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DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION
Phoenixville Rail Extension
A Ridership Forecast Study

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DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

DVRPC's vision for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural resources while creating healthy communities; and that fosters greater opportunities for all.

DVRPC's mission is to achieve this vision by convening the widest array of partners to inform and facilitate data-driven decision-making. We are engaged across the region, and strive to be leaders and innovators, exploring new ideas and creating best practices.

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EXECUTIVE SUMMARY

On June 30,1981, the last passenger train left Reading. With the new development of the Center City Commuter tunnel, the passenger rail service between Norristown and Reading that ran on diesel equipment was suspended. The service, which began in the mid-1800s, connecting many communities along the route, came to an end.

Over the decades since the service suspension, numerous studies have been conducted to evaluate the feasibility of service restoration. Notable studies include several *Schuylkill Valley Metro* studies, also known as SVM, and *R6 Norristown Line Service Extension Study*. These studies did not turn into reality, primarily because of the funding challenge to finance the passenger rail project.

Recently, a grassroots effort led by a local developer, the DeMutis Group, sought to restore the passenger rail service to the Borough of Phoenixville and has been working with the Mayor's Task Force to extend the Manayunk/Norristown Regional Rail line to Phoenixville by sharing the freight rail corridor owned by Norfolk Southern (NS).

The purpose of this study is to update the ridership forecast for the rail extension. Directed by the steering committee that comprised of Chester County Planning Commission (CCPC), Greater Valley Forge Transportation Management Association (GVFTMA), Montgomery County Planning Commission (MCPC), Pennsylvania Department of Transportation (PennDOT), Southeastern Pennsylvania Transportation Authority (SEPTA), and Transportation Management Association of Chester County (TMACC), the Delaware Valley Regional Planning Commission (DVRPC) prepared the future year ridership forecast using its regional travel demand model. This project report reviews the relevant plans and studies and analyzes transportation network characteristics, socioeconomic data, travel mode, and regional origin and destination patterns. It also introduces the travel demand model and presents the future year ridership forecasts.

Four new stations were proposed for the service extension: Valley Forge, Phoenixville, Royersford, and Pottstown. Two types of service were modeled, shuttle service between Pottstown and Norristown (two-seat ride) and through service between Pottstown and Philadelphia (one-seat ride). For each service type, three scenarios were proposed with a different service frequency. Scenarios 1 to 3 are shuttle services with eight, ten, and thirteen round trips, respectively. Scenarios 4 to 6 are through services. Scenario 4 would only provide three inbound trips in the morning peak hours and three outbound trips in the afternoon peak hours. Scenario 5 would provide seven round trips that include reverse-peak trains. Scenario 6 would provide a late-night shuttle service in addition to seven round trips. The SEPTA-prepared timetables for these scenarios are based on the equipment requirement and time slot availability on its train tracks. All the information was entered into the regional model. **Table 1** shows the ridership results of each station in a typical weekday for future year 2030. The ridership numbers in the table are the average of boardings and alightings.

The passenger rail extension to Pottstown via Phoenixville would fill in the commuter rail gap along the corridor, enhance access to employment and other destinations, reduce auto dependency, improve quality of life, and support the smart growth and revitalization effort.

Table 1: Daily Ridership by Station for Future Year 2030

Station	Shuttle Service			Through Service		
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Norristown	889	919	1,019	859	953	1,022
Valley Forge	263	305	365	282	425	445
Phoenixville	380	416	473	236	536	551
Royersford	160	174	218	216	408	414
Pottstown	302	311	360	298	481	488
Total	**1,994**	**2,125**	**2,435**	**1,891**	**2,803**	**2,920**

Source: DVRPC, 2021

CHAPTER 1
INTRODUCTION

Project Overview

At the request of Chester County, DVRPC conducted a study to forecast the ridership for a proposed service extension of the existing Manayunk/Norristown Regional Rail line from the Norristown Transportation Center to Pottstown via Phoenixville.

The study corridor is approximately 24 miles long, and generally parallels the Schuylkill River along the boundaries between Chester and Montgomery counties, encompassing ten local municipalities, Limerick Township, Lower Pottsgrove Township, Norristown Borough, Phoenixville Borough, Pottstown Borough, Royersford Borough, Schuylkill Township, Upper Merion Township, Upper Providence Township, and West Norriton Township. **Figure 1** shows the regional setting of the proposed passenger rail.

Four new stations were proposed: Valley Forge, Phoenixville, Royersford, and Pottstown stations as **Figure 2** shows. DVRPC's travel demand model was used to estimate the ridership for six scenarios, which differ in type and frequency of services.

Comprehensive Planning Context

The restoration of passenger rail service is supported by the comprehensive plans at the regional, county, and municipal level. A brief description of relevant plans follows.

Connections 2045 Plan for Greater Philadelphia

Extending the Manayunk/Norristown line to Pottstown is one of the major regional transit system expansion projects in DVRPC's 2045 Long-Range Plan. The project is listed as an unfunded project for $419 million cost of 2017 dollars. While King of Prussia/Valley Forge is identified as a "Metropolitan Subcenter," reflecting the magnitude of job and commercial activities in this area, Norristown, Phoenixville, Royersford, and Pottstown are identified as "Town Centers" with an established downtown and a sense of place in general.[1]

Landscapes 3: Chester County Comprehensive Plan

Chester County's Comprehensive Plan envisions the restoration of the commuter rail service to the Schuylkill River Valley communities. With a historic downtown, the Borough of Phoenixville is categorized as an "Urban Center." The rail extension would support the transit-oriented development and the revitalization effort with an enhanced public transportation system.[2]

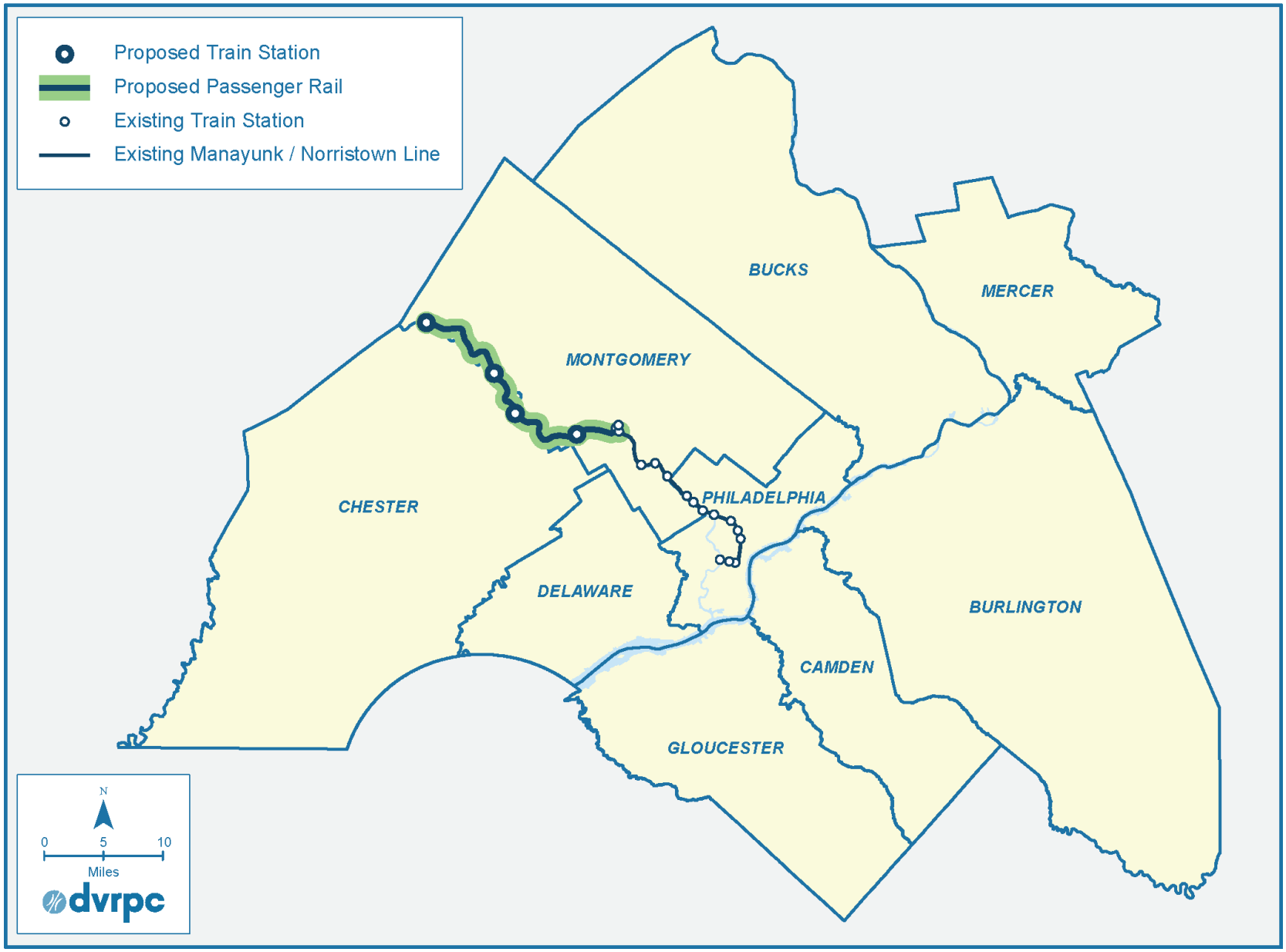
Montco 2040: A Shared Vision

Montgomery County's Comprehensive Plan identifies the rail extension of Manayunk/Norristown Regional Rail line to Wyomissing, Berks County through Royersford and Pottstown as one of the priorities to improve transit quality and provide options for county residents and workers. The plan also identifies revitalization opportunities in downtown Norristown, Royersford, and Pottstown.[3]

Municipal Level Vision

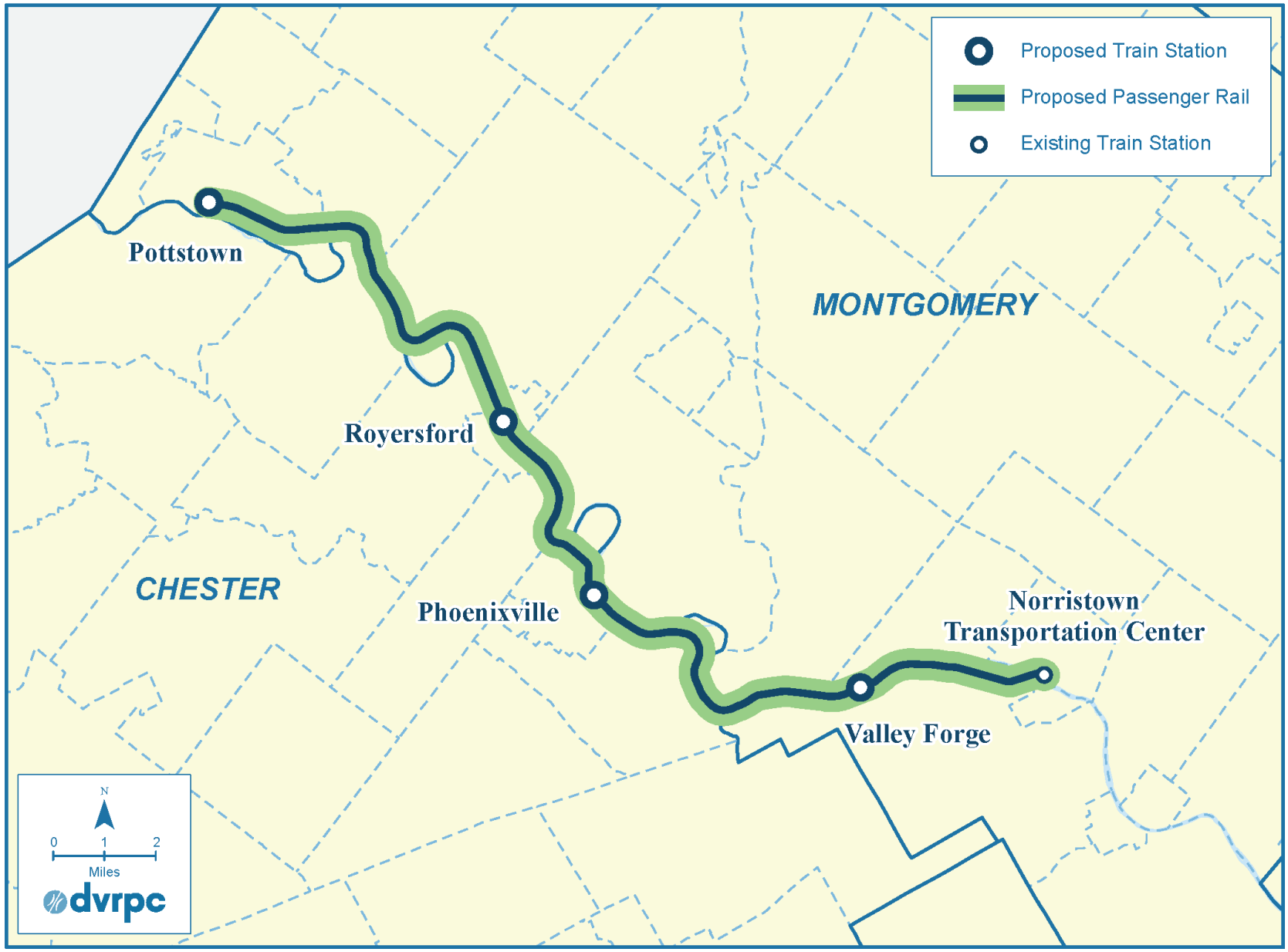
The municipalities where the new stations would be located, as well as the City of Philadelphia, support the rail extension and have listed it as priorities in their comprehensive plans.[4, 5, 6, 7, and 8]

Figure 1: Regional Setting of the Proposed Passenger Rail



Sources: DVRPC, 2021; SEPTA, 2021

Figure 2: Regional Setting Zoom In



Sources: DVRPC, 2021; SEPTA, 2021

Previous Studies

In the mid-1800s, the Reading Company, also known as Reading Railroad, began the passenger rail service between Reading and Philadelphia. In 1976, the Reading Company sold its railroad assets to the Consolidated Railroad Corporation (Conrail), and SEPTA took over the passenger rail operation under contract to Conrail. In 1981, with the new development of the Center City Commuter tunnel, passenger service between Norristown and Reading that ran on diesel equipment was suspended. **Figure 3** shows a rail segment on the southern bank of the Schuylkill River.

Figure 3: Rail Segment

Source: DVRPC, 2021

Over the decades since the service suspension, many studies have been conducted to evaluate the feasibility of service restoration. This section summarizes these studies, aiming to acknowledge relevant findings and recommendations in the past.

Reading to Philadelphia Passenger Rail Analysis, 2020

Initiated by PennDOT, this study examined two options, through service between Reading and Philadelphia, and shuttle service between Reading and Norristown that requires a transfer at the Norristown Transportation Center. Six stations were proposed: Valley Forge, Phoenixville, Royersford, Pottstown, Birdsboro, and Reading. The higher level of capital costs would be $817 million in 2020 dollars. The annual operating and maintenance (O&M) costs would range from $18 million to $25 million. Weekday ridership was estimated by using the Longitudinal Employer-Household Dynamics (LEHD) data projection. The average weekday boardings were projected to range from 3,400 to 6,400 by 2030 for the through service option, and range from 2,300 to 5,100 for the shuttle service option. The one-seat ride option with nine round trips on weekdays was identified as the preferred service plan, which requires the use of dual-power equipment.[9]

Restoring Passenger Rail Service to Berks County, 2020

Initiated by the Berks Alliance and Greater Reading Chamber Alliance, this study provided some conceptual analysis of reconnecting Reading with Philadelphia and the Northeast Corridor by passenger rail. Four new stations were proposed: Reading, Pottstown, Royersford, and Phoenixville. The train service would run express from Norristown to Philadelphia. The higher level of capital costs would be $356 million in 2020 dollars, and the O&M would be $20 million annually. By using the COMPASS™ demand modeling system, it was predicted that an annual ridership could range from 1,750,000 to 2,090,000 by 2030, depending on the fare system.[10]

Preliminary Study for Regional Rail Service between Phoenixville and Philadelphia, 2019

Sponsored by the DeMutis Group, a local real estate development business, this study explored the feasibility of restoring passenger rail service through innovative funding methods, such as Transit Revitalization Investment District (TRID), in conjunction with federal, state, and county grants. The TRID funding mechanism would capture the increased real estate value to fund the rail project. Three new stations were proposed west of the Norristown Transportation Center: Valley Forge, Schuylkill, and Phoenixville. It would operate ten round trips on weekdays and five round trips during weekends with one-seat rides to Philadelphia. The capital costs were estimated to be around $111.2 million, and the O&M would range from $4.3 million to $7.8 million in 2019 dollars. By updating the forecast in the previous SVM study, the ridership was estimated to be 1,982 per day.[11]

R6 Norristown Line Service Extension Study, 2009

MCPC initiated this study, aiming to identify economically viable alternatives to extend the commuter rail service to Wyomissing, Berks County. Seven alternatives were examined and three were recommended for further financial analysis. These were extending electrified service to Valley Forge, running diesel service west of Norristown with a transfer at the Norristown Transportation Center, and implementing electrified service from Wyomissing to Philadelphia. The capital costs would range from $186.5 million to $264.5 million, and the O&M would range from $7.4 million to $10.6 million in 2008 dollars. Based on the information in the previous SVM study, the annual ridership was projected to range from 889,322 to 1,386,180 by 2025. The study evaluated potential tolling scenarios to fund the rail project.[12]

Schuylkill Valley Metro Task Force Summary Report, 2007

A task force was established by the governor of Pennsylvania to reevaluate the SVM concept and to develop alternative service options, so that it could be advanced within the limitation of federal and local funding. The study examined five service scenarios between Wyomissing and Philadelphia. The project phasing is the primary focus of this study. The estimated capital costs would range from $332.5 million to $815.3 million in 2005 dollars. The O&M would range from $24 million to $37 million. By using DVRPC's travel demand model, the average weekday boardings were projected to range from 11,780 to 14,410 by 2025.[13]

Schuylkill Valley Rail Assessment Study, 2005

In response to a request from the Schuylkill Valley Metro Task Force, NS conducted this study to analyze the physical improvements required to implement the passenger rail service between Philadelphia and Reading. The estimated capital costs would range from $430.5 million to $516.5 million in 2004 dollars, and the O&M would be around $28.1 million. By updating the previous SVM study, the average weekday boardings were projected to be 13,085 by 2025. Operational simulations were performed.[14]

Schuylkill Valley Metro Corridor Station Area Planning and Implementation Study, 2003

Sponsored by DVRPC, this study explored the transit-oriented development opportunities along the SVM corridor between Philadelphia and Reading. Five of the stations were selected for the analysis: 52nd Street, Valley Forge, Phoenixville, Pottstown, and Douglassville stations.[15]

Schuylkill Valley Metro Major Investment Study and Draft Environmental Impact Statement (MIS/DEIS), 2001

The Federal Transit Administration (FTA) and SEPTA in cooperation with the Berks Area Reading Transportation Authority (BARTA) and PennDOT jointly prepared this document for the proposed SVM corridor between Reading and Philadelphia. Seven alternatives were evaluated in detail. The hybrid mode, also known as "MetroRail," was determined to be the preferred alternative. It featured an express rail service between Wyomissing and Philadelphia via Cynwyd, and a local rail service between King of Prussia and Philadelphia via East Falls with 15-minute headways in peak hours and 30-minute headways at other times. The capital costs were projected to be $1.4 billion in 1999 dollars, and the O&M would be $30.4 million. DVRPC Travel Simulation Model, Berks County Travel Model, and a separate Interregional Model were developed for this study. The average weekday boardings were projected to be 47,830 by 2020.[16]

Passenger Rail Challenge

The corridor right-of-way from Reading to Norristown is currently owned by NS as a freight rail. **Figure 4** shows a freight train traveling through a bridge underpass. Implementation of the passenger rail operation requires the approval from NS to access its tracks and facilities and NS needs to be compensated, which could potentially be a high cost. Being one of the most active freight rails in the region, capacity improvements with new technologies are needed to minimize the impact on the freight rail operations and to accommodate the addition of the passenger rail service, where the on-time performance is important to passengers.

Figure 4: Freight Train on Norfolk Southern Track

Source: DVRPC, 2021

The SEPTA rail system is all electrified, but the corridor from Pottstown to Norristown is not, which affects the type of service in between. For through service, dual-power locomotives would be required, so that it could run on diesel west of Norristown and switch to electricity to Center City Philadelphia. If this option is not feasible, then the diesel equipment could run between Pottstown and Norristown as a shuttle service, so passengers would be able transfer to the existing Manayunk/Norristown line at the Norristown Transportation Center to access their Center City Philadelphia destinations. Since SEPTA uses a different Positive Train Control (PTC) system, the commuter train equipment would need to be PTC-compatible with both SEPTA and NS.

SEPTA's existing Manayunk/Norristown line to Philadelphia is already heavily utilized with 55 daily services. It might be challenging to accommodate additional trips. It also poses stress on the operations at Center City stations, especially during the morning and afternoon peak hours. Capacity improvements such as signaling and interlocking might be necessary to ensure the service reliability for the future passenger demand.

Proposed in the previous SVM study, the brand new 62-mile dedicated rail that would have connected Reading and Philadelphia failed to win the federal funding, due to the high cost. Although reshaped and reduced in cost, the R6 Extension study still encountered the setback of project financing – the idea of tolling US 422 to fund the rail extension was not a favorable option to the general public.

Despite all the challenges regarding the train track availability, equipment, and related financing source, the communities around the stations would benefit from the rail extension.

The 2020 decennial census indicates a 4.7 percent growth within DVRPC's nine-county region in the past ten years. Chester and Montgomery counties had the highest growth rates among nine counties at 7 percent. **Table 2** summarizes the population growth of Norristown and municipalities where new stations are proposed. Norristown, Royersford, and Pottstown experienced 4 to 5 percent of growth. Upper Merion and Phoenixville experienced 18 and 13 percent of growth, respectively.

Table 2: Population Growth

Municipality	Census 2010	Census 2020	Growth	Growth %
Norristown	34,324	35,748	1,424	4%
Upper Merion	28,390	33,613	5,223	18%
Phoenixville	16,440	18,602	2,162	13%
Royersford	4,752	4,940	188	4%
Pottstown	22,377	23,433	1,056	5%

Sources: Census 2010 and Census 2020, U.S. Census Bureau

Historically, municipalities grew and thrived around the train stations, just like any other passenger rail corridors in the region. Royersford for example, got its train station name (Royer's Ford) first before it officially became a borough about 40 years later. The rail brought in the growth and industrialization in the past when car ownership was limited. Today, the relatively high densities around the train stations provide an excellent opportunity for the transit-oriented development and revitalization in the older communities.

Although converted to other uses, some of the former stations are still in place and can be restored to serve the rail extension. The surrounding environment is generally walkable and bikeable with easy access to the trail system and other open space. If re-established, the passenger rail would provide a convenient transportation alternative for commuters, reduce auto dependency, and strengthen the livability of the communities.

CHAPTER 2
STUDY AREA PROFILES

Catchment Areas

Two levels of catchment areas were established for each station. A half-mile radius area, a distance that people are willing to walk or bike to the train station, was used for pedestrian amenity, bicycle facility, and public transit inventory analysis. The Level of Traffic Stress (LTS) is a road classification technique based on the comfort level of bicyclists in the traffic stream. Using a scale from LTS 1 (comfortable for any bicyclists, including children) to LTS 4 (high traffic stress that only comfortable for fearless bicyclists), this tool is able to identify critical road segments for improvements and inform planning decisions.

A three-mile buffer area was used for other analysis, such as demographics, household, and travel pattern, assuming that most commuters would be willing to drive 10 to 15 minutes to the station. Census tracts that intersect the three-mile buffers were selected as the commuter shed areas as **Figure 5** shows. The following analyses were performed.

Land use patterns and the transportation network were summarized first to provide an overview of the existing condition of each study area.

A comprehensive analysis of demographics, household, and housing unit for each commuter shed area was performed by using the most recent American Community Survey (ACS) 2015-2019 estimate. Demographics and household information is important in the regional model's trip generation, which is influenced by household size, car ownership, and income level. Households without access to a vehicle may benefit more from the rail extension. Relevant information on potential disadvantage, such as youth, older adults, and civilians with disabilities, were also collected. These vulnerable groups may particularly benefit from increased transportation options and improved multimodal access. The characteristics of housing units, such as occupancy and tenure, could represent the housing demand and stability, as well as the economic climate within the study area.

The information on commuter mode and travel time was aggregated to summarize the mode choice behaviors within each study area by using the ACS 2015-2019 estimate. To understand the regional origin-destination patterns and the ridership potential in each commuter shed area, the 2019 LEHD data was processed and visualized. The LEHD data is a product of the U.S. Census Bureau, which combines information on employees and employers to produce a dynamic set of daily commuter flows between census blocks. Places of work for residents, as well as places of residence for workers were mapped.

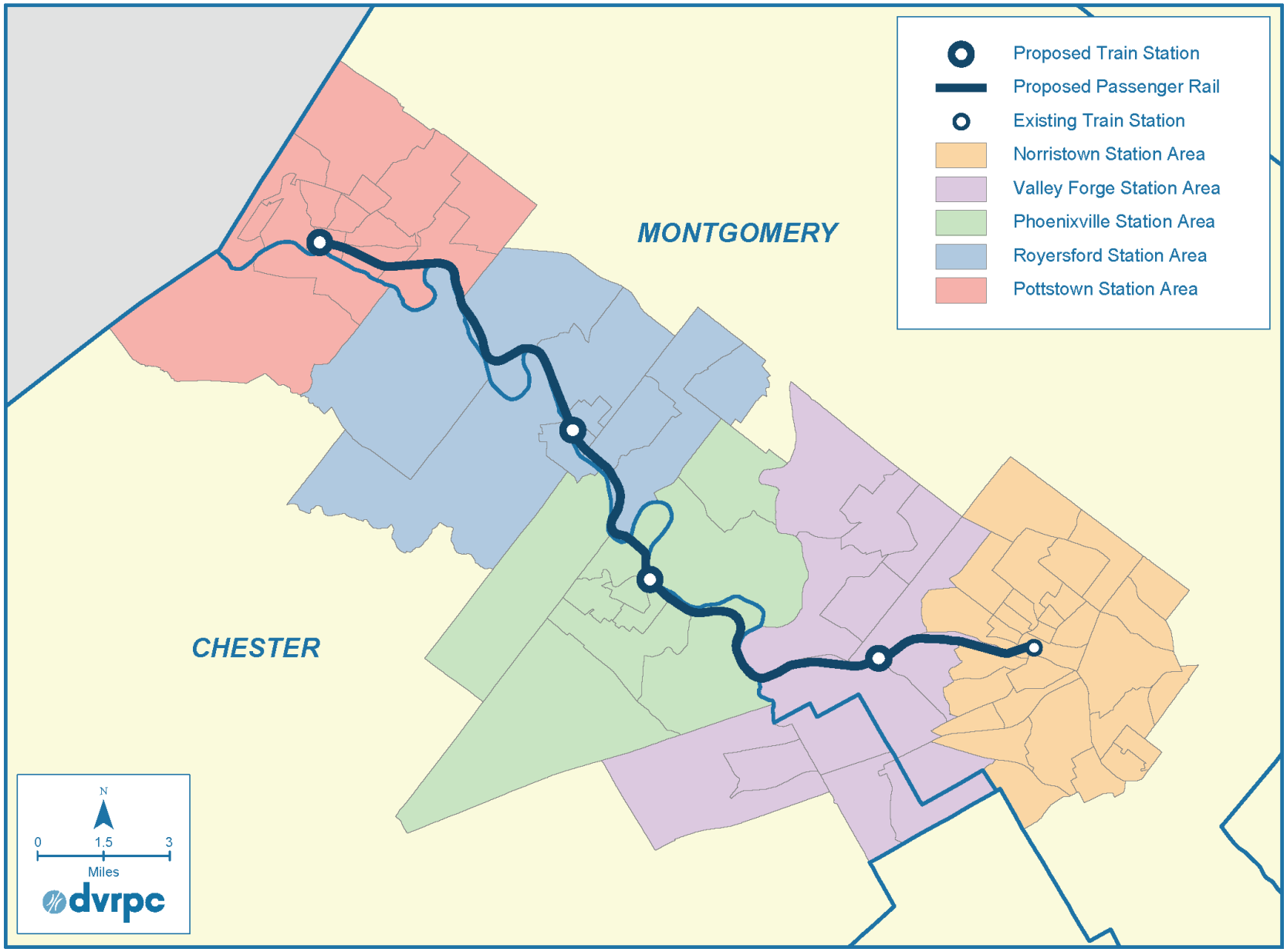
Norristown Station

The existing Norristown Transportation Center is a regional public transportation hub located in Norristown, Montgomery County.

Pedestrian Amenities

As shown in **Figure 6**, most of the streets have walkways on both sides. The overall walkability around the station is excellent. The sidewalks are generally wide enough to allow for a comfortable trip on foot.

Figure 5: Census Tracts within the Three-Mile Commuter Shed Area of Each Train Station



Sources: DVRPC, 2021; SEPTA, 2021

Figure 6: Sidewalk Inventory (Norristown)

Sources: DVRPC, 2021; Southeastern PA Regional Task Force, 2017 (Aerial)

Bicycle Facilities

Bicycle LTS is shown in **Figure 7**. Most of the roadways in the residential areas are classified as LTS 1. Roadway segments along US 202 and Main Street are classified as LTS 4. These segments have relatively high vehicular speeds and volumes, making comfortable bicycle travel difficult. The station can be accessed by bicycle via the Schuylkill River Trail, a 60-mile multi-use trail that runs from Philadelphia to Reading. The recent completion of the Lafayette Street Extension project enhanced the multimodal connections to the Schuylkill River and Chester Valley trails. The Norristown Transportation Center currently has nine bike racks that can hold a total of 18 bicycles.

Public Transit

The Norristown Transportation Center is a regional public transportation hub in the area. **Figure 8** shows SEPTA transit services within a half-mile radius area. Located on the lower lever, the Manayunk/Norristown Regional Rail line connects to Center City Philadelphia via Conshohocken. On the upper level, it is the final stop of the Norristown High Speed Line (NHSL) which runs from the 69th Street Transportation Center. The station currently has 136 daily, 44 monthly permit, and 513 daily garage parking spaces (693 in total).

SEPTA bus routes in the area include:

- Route 90 – Plymouth Meeting to Norristown;
- Route 91 – Graterford to Norristown;
- Route 93 – Pottstown to Norristown;
- Route 96 – Lansdale to Norristown;
- Route 97 – Chestnut Hill to Norristown;
- Route 98 – Plymouth Meeting to Norristown;
- Route 99 – Phoenixville to Norristown; and
- Route 131 – Audubon to Norristown.

