



# DELAWARE COUNTY 2035

# TRANSPORTATION PLAN

IMPROVE | EXPAND | INTEGRATE

## Executive Summary



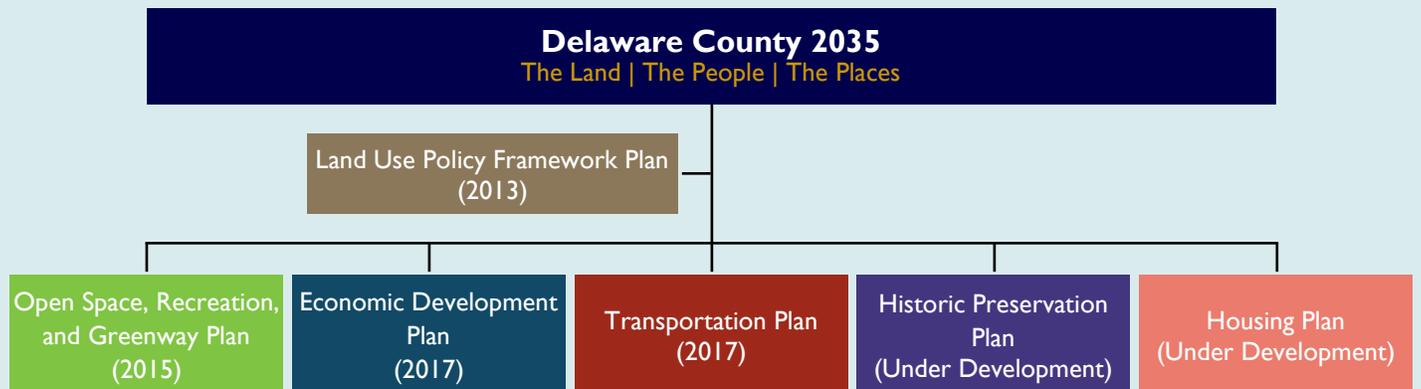
Delaware County’s variety of land uses, natural resources, topography, and urban morphology have all helped shape its transportation network. The road network, bicycle and pedestrian network, transit network, and goods movement network are all crucial components of Delaware County’s broader transportation system.

The *Transportation Plan* outlines a long-range strategy for the movement of people and goods in Delaware County. The plan identifies existing conditions, opportunities, and recommendations to *improve*, *expand*, and *integrate* the County’s transportation network. It outlines actions to be taken over the course of the next eighteen years that are in line with the broader goals of Delaware County 2035, the County’s comprehensive plan.

This plan is a component of Delaware County 2035, the County’s comprehensive plan.

## Delaware County 2035

Delaware County 2035, the County’s comprehensive plan, establishes a long-range vision for the County and provides municipalities with a framework for local planning efforts. It is a network of plans comprised of a *Land Use Policy Framework Plan*, which established broad policies, and more detailed component plans which provide specific goals, objectives, and actions.



