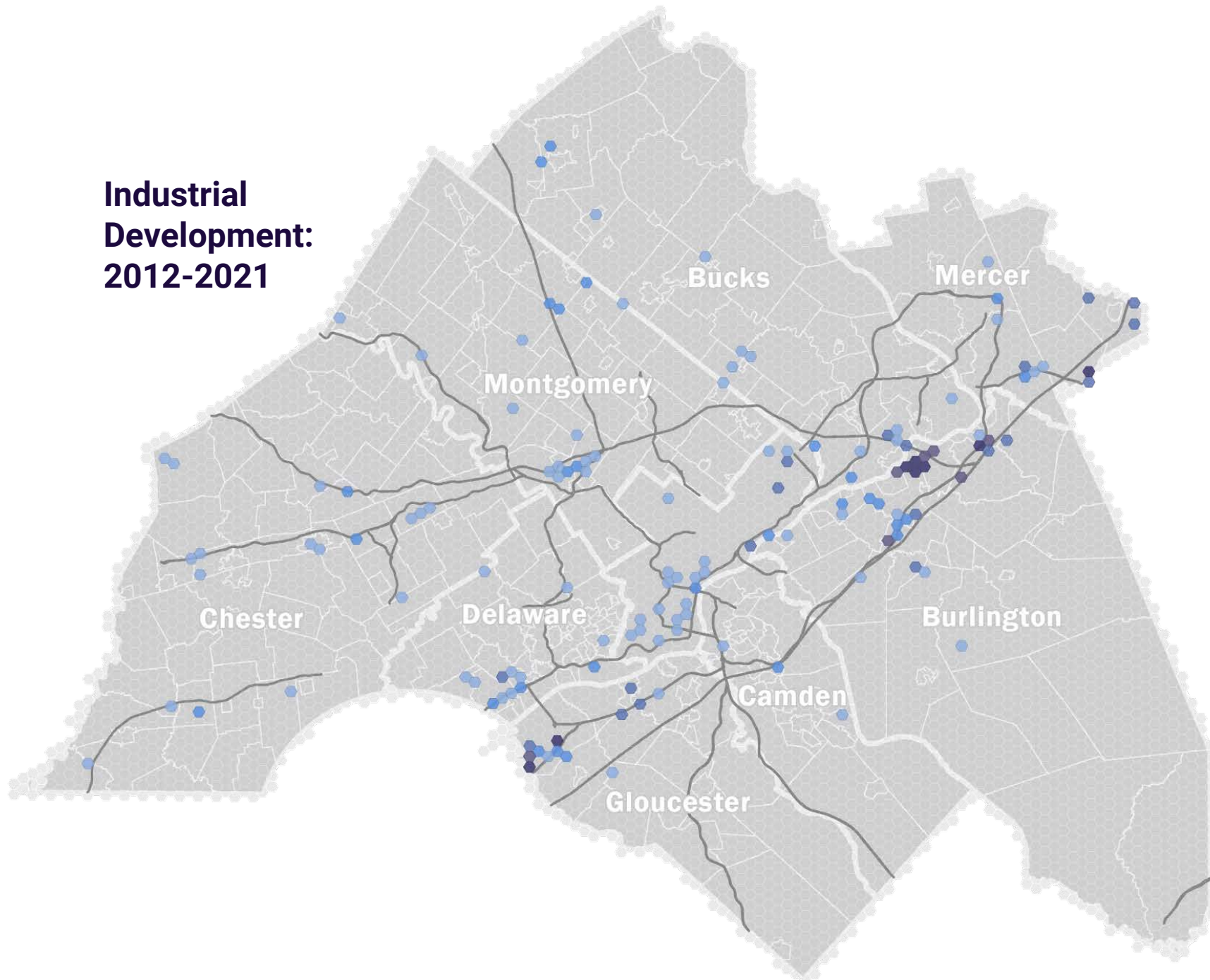


## Square Feet of New Development

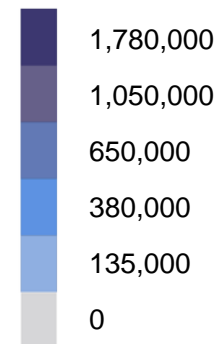


Source: CoStar

# Industrial Development: 2012-2021



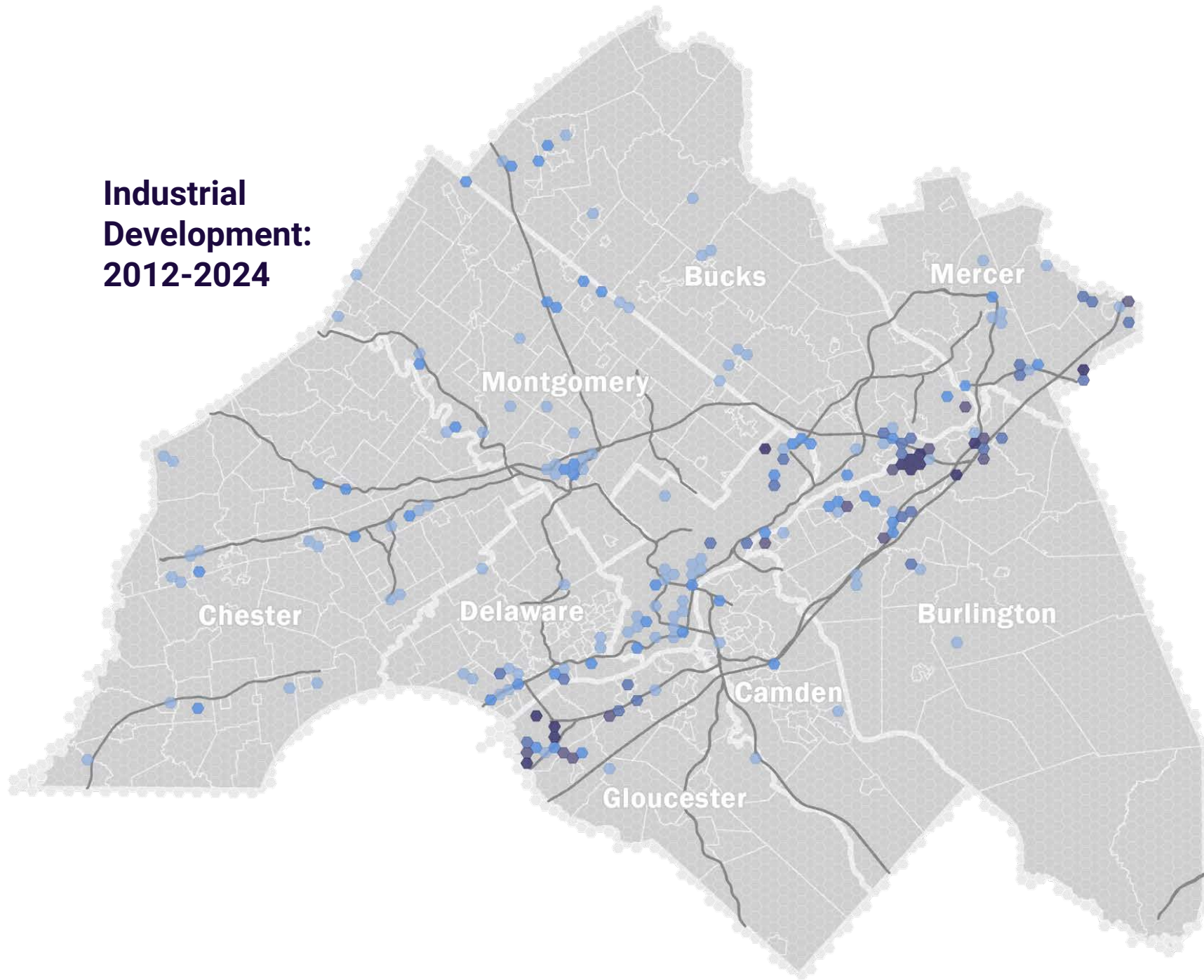
## Square Feet of New Development



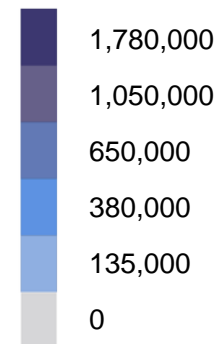
Source: CoStar



# Industrial Development: 2012-2024



## Square Feet of New Development



Source: CoStar

# Assessing Local Impact

## Environmental

Air Quality  
+  
Stormwater Runoff

## Transportation

Truck Parking and Fueling  
+  
Road Congestion and Wear

## Fiscal

Local Budget and Taxes  
+  
Services and Utilities

## Community

Job Creation  
+  
Character

# Impacts of E-Commerce

**3. Proximity to Dense Workforce**  
E-commerce facilities require a larger workforce than traditional warehouses and also have a higher personnel turnover rate than traditional retail. To staff the growing amount of warehouse space, warehouses need to be near a population center and have access to a large workforce. While the space needs of larger warehouses might push them away from dense city centers, workforce needs make it beneficial for these facilities to be located close to populations that can fulfill these jobs.

Source: Getty Images

**5. Proximity to Infrastructure**  
Warehouses need supporting infrastructure in order to operate. Generally we see warehouse development moving towards the region because it has access to international maritime and air gateways as well as to Philadelphia, New York and Washington DC consumers.

Developers are also looking for sites that already have highway access for trucks, utility access to support their development as well as potentially fueling for vehicles, and transportation infrastructure needed to allow employees to get to the facility. Adding this supporting infrastructure is costly if it is not already in place.

**Towards the Region**

- Access to International Maritime Gateways
- Access to International Air Gateways
- Access to Philadelphia, New York, and Washington DC consumers

**Towards Specific Sites**

- Highway Access
- Utility Access
- Workforce Access

**16.4 MSF OF NEW INDUSTRIAL SPACE UNDER CONSTRUCTION IN THE DVRPC REGION**  
Source: Colliers (2022)

Source: DVRPC

**4. Low Existing Industrial Supply**  
There's a higher demand for industrial space in our region than there is space available. As a result, e-commerce is displacing lower priority uses - businesses that don't have to be close to population centers are moving away.