Land Use

A total of eight municipalities were selected as the commuter shed area of the Norristown Station:

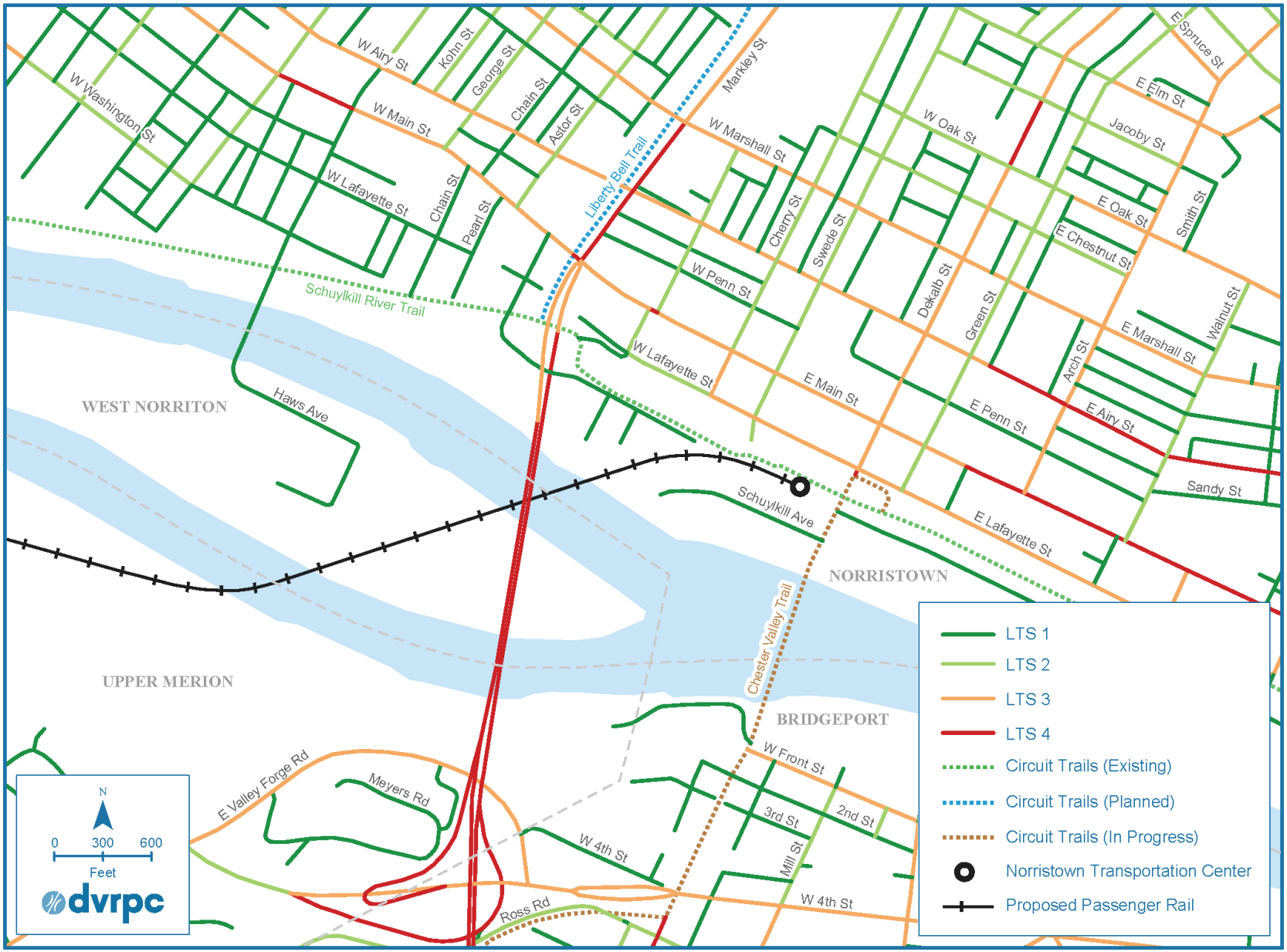
- Bridgeport Borough;
- Conshohocken Borough;
- East Norriton Township;
- Norristown Borough;
- West Conshohocken Borough;
- Plymouth Township (partial);
- Upper Merion Township (partial); and
- West Norriton Township (partial).

It has a land use area of approximately 25,438 acres, or 40 square miles. The majority of the area has been developed. Residential and non-residential uses occupy 40 percent and 39 percent of the total land area, respectively. Only 19 percent of the land is wooded or designated for agricultural use. Single-family homes account for roughly three-quarters, or 75 percent, of the residential land uses. The two most common non-residential uses are commercial and transportation. The map on **Figure 9** shows the detailed land use.

Transportation Network

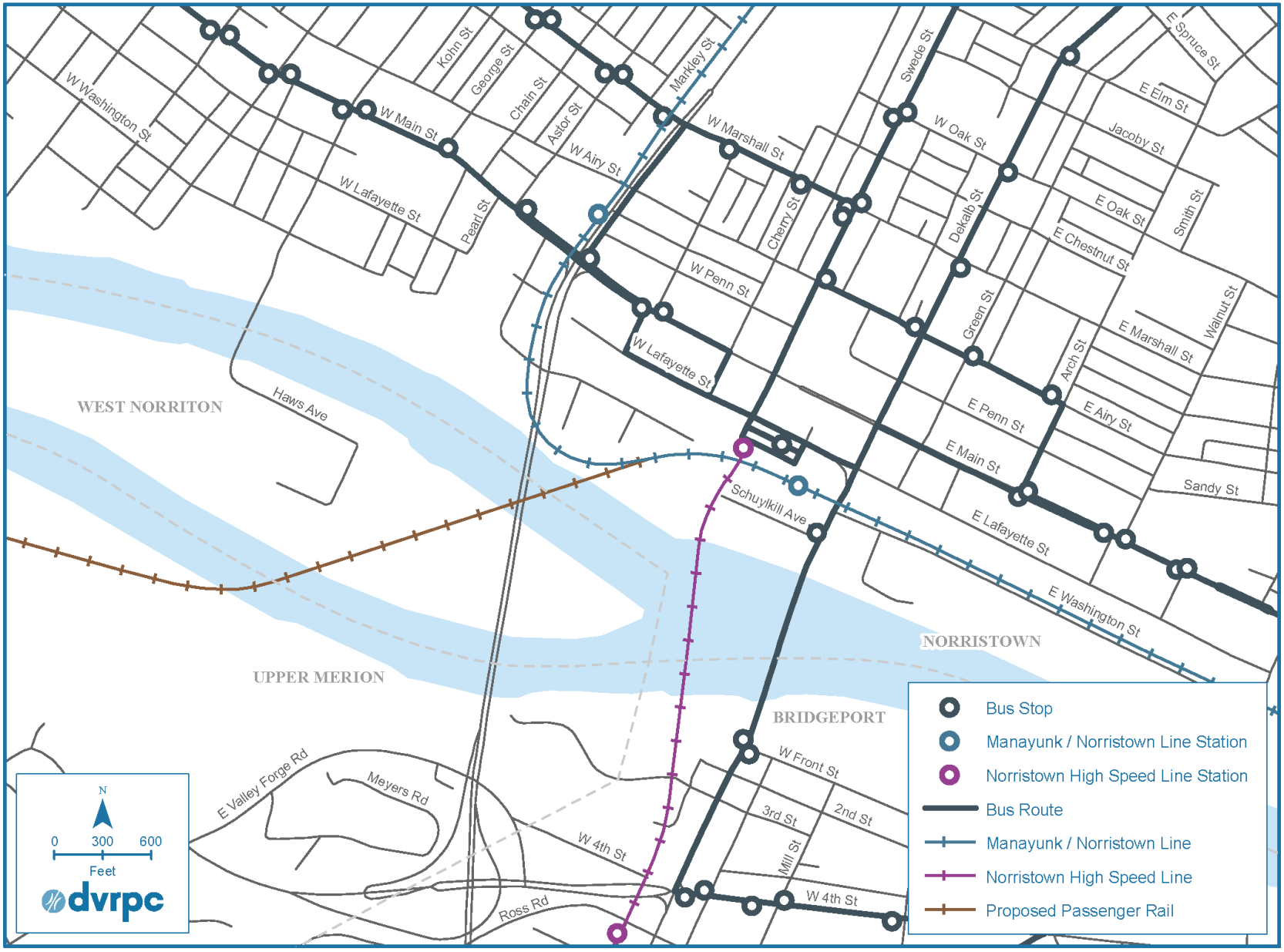
The area is conveniently accessible from several expressways, including the Pennsylvania Turnpike (I-276), I-76, and I-476. Running north-south, US 202 is a principal arterial and is split into a pair of one-way streets – DeKalb Street as “US 202 North” and Markley Street as “US 202 South.” Other principal arterials include Germantown Pike, Main Street/Ridge Pike, Henderson Road, and Gulph Road. **Figure 10** shows the roadway network by federal functional classification.

Figure 7: Bicycle Level of Traffic Stress (Norristown)



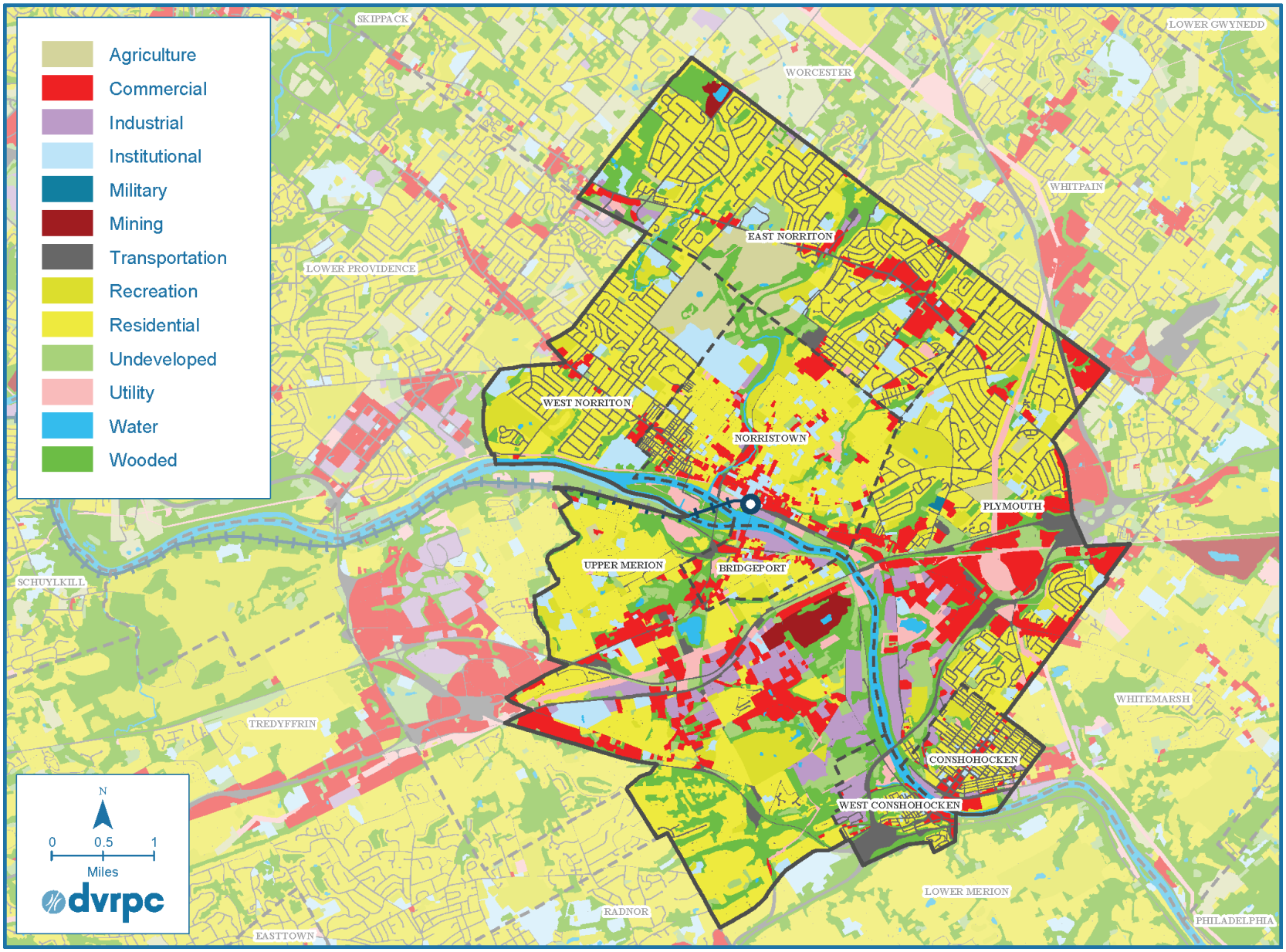
Sources: DVRPC, 2021; The Circuit Trails, 2019

Figure 8: SEPTA Transit Service (Norristown)



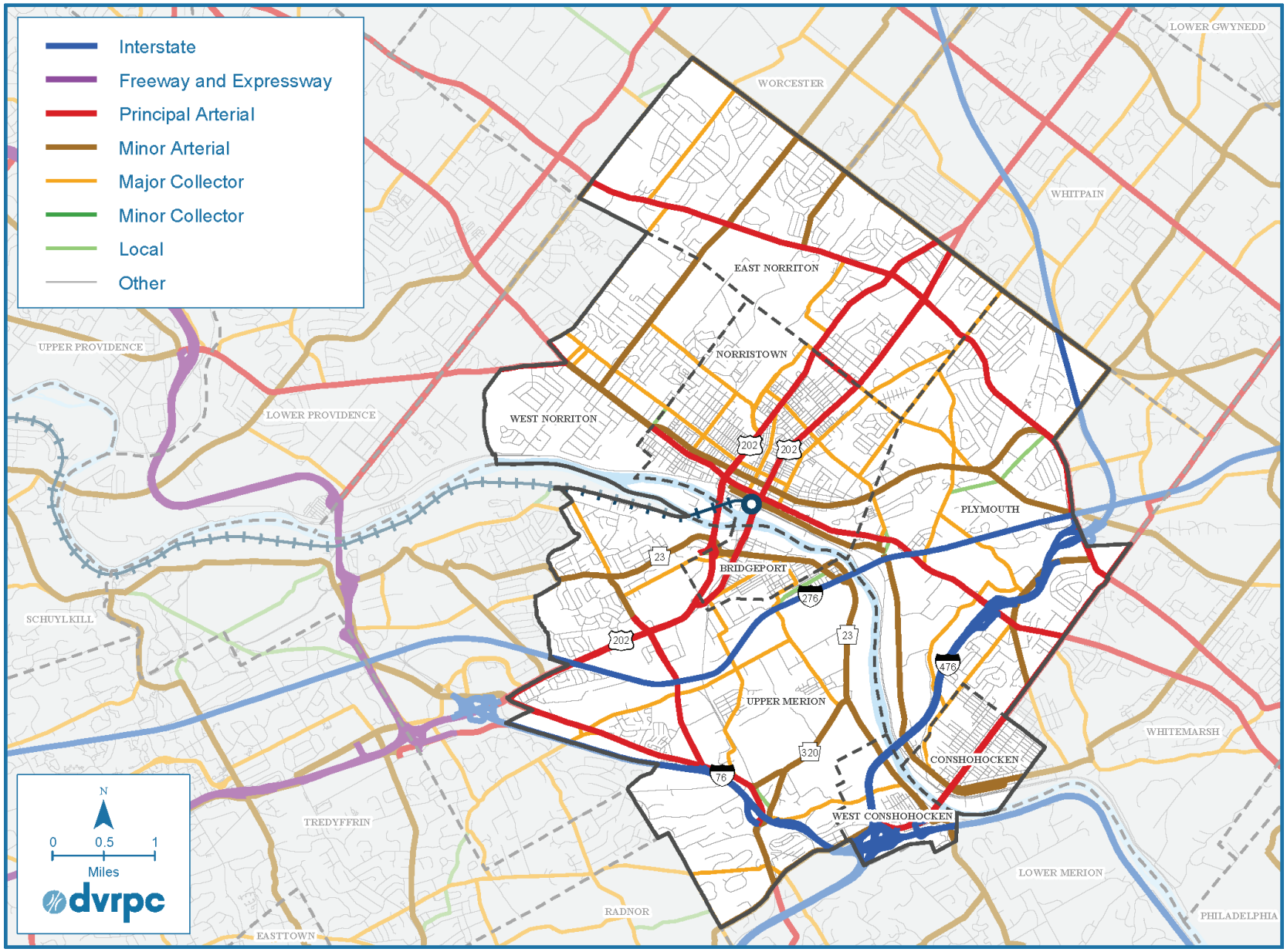
Sources: SEPTA, 2021; DVRPC, 2021

Figure 9: Land Use (Norristown)



Source: DVRPC, 2015

Figure 10: Federal Functional Classification (Norristown)



Source: PennDOT, 2019

Demographics

The ACS estimates that there are about 105,400 residents in the station's three-mile commuter shed area. About 20 percent of the population are young children under 18, and 15 percent are senior people older than 65, both of which are lower than Montgomery County's average. **Table 3** summarizes the age distribution.

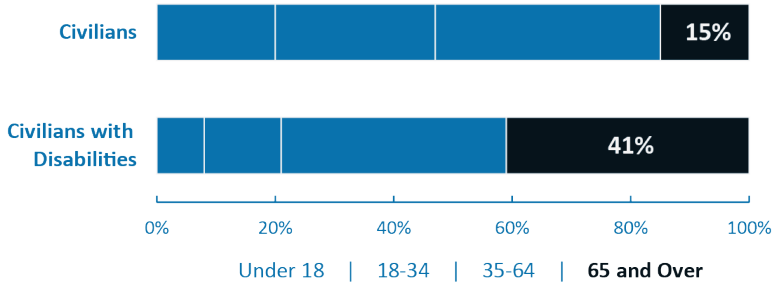
Table 3: Age Distribution (Norristown)

Age Group	Number of People	Percentage
Under 18	21,207	20%
18-34	28,118	27%
35-64	39,759	38%
65 and Over	16,364	15%
Total	**105,448**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

The graphics in **Figure 11** summarizes people with disabilities by age group. Although senior people only comprise 15 percent of civilians, they comprise 41 percent of civilians with disabilities.

Figure 11: Civilian Disability by Age Group (Norristown)



Source: ACS 2015-2019, U.S. Census Bureau

The race composition is summarized in **Table 4**. Minorities make up one-third of the population, which is higher than the rest of the county.

Table 4: Race Composition (Norristown)

Race	Number of People	Percentage
White	70,463	67%
Black or African American	19,342	18%
Asian	6,849	6%
Some Other Race Alone	4,944	5%
Two or More Races	3,850	4%
Total	**105,448**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Household

The ACS estimates that there are about 44,000 households in the station's commuter shed area. **Tables 5 and 6** summarize household size by the number of people and the number of workers, respectively. About 10 percent of the households have no vehicle available (**Table 7**).

Table 5: Household by the Number of People (Norristown)

Household Size	Households	Percentage
1 Person	14,037	32%
2 Persons	14,830	34%
3 Persons	6,845	15%
4 or More Persons	8,250	19%
Total	**43,962**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 6: Household by the Number of Workers (Norristown)

Number of Workers	Households	Percentage
No Worker	9,163	21%
1 Worker	18,168	41%
2 Workers	13,569	31%
3 or More Workers	3,062	7%
Total	**43,962**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 7: Household Vehicle Availability (Norristown)

Vehicle Availability	Households	Percentage
No Vehicle	4,472	10%
1 Vehicle	17,005	39%
2 Vehicles	16,344	37%
3 Vehicles	4,544	10%
4 or More Vehicles	1,597	4%
Total	**43,962**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

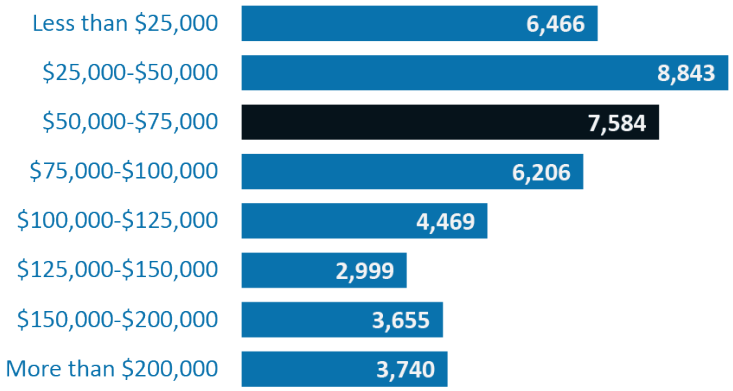
The bar chart in **Figure 12** summarizes the household income. The median income falls between $50,000 and $75,000.

Housing Unit

About 8 percent of the housing units are vacant, higher than the county average. **Figure 13** shows housing units by tenure by size. Less than 60 percent of the non-vacant housing units are occupied by homeowners, which is lower than the county average.

About 19 percent of the renter units have no vehicle and another 49 percent have only one vehicle. In comparison, 66 percent of the homeowners have at least two vehicles available.

Figure 12: Household Income (Norristown)



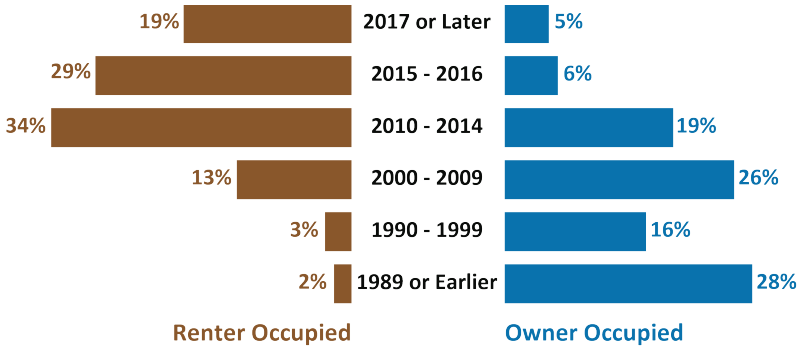
Source: ACS 2015-2019, U.S. Census Bureau

Figure 13: Housing Unit by Tenure by Size (Norristown)

Source: ACS 2015-2019, U.S. Census Bureau

As shown in **Figure 14**, most homeowners in the area moved into their current unit before 2010. On the other hand, most renters in the area moved in more recently.

Figure 14: Tenure by Moved in Year (Norristown)

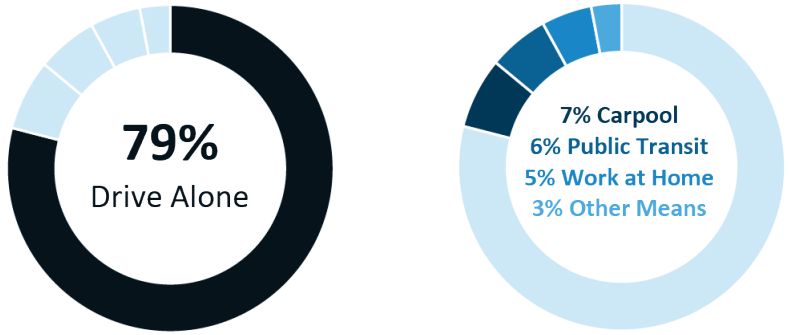


Source: ACS 2015-2019, U.S. Census Bureau

Commuting Characteristics

As shown in **Figure 15**, approximately 79 percent of the commuters drive alone, which is similar to the county average. About 6 percent of the commuters take public transit, which is slightly higher than the county average at 5 percent. Commuters in this area benefit from the relatively easy access to public transportation. Among the transit riders, about 62 percent take the bus.

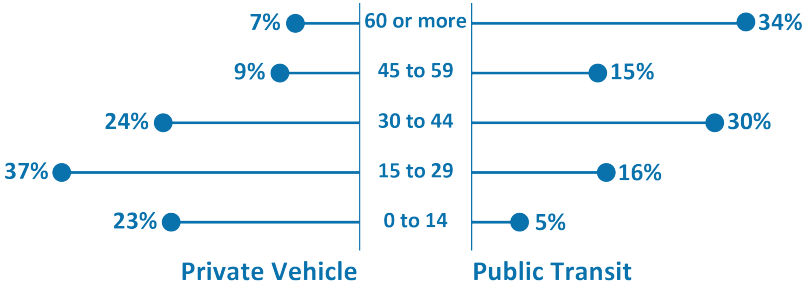
Figure 15: Means of Transportation (Norristown)



Source: ACS 2015-2019, U.S. Census Bureau

Travel time by mode is summarized in **Figure 16**. The majority of drivers spend less than 45 minutes on the road. Transit riders on the other hand, spend more time commuting.

Figure 16: Travel Time in Minutes by Mode (Norristown)

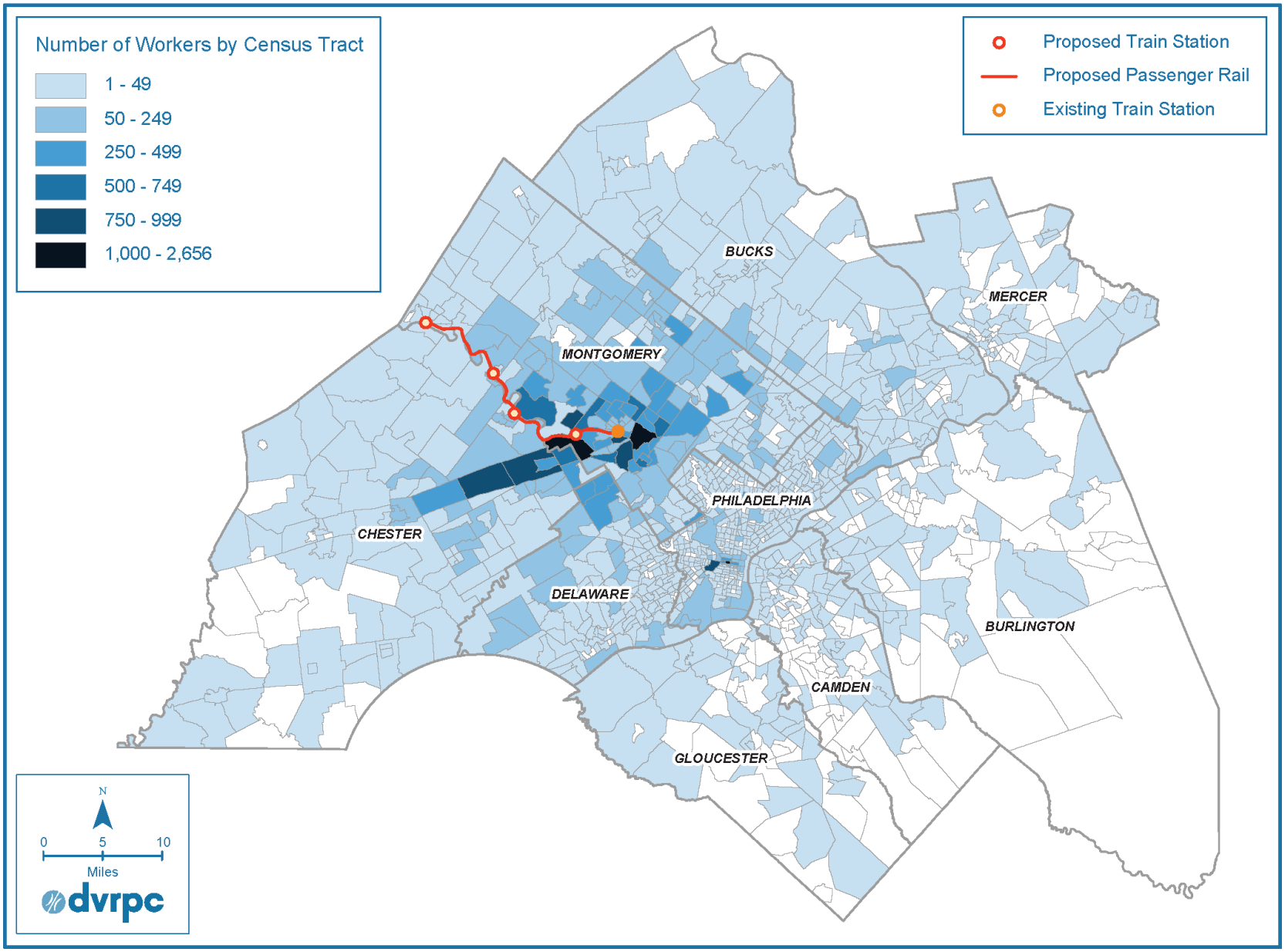


Source: ACS 2015-2019, U.S. Census Bureau

Figure 17 coded each census tract based on the number of station area residents who work in that census tract. Plymouth Meeting and Upper Merion are the primary suburban workplace destinations for residents in this area. The townships of Upper Providence, Tredyffrin, and East Whiteland also show a cluster of employment. Center City Philadelphia destinations are mainly concentrated west of City Hall, where all the high-rise office buildings are located. University City is also a major employment center.

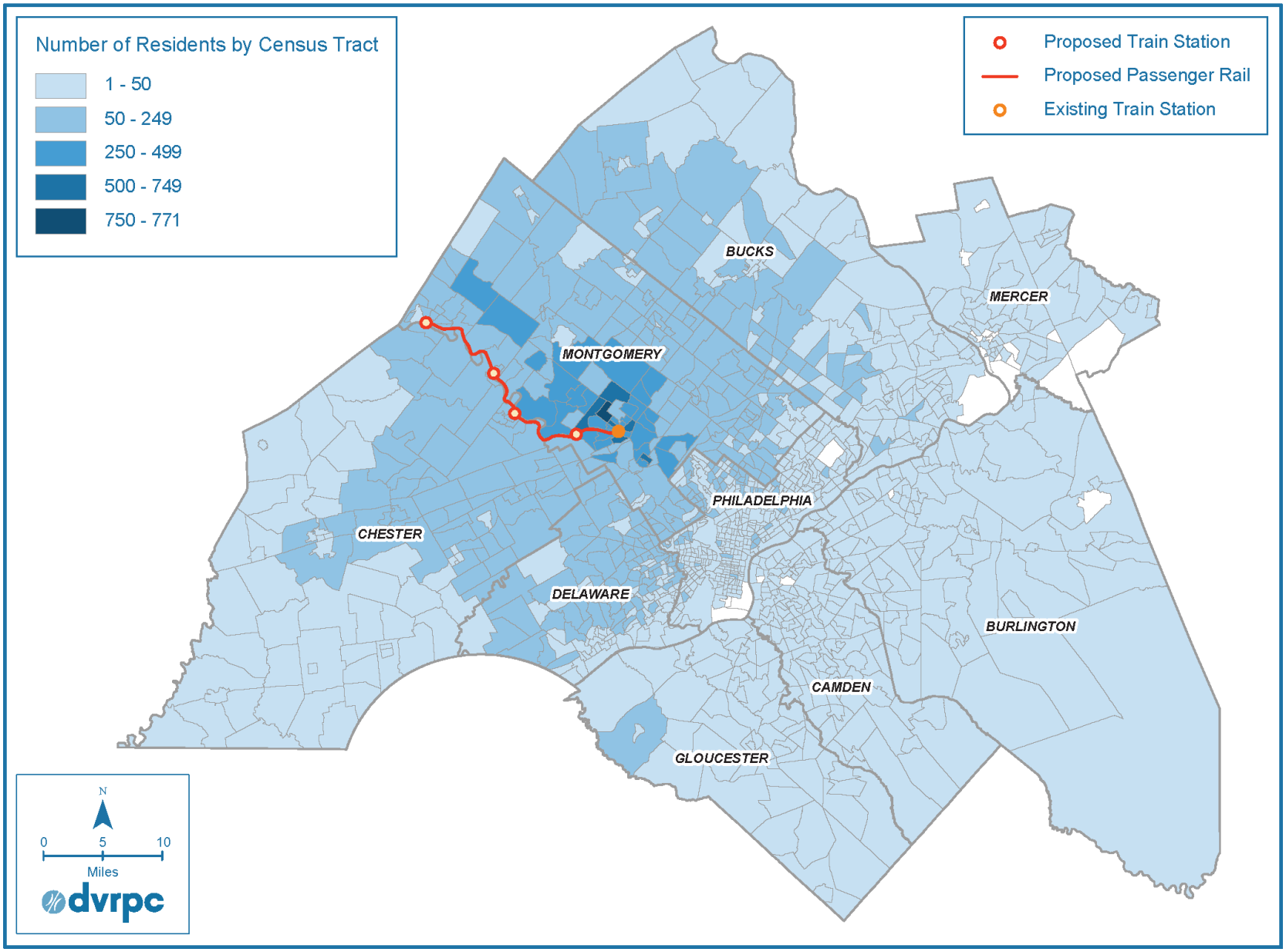
Similarly, **Figure 18** mapped each census tract based on the number of station area workers who live in that census tract. West Norriton and East Norriton are the most popular residence origins for workers in the area.