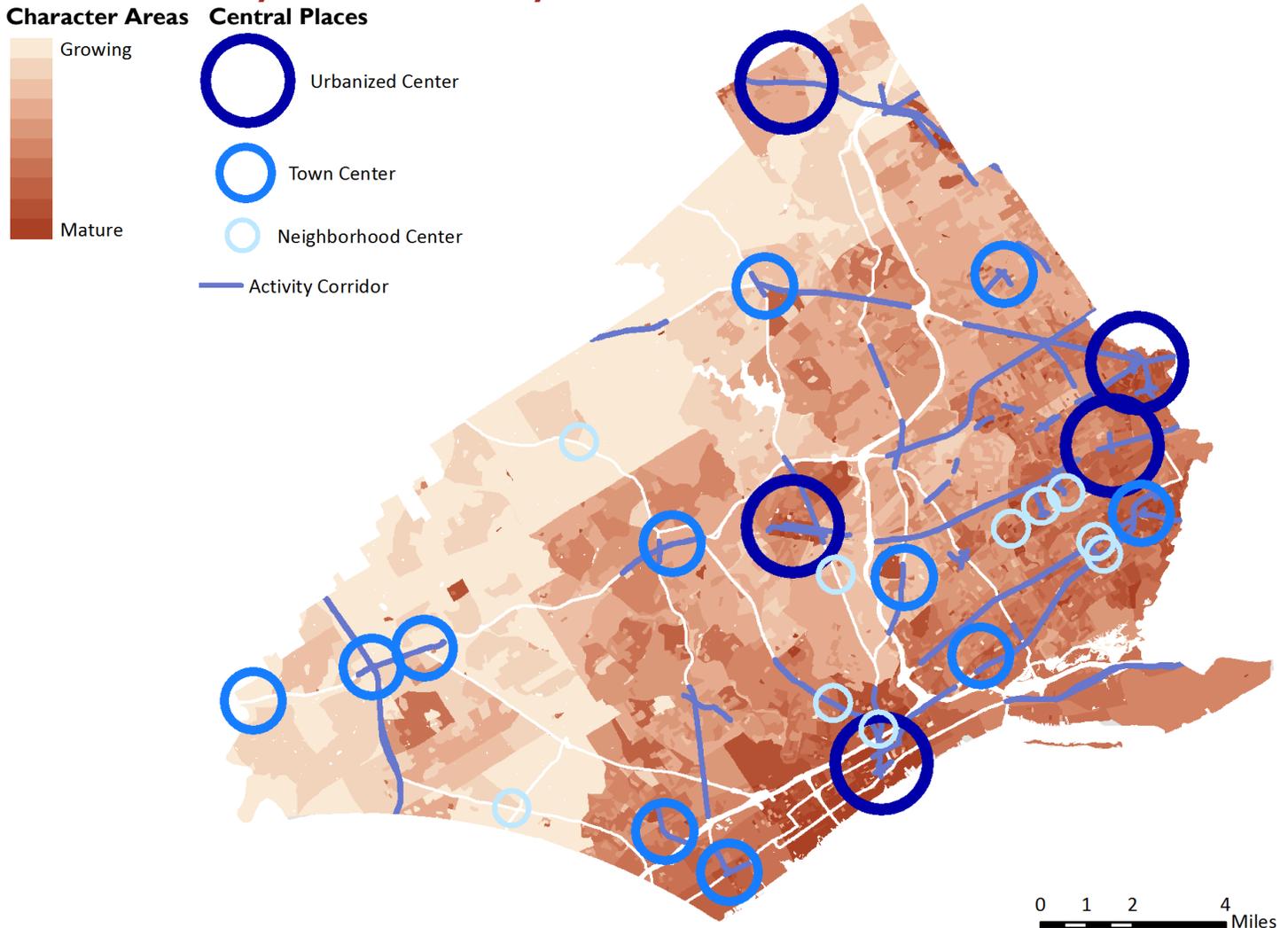
# BACKGROUND

The character of communities in Delaware County plays an important role in the economic development strategy. The *Transportation Plan* uses the community framework established for Delaware County 2035 to organize the place-based strategy.

The Delaware County 2035 community framework organizes the diverse place types of the County into an array of Character Areas, which are broad areas with similar development patterns and characteristics. The two primary types of Character Areas are **Mature Neighborhoods** and **Growing Suburbs**. Mature Neighborhoods are those that are essentially built-out; current development generally occurs in the form of infill of unused or vacant sites or in the redevelopment or renovation of older properties. Growing Suburbs, however, still have undeveloped lands, making them attractive for new development; the majority of new development proposed in Delaware County since 2000 has been located in Growing Suburbs. The majority of communities in the County exist in the array between Mature Neighborhoods and Growing Suburbs and have elements of both.

The community framework of Delaware County 2035 also identifies **Central Places** and **Activity Corridors**, which are community focal points that reinforce or establish a sense of place and which differ depending on the underlying Character Area. Central Places are the “downtown” and “main street” areas of the County and can vary in scale. Activity Corridors are linear-shaped places that flank major transportation corridors or highway interchanges with intensive development. Examples, but not an exhaustive list, of Central Places and Activity Corridors are shown on the map below.

## Delaware County 2035 Community Framework



# OVERVIEW

The *Transportation Plan* is a long-range strategy to build on the strengths of Delaware County's transportation network. The plan utilizes a typology-based approach to identify opportunities. Seventeen road and transit typologies reflect the typical characteristics of roadways and transit stations or stops in Delaware County.