Industrial vacancy rates hit historic lows across the country last year, bottoming out at 1.5 percent in some submarkets in the DVRPC region, and are still below five percent in the greater Philadelphia region (Figure 5 right). E-Commerce and 3PL users occupy 53 percent of industrial markets across the region, and made up almost half of all industrial leasing activity last year, with significant demand in excess of the space available\*. Markets closer to New York have even less available industrial space, which is driving leasing and development towards the Philadelphia region.

Figure 5: Industrial Vacancy Rates

Source: ILLI (2022)

**DATA SOURCES**

- DVRPC Traffic Count Data
- Traffic Impact Studies
- Estimated U.S. Average Vehicle Emissions Rates per Mile by Vehicle Type, Fuel, Gasoline and Diesel
- Heavy-Duty Truck Mile Production, Requirement, Alternative Fuels Data Center, US Department of Energy

**STRATEGIES AND RECOMMENDATIONS**  
Municipalities could consider incentivizing the installation of certain preparatory infrastructure that can help mitigate the air pollution caused by the facilities. These incentives could be offered as performance zoning benefits to the operating entities. A few examples of these are as follows:

- Implement anti-idling policy and signage on-site to ensure that truck drivers are aware of the policy and modify driving behaviors.
- Incentivize the installation of preparatory infrastructure to allow for installation of EV charging stations on-site in the future.
- Collaborate with the local Transportation Management Association (TMA) to analyze, optimize, and manage the travel demand for employees

**AIR QUALITY**

E-commerce facilities have air pollution impacts on their surrounding communities which result from construction activities, daily operations, and the trips generated during operation. Installing air quality monitoring equipment at the facilities is an important step in the mitigation process. With the advent and steady acceleration of e-commerce activity, operational sources like trips generated are less likely to be reduced. However, certain rules and incentives can be instituted which push operators to adopt newer, cleaner fleets. While less impactful to the surrounding area, the indirect air pollution arising out of electricity consumption can be reduced by efficient operational management at the facility level. Calculating the short- and long-term costs of these negative externalities will help municipalities assess the need for additional regulation to protect the residents living in the vicinity of a facility.