Figure 17: Workplace Destinations for Residents in the Commuter Shed Area (Norristown)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Figure 18: Residence Origins for Workers in the Commuter Shed Area (Norristown)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Valley Forge Station

The proposed Valley Forge Station would be located south of the Schuylkill River at the end of Mancill Mill Road behind Valley Forge Towers in Upper Merion, Montgomery County. The vacant land was previously a refractory site.

Pedestrian Amenities

Figure 19 shows the sidewalks. The majority of the residential streets feature walkways on both sides. The station location is currently vacant. Pedestrian access from West Valley Forge Road (PA 23) can be hazardous. It would be desirable to have much better pedestrian amenities in the future to make walking more appealing.

Bicycle Facilities

Figure 20 shows the bicycle LTS. Most of the roadways in residential areas are ranked LTS 1. The US 422 freeway and the Schuylkill River are two physical barriers. The Sullivan's Bridge connects the Schuylkill River Trail and the Valley Forge National Historical Park via a bicycle and pedestrian path.

Public Transit

SEPTA bus routes (**Figure 21**) within a half-mile radius area include:

- Route 99 – Phoenixville to Norristown;
- Route 125 – Valley Forge to Center City Philadelphia;
- Route 131 – Audubon to Norristown; and
- Route 139 – Limerick to King of Prussia.

The Rambler of Upper Merion also makes two regular stops at Lafayette Valley Forge Apartment and Valley Forge Towers.

Land Use

A total of four municipalities were selected as the commuter shed area of the Valley Forge Station:

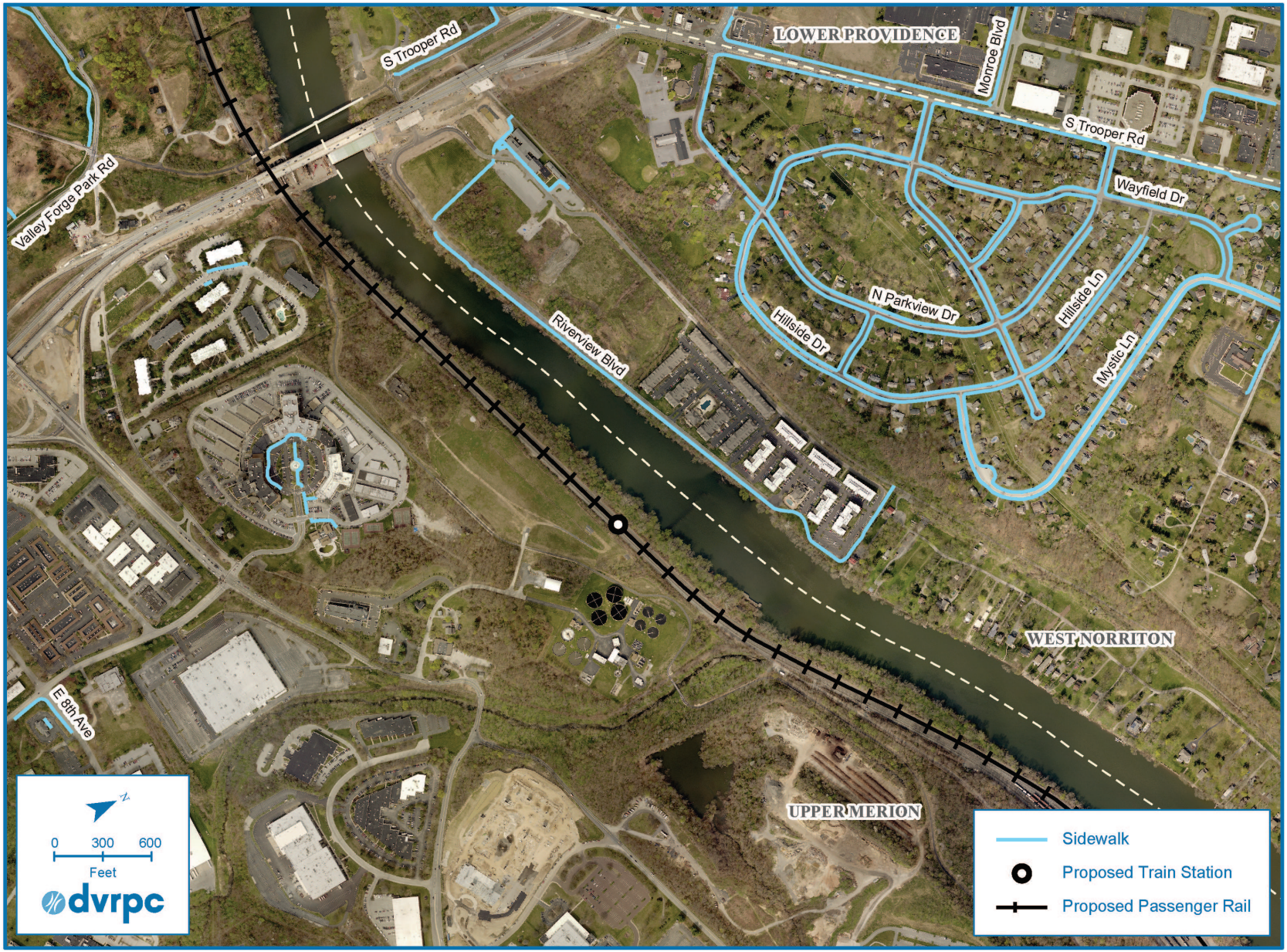
- Lower Providence Township;
- Tredyffrin Township;
- Upper Merion Township (partial); and
- West Norriton Township (partial).

The Valley Forge station area has a land use area of approximately 32,504 acres, or 51 square miles. About 70 percent of the area is developed, with residential and non-residential uses occupying about 39 percent and 31 percent of the total land area, respectively. Around 25 percent of the land is wooded or designated for agricultural use. The majority of residential land uses are occupied by single-family homes. Recreation, commercial, and transportation uses are the predominant non-residential uses. The Valley Forge National Historical Park is a major recreational, educational, and open space resource for the region. Commercial uses are concentrated in the King of Prussia Mall area, as well as along the US 202 corridor. **Figure 22** shows the detailed land use in the area.

Transportation Network

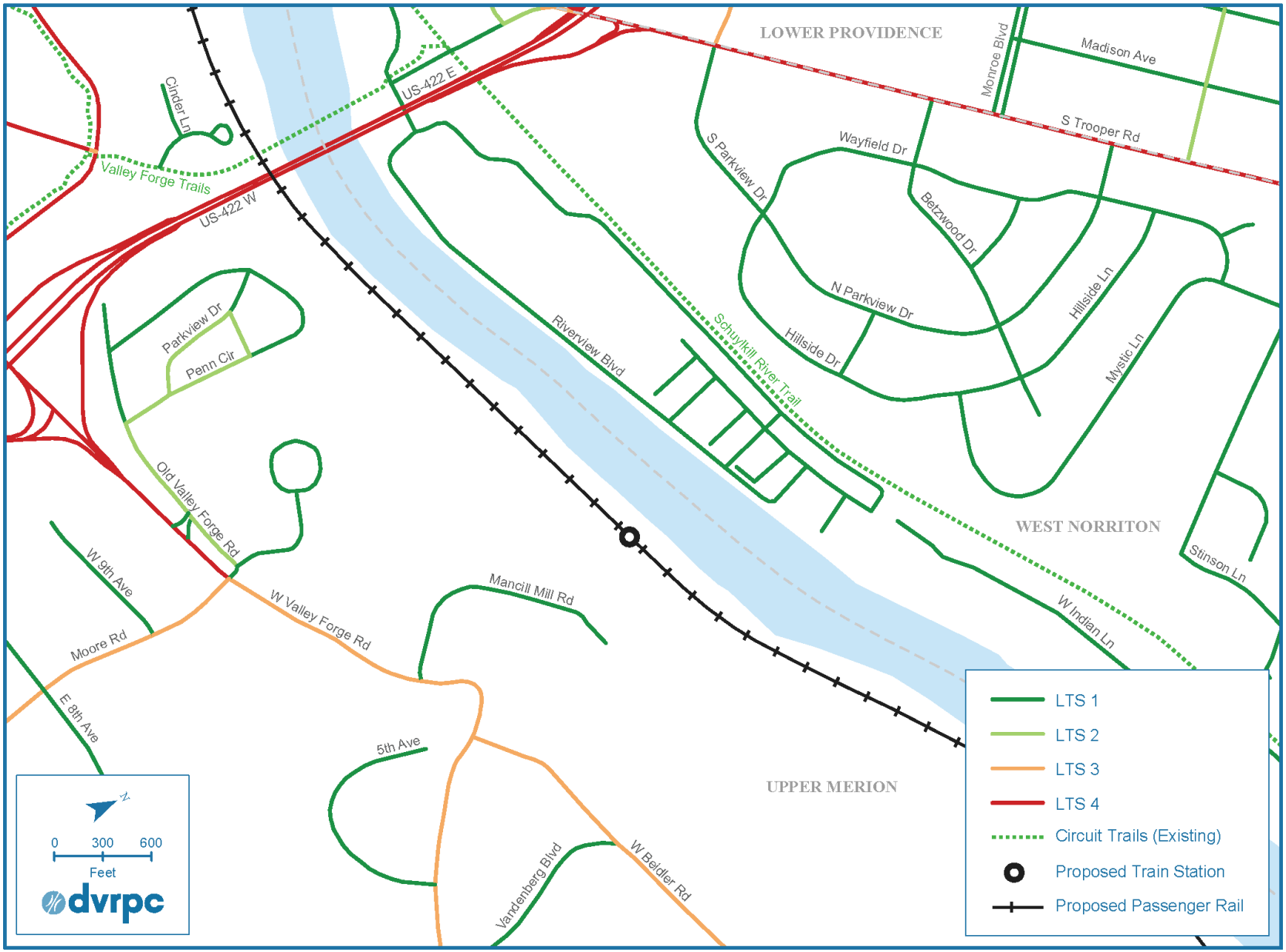
The Valley Forge Station area is conveniently served by several expressways. The Valley Forge interchange is a hub, connecting I-276, I-76, US-202, and US 422. **Figure 23** shows the roadway network by federal functional classification.

Figure 19: Sidewalk Inventory (Valley Forge)



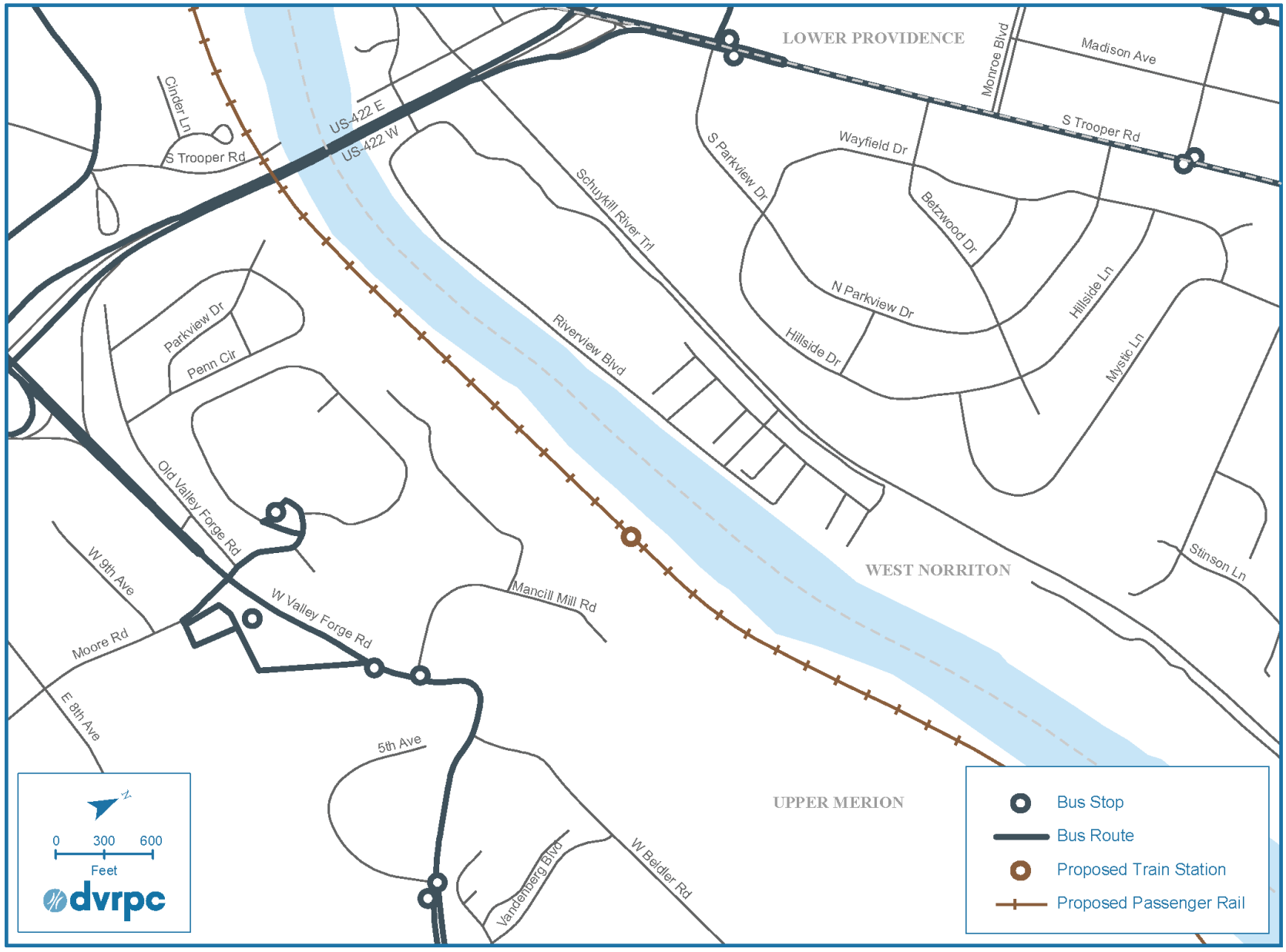
Sources: DVRPC, 2021; Southeastern PA Regional Task Force, 2017 (Aerial)

Figure 20: Bicycle Level of Traffic Stress (Valley Forge)



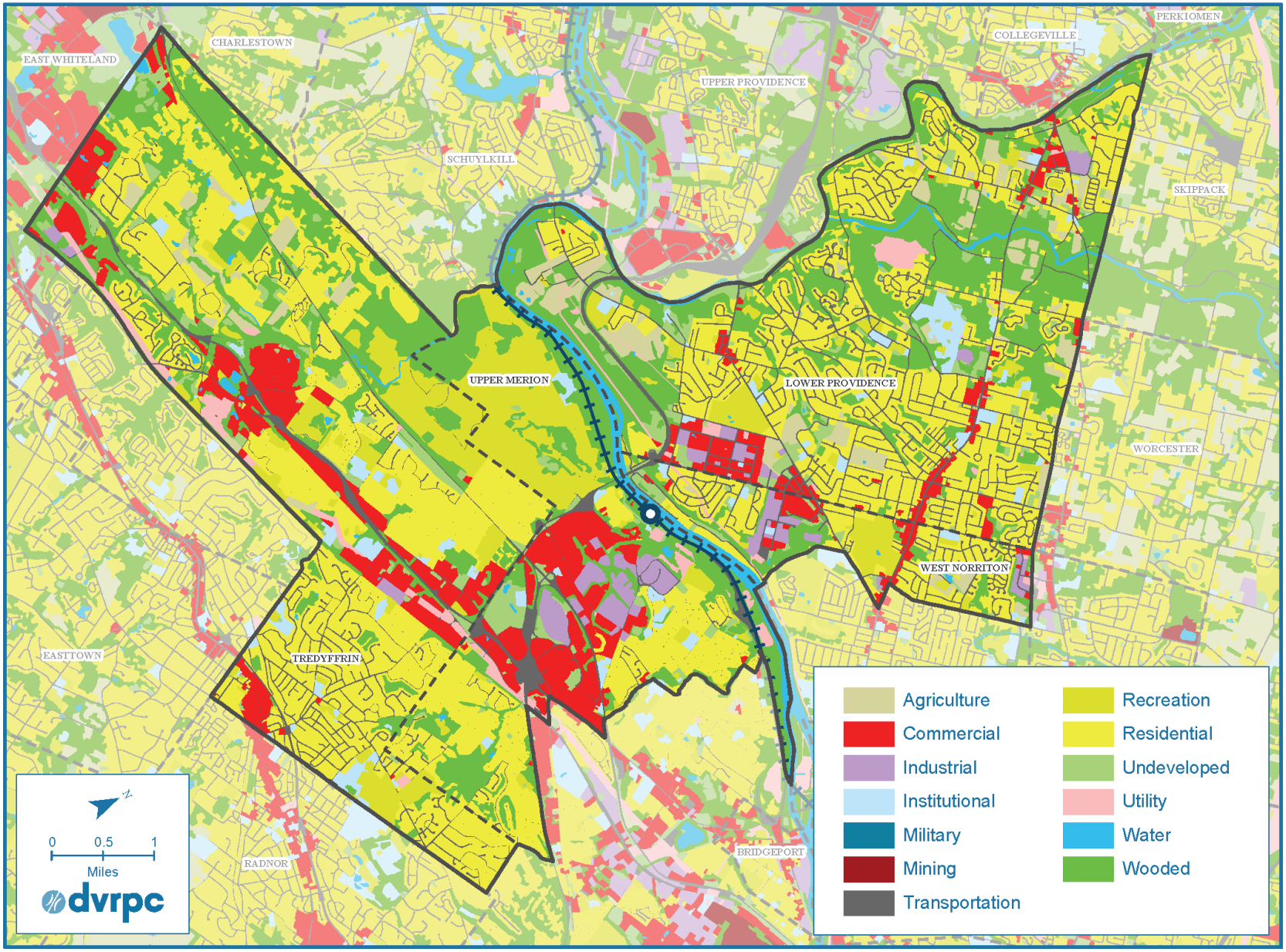
Sources: DVRPC, 2021; The Circuit Trails, 2019

Figure 21: SEPTA Transit Service (Valley Forge)



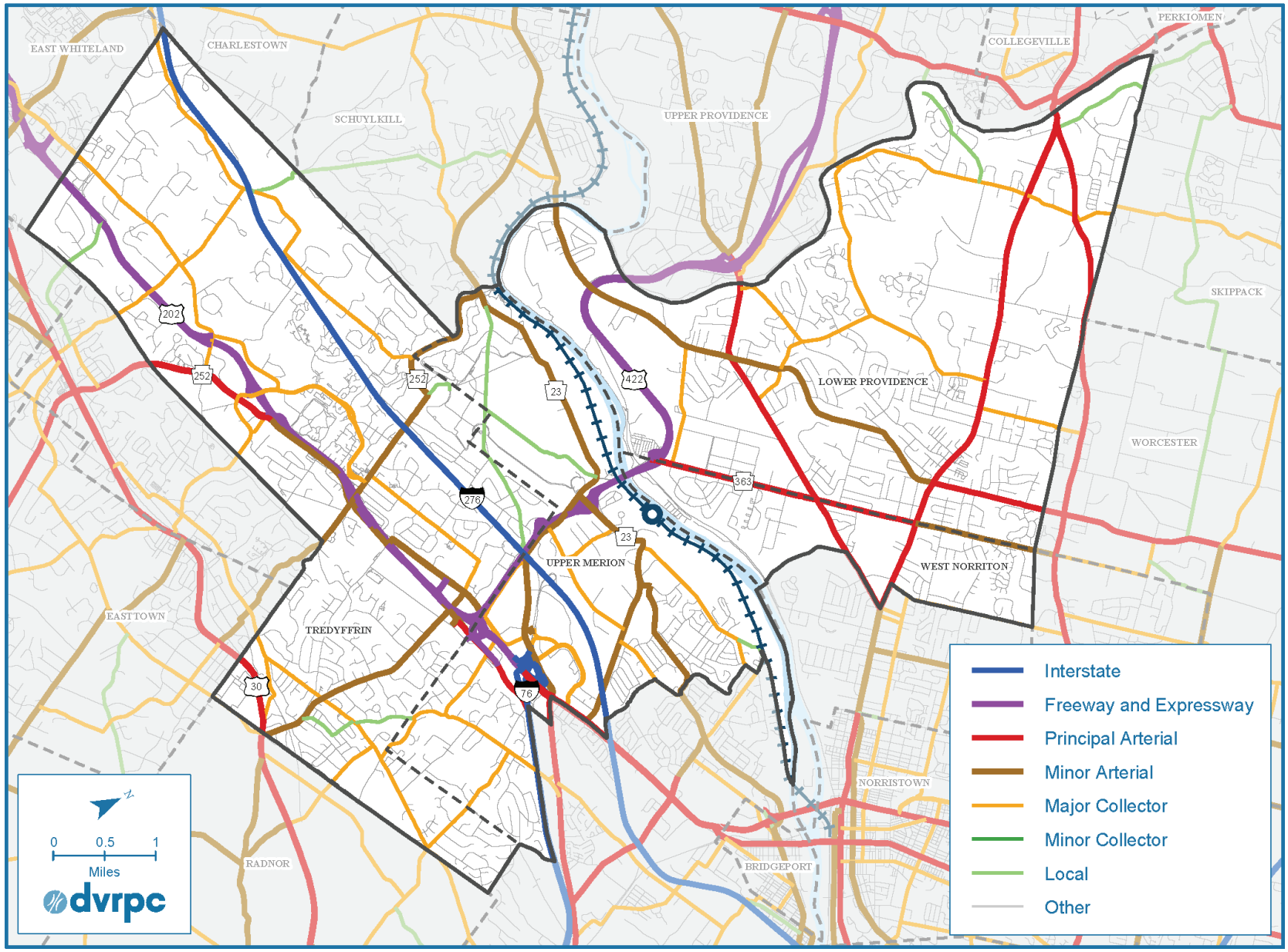
Sources: SEPTA, 2021; DVRPC, 2021

Figure 22: Land Use (Valley Forge)



Source: DVRPC, 2015

Figure 23: Federal Functional Classification (Valley Forge)



Source: PennDOT, 2019

Demographics

The ACS estimates that there are about 67,000 residents in the three-mile commuter shed area. **Table 8** shows the age distribution. About 21 percent of the population are young children under 18, and 17 percent of the population are senior people older than 65, both of which are similar to Montgomery County's average.

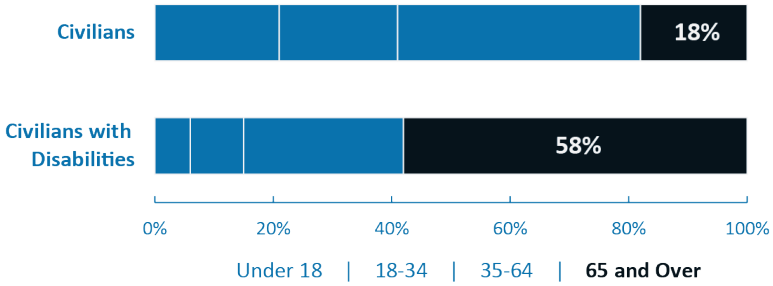
Table 8: Age Distribution (Valley Forge)

Age Group	Number of People	Percentage
Under 18	13,989	21%
18-34	14,267	21%
35-64	27,152	41%
65 and Over	11,545	17%
Total	**66,953**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Figure 24 shows the disability status by age group. Although senior people only comprise 18 percent of civilians, they comprise almost 60 percent of civilians with disabilities.

Figure 24: Civilian Disability by Age Group (Valley Forge)



Source: ACS 2015-2019, U.S. Census Bureau

The race composition is summarized in **Table 9**. Minorities make up about 25 percent of the population, which is higher than the county average.

Table 9: Race Composition (Valley Forge)

Race	Number of People	Percentage
White	50,330	75%
Black or African American	3,350	5%
Asian	11,160	17%
Some Other Race Alone	712	1%
Two or More Races	1,401	2%
Total	**66,953**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Household

The ACS estimates that there are about 25,700 households in this area. **Tables 10 and 11** summarize household size by the number of people and the number of workers, respectively. About 5 percent of the households have no vehicle available (**Table 12**).

Table 10: Household by the Number of People (Valley Forge)

Household Size	Households	Percentage
1 Person	6,848	27%
2 Persons	8,785	34%
3 Persons	3,975	15%
4 or More Persons	6,104	24%
Total	**25,712**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 11: Household by the Number of Workers (Valley Forge)

Number of Workers	Households	Percentage
No Worker	5,674	22%
1 Worker	9,777	38%
2 Workers	8,362	33%
3 or More Workers	1,899	7%
Total	**25,712**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 12: Household Vehicle Availability (Valley Forge)

Vehicle Availability	Households	Percentage
No Vehicle	1,224	5%
1 Vehicle	8,695	34%
2 Vehicles	10,619	41%
3 Vehicles	3,746	15%
4 or More Vehicles	1,428	5%
Total	**25,712**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

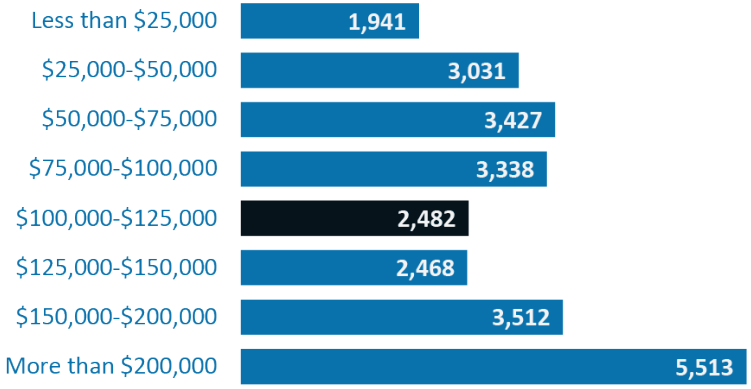
Figure 25 shows the household income. About 21 percent of the households have an annual income more than $200,000. The median income falls between $100,000 and $125,000.

Housing Unit

The vacancy rate in the area is about 4 percent, lower than the rest of the county. **Figure 26** shows statistics of housing units by tenure by size. Homeowners occupy more than two-thirds of the non-vacant housing units, which is similar to the county average.

For vehicle availability, about 9 percent of the renters have no vehicle available, and another 58 percent have only one vehicle. In comparison, 73 percent of homeowners have at least two vehicles.

Figure 25: Household Income (Valley Forge)



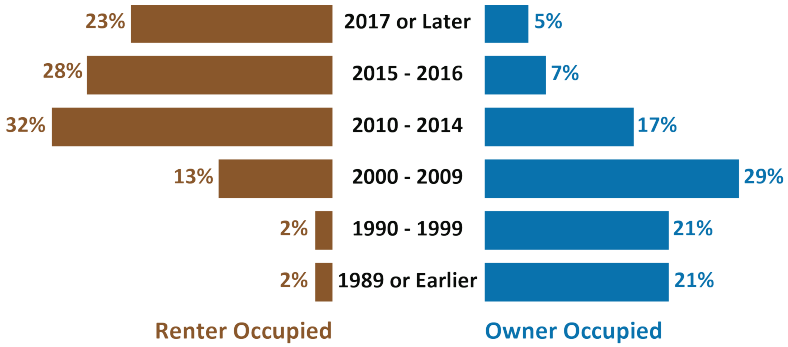
Source: ACS 2015-2019, U.S. Census Bureau

Figure 26: Housing Unit by Tenure by Size (Valley Forge)

Source: ACS 2015-2019, U.S. Census Bureau

As shown in **Figure 27**, most homeowners in this area moved into their current unit before 2010, and most renters moved in more recently.

Figure 27: Tenure by Moved in Year (Valley Forge)

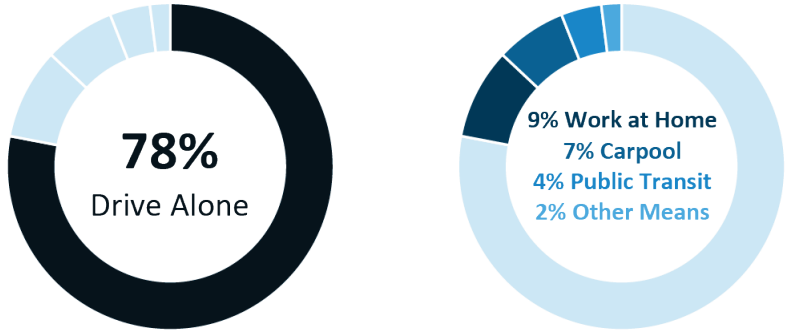


Source: ACS 2015-2019, U.S. Census Bureau

Commuting Characteristics

As illustrated in **Figure 28**, 78 percent of the commuters drive alone, and about 4 percent use public transit, which is similar to the county average. About 79 percent of the transit riders take the regional rail.

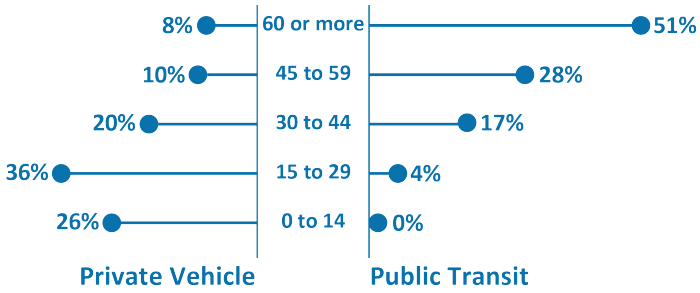
Figure 28: Means of Transportation (Valley Forge)



Source: ACS 2015-2019, U.S. Census Bureau

Travel time by mode is summarized in **Figure 29**. The majority of the drivers spend less than 30 minutes on the road. But transit riders spend much longer time commuting.