Because transportation and land use planning are indivisible, the two primary Character Areas described in the *Land Use Policy Framework Plan* – Mature Neighborhoods and Growing Suburbs – were used to frame the distinction between road typologies. The very different development patterns of Mature Neighborhoods and Growing Suburbs present unique opportunities for the distinct roadway types.

The transit typologies also consider uses surrounding transit stops and stations, as well as transit mode. The County's transit system is divided into eight typologies, based on the physical characteristics of the stops or stations for each mode of public transit. Many of the stations and stops in the County fit into multiple categories. They can be found in either Mature Neighborhoods or Growing Suburbs, though some typologies are more common in one or the other.

# GOALS

As part of the planning process, three overarching goals were identified to guide the transportation planning efforts in the County. They are the result of the research and analysis compiled for this plan and guided by Delaware County 2035. The goals of the *Transportation Plan* are:

## IMPROVE

Improve the safety and capacity of all modes through adaptable and innovative solutions.

## EXPAND

Expand the transportation network so residents can access more than one mode.

## INTEGRATE

Integrate all modes into a complete system.

Six objectives, each with its own list of actions, were established to guide the implementation of the *Transportation Plan* in line with the three over-arching goals. The six objectives are:

# OBJECTIVES

1

Support the implementation of **Complete Streets** in Delaware County.

2

Improve the **safety** of Delaware County's transportation network.

3

Increase the modal share of **alternative transportation**.

4

Increase mobility by expanding **public transit access** and integrating **multimodal facilities**.

5

Enhance **public transit service**.

6

Improve **freight infrastructure** to strengthen Delaware County's industrial economy and communities.

# TYOLOGY-BASED APPROACH

## ROAD TYPOLOGIES

### I. Mature Neighborhoods

Mature Neighborhoods are the older, more densely populated neighborhoods located, for the most part, in eastern and southern Delaware County. Infrastructure tends to be older in these areas, and roadways are narrower compared to those in Growing Suburbs. Many Mature Neighborhoods boast a relatively complete sidewalk network.

#### I.1 Activity Corridors in Mature Neighborhoods

Activity Corridors offer access to commercial destinations. They are high speed, experience high traffic volumes, and have numerous intersections.

**Key attributes that will make Activity Corridors of the future thrive:**

- Green Stormwater Infrastructure (GSI);
- Reduction of left turn movements to limit conflicts; and
- Intelligent Transportation Systems (ITS).

#### I.2 Arterial Streets in Mature Neighborhoods

Arterial Streets have high traffic volumes. These roadways are high speed, though they have a greater number of intersections than Activity Corridors.

**Key attributes that will make Arterial Streets of the future thrive:**

- Marked crosswalks and improved access to commercial developments;
- Bicycle facilities; and
- Improved signal timing.

#### I.3 Collector Streets in Mature Neighborhoods

Collector Streets “collect” vehicular traffic from local streets. They are a prime source of cut-through traffic.

**Key attributes that will make Collector Streets of the future thrive:**

- Left turn signals where needed;
- New or upgraded sidewalks; and
- Safety and signal improvements at grade crossings.

#### I.4 Local Streets in Mature Neighborhoods

Residential streets do not have high traffic volumes, but if traffic continues to increase, they will eventually be used as Collector Streets.

**Key attributes that will make Local Streets of the future thrive:**

- Traffic calming measures;
- Safety improvements at intersections with Collector Streets; and
- More inter-neighborhood connections (e.g., pedestrian pathways).



## 2. Growing Suburbs

Growing Suburbs are the less densely populated areas of northern and western Delaware County. They offer vast open space and vacant land, which has attracted the construction of numerous new developments.

### 2.1 Activity Corridors in Growing Suburbs

Activity Corridors are four to eight lanes and high speed. They are surrounded by large-scale commercial uses and experience high traffic volumes.

**Key attributes that will make Activity Corridors of the future thrive:**

- Medians to reduce pedestrian crossing distances;
- Shared parking facilities; and
- Sidewalks to provide pedestrian access between developments.



### 2.2 Arterial Streets in Growing Suburbs

Arterial Streets are high volume, high-speed, and typically four to six lanes wide. High traffic volumes are primarily concentrated during rush hours.