**ENVIRONMENTAL**

**STORMWATER RUNOFF**

Stormwater runoff is an environmental condition that needs to be accounted for with any new development. If a project is on an undeveloped tract, then increased stormwater runoff is to be expected. If certain green infrastructure tools are not employed, Green infrastructure such as bioswales, permeable paving, green roofs, among others, are a natural way to supplement an existing "grey" stormwater management system. It is important for municipalities to consider the long-term costs of an increase in stormwater runoff on their existing systems and whether or not any new development, especially large commercial uses like warehouses, will properly mitigate that increase with site-based solutions. Another aspect of this issue is the level of pollution present in the stormwater runoff. If a warehouse site has a steady stream of truck traffic, it is likely that the runoff will contain pollutants which can make their way back into the local ecosystem.

**DATA SOURCES**

- Development Plan Sets
- Local Water Authority or Municipal Engineer
- Capacity and service cost estimates
- National Stormwater Runoff Calculator

**STRATEGIES AND RECOMMENDATIONS**

- The below data points can be plugged into a calculator provided by the Environmental Protection Agency (EPA) in order to evaluate the impacts of the site:
  - Amount of existing and proposed impervious surface
  - Type and coverage rate of stormwater BMPs
- Effective green stormwater management practices are best planned and implemented before a development is finished.
  - Integrated stormwater collection, green roof engineering, etc.
- Require or incentivize the inclusion of green stormwater management solutions within the municipal code.
- Provide stormwater credits to properties which functionally reduce the amount of impervious surface onsite.

**LOCAL BUDGET AND TAXES**

A major concern of many residents when it comes to new e-commerce development is the effect of it on a municipality's financial well-being. Will a new development proposal carry with it an additional financial burden by way of increased infrastructure spending, maintenance costs, service expenses, and subsidies? Businesses states, including Pennsylvania and New Jersey, rely on economic development incentives to attract new business and stoke the growth of emerging cities. Municipalities also have similar programs in order to grow their local economies. However, these types of incentives can go too far and wind up harming the limited budgets of many communities. Some new rules have properly accounted for the effect of financial incentives on the amount of tax collected and increased services necessary for the development. It is important for a municipality to do a proper fiscal impact analysis before new developments are considered.

**DATA SOURCES**

- Development Plan Sets
- Local Emergency Response and Utility Providers
  - Capacity and service cost estimates.

**STRATEGIES AND RECOMMENDATIONS**

- When considering zoning changes to allow for different types of development, decision makers should consider the fiscal impact of multiple build-out scenarios.
- Adopt impact fees that help pay for necessary improvements in order to lessen the fiscal impact of new development on existing infrastructure and programs.
- Adopt local incentive structures that are proven to provide economic gains after accounting for any of the costs and negative effects of a proposed development or zoning change.
- Adopt policies that require new businesses to procure supplies locally which could help multiply the effect of necessary to increasing local spending and creating additional jobs.

**SERVICES AND UTILITIES**

E-commerce facilities, like any other end use, require connections to utilities and the provision of municipal services such as police, fire, and EMS. Providing utilities and services to e-commerce developments can be substantial and should be considered by municipalities before making investments in additional infrastructure. Encouraging development that utilizes existing infrastructure is a key level of smart growth and should be employed where practicable. In addition, municipalities should consider if their local services have the training, equipment, and personnel necessary to respond to emergencies onsite. For developments that require new or expanded facilities and services, decision makers should consider if the capacity exists for this growth and what the fiscal impact will be if capacity needs to be added.

**DATA SOURCES**

- Development Plan Sets
- Local Emergency Response and Utility Providers
  - Capacity and service cost estimates.