Figure 29: Travel Time in Minutes by Mode (Valley Forge)

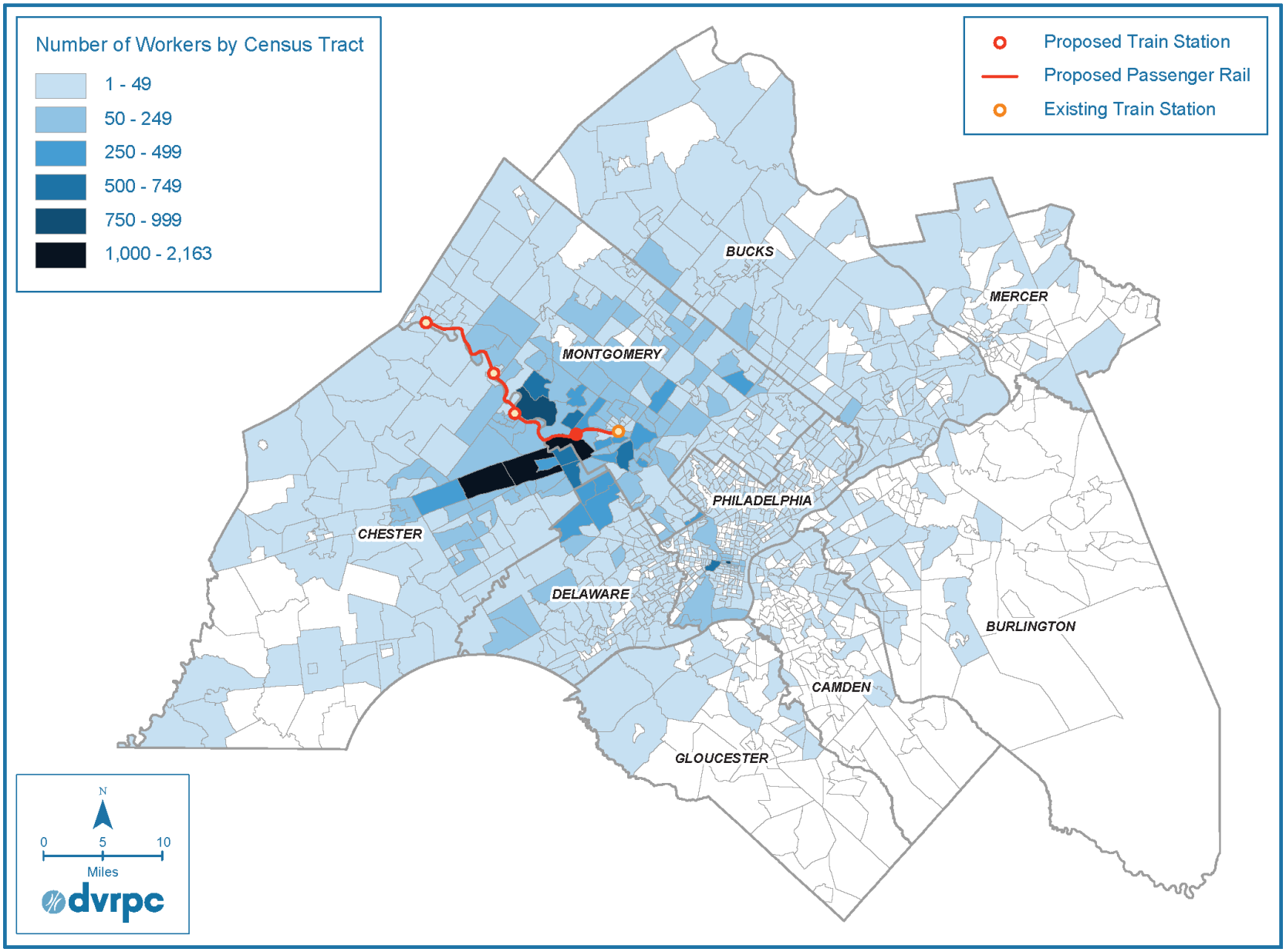


Source: ACS 2015-2019, U.S. Census Bureau

Figure 30 coded each census tract based on the number of station area residents who work in that census tract. The suburban workplace destinations for residents in the area are concentrated in the King of Prussia/Valley Forge planning area in Upper Merion (Census Tract 2058.01), as well as Tredyffrin and East Whiteland. Center City Philadelphia destinations are concentrated west of City Hall, as well as in University City.

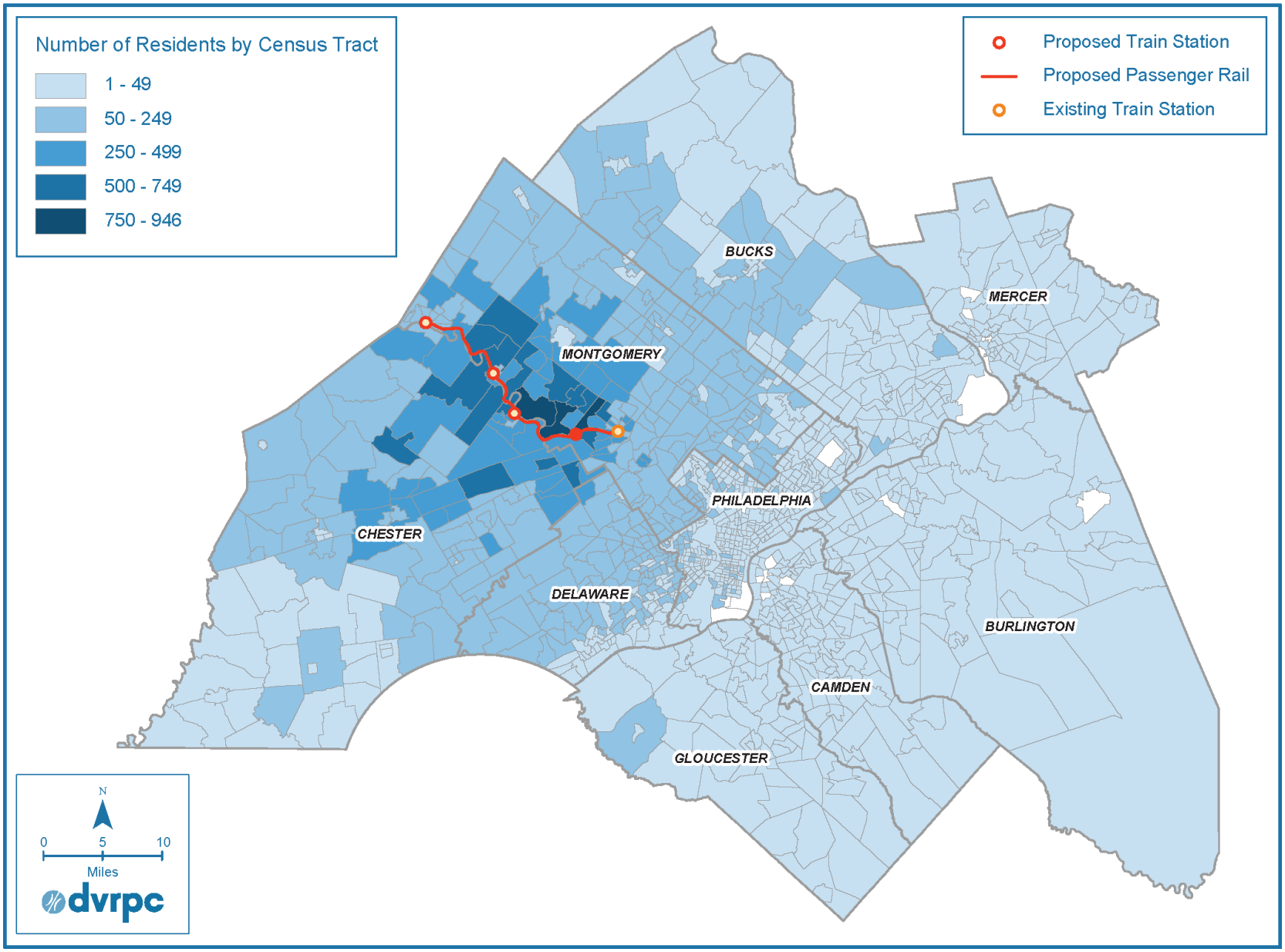
Similarly, **Figure 31** coded each census tract based on the number of station area workers who live in that census tract. Upper Providence, Lower Providence, West Norriton, Upper Merion, East Pikeland, East Vincent, Phoenixville, Limerick, Tredyffrin, East Whiteland, and Upper Uwchlan are the most popular residence origins.

Figure 30: Workplace Destinations for Residents in the Commuter Shed Area (Valley Forge)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Figure 31: Residence Origins for Workers in the Commuter Shed Area (Valley Forge)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Phoenixville Station

The proposed Phoenixville Station would be located on the former station site east of Bridge Street in Phoenixville, Chester County. In recent years, developments took place in the vicinity of the train station, including Riverworks Apartment, and Phoenix Village, a mixed-use development. More developments are proposed along French Creek.

Pedestrian Amenities

Sidewalk inventory is shown in **Figure 32**. Pedestrian sidewalks are available on most of the roadways. In the downtown area, the brick sidewalks, benches, street lights, and frequent retail frontages create a great sense of place along Bridge Street. One minor improvement near the train station that would be desirable is to fill in the sidewalk gap on the south side of Bridge Street East of Starr Street.[17]

Bicycle Facilities

Figure 33 shows the bicycle stress levels. Although the majority of the roadways are ranked level 1 or 2, Bridge Street next to the station is classified as LTS 3. There is no dedicated bicycle lane available. Although the "Share the Road" signage is presented, the narrow roadways and relatively high vehicular volumes make it uncomfortable for many bicyclists.

Public Transit

There are two SEPTA bus routes within the half-mile radius area, as **Figure 34** shows.

- Route 99 – Phoenixville to Norristown; and
- Route 139 – Limerick to King of Prussia.

In the downtown area, finding a parking space to access transit can be challenging and confusing. A structured parking lot with a wayfinding would be desirable.

Land Use

A total of five municipalities were selected as the Phoenixville Station commuter shed area:

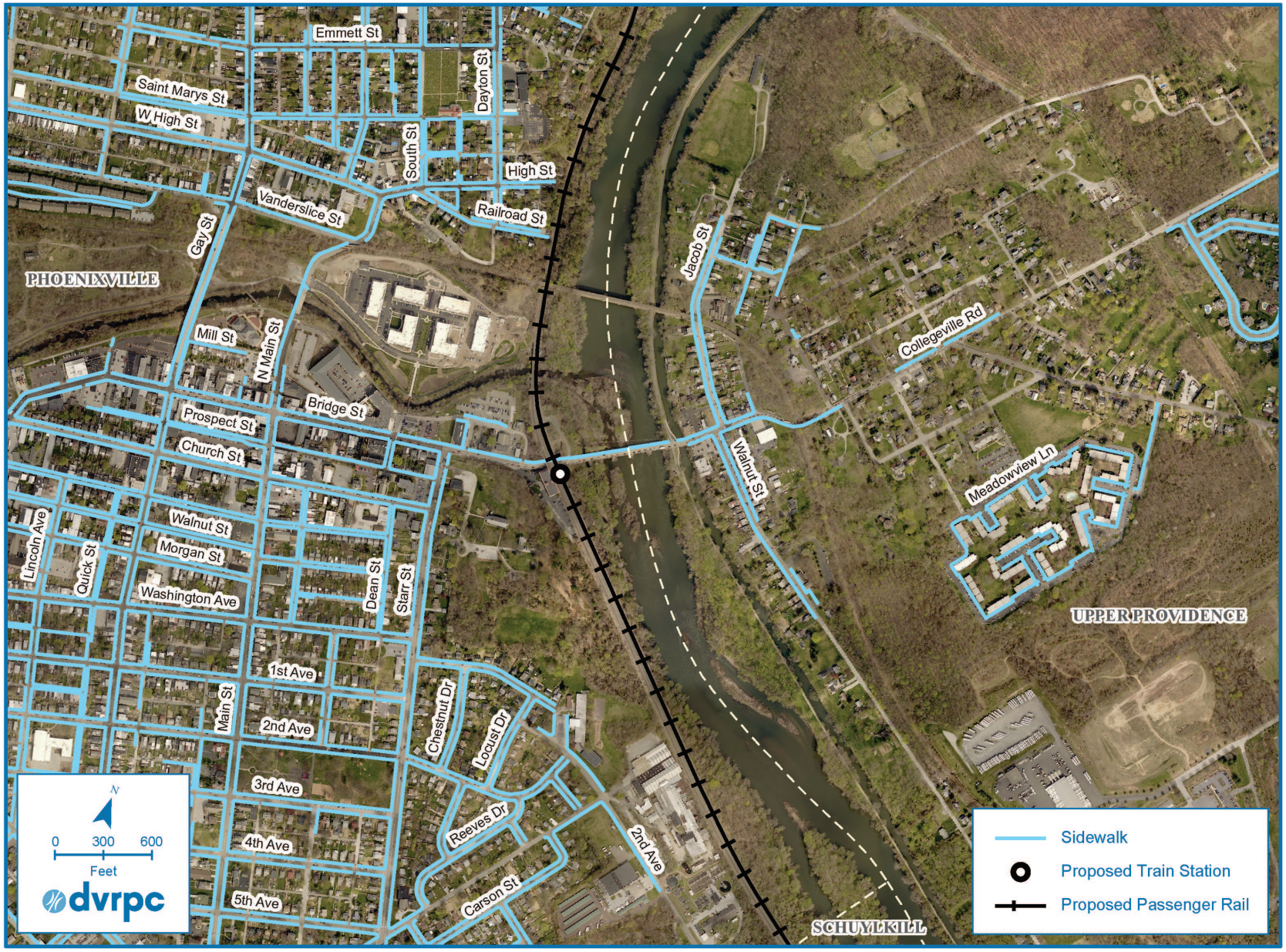
- Charlestown Township;
- East Pikeland Township;
- Phoenixville Borough;
- Schuylkill Township; and
- Upper Providence Township (partial).

The Phoenixville Station area has a land use area of approximately 34,641 acres, or 54 square miles. About 50 percent of the area is developed and 48 percent is wooded or designated for agricultural use. Residential uses make up around two-thirds of the developed land area, with single-family dwellings accounting for the majority. Transportation, commercial, and recreational uses occupy 71 percent of total non-residential areas. The map on **Figure 35** shows the detailed land use. The commercial uses are generally clustered along US 422 and other state routes.

Transportation Network

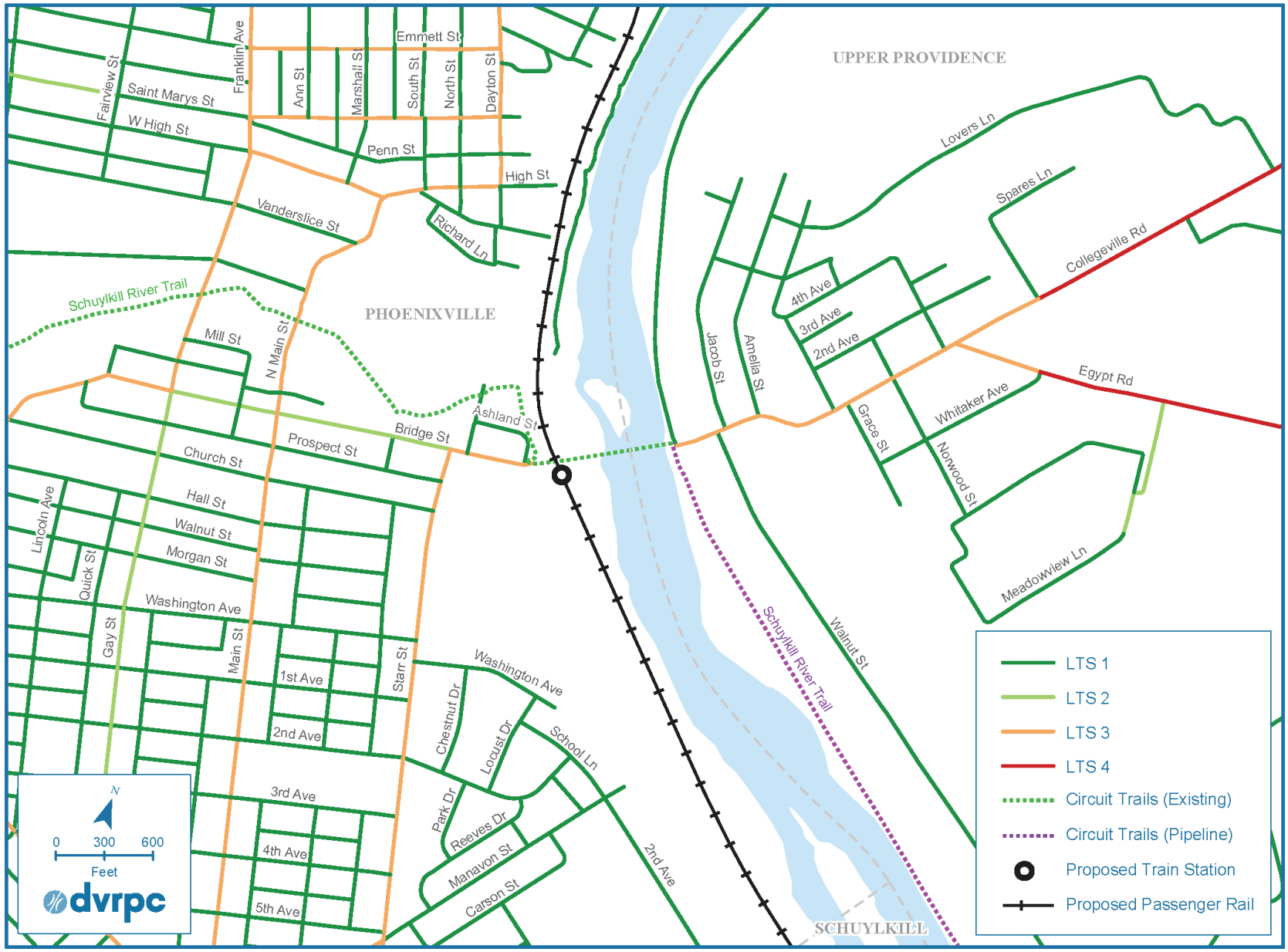
Figure 36 shows the transportation network by federal functional classification. US 422 provides two interchanges at Egypt Road and Collegeville Road, respectively. PA 29, or Collegeville Road/Bridge Street, serves as home to Pfizer, Dow Chemical, and Glaxo SmithKline campus. It also serves as the thoroughfare of Phoenixville. Other state routes include routes 23, 113, and 724.

Figure 32: Sidewalk Inventory (Phoenixville)



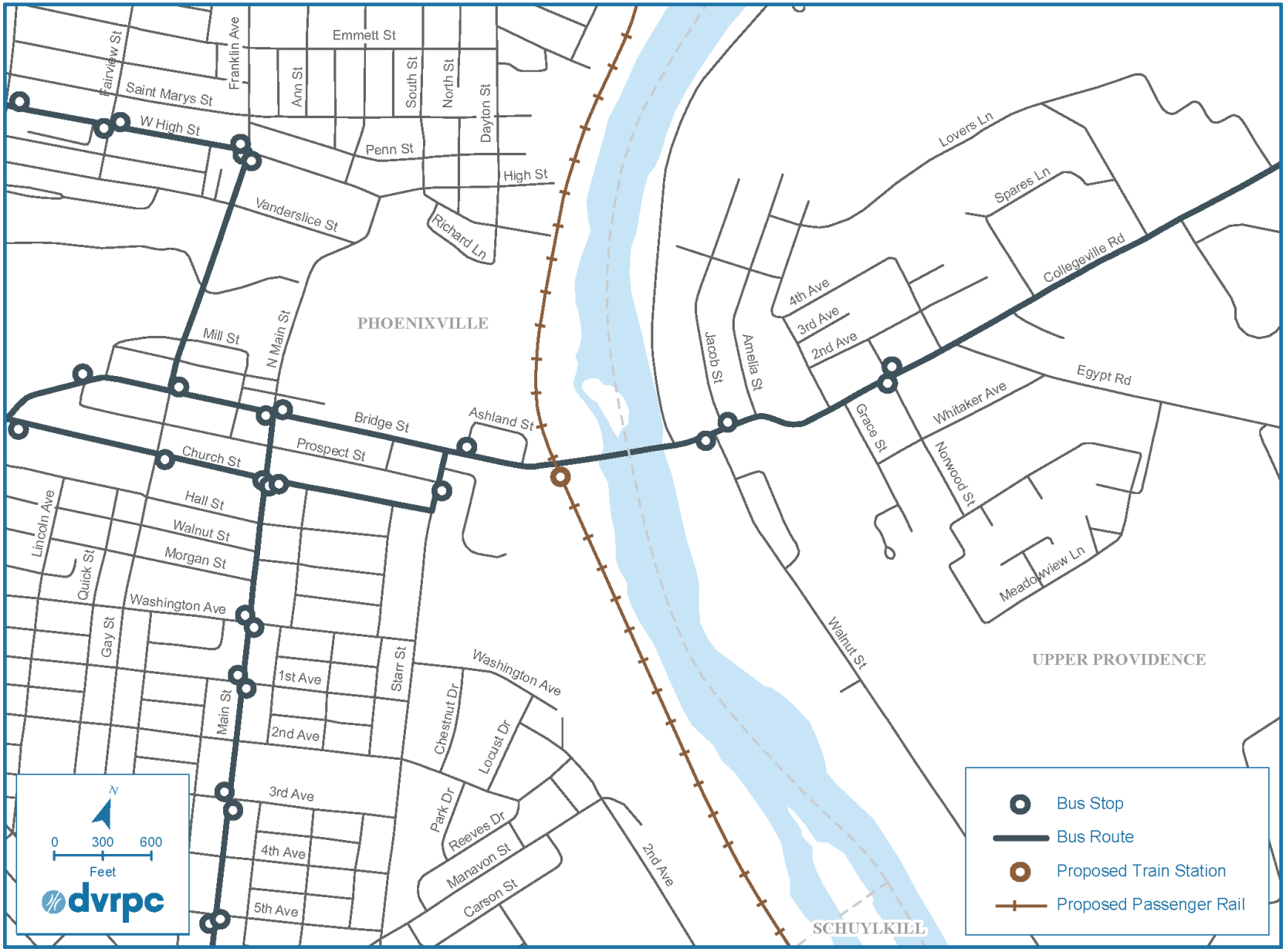
Sources: DVRPC, 2021; Southeastern PA Regional Task Force, 2017 (Aerial)

Figure 33: Bicycle Level of Traffic Stress (Phoenixville)



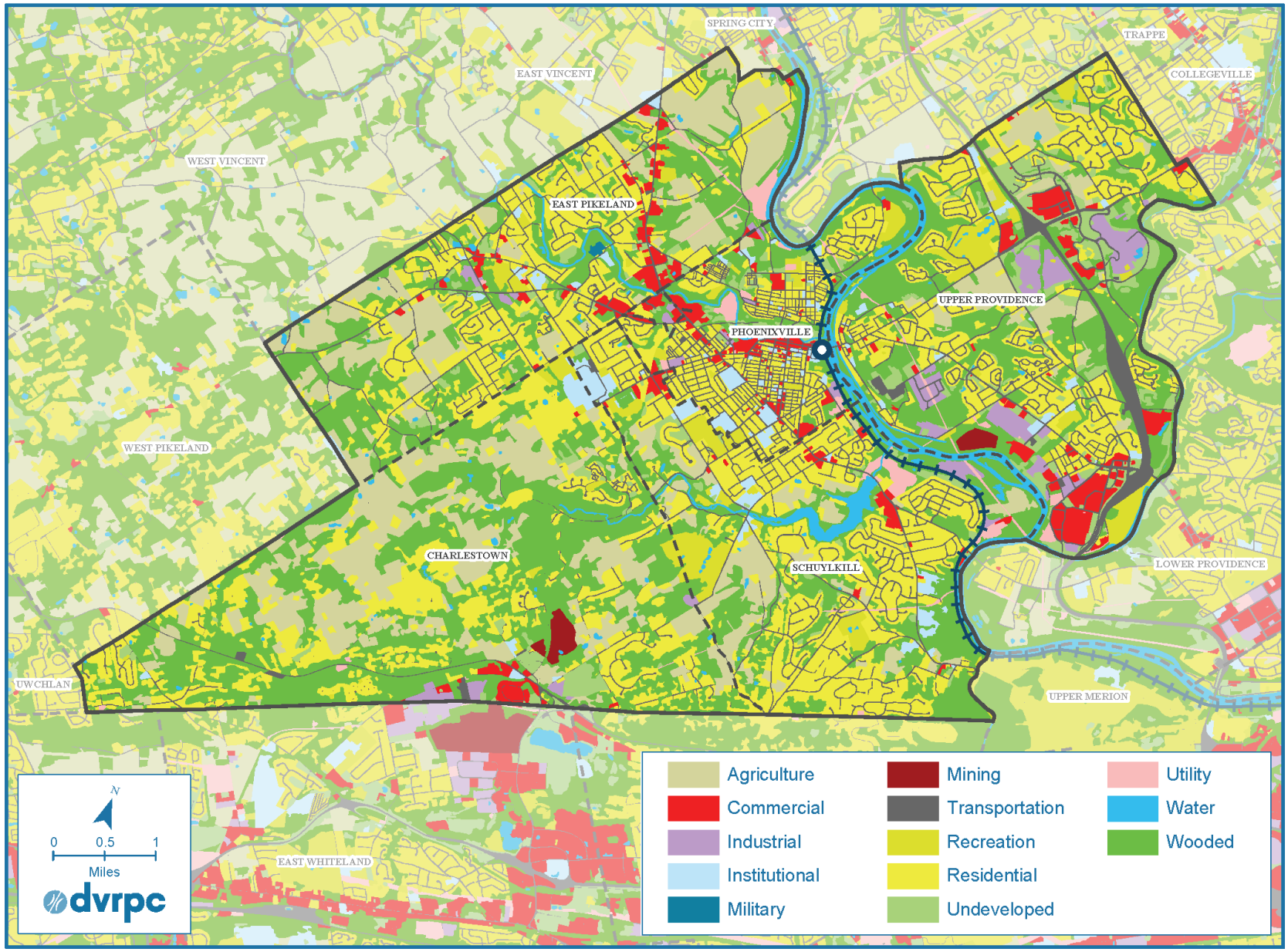
Sources: DVRPC, 2021; The Circuit Trails, 2019

Figure 34: SEPTA Transit Service (Phoenixville)



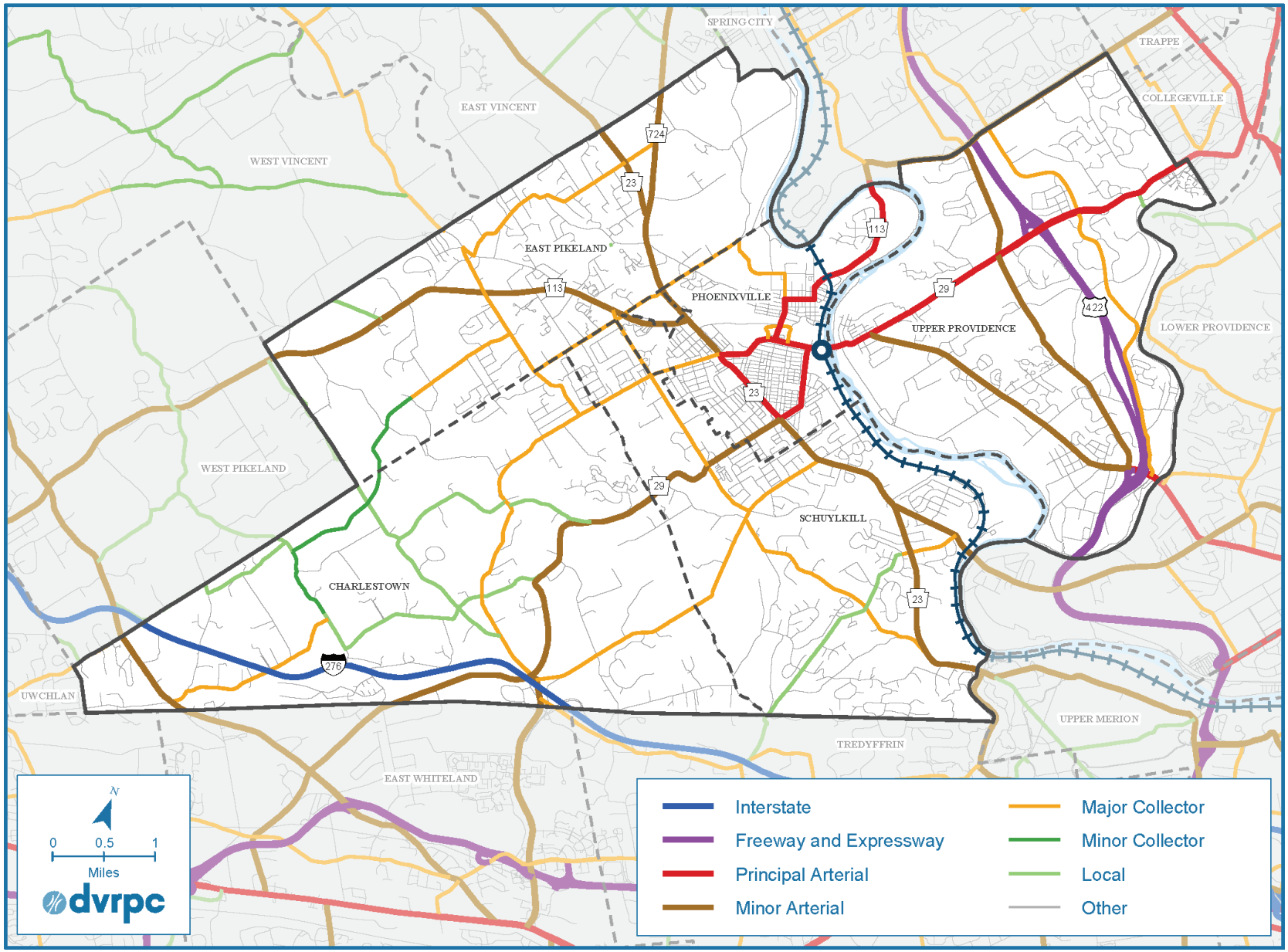
Sources: SEPTA, 2021; DVRPC, 2021

Figure 35: Land Use (Phoenixville)



Source: DVRPC, 2015

Figure 36: Federal Functional Classification (Phoenixville)



Source: PennDOT, 2019

Demographics

The ACS estimates that there are about 51,500 residents in the three-mile commuter shed area. **Table 13** shows the age distribution. About 23 percent of the population are young children under the age of 18, while 13 percent are senior people over 65, both of which are similar to the rest of the county.

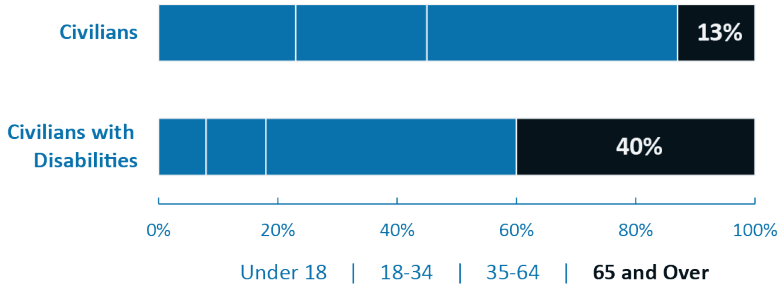
Table 13: Age Distribution (Phoenixville)

Age Group	Number of People	Percentage
Under 18	11,583	23%
18-34	11,205	22%
35-64	21,807	42%
65 and Over	6,937	13%
Total	**51,532**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Figure 37 summarizes civilians with disabilities by age group. Although senior civilians only comprise 13 percent of the population, they comprise of 40 percent of civilians with disabilities.

Figure 37: Civilian Disability by Age Group (Phoenixville)



Source: ACS 2015-2019, U.S. Census Bureau

Table 14 summarizes the race composition in the area. Minorities make up about 15 percent of the population, which is similar to the county average.