**Key attributes that will make Arterial Streets of the future thrive:**

- Bicycle facilities;
- New or upgraded sidewalks with a protective buffer; and
- Improved visibility at intersections.

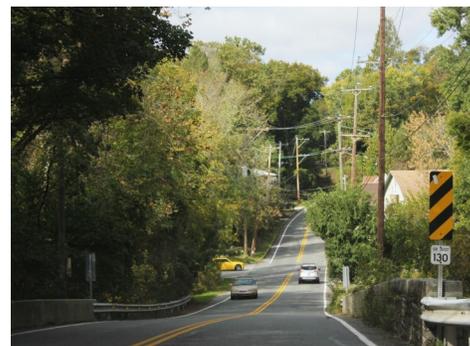


### 2.3 Collector Streets in Growing Suburbs

Collector Streets are usually narrow, two-lane, high-speed roadways. These roads are winding; consequently, intersections are frequently misaligned.

**Key attributes that will make Collector Streets of the future thrive:**

- Improve visibility and alignment at intersections;
- Install marked crosswalks; and
- Add signalized intersections or roundabouts.



### 2.4 Local Streets in Growing Suburbs

Local Streets transect low-density neighborhoods of single-family homes. Local roads are rarely connected, and cul-de-sacs and dead ends are common.

**Key attributes that will make Local Streets of the future thrive:**

- Bicycle and pedestrian-designated spaces;
- Bicycle and pedestrian connections to public transit; and
- Safety and visibility improvements at intersections with Collector Streets.



## 3. Other Typologies

### 3.1 Highways

**Key attributes:** Active shoulder use during rush hours and clear exit signage.

### 3.2 Main Streets

**Key attributes:** ADA-accessible connections to public transit and parking garages to promote walkability.



# TYOLOGY-BASED APPROACH

## TRANSIT TYPOLOGIES

### 1. Regional Rail

Delaware County is served by four SEPTA regional rail lines: the Paoli/Thorndale, Wilmington/Newark, Media/Elwyn, and Airport lines. Central Stations and Commuter Stations can be found on all lines in the County with the exception of the Airport line. There are no stations in Delaware County on that line.

#### 1.1 Central Stations

Central Stations are found on three of the four SEPTA regional rail lines that run through Delaware County. These stations are surrounded by high density, mixed use land uses and anchor destinations.

**Key attributes that will make Central Stations of the future thrive:**

- High level platforms;
- Station consolidation where spacing is poor; and
- Real-time information.

#### 1.2 Commuter Stations

Commuter Stations are typically surrounded by low density residential uses. Most users drive to these stations, even though they have multimodal access, and car parking is abundant.

**Key attributes that will make Commuter Stations of the future thrive:**

- Real-time information;
- Bicycle facilities; and
- Improved, ADA-compliant pedestrian and bicycle connections.



### 2. Transit Hubs

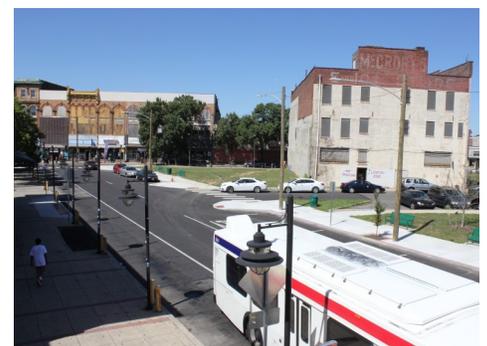
There are three transportation centers in Delaware County: 69th Street Transportation Center in Upper Darby, Darby Transportation Center in Darby Borough, and Chester Transportation Center in the City of Chester. Transit Hubs are major multimodal interchanges; they experience and have the capacity for high volumes of transit passengers and modes.

Transit Hubs are located on a Main Street, near an arterial road so they are easily accessible by car. The areas surrounding Transit Hubs are highly walkable, and bicycle travel to and around these stations is common. Some users park their bikes at these stations, while others take their bikes onto regional rail or bus service.

Transit Hubs tend to be a catalyst for development in an area. 69<sup>th</sup> Street Transportation Center in Upper Darby, for example, has stores, restaurants, and SEPTA ticket offices.