**STRATEGIES AND RECOMMENDATIONS**

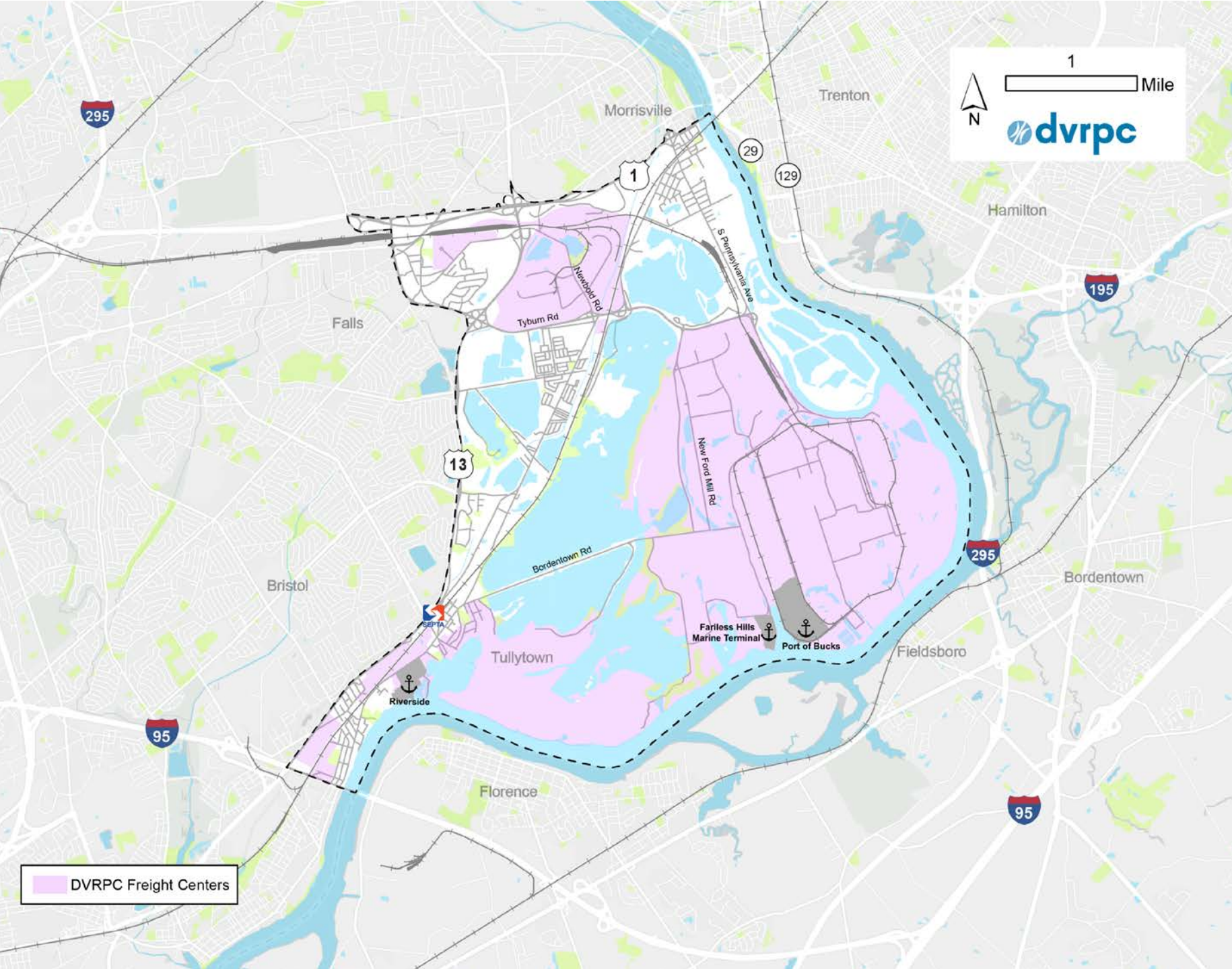
- Municipalities should encourage redevelopment and the use of existing infrastructure, where possible, in order to limit sprawl and its increased costs.
- Conduct a fiscal impact analysis in order to understand the costs and benefits of a new e-commerce development and their effect on municipal budgets.
- Coordinate with the local ODM and emergency services on a service plan for large-scale e-commerce centers.

**FISCAL**

Full report can be viewed at [www.dvrpc.org/products/22220](http://www.dvrpc.org/products/22220).