Table 14: Race Composition (Phoenixville)

Race	Number of People	Percentage
White	43,768	85%
Black or African American	2,963	6%
Asian	3,264	6%
Some Other Race	404	1%
Two or More Races	1,133	2%
Total	**51,532**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Households

The ACS estimates that there are about 20,200 households in this area. **Tables 15 and 16** summarize household size by the number of people and the number of workers, respectively. About 5 percent of the households have no vehicle available (**Table 17**).

Table 15: Household by the Number of People (Phoenixville)

Household Size	Households	Percentage
1 Person	5,360	27%
2 Persons	7,143	35%
3 Persons	3,231	16%
4 or More Persons	4,515	22%
Total	**20,249**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 16: Household by the Number of Workers (Phoenixville)

Number of Workers	Households	Percentage
No Worker	3,887	19%
1 Worker	7,106	35%
2 Workers	7,624	38%
3 or More Workers	1,632	8%
Total	**20,249**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 17: Household Vehicle Availability (Phoenixville)

Vehicle Availability	Households	Percentage
No Vehicle	930	5%
1 Vehicle	5,940	29%
2 Vehicles	9,523	47%
3 Vehicles	2,969	15%
4 or More Vehicles	887	4%
Total	**20,249**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

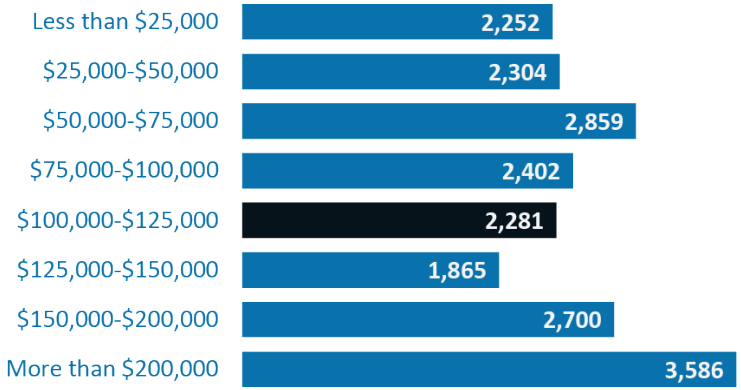
Figure 38 shows the household income statistics. It is almost evenly distributed among different income levels. The median income falls between $100,000 and $125,000.

Housing Unit

The vacancy rate is around 4 percent, which is comparable to the county average. **Figure 39** shows statistics of housing units by tenure by size. Roughly three-quarters of the non-vacant housing units are occupied by homeowners, which is similar to the rest of the county.

About 15 percent of the renter-occupied units have no vehicle available and another 47 percent have only one vehicle. In comparison, only 1 percent of the homeowners do not have access to a vehicle, and 75 percent have at least two vehicles.

Figure 38: Household Income (Phoenixville)



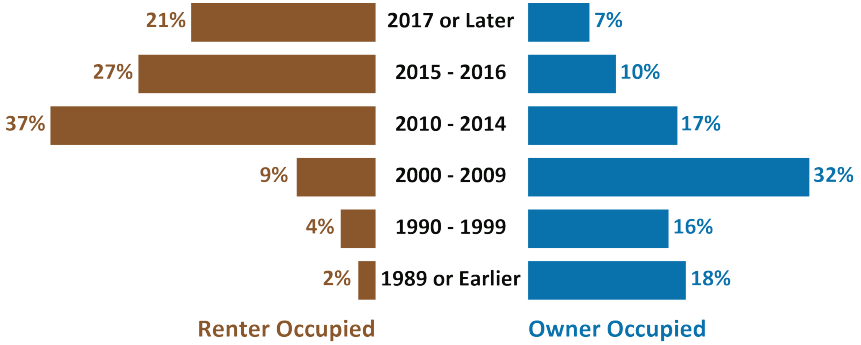
Source: ACS 2015-2019, U.S. Census Bureau

Figure 39: Housing Unit by Tenure by Size (Phoenixville)

Source: ACS 2015-2019, U.S. Census Bureau

As shown in **Figure 40**, most homeowners in this area moved into their current unit before 2010. On the other hand, most renters moved in more recently.

Figure 40: Tenure by Moved in Year (Phoenixville)

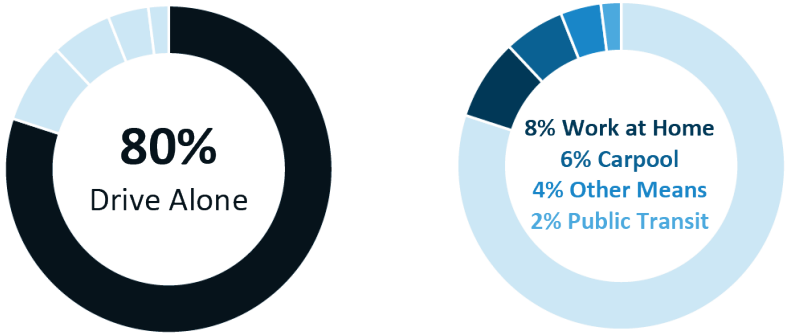


Source: ACS 2015-2019, U.S. Census Bureau

Commuting Characteristics

As illustrated in **Figure 41**, approximately 80 percent of the commuters drive alone, which is similar to the county average. About 2 percent of the commuters use public transit, which is slightly lower than the county average. Approximately 79 percent of the transit riders use the regional rail.

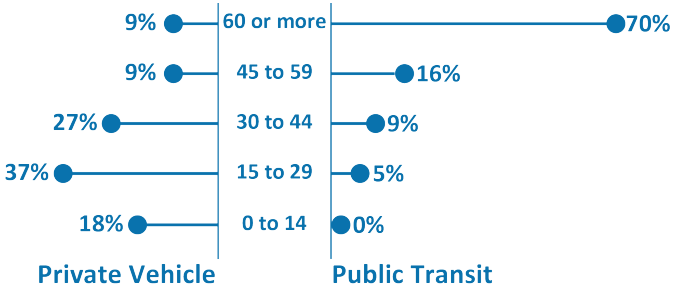
Figure 41: Means of Transportation (Phoenixville)



Source: ACS 2015-2019, U.S. Census Bureau

Travel time by mode is summarized in **Figure 42**. The majority of the drivers spend less than 45 minutes on the road. Transit riders on the other hand, spend more time commuting

Figure 42: Travel Time in Minutes by Mode (Phoenixville)

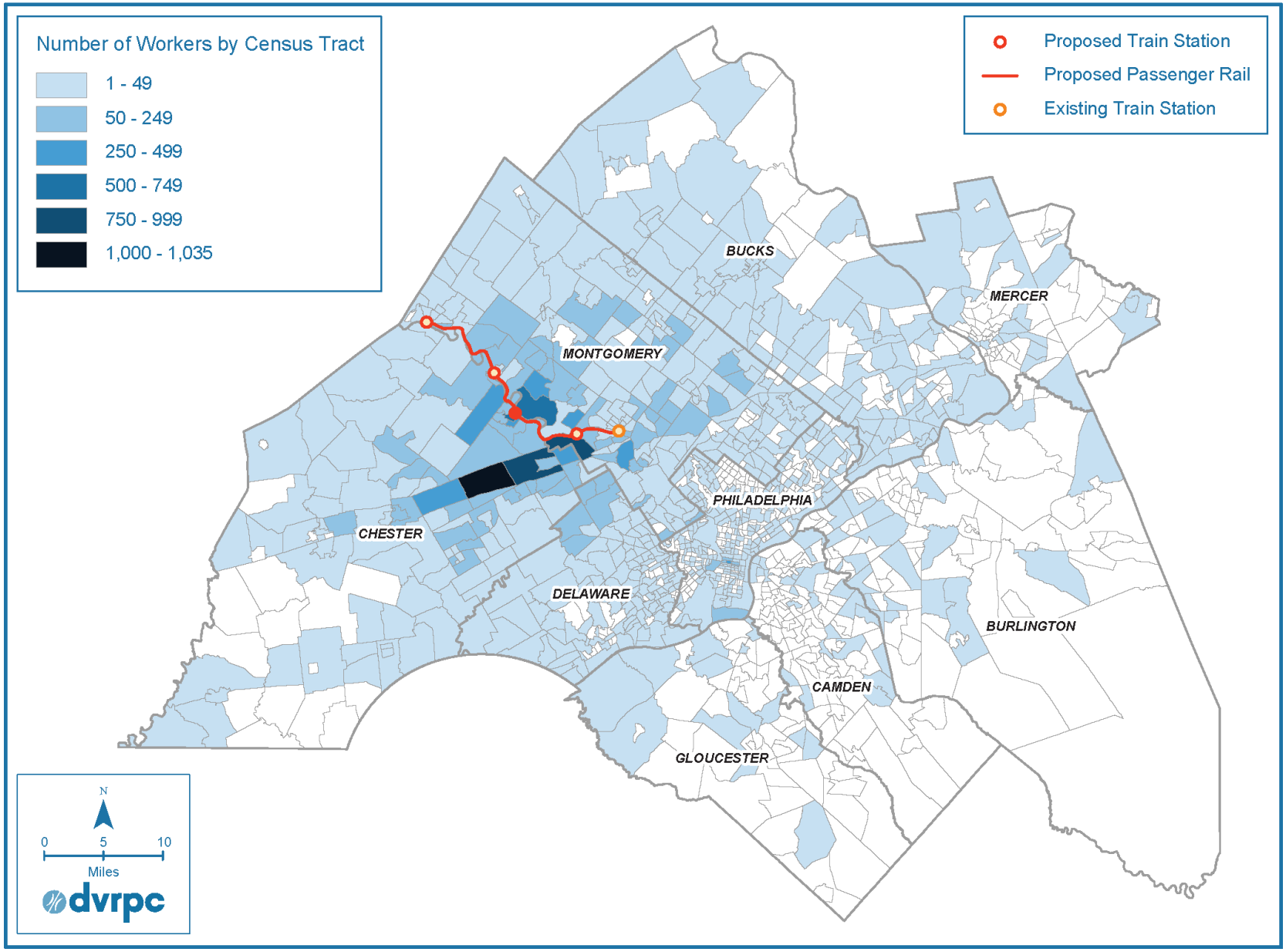


Source: ACS 2015-2019, U.S. Census Bureau

Figure 43 coded each census tract based on the number of station area residents who work in that census tract. Upper Merion, East Whiteland, Phoenixville, Tredyffrin, and Upper Providence are the most popular suburban workplace destinations. Center City Philadelphia destinations are concentrated west of City Hall, as well as in University City.

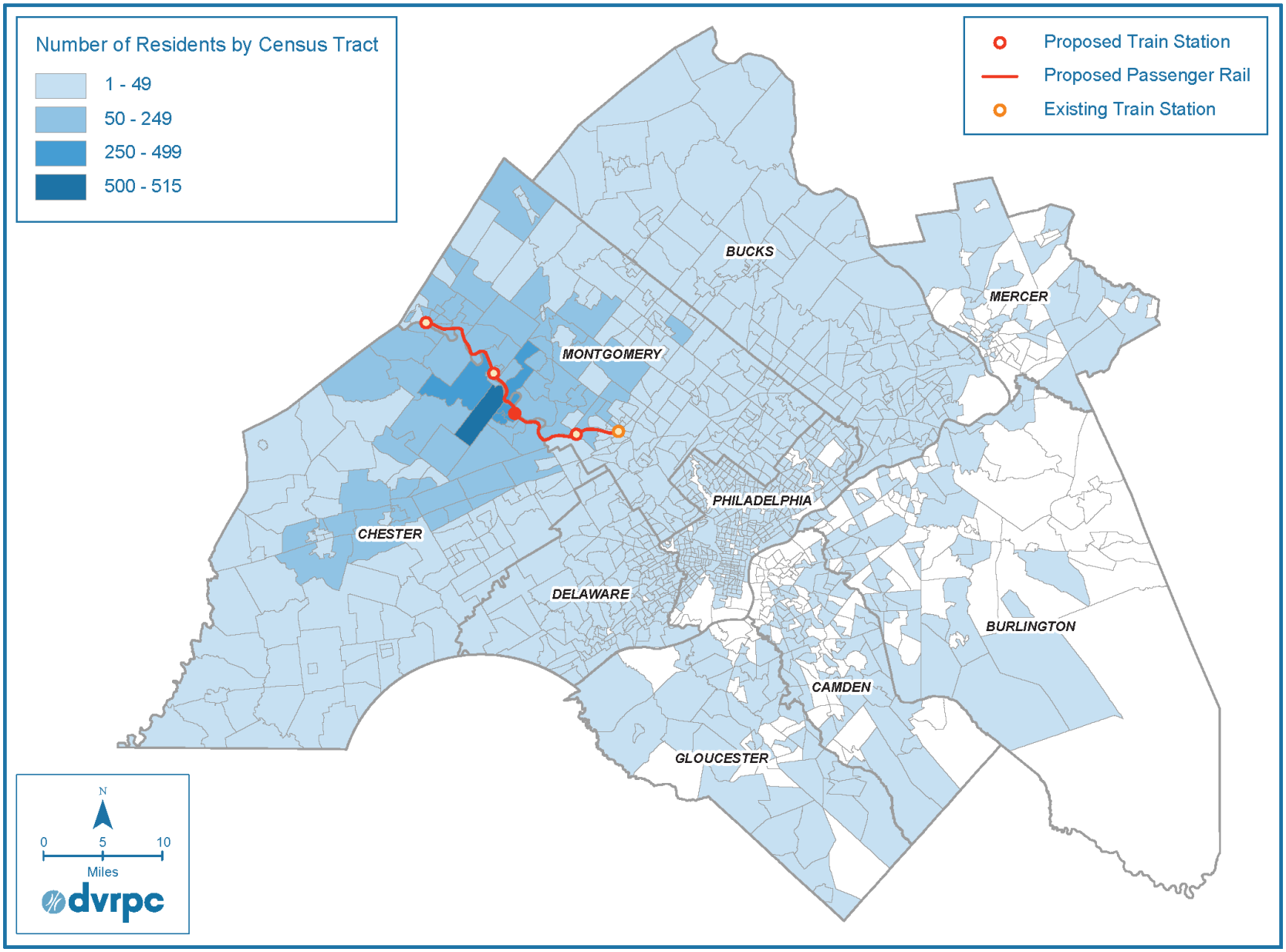
Similarly, **Figure 44** coded each census tract based on the number of station area workers who live in that census tract. The origins of workers are concentrated locally in Phoenixville, East Pikeland, East Vincent, and Upper Providence.

Figure 43: Workplace Destinations for Residents in the Commuter Shed Area (Phoenixville)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Figure 44: Residence Origins for Workers in the Commuter Shed Area (Phoenixville)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Royersford Station

The proposed Royersford Station would be located on the former station site on Main Street in Royersford, Montgomery County.

Pedestrian Amenities

Sidewalks are mapped in **Figure 45**. The majority of the neighborhood's roads have walkways on both sides. The Schuylkill River Trail is accessible by pedestrian walkways on both sides of the Main Street Bridge. The pedestrian beacons and the mid-block island enhance the safety. Although the pedestrian crossings at the train track (Main Street next to the station and Arch Street south of the station) are not grade separated, the amenities surrounding the station are generally amicable to walking.

Bicycle Facilities

Bicycle traffic stress map is shown in **Figure 46**. The station is surrounded by residential areas and most of the roadways in the neighborhood are ranked LTS 1 or 2. However, Main Street and 2nd Street that directly feed into the station are ranked LTS 3. This is due to the high volume of vehicles and lack of bicycle lanes.

Public Transit

There is only one SEPTA bus route serving the half-mile radius area with two stops within walking distance to the train station (**Figure 47**):

- Route 139 – Limerick to King of Prussia.

Land Use

A total of seven municipalities were selected as the Royersford Station commuter shed area:

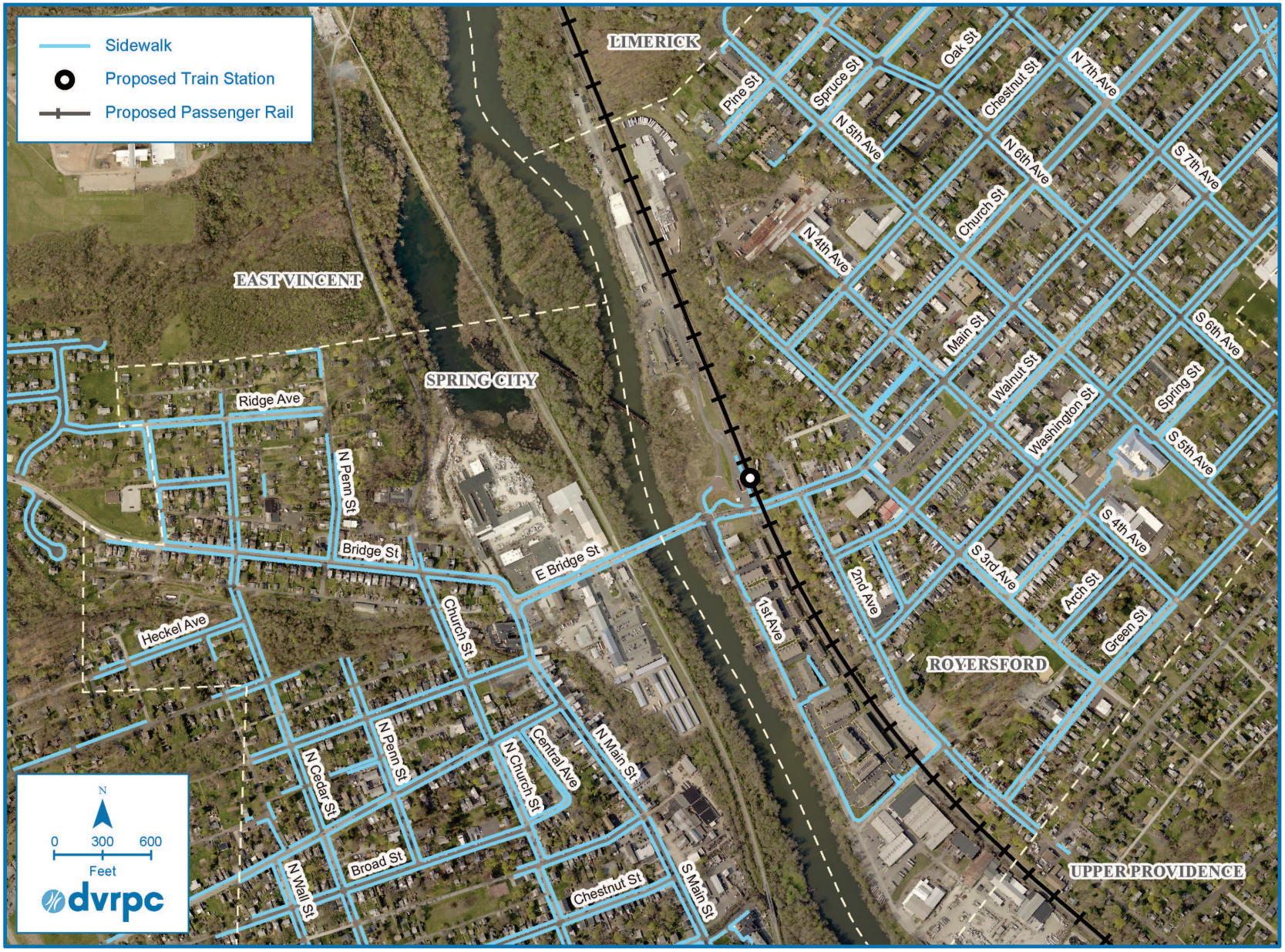
- East Coventry Township;
- East Vincent Township;
- Royersford;
- Spring City Borough;
- Trappe Borough;
- Limerick Township (partial); and
- Upper Providence Township (partial).

The Royersford Station area has a land use area of approximately 33,241 acres, or 52 square miles. Only 48 percent of the area has been developed, with residential and non-residential uses occupying 31 percent and 17 percent of the total land area, respectively. About 50 percent of the land is wooded or designated for agricultural use. Single-family dwellings occupy the majority of the residential land uses. The most common non-residential usages are recreation and transportation. The map on **Figure 48** shows the detailed land use in the Royersford Station area.

Transportation Network

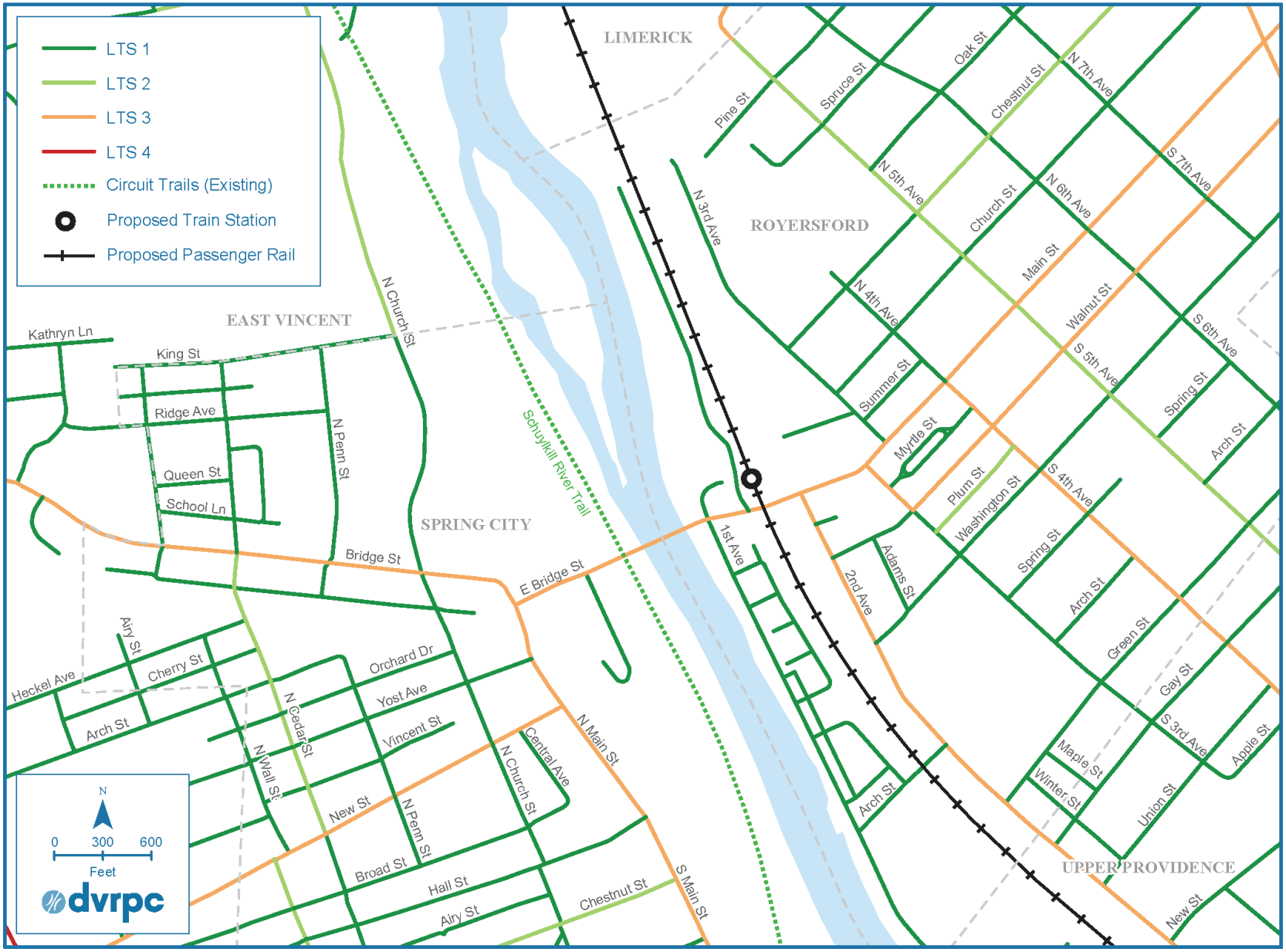
Figure 49 shows the roadway network by federal functional classification. US 422 is the only freeway in the area, and there are three interchanges at Township Line Road, Lewis Road, and Evergreen Road, respectively. Parallel to US 422 are State Route 724 and State Route 4031 (Ridge Pike), which allow local access to business sites.

Figure 45: Sidewalk Inventory (Royersford)



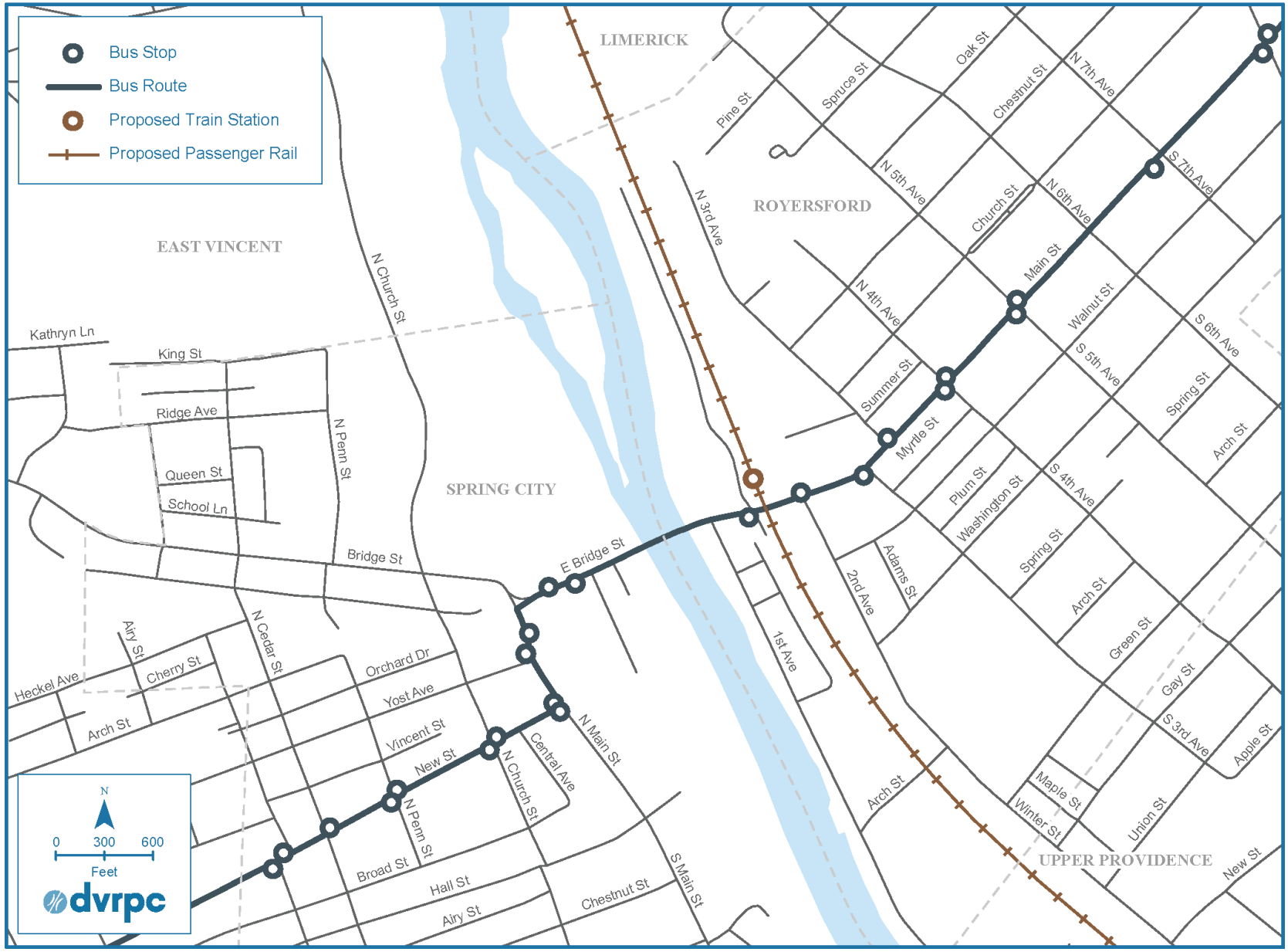
Sources: DVRPC, 2021; Southeastern PA Regional Task Force, 2017 (Aerial)

Figure 46: Bicycle Level of Traffic Stress (Royersford)



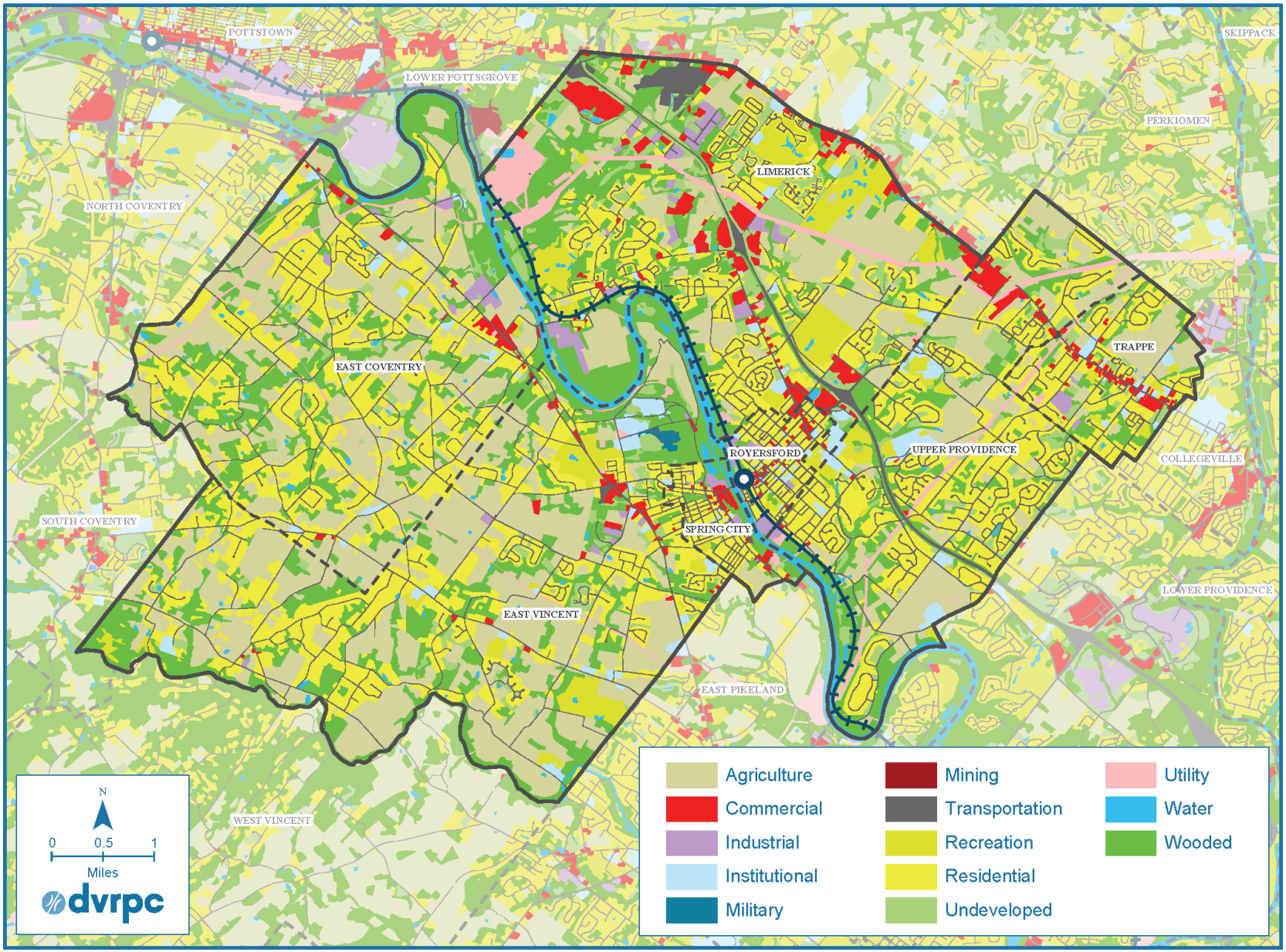
Sources: DVRPC, 2021; The Circuit Trails, 2019