**Key attributes that will make Transit Hubs of the future thrive:**

- Strong bicycle and pedestrian connections;
- Designated car and taxi drop-off and pick-up areas; and
- Improved ADA access.



### 3. Bus

Bus stops in Delaware County fall into two categories: Basic Stops and Improved Stops. Very few Improved Stops currently exist in Delaware County, and they are found along the same service routes as Basic Stops. Basic Stops make up the majority of bus stops and vary depending upon the characteristics of the surrounding community.

#### Key attributes that will make Bus Stops of the future thrive:

- Improved, ADA-compliant pedestrian and bicyclist access;
- Passenger amenities such as seating and lighting;
- Real-time information.



### 4. Light Rail

Delaware County is served by four light rail trolley lines and one high speed line. While the high speed line runs on a separated track, the trolleys run both off-street and on-street. Along these five lines, there are Central Stops, On-Street Stops, and Residential Stops.

#### 4.1 Central Stops

Central Stops are found in medium- to high- density mixed-use commercial and residential neighborhoods. Almost none of these stops have designated parking, and they are directly connected to the sidewalk network.

#### Key attributes that will make Central Stops of the future thrive:

- Improved ADA access;
- Bicycle parking; and
- Shelters.



#### 4.2 On-street Stops

On-Street Stops are most frequently found in high-density commercial areas, along Main Streets. The trolley tracks run directly in the middle of the street, and trolley cars share the street with vehicular traffic.

#### Key attributes that will make On-street Stops of the future thrive:

- Stop consolidation where spacing is poor;
- Curb bump-outs that provide near-level boarding; and
- Shelters.



#### 4.3 Residential Stops

Light Rail Residential Stops are found in predominantly residential neighborhoods, on local streets. Users generally reach these stops by foot, yet some of these stations have small parking areas. Many of the Norristown High Speed Line stations fall under the Light Rail Residential Stop category.

#### Key attributes that will make Residential Stops of the future thrive:

- Improved, ADA-compliant pedestrian and bicyclist access;
- Real-time information; and
- Enhanced station visibility through the installation of wayfinding signage.



# ROAD NETWORK

## OVERVIEW

Two of the region's most important Interstates – 95 and 476 – run through Delaware County. Many workers from the other Pennsylvania counties in the Philadelphia Metropolitan Statistical Area travel through Delaware County to reach work via I-476, I-95, U.S. Route 1, U.S. Route 202, and U.S. Route 322. As a result, all of these roadways experience high traffic volumes, particularly during rush hours.

Trucks, cars, and buses account for 38% of nitrogen oxides (NO<sub>x</sub>), 14% of volatile organic compounds (VOCs), and 3% of particulate matter 2.5 micrometers or less in size (PM<sub>2.5</sub>) (*Transportation Conformity Demonstration*, DVRPC, July 2016). Transportation planning in Delaware County should tackle congestion through the lens of improving overall quality of life.



## Strategies

The County will advocate for the implementation of Complete Streets.

Complete Streets are roadways that are designed to be safe for all users, regardless of their age or ability. A Complete Street has facilities for pedestrians; bicyclists; transit riders; and motorcycle, car, and truck drivers. The specific design of a Complete Street will differ based on the specific application.

- Delaware County will have Complete Streets.
- Delaware County will have a complete bicycle network.
- Congestion will be mitigated by an increase in active transportation and public transit use.
- Safety will be improved and crashes will be reduced through improvements to transportation infrastructure and Complete Streets policies.



Ridley Park Borough

### Parking Alternatives



### Traffic Flow Improvements



### Congestion Mitigation



# BICYCLE AND PEDESTRIAN NETWORK

## OVERVIEW

Non-motorized transportation is a significant part of Delaware County's multimodal transportation network. The County's bicycle and pedestrian networks help provide access not only to destinations but also to public transit.

Bicycle and pedestrian mobility make Delaware County not only more resilient but also more economically competitive. Bicycling, running, and walking improve quality of life by supporting healthy lifestyles.