# Lower Bucks Freight Access Study





1 Mile

**dvrpc**

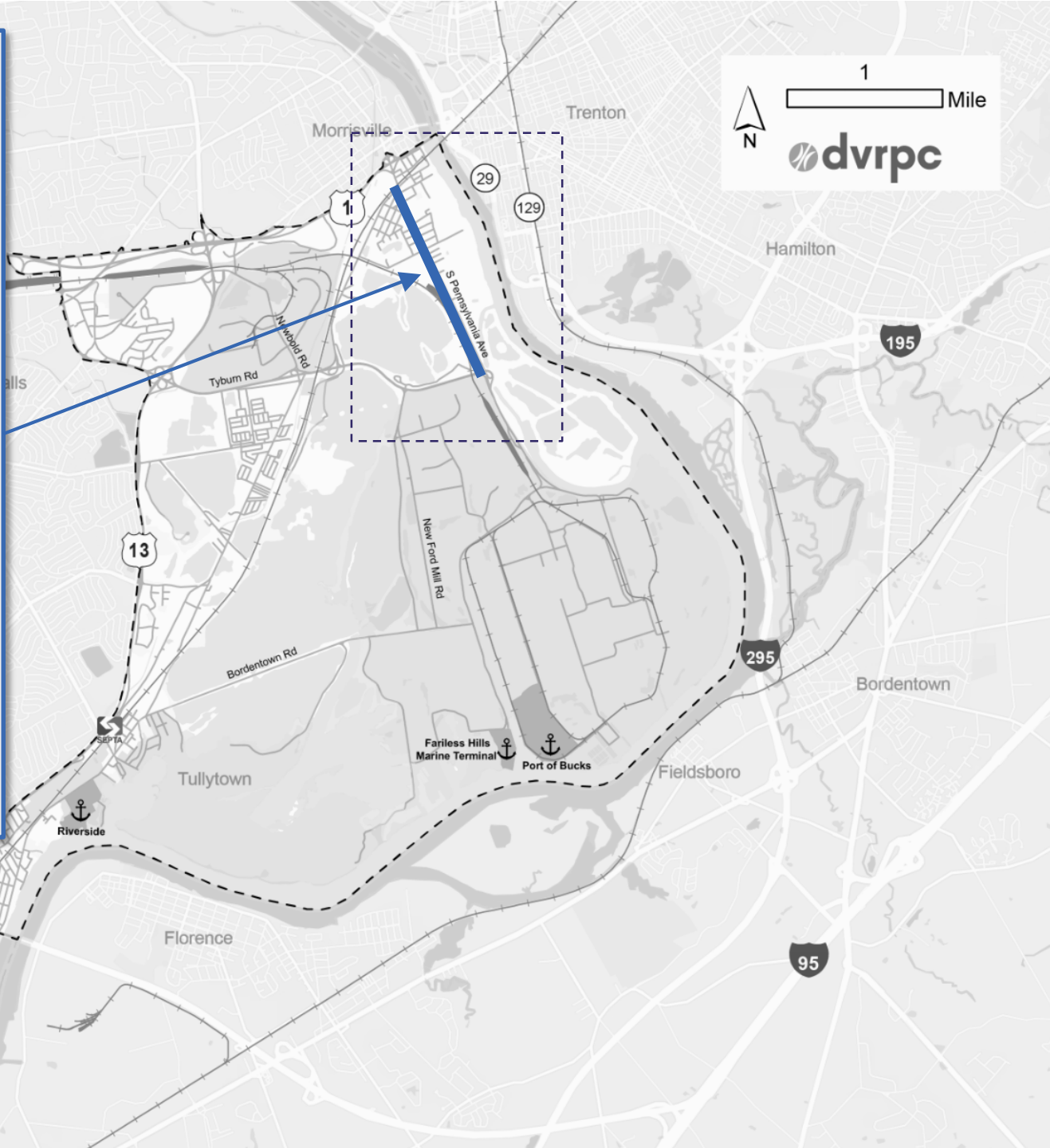
# STUDY AREA

Falls Township

Morrisville Borough

Tullytown Borough

DVRPC Freight Centers



1 Mile  
N  
dvrpc

# STUDY AREA

South Pennsylvania Avenue



# STUDY AREA

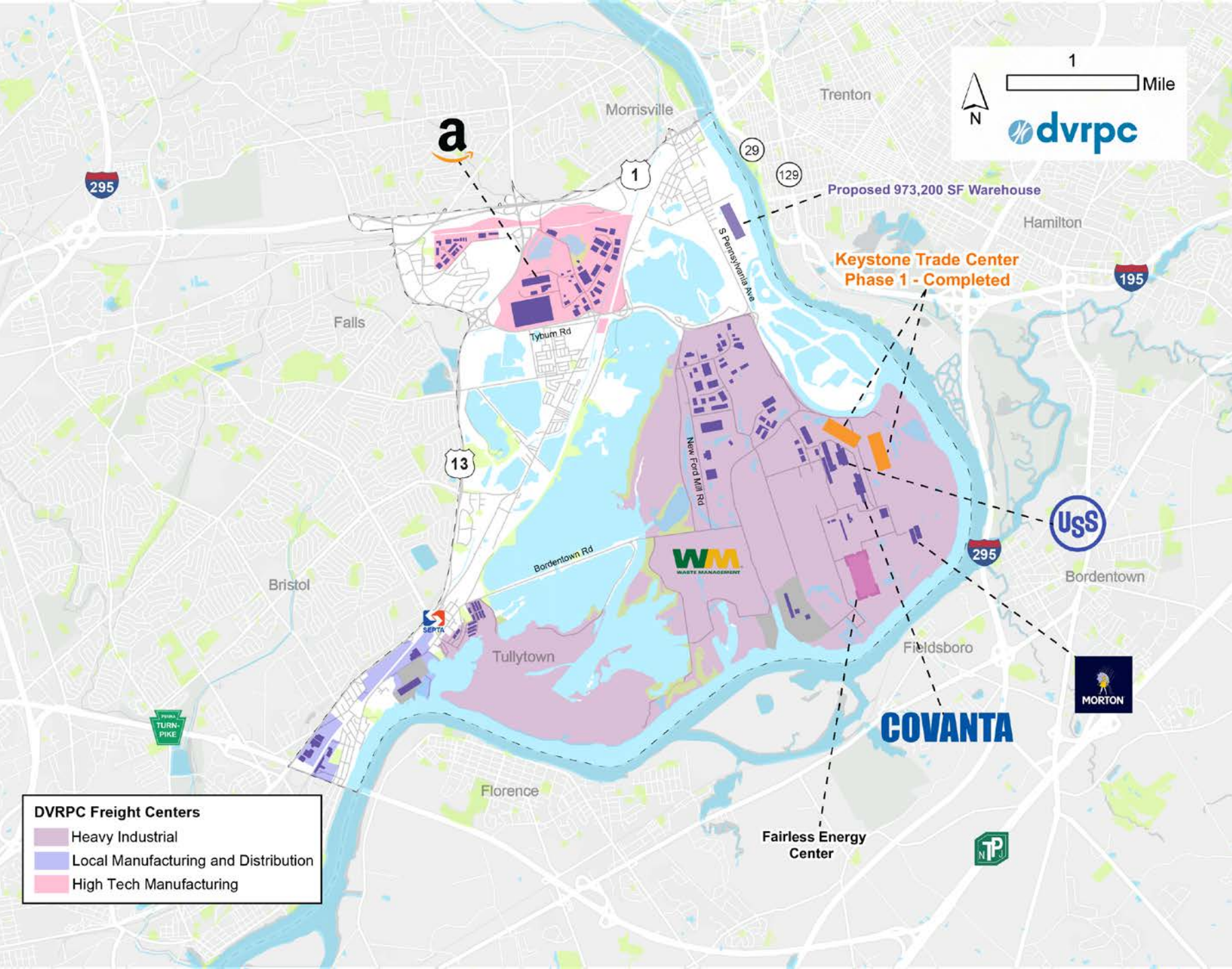
U.S. Steel Site



# STUDY AREA

## Port of Bucks





**DVRPC Freight Centers**

- Heavy Industrial
- Local Manufacturing and Distribution
- High Tech Manufacturing