Figure 47: SEPTA Transit Service (Royersford)



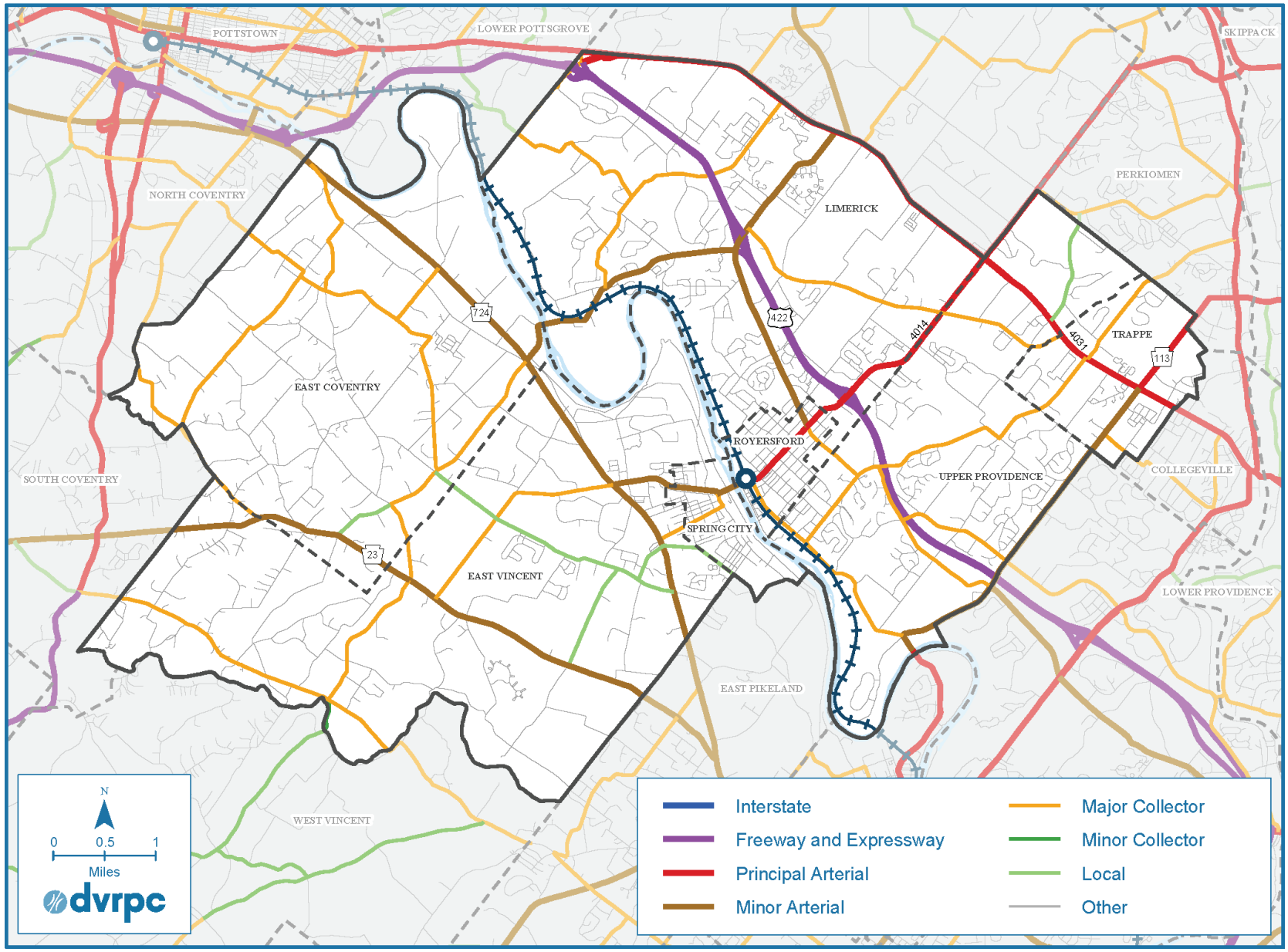
Sources: SEPTA, 2021; DVRPC, 2021

Figure 48: Land Use (Royersford)



Source: DVRPC, 2015

Figure 49: Federal Functional Classification (Royersford)



Source: PennDOT, 2019

Demographics

The ACS estimates that there are about 49,400 residents in the three-mile commuter shed area. **Table 18** shows the age distribution. Young children under the age of 18 account for 24 percent of the population, which is higher than the rest of the county. Senior people over the age of 65 account for 13 percent of the population, which is lower than the rest of the county.

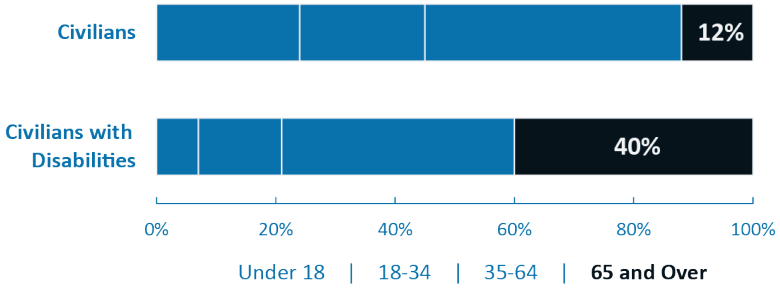
Table 18: Age Distribution (Royersford)

Age Group	Number of People	Percentage
Under 18	11,773	24%
18-34	10,167	21%
35-64	20,785	42%
65 and Over	6,665	13%
Total	**49,390**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Figure 50 shows the disability status by age group. Although senior people only comprise 12 percent of civilians, they comprise 40 percent of civilians with disabilities.

Figure 50: Civilian Disability by Age Group (Royersford)



Source: ACS 2015-2019, U.S. Census Bureau

The race composition of this area is summarized in **Table 19**. Minorities make up about 13 percent of the population, which is lower than the rest of the county.

Table 19: Race Composition (Royersford)

Race	Number of People	Percentage
White	42,918	87%
Black or African American	2,327	5%
Asian	2,715	5%
Some Other Race	256	1%
Two or More Races	1,174	2%
Total	**49,390**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Household

The ACS estimates that there are about 18,200 households in the area. Household size is summarized in **Tables 20 and 21** by the number of people and the number of workers, respectively. Only 3 percent of households do not have access to a vehicle (**Table 22**).

Table 20: Household by the Number of People (Royersford)

Household Size	Households	Percentage
1 Person	4,258	23%
2 Persons	5,737	32%
3 Persons	3,328	18%
4 or More Persons	4,878	27%
Total	**18,201**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 21: Household by the Number of Workers (Royersford)

Number of Workers	Households	Percentage
No Worker	3,083	17%
1 Worker	6,590	36%
2 Workers	6,785	37%
3 or More Workers	1,743	10%
Total	**18,201**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 22: Household Vehicle Availability (Royersford)

Vehicle Availability	Households	Percentage
No Vehicle	525	3%
1 Vehicle	5,201	29%
2 Vehicles	8,230	45%
3 Vehicles	2,824	15%
4 or More Vehicles	1,421	8%
Total	**18,201**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

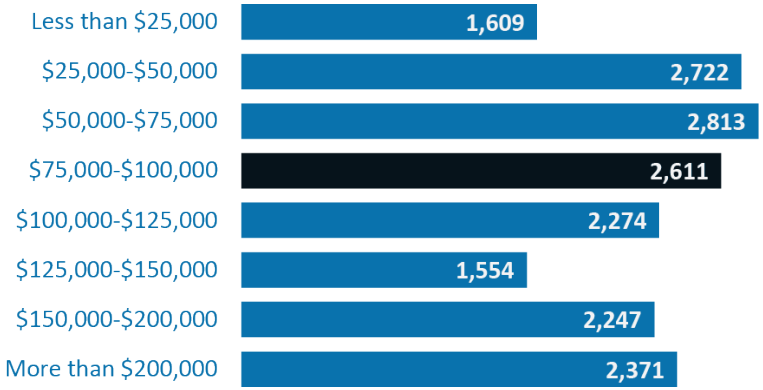
Figure 51 shows the household income. The median income falls between $75,000 and $100,000.

Housing Unit

The vacancy rate is around 3 percent, which is lower than the county average. **Figure 52** shows housing unit statistics by tenure by size. Homeowners occupy about three-quarters of the non-vacant housing units, which is slightly higher than the rest of the county.

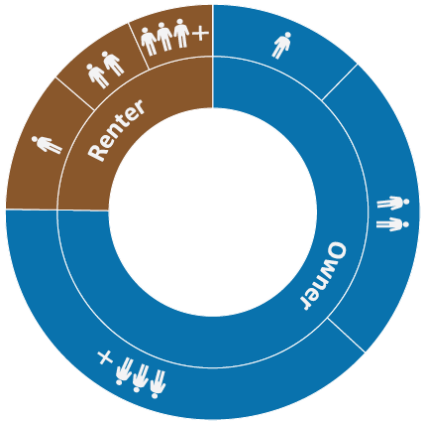
Approximately 6 percent of the renter-occupied units have no vehicle and another 57 percent have only one vehicle. In comparison, roughly 79 percent of the homeowners have at least two vehicles.

Figure 51: Household Income (Royersford)



Source: ACS 2015-2019, U.S. Census Bureau

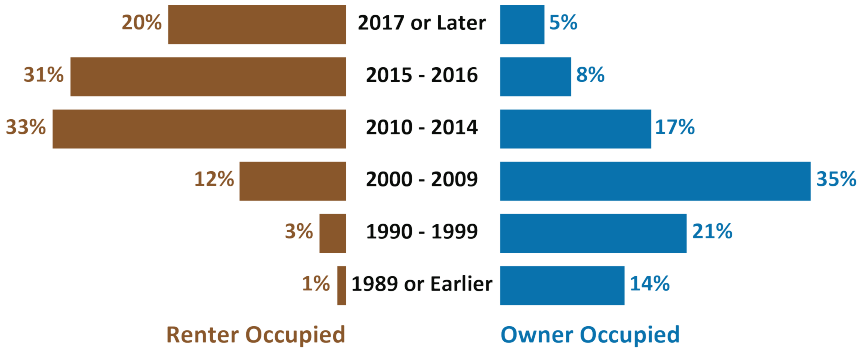
Figure 52: Housing Unit by Tenure by Size (Royersford)



Source: ACS 2015-2019, U.S. Census Bureau

As shown in **Figure 53**, most homeowners in this area moved into their current unit before 2010. On the other hand, most renters moved in more recently.

Figure 53: Tenure by Moved in Year (Royersford)

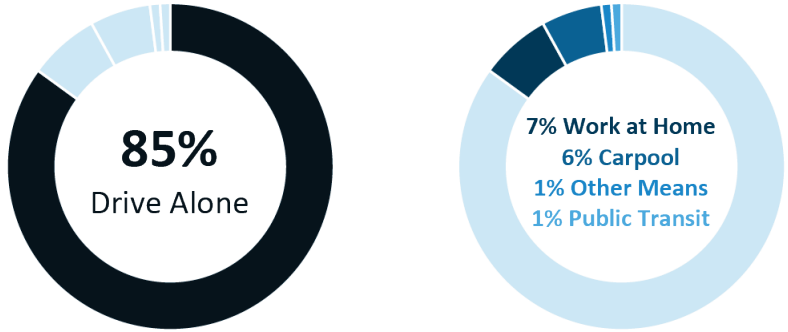


Source: ACS 2015-2019, U.S. Census Bureau

Commuting Characteristics

As illustrated in **Figure 54**, about 85 percent of the commuters drive alone, which is higher than the county average. Only 1 percent of the commuters take public transit, which is significantly lower than the county average. Buses and regional rails are used by 56 percent and 38 percent of the transit riders, respectively.

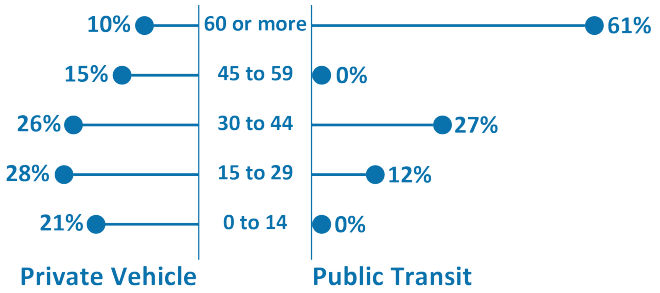
Figure 54: Means of Transportation (Royersford)



Source: ACS 2015-2019, U.S. Census Bureau

Travel time by mode is summarized in **Figure 55**. The majority of the drivers spend less than 45 minutes on the road. Transit riders spend more time commuting.

Figure 55: Travel Time in Minutes by Mode (Royersford)

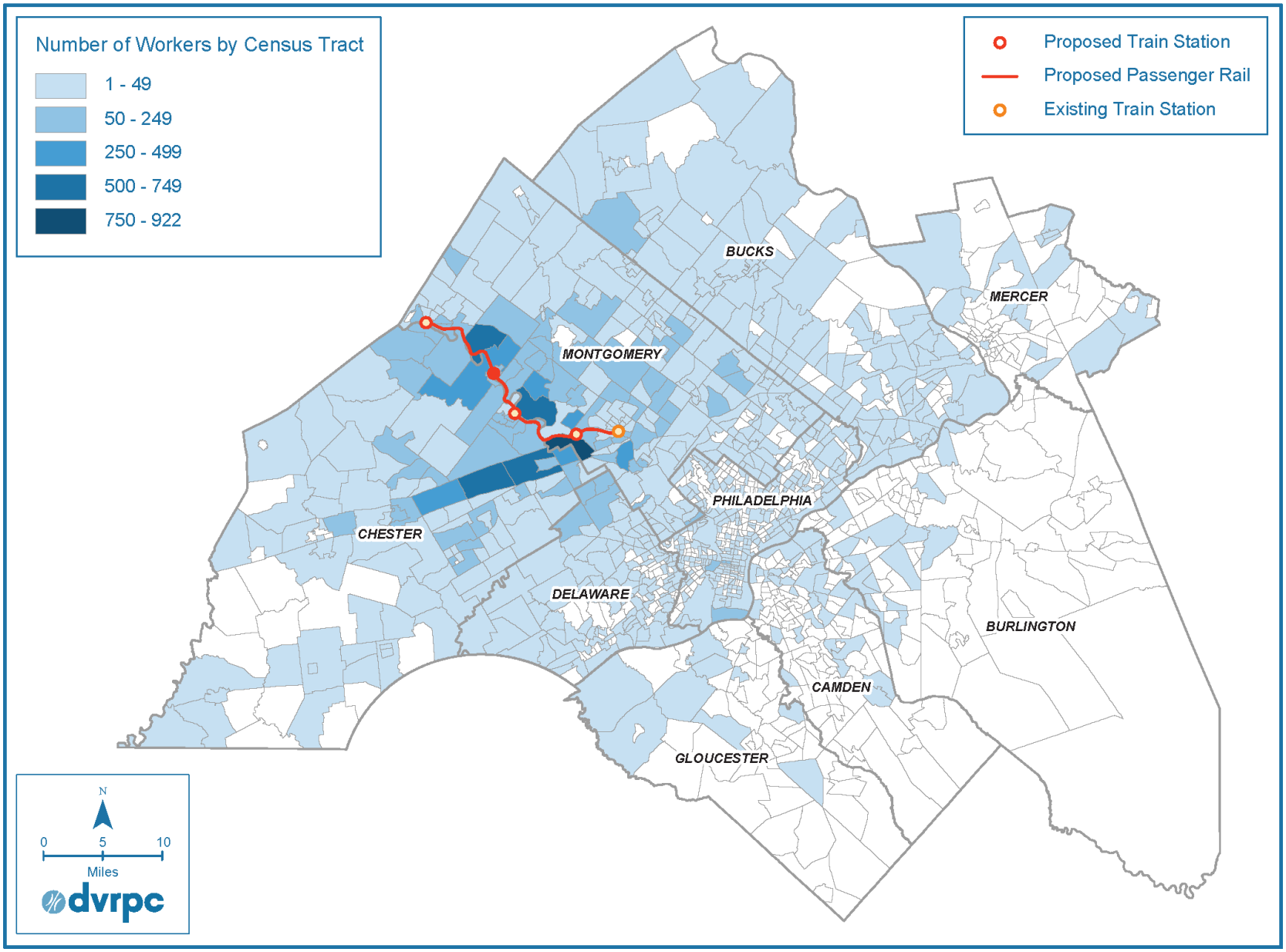


Source: ACS 2015-2019, U.S. Census Bureau

Figure 56 coded each census tract based on the number of station area residents who work in that census tract. East Vincent, Limerick, and Upper Providence, as well as Upper Merion, Tredyffrin, and East Whiteland, are the most popular suburban workplace destinations. Center City Philadelphia destinations are concentrated west of City Hall and in University City.

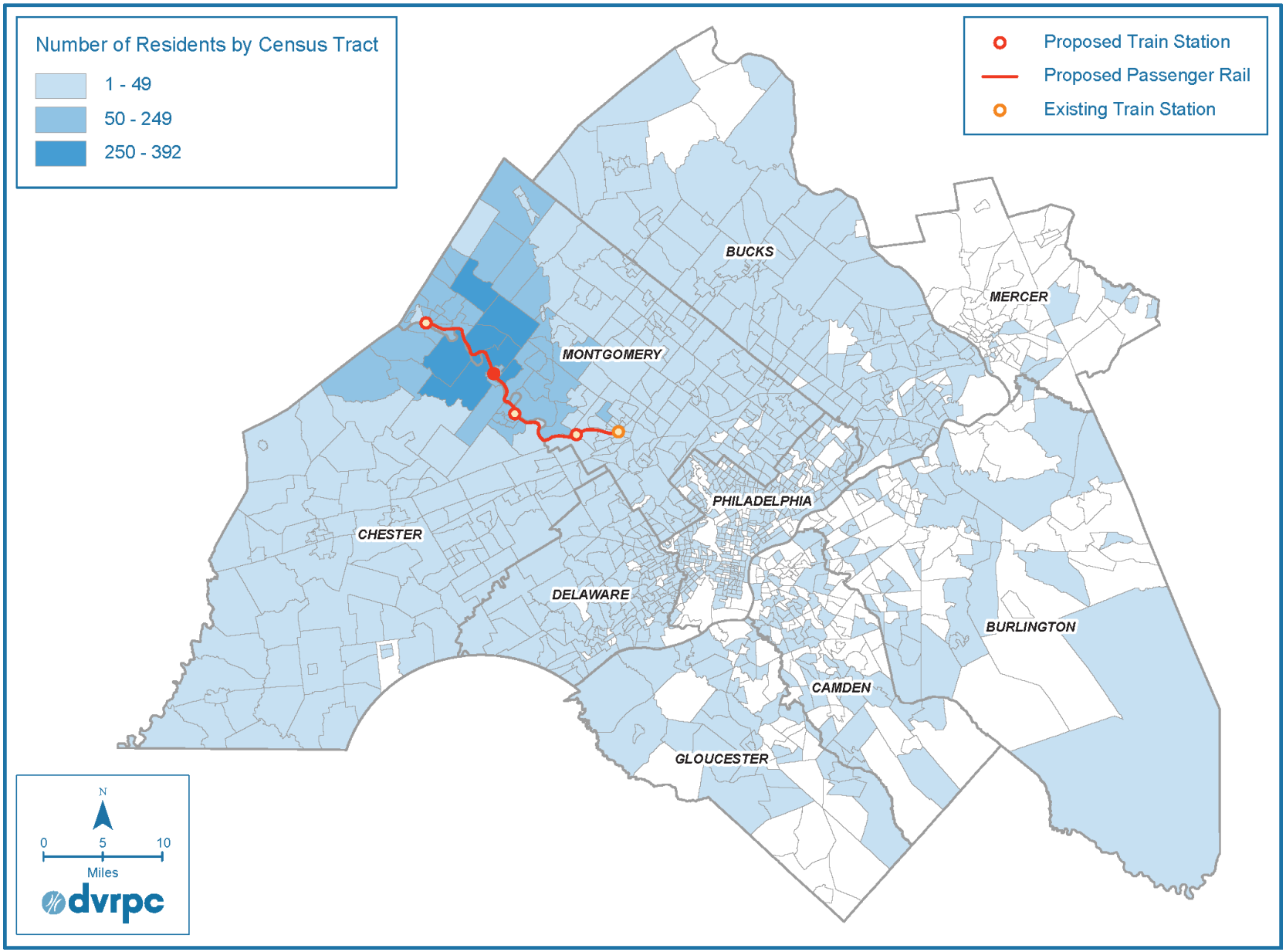
Similarly, **Figure 57** coded each census tract based on the number of station area workers who live in that census tract. Limerick, East Vincent, East Coventry, and New Hanover are the most common residence origins for workers in the area.

Figure 56: Workplace Destinations for Residents in the Commuter Shed Area (Royersford)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Figure 57: Residence Origins for Workers in the Commuter Shed Area (Royersford)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Pottstown Station

The proposed Pottstown Station, much like Royersford Station, would be located at a reactivated former rail station site in Pottstown, Montgomery County.

Pedestrian Amenities

As a downtown destination, sidewalks are available on most of the roadways as **Figure 58** shows. The sidewalks along the station area are wide and have lighting fixtures. Crosswalks are compliant with the Americans with Disabilities Act (ADA) despite the fact that the train track is not grade separated. A trail segment between PA 100 and Washington Street has been planned to fill in the missing gap of the Schuylkill River Trail.

Bicycle Facilities

Figure 59 shows the bicycle traffic stress. Within a half-mile radius, every segment of High Street has bicycle facilities, and the majority of these segments are assigned LTS 2. Although there are bicycle lanes in both directions on King Street between PA 100 and Manatawny Street, it is classified as LTS 3 due to high vehicular volumes and speeds. Hanover Street has bicycle lanes in both directions between Industrial Highway and High Street, but high vehicular volumes, especially the vehicle turning movements at the closely-spaced intersections, degrade the rank to LTS 4. York Street has a bicycle lane on the west side for the entire length of the half-mile radius and is ranked LTS 1.

Public Transit

The only SEPTA bus route (**Figure 60**) within the half-mile area is:

- Route 93 – Pottstown to Norristown.

In addition to SEPTA service, the Pottstown Area Rapid Transit (PART) operates the bus service that connects local employment centers and destinations in Pottstown, West Pottsgrove, Lower Pottsgrove, and North Coventry. It also provides service to the Philadelphia Premium Outlets in Limerick.

Land Use

A total of five municipalities were selected as the Pottstown Station commuter shed area:

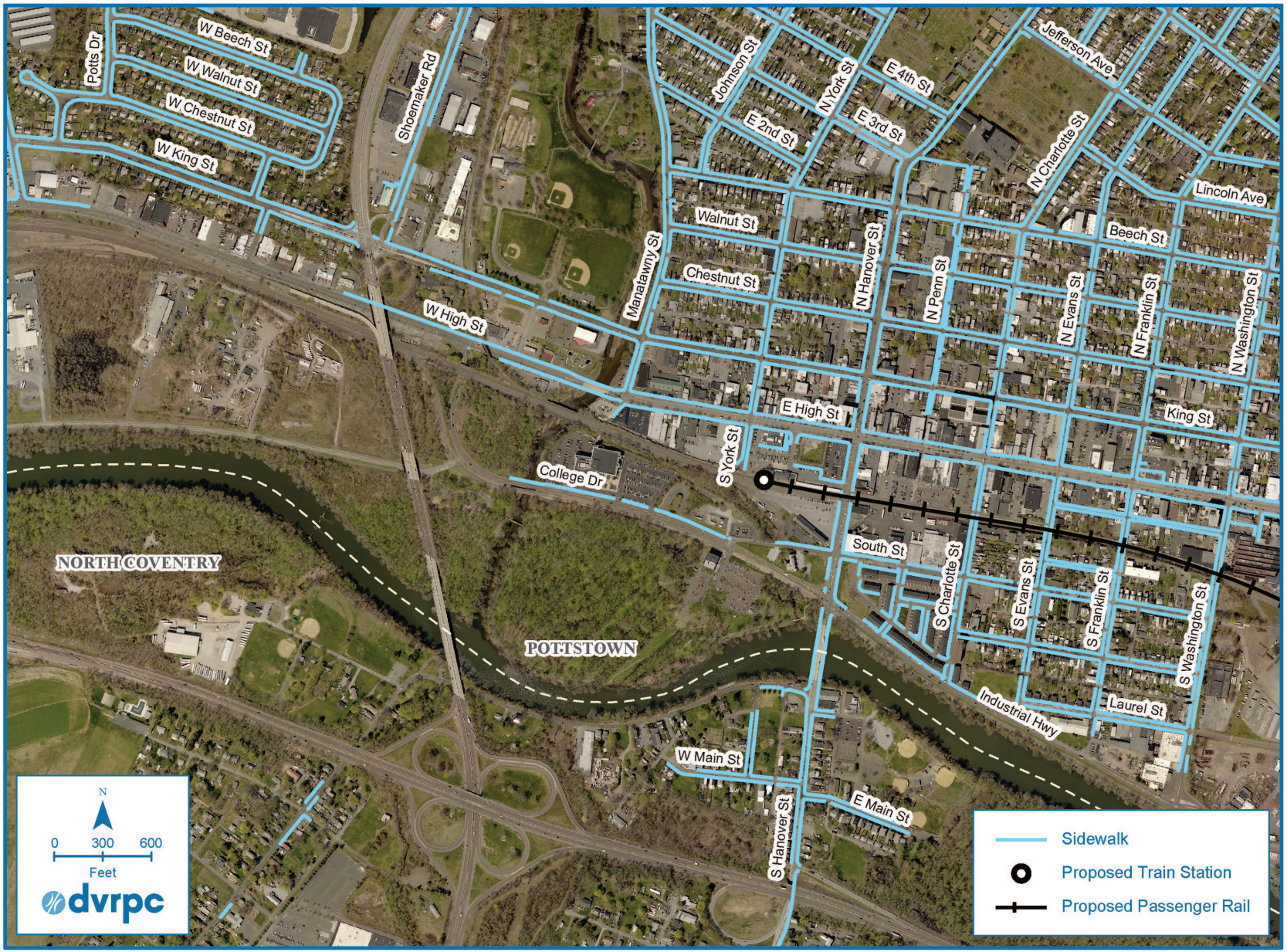
- Lower Pottsgrove Township;
- North Coventry Township;
- Pottstown Borough;
- Upper Pottsgrove Township; and
- West Pottsgrove Township.

The Pottstown Station area has a land use area of approximately 25,725 acres, or 40 square miles. Around 54 percent of the land has been developed, with residential and non-residential uses occupying 34 percent and 20 percent of the total land area, respectively. About one-third of the land is wooded or designated for agricultural use. Single-family homes occupy the majority of the residential land uses. Transportation, commercial, and recreation uses are the predominant non-residential uses. The map on **Figure 61** shows the detailed land use in the Pottstown Station area.

Transportation Network

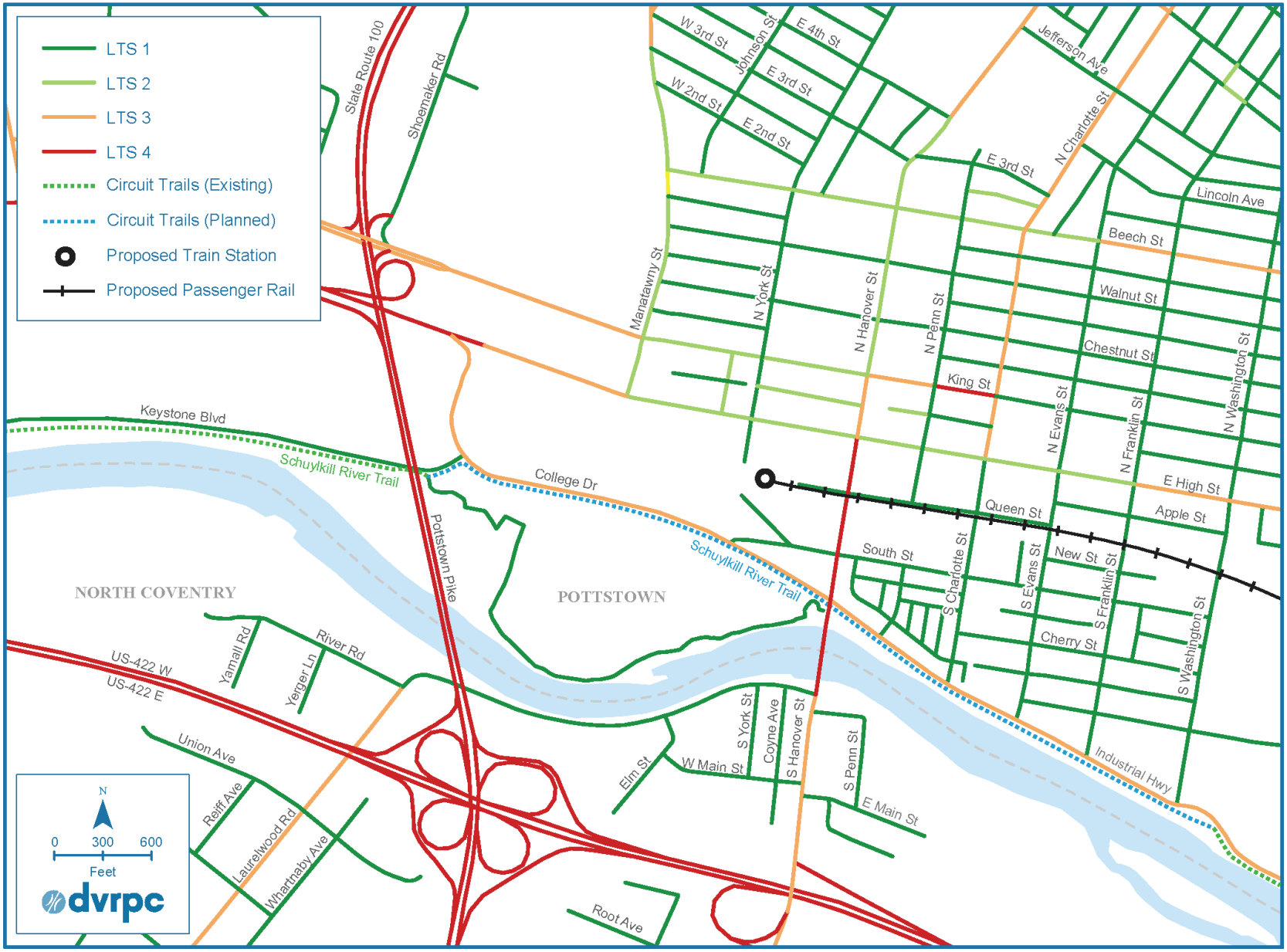
Figure 62 shows the roadway network by federal functional classification. US 422 is the major freeway in the east-west direction. Routes 100 and 663 accommodate north-south traffic. Route 4031, or High Street, is the Borough's commercial corridor.