## Strategies

The County seeks to implement a countywide bicycle network that can be used by bicyclists of all comfort and skill levels. The completed bicycle network in Delaware County will include on-road bicycle facilities, which will provide access to and along the identified bicycle corridors, and multi-use trails. Connections between off-road facilities and on-road facilities are important in providing access to destinations, which are often located on major roadways.

The Pedestrian Network is composed of many small webs of sidewalk connections that serve specific places. Walkability helps support a multimodal transportation network. Sidewalks should be in compliance with ADA standards, and marked crosswalks should be placed at most intersections and mid-block where there is a transit stop or station. Green Stormwater Infrastructure (GSI) can be incorporated into sidewalks to improve streetscape.

## Delaware County Proposed Bicycle Network



### Active Transportation



### Complete Bicycle Network



### Safety Enhancements



# TRANSIT NETWORK

## OVERVIEW

Delaware County has the strongest public transportation network among the suburban southeastern Pennsylvania counties, in terms of variety of transportation modes and ridership. Transit service in Delaware County is comprised of regional rail, light and heavy rail (trolley and high speed/elevated lines), and bus service operated by the Southeastern Pennsylvania Transportation Authority (SEPTA). 10.4 percent of Delaware County residents take public transit to work, a much higher percentage than in Bucks, Chester, and Montgomery counties (2011-2015 ACS 5-year Estimates). Trends strongly suggest that an increasing number of Delaware County residents will take public transportation to and from work in the future. Delaware County is committed to enhanced and extended transit service.



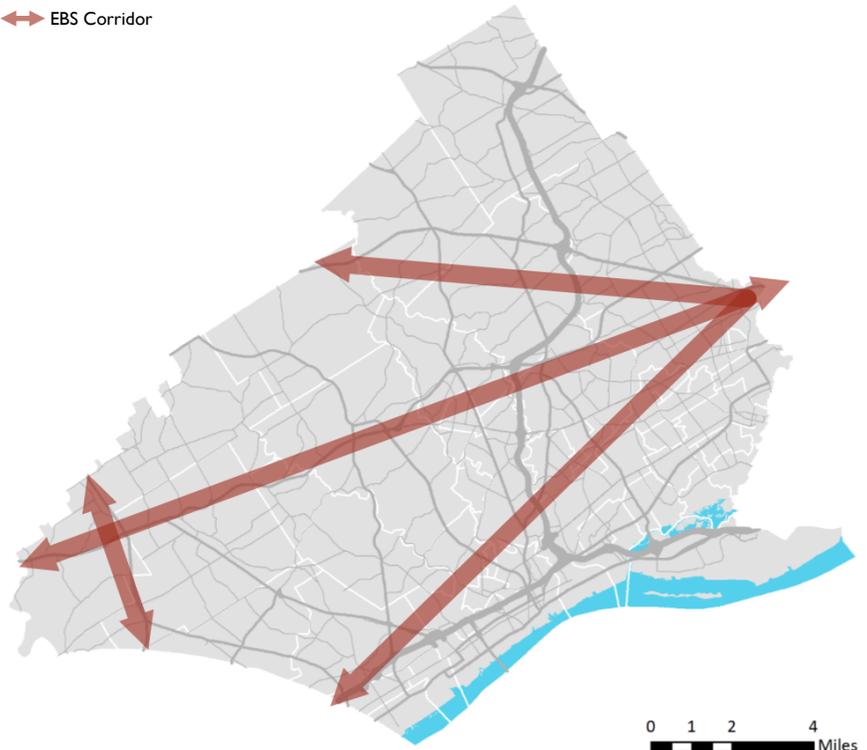
## Strategies

Complete Streets include facilities for all transit riders: those making first- and last-mile trips to stations and stops by foot, bicycle, car, or bus.

- Public transit facilities will be ADA compliant and provide adequate access for all users.
- Public transit service will be more efficient, and ridership will continue to increase as a result.
- Real Time Information will provide trip information to all users of the transportation network.
- Transit-supportive land development will occur along transit corridors, making public transit a practical option for more County residents and workers.

## Potential EBS Corridors

↔ EBS Corridor



### ADA Access



### Real-Time Information



### Enhanced Amenities



# GOODS MOVEMENT NETWORK

## OVERVIEW

Delaware County's freight system is one of the most robust in the Delaware Valley Region; it includes truck, rail, maritime, air, and pipeline transportation. When commuter travel routes and freight movement routes do not overlap, they intersect.