# DEVELOPMENT SNAPSHOT

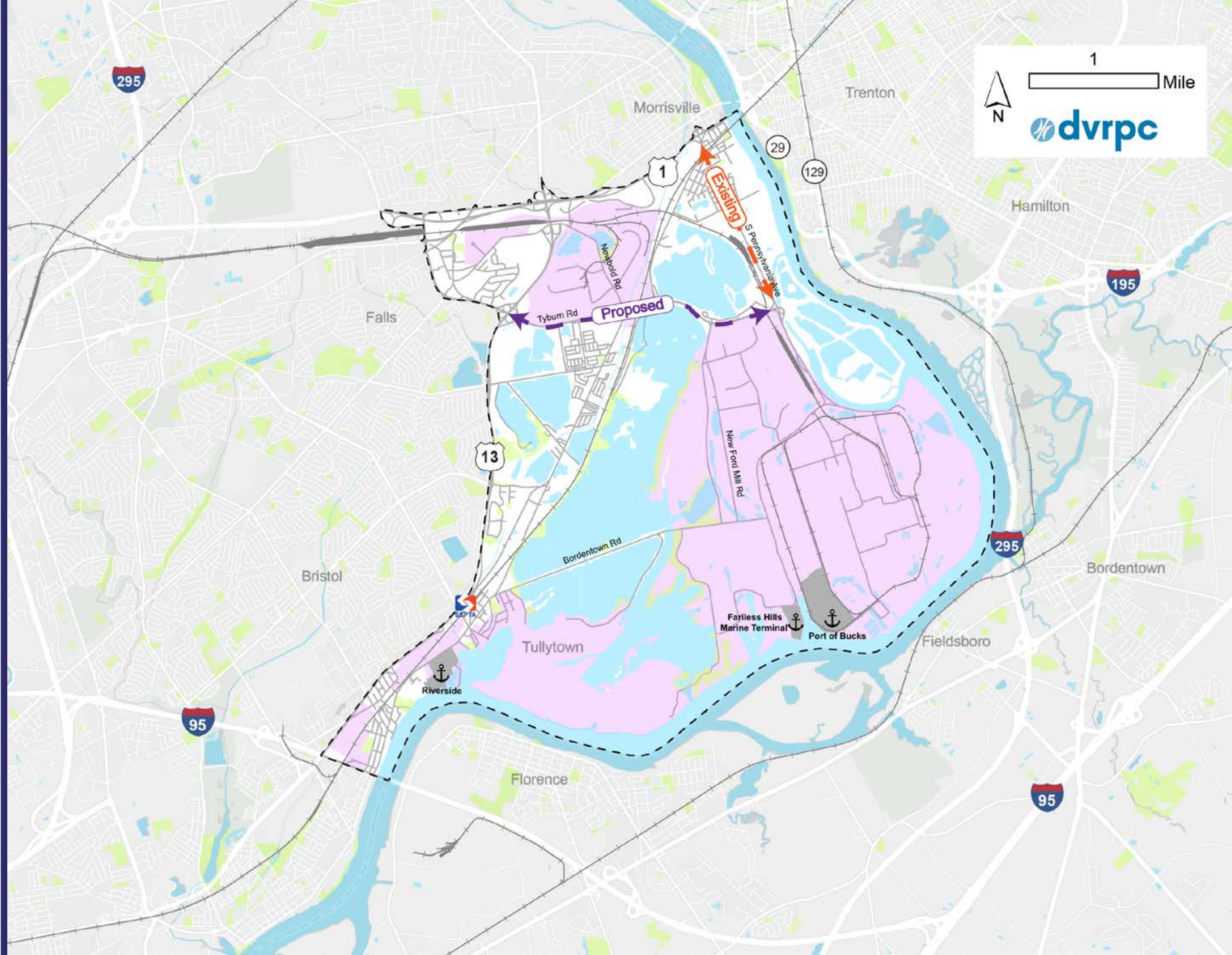
**Keystone Trade Center**  
 10-15 Million Square Feet of Distribution and Logistics Development.

- **Phase 1** – Completed and fully leased. (2.2M SQFT)
- **Phase 2** – Construction now complete. (3.5M SQFT)
- **Phase 3** – Remediation and development currently underway