Figure 58: Sidewalk Inventory (Pottstown)



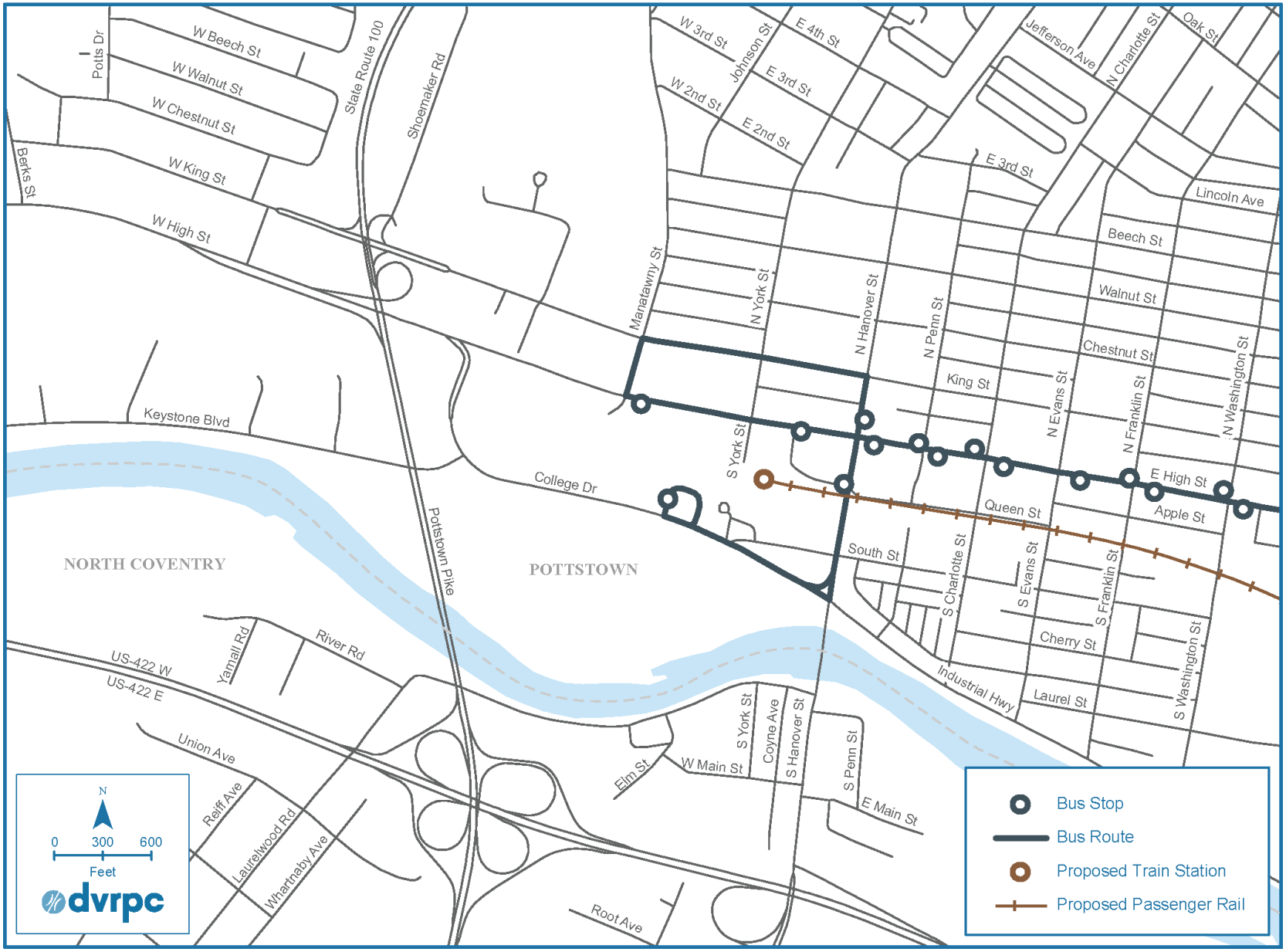
Sources: DVRPC, 2021; Southeastern PA Regional Task Force, 2017 (Aerial)

Figure 59: Bicycle Level of Traffic Stress (Pottstown)



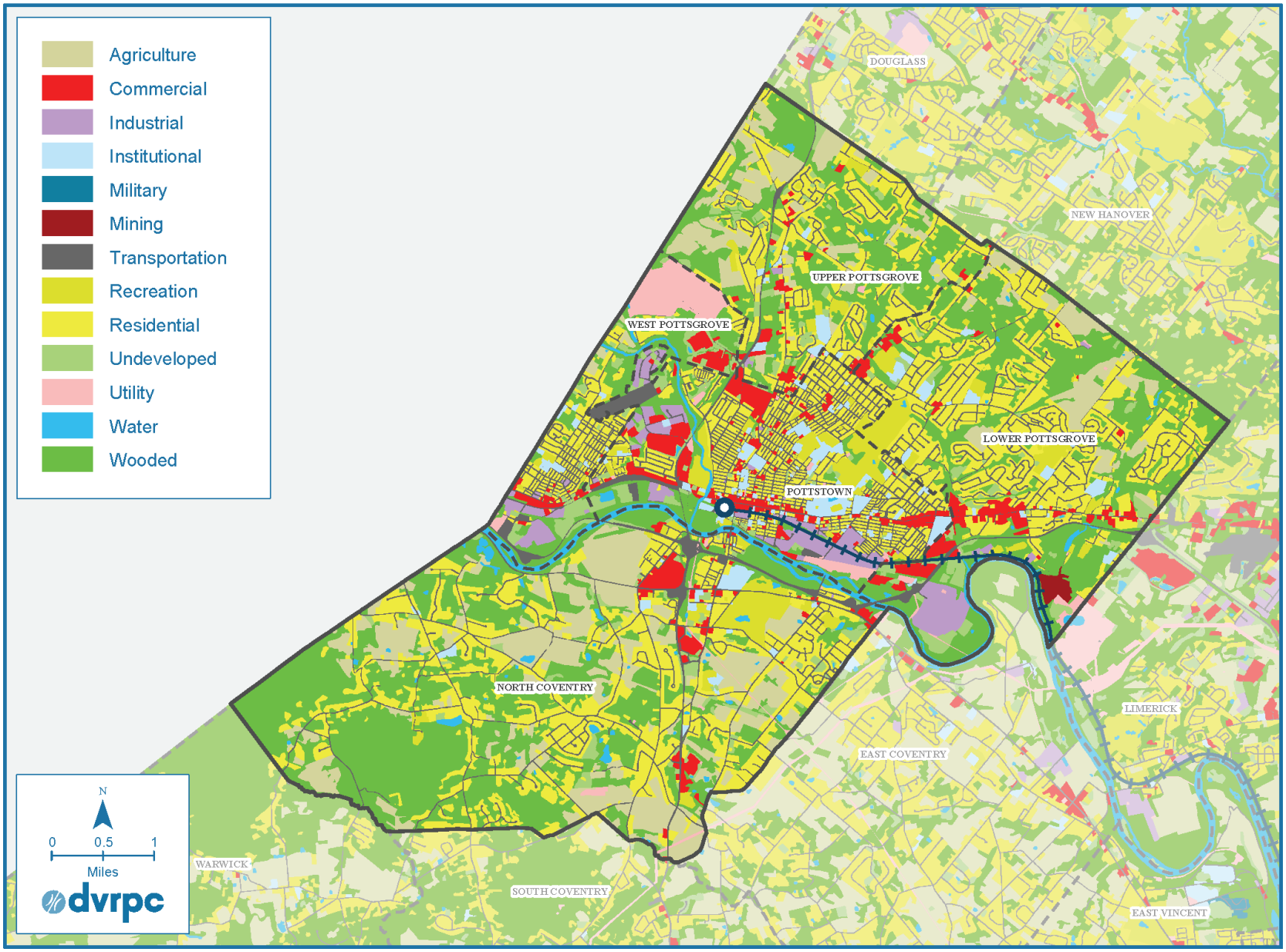
Sources: DVRPC, 2021; The Circuit Trails, 2019

Figure 60: SEPTA Transit Service (Pottstown)



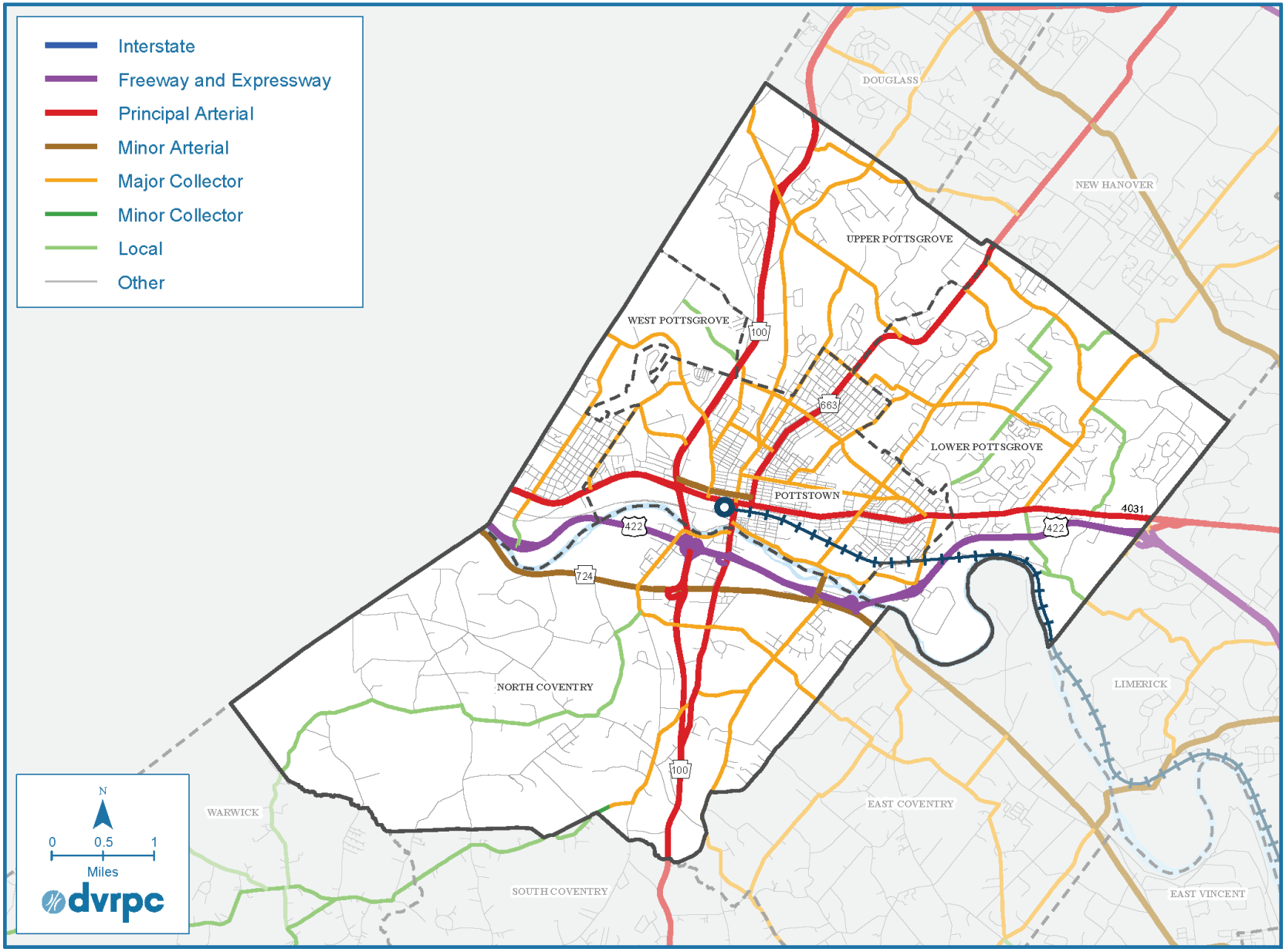
Sources: SEPTA, 2021; DVRPC, 2021

Figure 61: Land Use (Pottstown)



Source: DVRPC, 2015

Figure 62: Federal Functional Classification (Pottstown)



Source: PennDOT, 2019

Demographics

The ACS estimates that there are about 52,300 residents in the three-mile commuter shed area. **Table 23** shows the age distribution. About 23 percent of the population are young children under 18, which is slightly higher than the rest of the county. About 15 percent of the population are senior people older than 65, which is lower than the rest of the county.

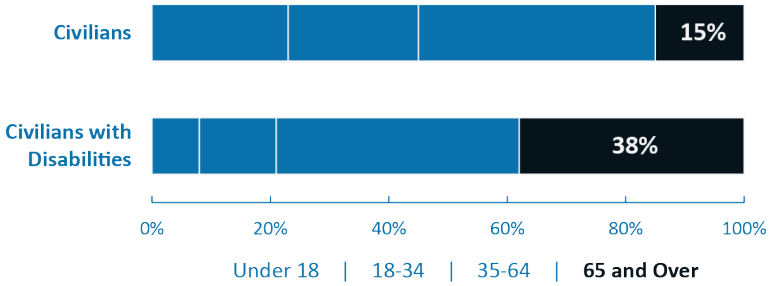
Table 23: Age Distribution (Pottstown)

Age Group	Number of People	Percentage
Under 18	12,044	23%
18-34	11,445	22%
35-64	20,947	40%
65 and Over	7,833	15%
Total	**52,269**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Figure 63 shows the disability status by age group. Although senior people only comprise 15 percent of civilians, they comprise almost 40 percent of civilians with disabilities.

Figure 63: Civilian Disability by Age Group (Pottstown)



Source: ACS 2015-2019, U.S. Census Bureau

Table 24 summarizes the race composition. Minorities make up about 22 percent of the population, which is higher than the rest of the county.

Table 24: Race Composition (Pottstown)

Race	Number of People	Percentage
White	40,800	78%
Black or African American	7,586	15%
Asian	731	1%
Some Other Race	558	1%
Two or More Races	2,594	5%
Total	**52,269**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Household

The ACS estimates that there are about 20,400 households in this area. Household size is summarized in **Tables 25 and 26** by the number of people and the number of workers, respectively. About 8 percent of the households do not have access to a vehicle (**Table 27**).

Table 25: Household by the Number of People (Pottstown)

Household Size	Households	Percentage
1 Person	5,407	27%
2 Persons	6,940	34%
3 Persons	3,141	15%
4 or More Persons	4,904	24%
Total	**20,392**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 26: Household by the Number of Workers (Pottstown)

Number of Workers	Households	Percentage
No Worker	4,732	23%
1 Worker	7,463	37%
2 Workers	6,718	33%
3 or More Workers	1,479	7%
Total	**20,392**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

Table 27: Household Vehicle Availability (Pottstown)

Vehicle Availability	Households	Percentage
No Vehicle	1,540	8%
1 Vehicle	7,405	36%
2 Vehicles	7,360	36%
3 Vehicles	2,769	14%
4 or More Vehicles	1,318	6%
Total	**20,392**	**100%**

Source: ACS 2015-2019, U.S. Census Bureau

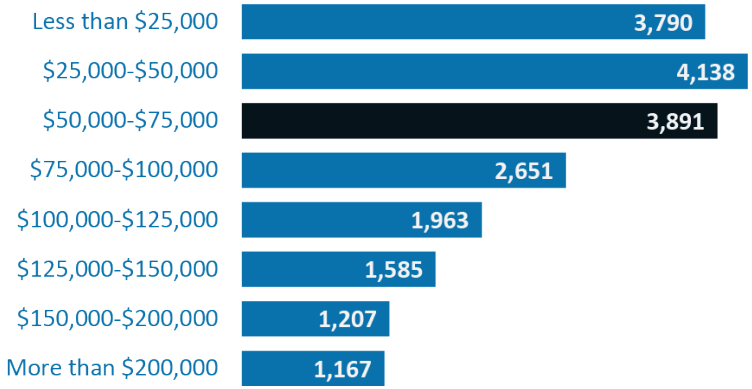
Figure 64 shows the household income. More than 70 percent of the households have an annual income lower than $100,000. The median income falls between $50,000 and $75,000.

Housing Unit

About 9 percent of the housing units in the area are vacant, which is much higher than the rest of the county. **Figure 65** shows the housing unit statistics by tenure by size. Homeowners occupy roughly two-thirds of the non-vacant housing units, which is lower than the rest of the county.

About 17 percent of the renter-occupied units have no vehicle available, and another 51 percent have only one vehicle. In comparison, about 70 percent of the homeowners have at least two vehicles.

Figure 64: Household Income (Pottstown)



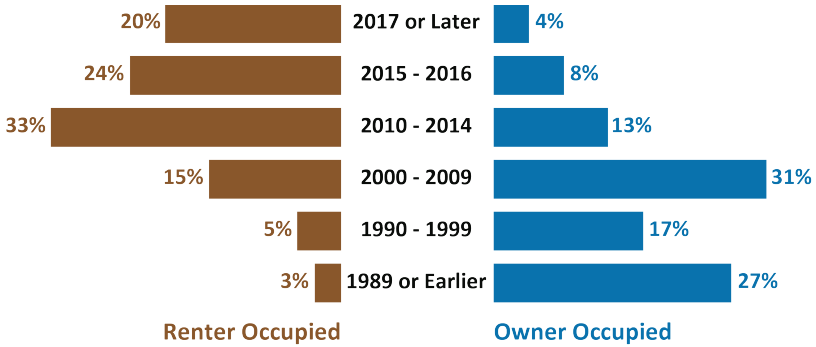
Source: ACS 2015-2019, U.S. Census Bureau

Figure 65: Housing Unit by Tenure by Size (Pottstown)

Source: ACS 2015-2019, U.S. Census Bureau

As shown in **Figure 66**, most homeowners in this area moved into their current unit before 2010. On the other hand, most renters moved in more recently.

Figure 66: Tenure by Moved in Year (Pottstown)

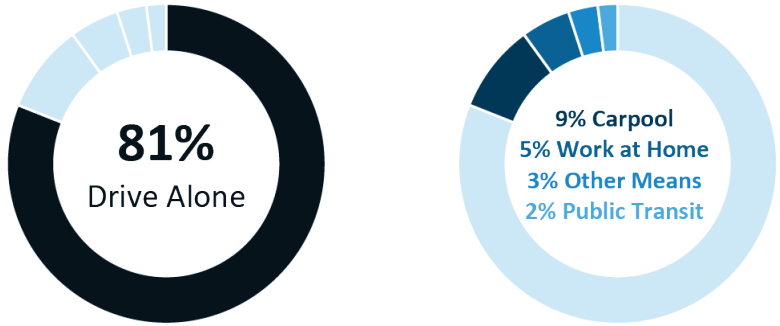


Source: ACS 2015-2019, U.S. Census Bureau

Commuting Characteristics

As illustrated in **Figure 67**, about 81 percent of the commuters drive alone, which is higher than the county average. About 2 percent of the commuters use public transit, which is lower than the county average. Around one-quarter of the transit riders take the regional rail.

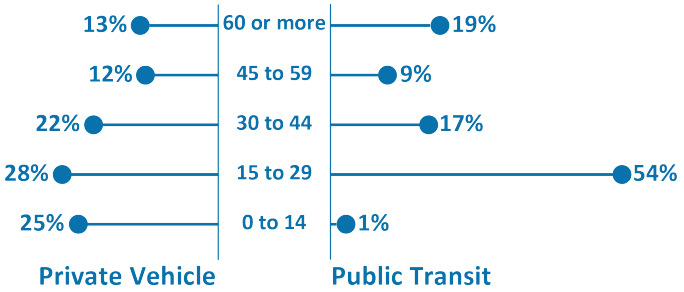
Figure 67: Means of Transportation (Pottstown)



Source: ACS 2015-2019, U.S. Census Bureau

Travel time by mode is summarized in **Figure 68**. The majority of the drivers spend less than 30 minutes on the road. On the other hand, around 45 percent of the transit riders spend more than 30 minutes commuting.

Figure 68: Travel Time by Mode (Pottstown)

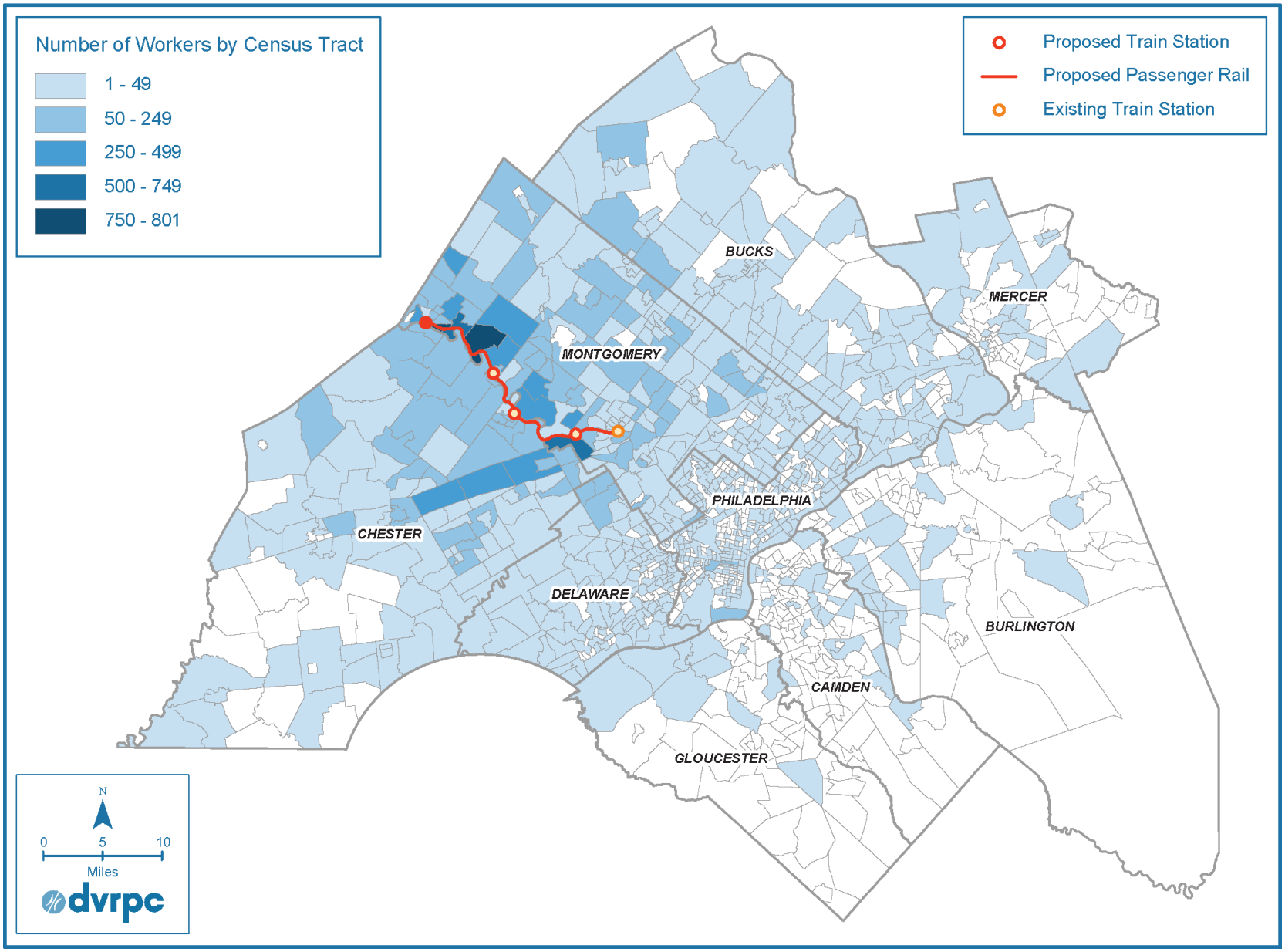


Source: ACS 2015-2019, U.S. Census Bureau

Figure 69 coded each census tract based on the number of station area residents who work in that census tract. The suburban workplace destinations are concentrated locally in Pottstown, Limerick, and Lower Pottsgrove, as well as Upper Merion. Center City Philadelphia destinations are concentrated west of City Hall and in University City, but with a much lower number of commuters than other stations in this study.

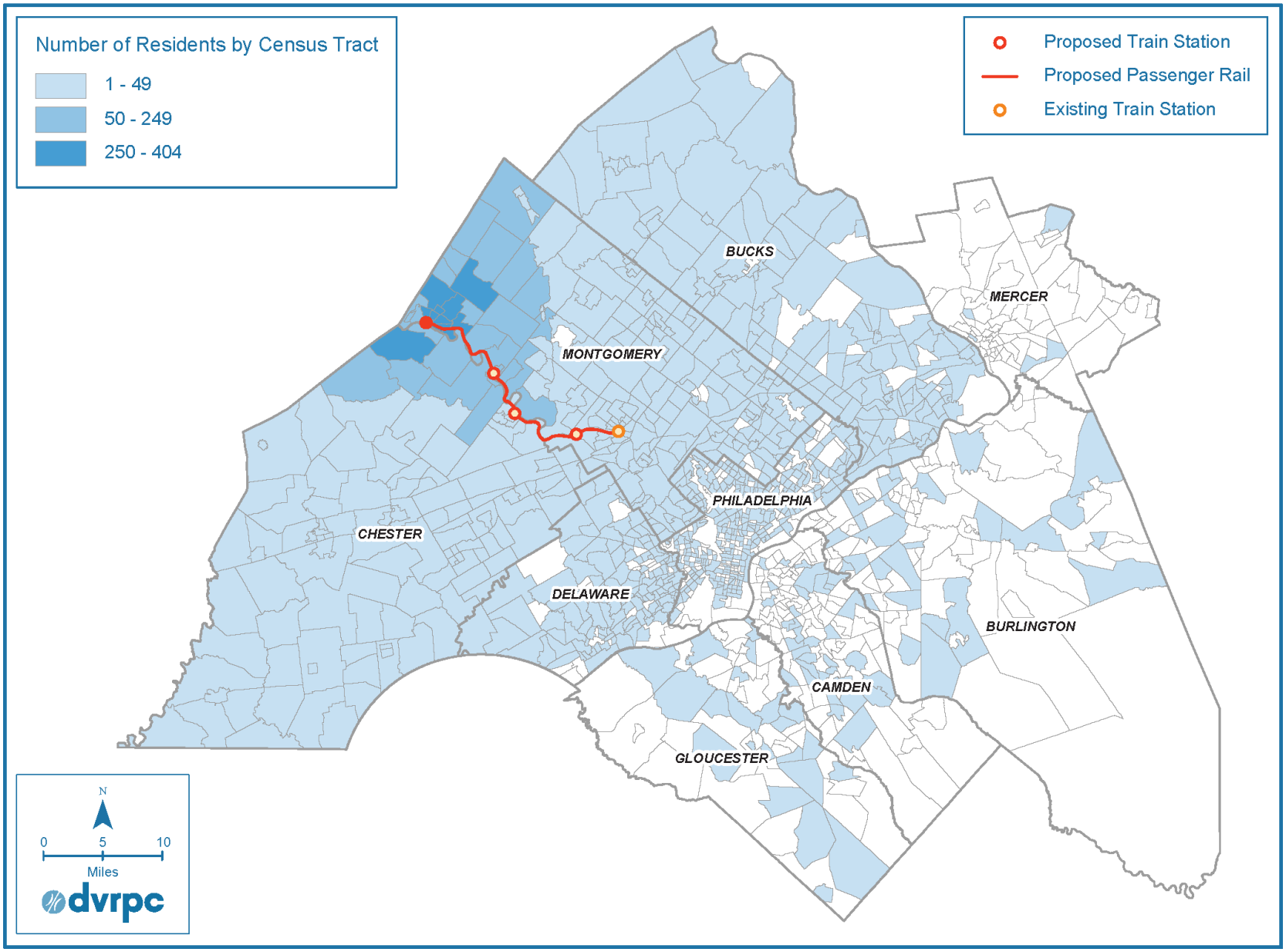
Similarly, **Figure 70** coded each census tract based on the number of station area workers who live in that census tract. Workers in the area are primarily from Pottstown, Lower Pottsgrove, North Coventry, Upper Pottsgrove, and New Hanover.

Figure 69: Workplace Destinations for Residents in the Commuter Shed Area (Pottstown)



Sources: U.S. Census Bureau, 2019; DVRPC, 2021

Figure 70: Residence Origins for Workers in the Commuter Shed Area (Pottstown)



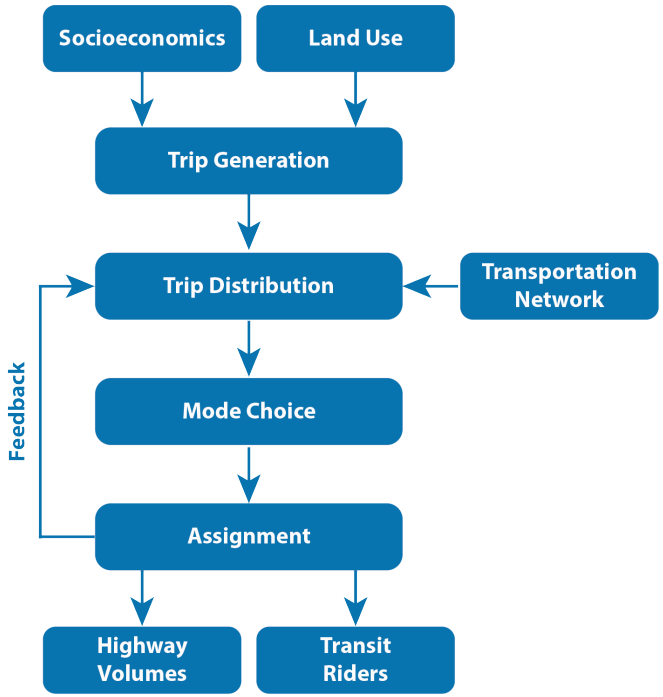
Sources: U.S. Census Bureau, 2019; DVRPC, 2021

CHAPTER 3
RIDERSHIP FORECAST

Travel Demand Model

DVRPC's most recent Travel Improvement Model version 2.3 (TIM 2.3) was used for the ridership forecast. The TIM 2.3 model is a traditional four-step trip-based travel forecasting model that built on PTV VISUM software platform. **Figure 71** shows the flow chart of the model process.

Figure 71: Travel Demand Model Flow Chart



Source: DVRPC, 2021

A screenshot of the model is shown in **Figure 72**. The model contains approximately 3,600 zones, 219,000 nodes, and 590,000 links. It includes the highway and the public transit systems in DVRPC's nine-member counties, as well as an extended area of 16 counties in Pennsylvania, New Jersey, Delaware, and Maryland, where a less detailed transportation network is modeled. It represents transportation on an average weekday, which is disaggregated into four time periods: Morning Peak (6:00 AM to 10:00 AM), Midday (10:00 AM to 3:00 PM), Afternoon Peak (3:00 PM to 7:00 PM), and Evening (7:00 PM to 6:00 AM).