Larger trends and changes, such as shifts in the United States energy market and the deepening of the Panama Canal, are expected to lead to a growth in the freight industry in Delaware County. The modal share may also shift away from truck transportation to transportation via pipeline and water. This prediction is based on increasing roadway congestion affecting the former and the increased capacity of the latter. Delaware County's transportation network should encourage the safer and more efficient movement of goods.

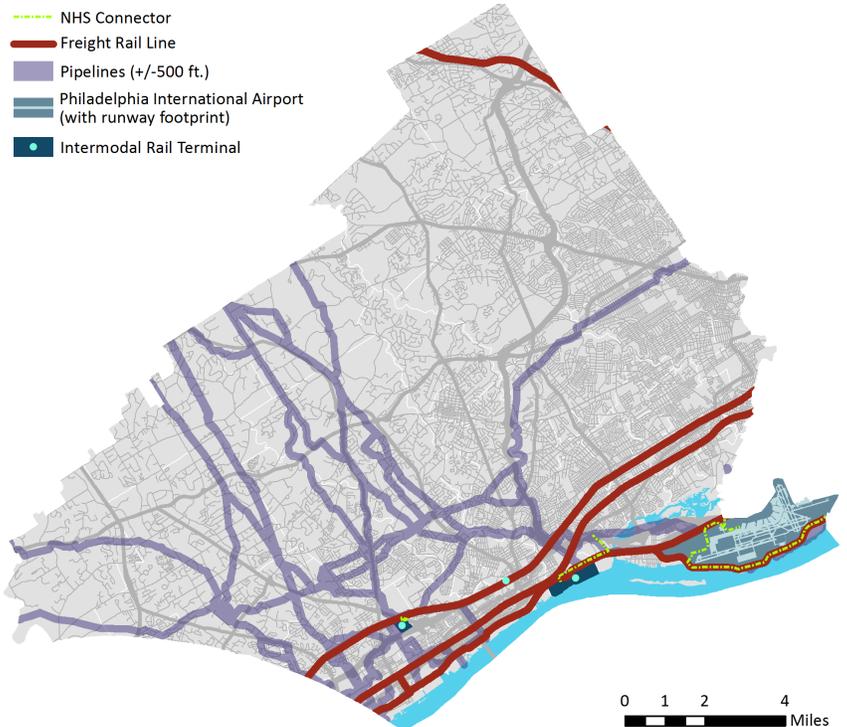


## Strategies

A true Complete Street is planned to safely move goods as well as people. Creating a balance between accommodating freight trains and trucks and accommodating people helps to improve quality of life in areas with more industrial land uses.

- Delaware County will have designated truck routes for the safe and timely passage of trucks.
- Congestion will be mitigated by an increase in active transportation and public transit use, as well as the potential creation of freight-only facilities.
- Truck travel times will be reduced as a result of the increased efficiency of the transportation network.
- Grade crossings will be made safer for all those who traverse these intersections.
- Waterfront access will be improved.
- Acoustic pollution will be mitigated.
- More freight industry jobs will be created.

## Freight Movement Infrastructure



### Designated Truck Routes



### Safe Grade Crossings



### Bike/Ped Waterfront Access



# NEXT STEPS

As a component plan of Delaware County 2035, the *Transportation Plan* will be used to guide transportation projects and priorities throughout the County. The objectives and actions listed in the plan provide the path for the County to meet the overarching goals of **Improve**, **Expand**, and **Integrate**.

The plan is intended to serve as a resource for local governments. Municipalities should reference this plan when developing their own comprehensive and transportation plans and incorporate the countywide vision as appropriate. Municipalities should also consider this plan when applying for funding for transportation projects.

It will take the combined efforts for many government agencies, organizations, officials, and motivated citizens to implement the ideas and actions in this plan.

## PARTNER



Strengthen partnerships with state and local agencies, local institutions, and non-profits to address community transportation needs.

## IMPLEMENT



Work together to implement the objectives and actions identified in the Transportation Plan.

## EVALUATE



Periodically evaluate progress, needs, and opportunities in order to best meet the goals of the community.



### Delaware County Council

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