# NHS INTERMODAL CONNECTOR

**Recommendation**  
Designate Tyburn Rd. as official NHS Intermodal Connector/De-designate S. Pennsylvania Ave.

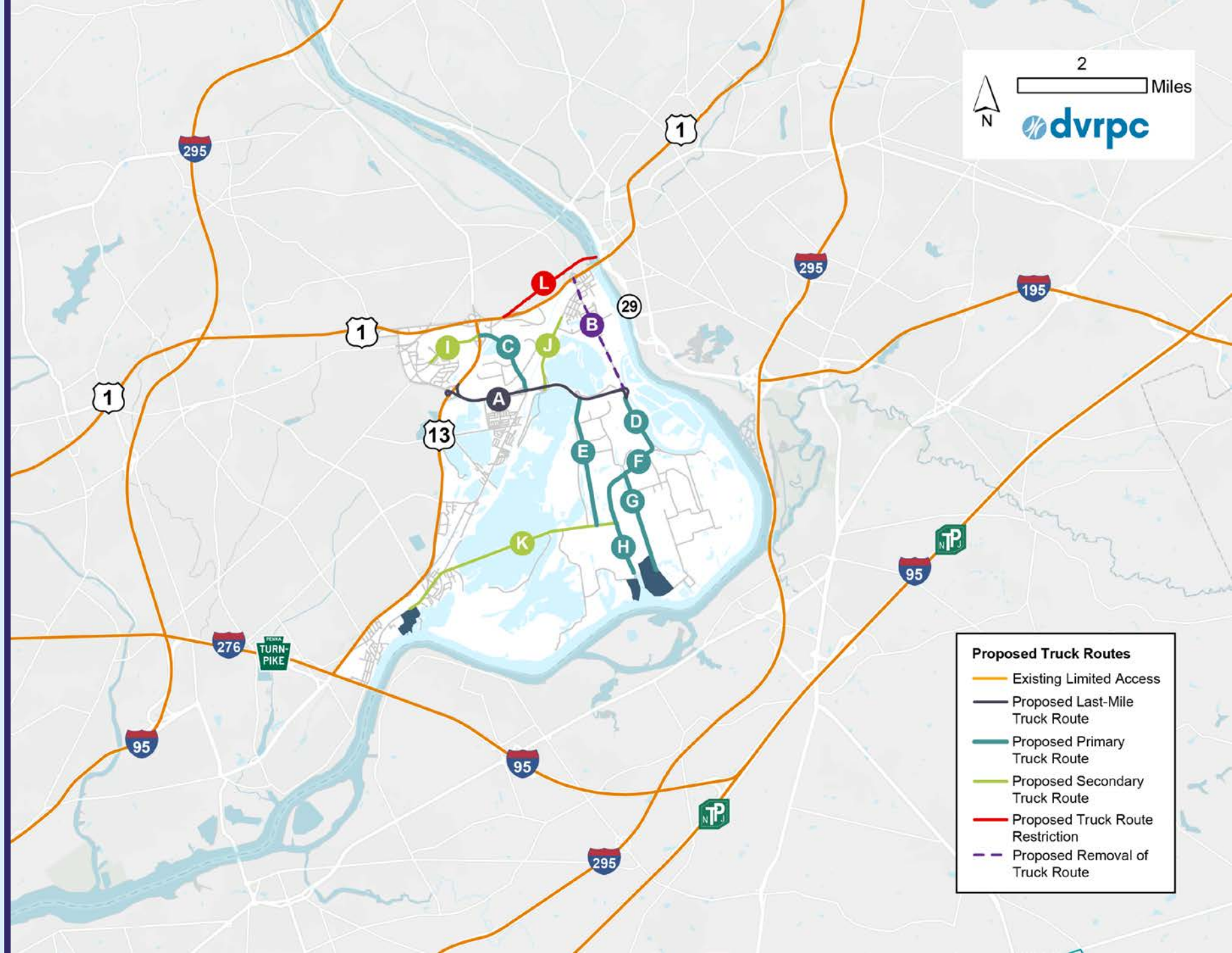
**Completed**



# TRUCK NETWORK

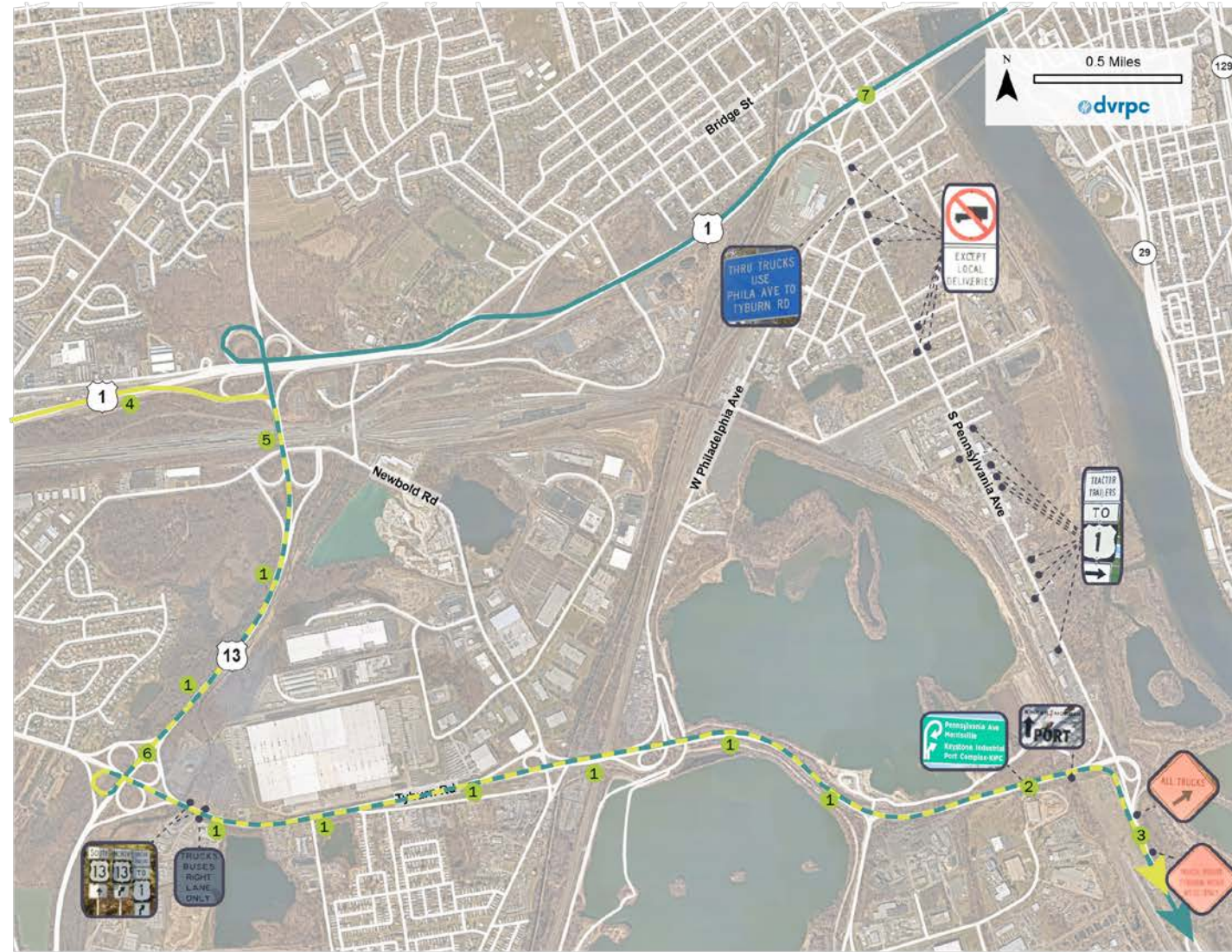
## Recommendation

Designate a truck network that will facilitate freight movements along preferred corridors away from residences.



# WAYFINDING AND SIGNAGE

**Recommendation**  
 Implement a consistent, area-wide truck wayfinding system to better guide vehicles on local roads toward freight centers and major routes.



1

TRUCK ROUTE

TO

KTC SITE

←

2

Keystone Trade Center - KTC  
 RIGHT LANE

Morrisville  
 Pennsylvania Ave  
 LEFT LANE

3

Tyburn Rd to SOUTH  
 Pennsylvania Ave

**LEGEND**

- Existing Wayfinding Signage
- Proposed Wayfinding Signage

4

TRUCKS SOUTH

Keystone Trade Center - KTC  
 Morrisville  
 Pennsylvania Ave

5

TRUCKS EAST KTC

Tyburn Road East

6

TRUCKS EAST KTC

Keystone Trade Center  
 NEXT EXIT

7

TRUCK ROUTE

SOUTH  
 Philadelphia

Morrisville SOUTH  
 Pennsylvania Ave  
 SECOND RIGHT

Morrisville NORTH  
 Pennsylvania Ave

# SUPPORTIVE INFRASTRUCTURE

## Recommendation

Incorporate supportive infrastructure - pedestrian pathways, lighting, EV charging, truck parking, shuttle service - within the redevelopment plans for the Keystone Trade Center.



Source: DVRPC



Source: Waste Management



Source: Pittsburgh Post-Gazette



Source: DVRPC

# SOUTH PENNSYLVANIA AVENUE

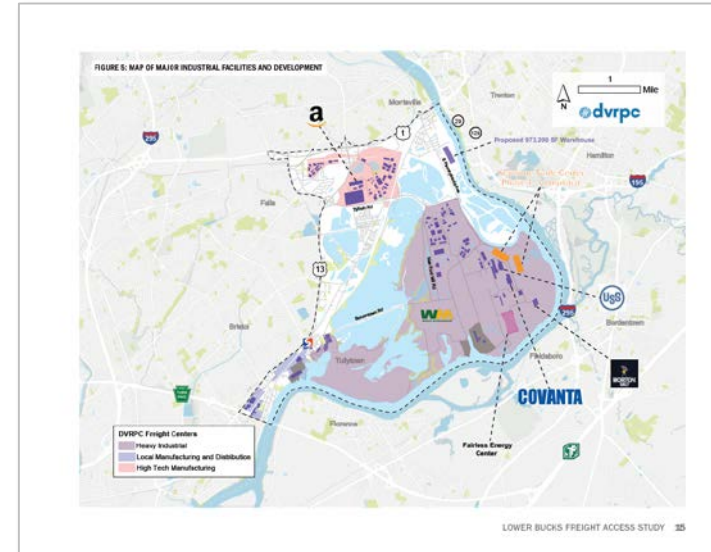
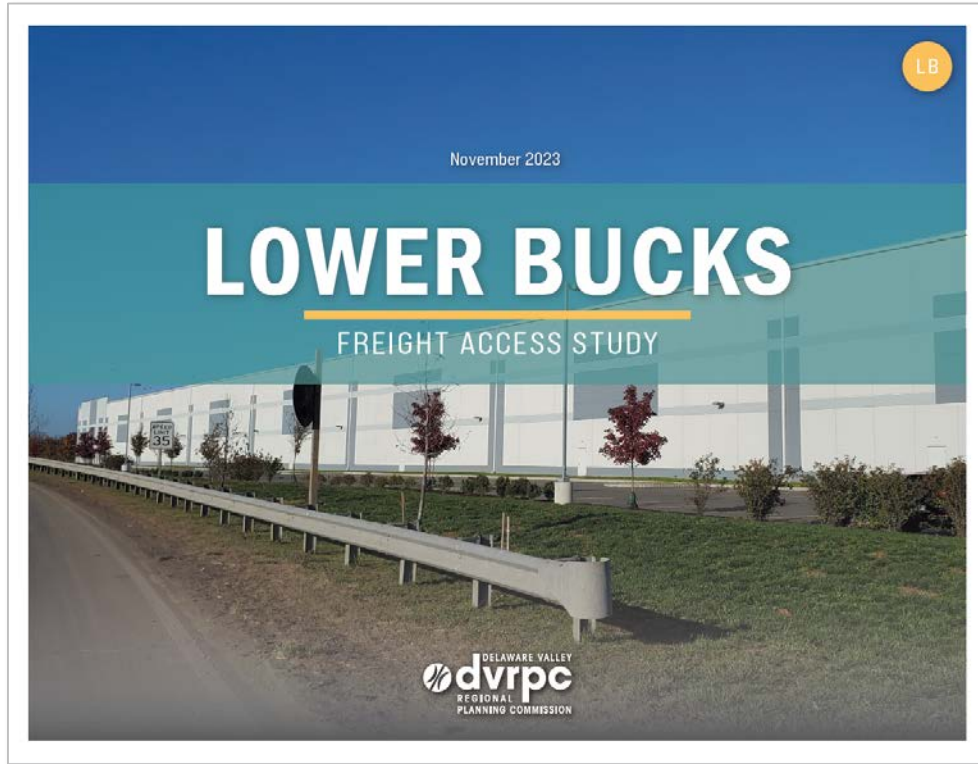
## Recommendation

Incorporate pedestrian safety improvements along S. Pennsylvania Ave. to protect residents and discourage freight traffic.



- LEGEND**
- Proposed Sign
  - RRFB
  - Rumble Strip
  - Gateway Median

# Lower Bucks Freight Access Study



Full report can be viewed at [www.dvrpc.org/products/23134](http://www.dvrpc.org/products/23134).



# Thank you

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