Figure 72: Transportation Network in the Travel Demand Model

Source: DVRPC, 2021

The highway network was built using the Open Street Map. The transit network was developed by importing data from the General Transit Feed Specification (GTFS). The transit network represents operational characteristics of the regional transit system, including route alignment, stop locations, service schedules, and fare information.

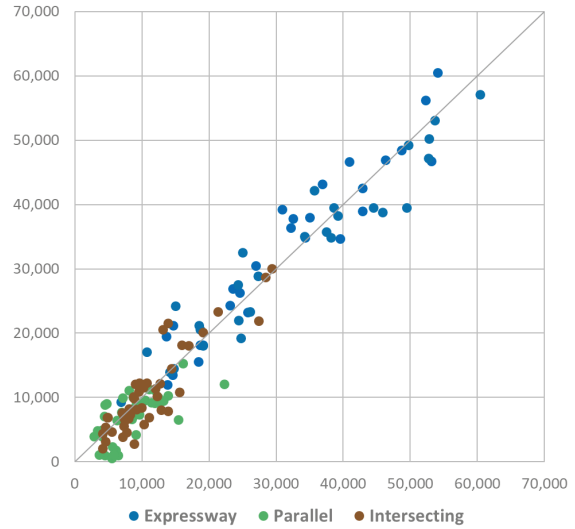
DVRPC maintains and uses the model to perform a variety of important functions, such as the development of long- and short-range plans and programs, highway traffic studies, air quality conformity demonstrations, member government transportation studies, and FTA New Starts programs.

Model Calibration

To reflect the existing conditions, a 2015 base network was developed and calibrated. Over 100 traffic counts were collected on nearby expressways, such as US 422, US 202, I-76 and I-276, as well as on local roads that parallel or intersect the passenger rail corridor, such as PA 724, High Street, Ridge Pike, and Hanover Street. These counts were compared to the outputs of the model. The primary technique employed in the calibration process was adjusting model parameters, such as link type, free flow speed, and capacity, to bring the estimated volumes on the roads much closer to the traffic counts.

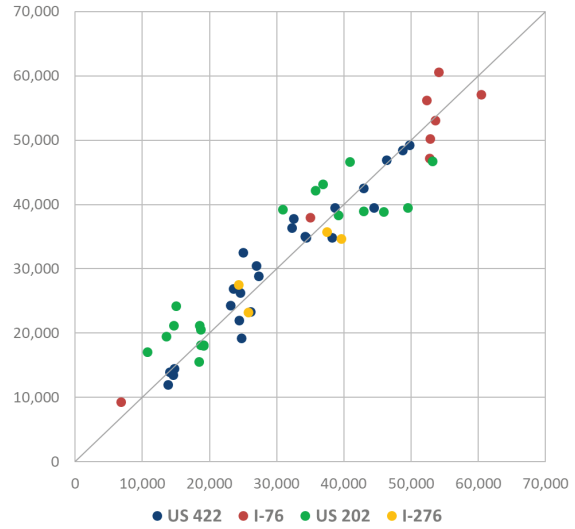
The calibration result of the highway traffic counts, including expressways, parallel roads, and intersecting roads, is shown in **Figure 73**. The calibration result of expressways by facilities is shown in **Figure 74**. The overall difference is about 2 percent lower.

Figure 73: Highway Calibration Result



Source: DVRPC, 2021

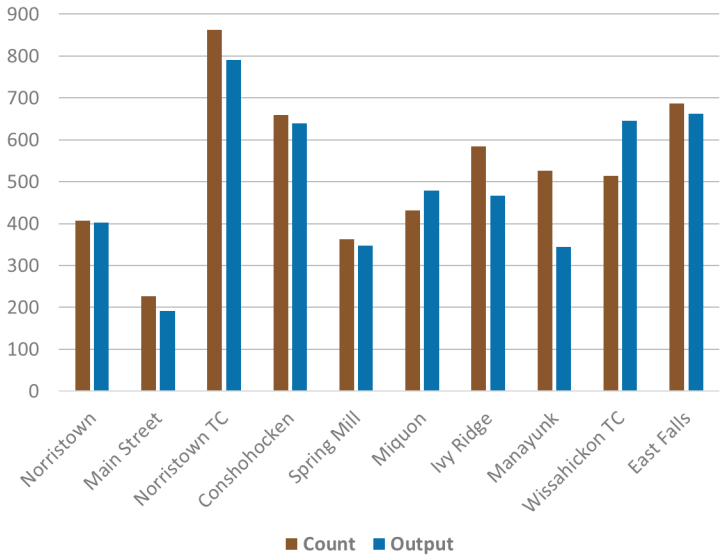
Figure 74: Expressway Calibration Result



Source: DVRPC, 2021

Transit ridership on the Manayunk/Norristown line was calibrated by adjusting the transit connector times. Transit connector times in the base regional model are determined by an assumed walk speed of 3.1 miles per hour. This provides reasonable walk times in general and was fine-tuned along the line. The calibration result is shown in **Figure 75**. The overall difference between the model outputs and observed counts is about 3 percent lower.

Figure 75: Manayunk/Norristown Line Calibration Result



Source: DVRPC, 2021

2030 No Build Scenario

The 2030 model was prepared for the future year No Build scenario, which includes the population and employment growth from the base year of 2015 to 2030, as well as land use projections and planned highway and transit improvements based on DVRPC Board-adopted 2045 Long-Range Plan with a horizon year of 2030. Major projects in the vicinity of the study area include US 422 Bridge and PA 23 Interchange (River Crossing) improvements; Lafayette Street extension from Barbadoes Street to Diamond Avenue; and Henderson/Gulph Road widening near I-76 ramps. Chester and Montgomery counties are expected to remain the fastest growing counties in the DVRPC region. **Table 28** summarizes the growth rate of each station's three-mile commuter shed area. The Phoenixville Station area is projected to experience the highest growth rate in both population and employment.

Table 28: Growth Rate between 2015 and 2030

Station	Population Growth	Employment Growth
Norristown	8.5%	11.0%
Valley Forge	8.6%	8.8%
Phoenixville	19.1%	19.4%
Royersford	16.5%	13.3%
Pottstown	11.7%	11.8%

Source: DVRPC, 2021

2030 Build Scenarios

As shown in **Table 29**, two types of service were proposed: shuttle service between Pottstown and Norristown and through service between Pottstown and Philadelphia.

The first three scenarios are shuttle service between Pottstown and Norristown with a transfer at the Norristown Transportation Center. Scenarios 1 and 2 only require two diesel train sets to operate, while Scenario 3 requires three sets.

The last three scenarios are through service between Pottstown and Philadelphia, which require the use of dual-power equipment to run on diesel west of Norristown and on electricity east of Norristown in order to go through the Center City Commuter tunnel. Three train sets are required in Scenario 4 to provide peak

hour AM inbound and PM outbound service with three trips in each direction. No reverse commuter train is available. Scenarios 5 and 6 require four train sets to provide seven round trips to Center City Philadelphia. The difference between scenarios 5 and 6 is that the latter one adds a late-night shuttle service between Norristown and Pottstown.

Table 29: Scenario Description

#	Shuttle Service between Pottstown and Norristown	Through Service between Pottstown and Philadelphia
1	8 Round Trips	
2	10 Round Trips	
3	13 Round Trips	
4		3 Round Trips
5		7 Round Trips
6	1 Round Trip (Late Night)	7 Round Trips

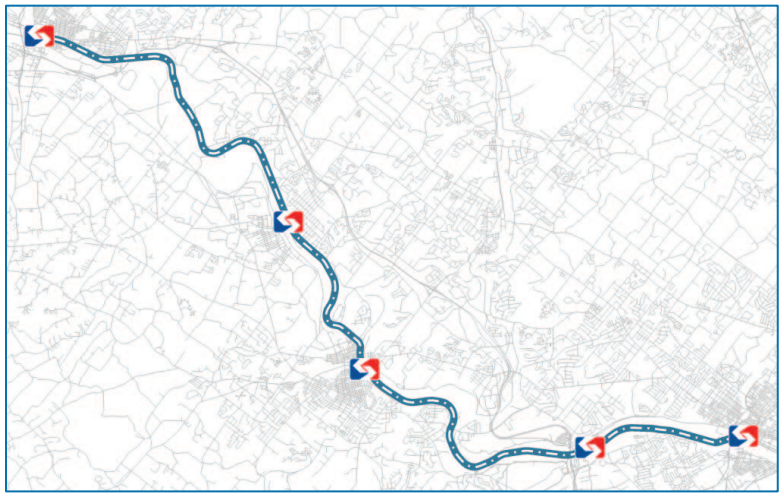
Source: SEPTA, 2021

The new passenger rail was coded into the model, including the rail alignment, train stations, and park-and-ride lots. A screenshot of the rail extension in the regional model is shown in **Figure 76**. Detailed parking information was entered into the model. Chester and Montgomery counties helped determine the potential number of parking spaces at each station as **Table 30** shows. There is no plan to expand the parking in the Norristown Transportation Center at the moment, so the number of parking spaces in the model remained unchanged.

SEPTA developed the detailed timetables for the Build scenarios based on the time slot availability on the train tracks to accommodate the new service, ensuring that it does not conflict with the existing Manayunk/Norristown line or other regional rail lines, especially at the 16th Street junction.

The timetables were incorporated into the Build networks, and the regional models were run to determine the ridership for each scenario. The model accounts for the transfer penalty during the transit assignment step. It is reflected in the factors that are applied to the transit travel impedance and the perceived journey time. **Tables 31 through 33** summarize the ridership results by station by time of the day. The ridership numbers in the tables are calculated by using the average of boardings and alightings.

Figure 76: Modeled Passenger Rail Extension



Source: DVRPC, 2021

Table 30: Parking Specification

Station	Parking Spaces
Norristown	693
Valley Forge	75
Phoenixville	350
Royersford	175
Pottstown	150

Source: CCPC, 2021; MCPC, 2021

Table 31: Ridership Result of Existing and No Build Scenarios

Station	Existing					2030 No Build				
	AM	MD	PM	NT	Daily	AM	MD	PM	NT	Daily
Norristown	286	104	199	86	**675**	313	101	234	93	**741**

Source: DVRPC, 2021

Table 32: Ridership Result of Shuttle Service Scenarios

Station	Scenario 1					Scenario 2					Scenario 3				
	Shuttle Service: 8 Round Trips					Shuttle Service: 10 Round Trips					Shuttle Service: 13 Round Trips				
	AM	MD	PM	NT	Daily	AM	MD	PM	NT	Daily	AM	MD	PM	NT	Daily
Norristown	326	97	387	79	**889**	328	116	387	88	**919**	410	116	406	87	**1,019**
Valley Forge	92	0	171	0	**263**	92	27	171	15	**305**	135	28	186	16	**365**
Phoenixville	192	0	188	0	**380**	192	26	188	10	**416**	262	26	175	10	**473**
Royersford	79	0	81	0	**160**	79	7	81	7	**174**	132	7	72	7	**218**
Pottstown	176	0	126	0	**302**	176	4	126	5	**311**	247	4	103	6	**360**
Total	**865**	**97**	**953**	**79**	**1,994**	**867**	**180**	**953**	**125**	**2,125**	**1,186**	**181**	**942**	**126**	**2,435**

Source: DVRPC, 2021

Table 33: Ridership Result of Through Service Scenarios

Station	Scenario 4					Scenario 5					Scenario 6				
	Through Service: 3 Round Trips					Through Service: 7 Round Trips					Through Service: 7 Round Trips + 1 Shuttle Trip				
	AM	MD	PM	NT	Daily	AM	MD	PM	NT	Daily	AM	MD	PM	NT	Daily
Norristown	374	98	306	81	**859**	391	98	383	81	**953**	391	98	383	150	**1,022**
Valley Forge	139	0	143	0	**282**	182	0	243	0	**425**	182	0	243	20	**445**
Phoenixville	68	0	168	0	**236**	232	0	304	0	**536**	232	0	304	15	**551**
Royersford	55	0	161	0	**216**	174	0	234	0	**408**	174	0	234	6	**414**
Pottstown	104	0	194	0	**298**	221	0	260	0	**481**	221	0	260	7	**488**
Total	**740**	**98**	**972**	**81**	**1,891**	**1,200**	**98**	**1,424**	**81**	**2,803**	**1,200**	**98**	**1,424**	**198**	**2,920**

Source: DVRPC, 2021

Scenario 6 achieves the highest ridership. Overall, the through service is more attractive than the shuttle service, because it does not require a transfer, which saves waiting time. Frequent service is preferable for both types of services.

The off-peak services in scenarios 2 and 3 would attract about 8 percent of the daily riders. Scenario 6 offers one late-night shuttle service, and it would attract 3 percent of the daily riders. Despite the fact that peak period ridership accounts for the majority of daily trips, the off-peak service may provide riders with additional flexibility.

Of the rail extension riders, about 80 percent to 87 percent of the shuttle service riders would take the train to Center City Philadelphia, while 85 percent to 90 percent of the through service riders would take advantage of the convenient one-seat rides to access their Center City destinations. Reverse commuters account for 1 percent of the through-service riders and 6 percent of the shuttle-service riders. Approximately 8 percent to 14 percent of the rail extension riders would get off the train at the Norristown Transportation Center, either to access the Norristown destinations or to transfer to the NHSL.

The daily ridership on the Paoli/Thorndale Regional Rail line decreased by 120 to 140, indicating that some existing customers may switch to the new service because it is more convenient. The ridership on buses 125 and 99 decreased by 10 to 50, indicating that a small number of passengers would switch to the rail service.

Table 34 shows the current and projected ridership on several outlying stations of other regional rail lines to provide some regional context. They have similar patterns of land use and development. The 2019 SEPTA transit count data were used to reflect the pre-pandemic situation.

Table 34: Ridership of Comparable Stations

Station	2019 Count	2030 Projection
Doylestown	280	272
Thorndale	420	433
Downingtown	344	512
West Trenton	225	247
Claymont	511	523
Newark (DE)	341	369

Source: SEPTA, 2019; DVRPC, 2021

As reviewed in Chapter 1, ridership forecast studies between 2001 and 2009 were primarily based on the SVM study, which proposed a significantly more frequent service, resulting in a greater number of riders. Two recent studies sponsored by DeMutis and PennDOT are more comparable.

The DeMutis study, conducted by Thomas E. Frawley Consulting, proposed a through service with three new stations: Phoenixville, Schuylkill, and King of Prussia. To reflect the service difference, the study reduced the ridership numbers in the SVM study to 25 percent. It also considered population changes. Although different in the selection of stations and service frequency, the study was similar to Scenario 6 in this study. The daily ridership was projected to be 807 (Phoenixville), 475 (Schuylkill), and 700 (King of Prussia). While the direct station-to-station comparison does not align perfectly, the combined total ridership west of Norristown is consistent in both two studies, with 1,898 in this study, and 1,982 in theirs.

The PennDOT study, conducted by WSP, used the LEHD data, and applied some factors that were derived from similar rail services across the country to forecast the ridership. Although the service coverage was different, the through service option

resembled Scenario 5 in this study. **Table 35** shows the comparison between the two studies. Even with different methodologies, the ridership results for each station were consistent. The results of Scenario 5 fell between the upper and lower boundaries predicted by WSP and were fairly close to the average projection.

Table 35: Comparison with WSP Study

Station	DVRPC Study	WSP Study		
	Scenario 5	Low	High	Average
Valley Forge	425	301	611	456
Phoenixville	536	292	553	423
Royersford	408	251	492	372
Pottstown	481	394	715	555

Source: DVRPC, 2021; WSP, 2020

Forecast Analysis

Transit travel times from each new station to Center City Philadelphia zones were collected by using the shortest path search function embedded in the VISUM software. The analysis considered zones roughly bounded by Spring Garden Street, South Street, the Schuylkill River, and the Delaware River. The travel time includes the time spent on the train, the time spent walking to and from the station, and the time spent waiting for the transfer. **Table 36** compares the average travel times to Center City Philadelphia zones with and without the rail extension.

For shuttle services, travel time reduction ranges from 6 percent to 20 percent. The Royersford and Pottstown station areas have the greatest reduction in travel time to Center City Philadelphia. For through service, travel time reduction ranges from 22 percent to 33 percent, which makes the service more attractive. It is consistent with the ridership results as it can be observed that scenarios 5 and 6 attract much more riders compared to the shuttle service scenarios.

Table 36: Transit Travel Time Comparison (h:mm)

Station	No Extension	Shuttle Service	Through Service
Valley Forge	1:20	1:15	1:00
Phoenixville	1:30	1:25	1:10
Royersford	1:50	1:30	1:15
Pottstown	2:10	1:45	1:30

Source: DVRPC, 2021

Similarly, the average travel times by private vehicle to Center City Philadelphia during peak hours were collected. **Table 37** summarized the comparison results. The shuttle service is almost as fast as driving, and the through service is slightly faster.

Table 37: Travel Time Comparison between Private Vehicle and Rail Service (h:mm)

Station	Private Vehicle	Shuttle Service	Through Service
Valley Forge	1:00	1:15	1:00
Phoenixville	1:15	1:25	1:10
Royersford	1:20	1:30	1:15
Pottstown	1:30	1:45	1:30

Source: DVRPC, 2021

Changes in transit service and coverage also have an impact on the ability of people to travel by transit throughout the region. Extending passenger rail service not only affects how quickly people reach their destinations from the station areas, but also changes transit access. The VISUM software has a tool to create isochrone maps, which can be used to visualize changes in transit

travel time as accessibility. It provides a way of displaying travel time from an origin to all possible destinations.

The isochrones maps in **Figures 77 to 88** are based on the travel time from each station. Each set of isochrones shows similar patterns with subtle differences.

No Build isochrones show the accessibility of the transit system without a rail extension. The shuttle service isochrones show a slightly larger beige area near each station. This means that a larger area is accessible within 5 or 10 minutes by transit. The accessible areas expend further into Berks County. The through service isochrones show noticeably shorter travel times to destinations like Center City Philadelphia. They also show the largest geographical area that can be reached in less than two hours.

The ridership forecast presented in the report covers a 15-year planning horizon and the models are based on the Board-adopted population and employment forecasts. Unforeseen events or changes in market conditions may have an effect on future land use and travel patterns. Ridership may deviate from the forecast for several reasons.

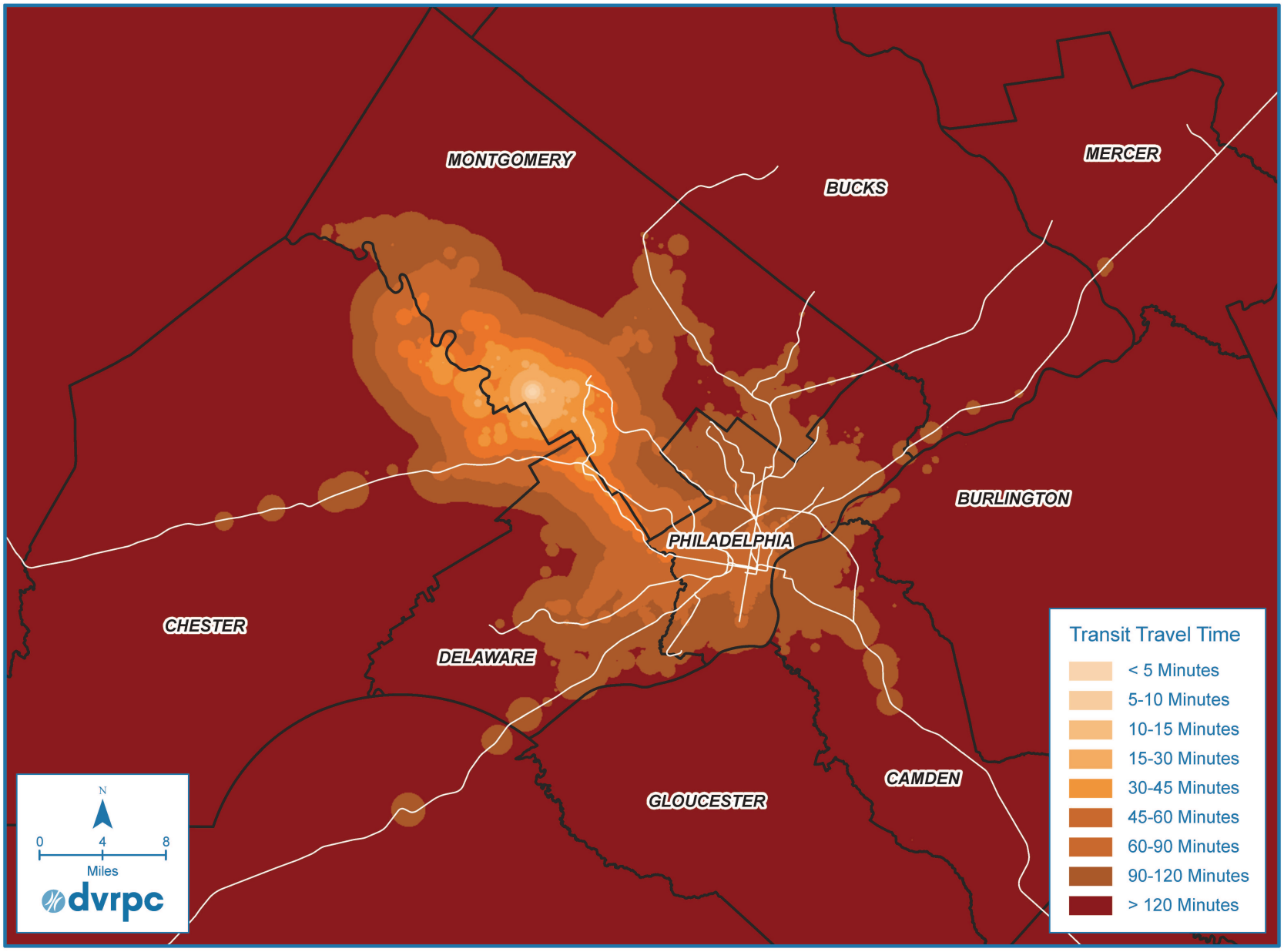
First, the long-term impact of the pandemic is still unknown. Ever since the onset of the pandemic, the regional rail ridership has decreased dramatically.[18] Commuters are slowly returning to their Center City offices, but it could take a long time to recover. The model here represents the pre-pandemic conditions and the future projection assumes that the economy bounces back once the pandemic ends. However, the travel pattern and behavior may change. Alternative work arrangements, such as telework and compressed work schedules, already started to reduce the demand even before the pandemic. Between 2015 and 2018, SEPTA's overall ridership decreased (the competing services such as Uber and Lyft contributed to the decrease as well). The pandemic simply accelerated the trend. Many companies are now adjusting their remote work policies to allow for greater flexibility in the post-pandemic era, which may reduce the passenger demand in the long run. Some companies are exploring options to provide modern and flexible workspaces. Pfizer for example, is looking to sell and rent back its 340-acre campus in Collegeville, where 2,000 employees were based prior to the pandemic. The place of employment and residence may shift regionally.

Second, bus feeder service to pick up passengers in nearby communities could potentially attract more riders to the passenger rail. Supplemented strategically, it could enhance the overall quality of service.

Third, Amtrak recently released its vision for expanding rail service across the country. The "Reading-Philadelphia-New York City" line is proposed to improve the service in the Northeast region with three round trips daily, overlapping some segments of the service extension analyzed in this report. Between Reading and Philadelphia, the proposed service would stop in Pottstown, Phoenixville, King of Prussia, and Norristown.[19] If implemented, it resembles the operation of Amtrak Keystone Service and SEPTA Paoli/Thorndale line, and could potentially divert some passengers.

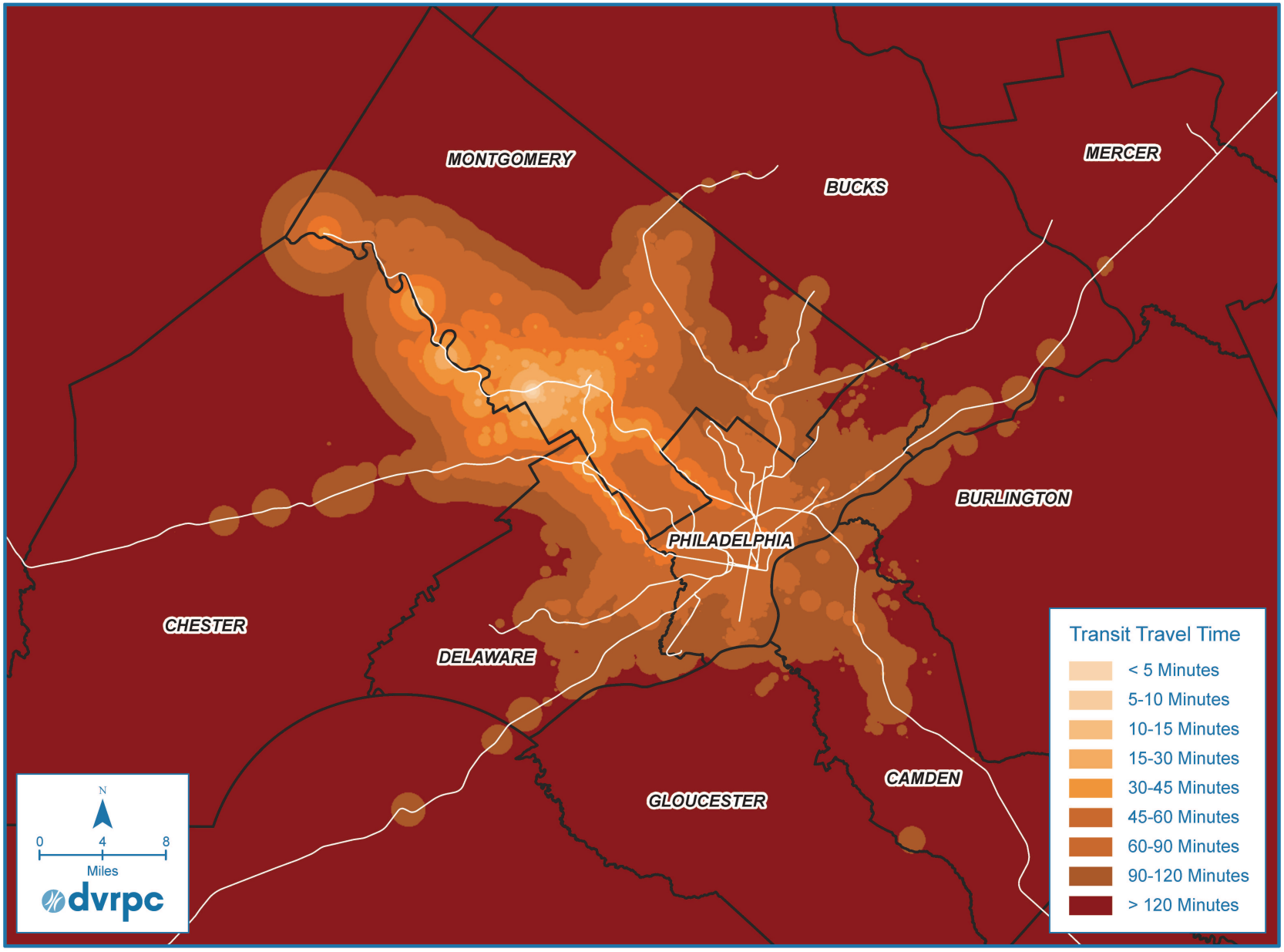
Lastly, other factors such as the fluctuations in the fuel price may influence the future ridership. The technological advancement of autonomous vehicles could also bring in changes to the future mobility and ridership.

Figure 77: Isochrone Map of the Valley Forge Station (No Build)



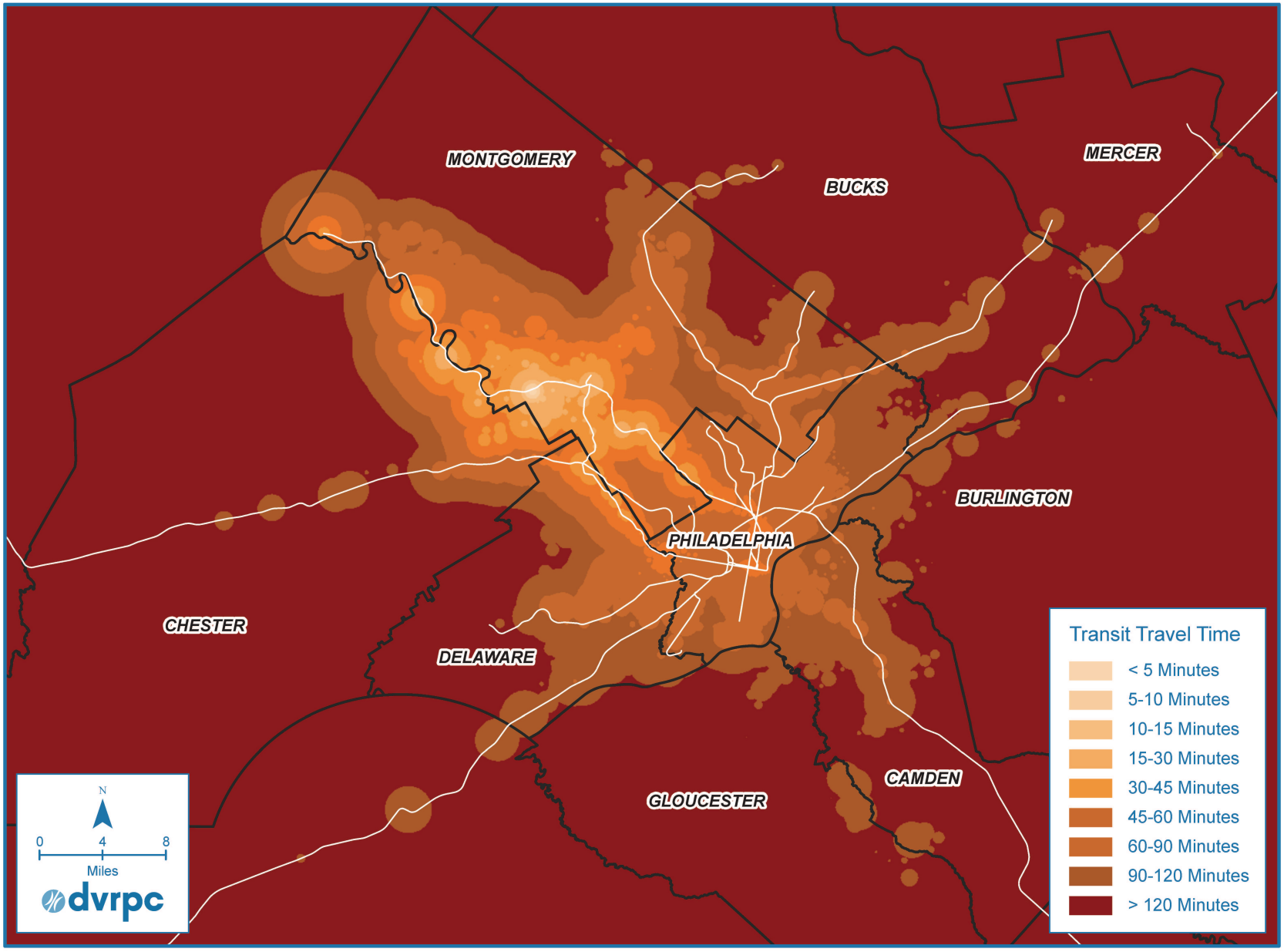
Source: DVRPC, 2021

Figure 78: Isochrone Map of the Valley Forge Station (Shuttle Service)



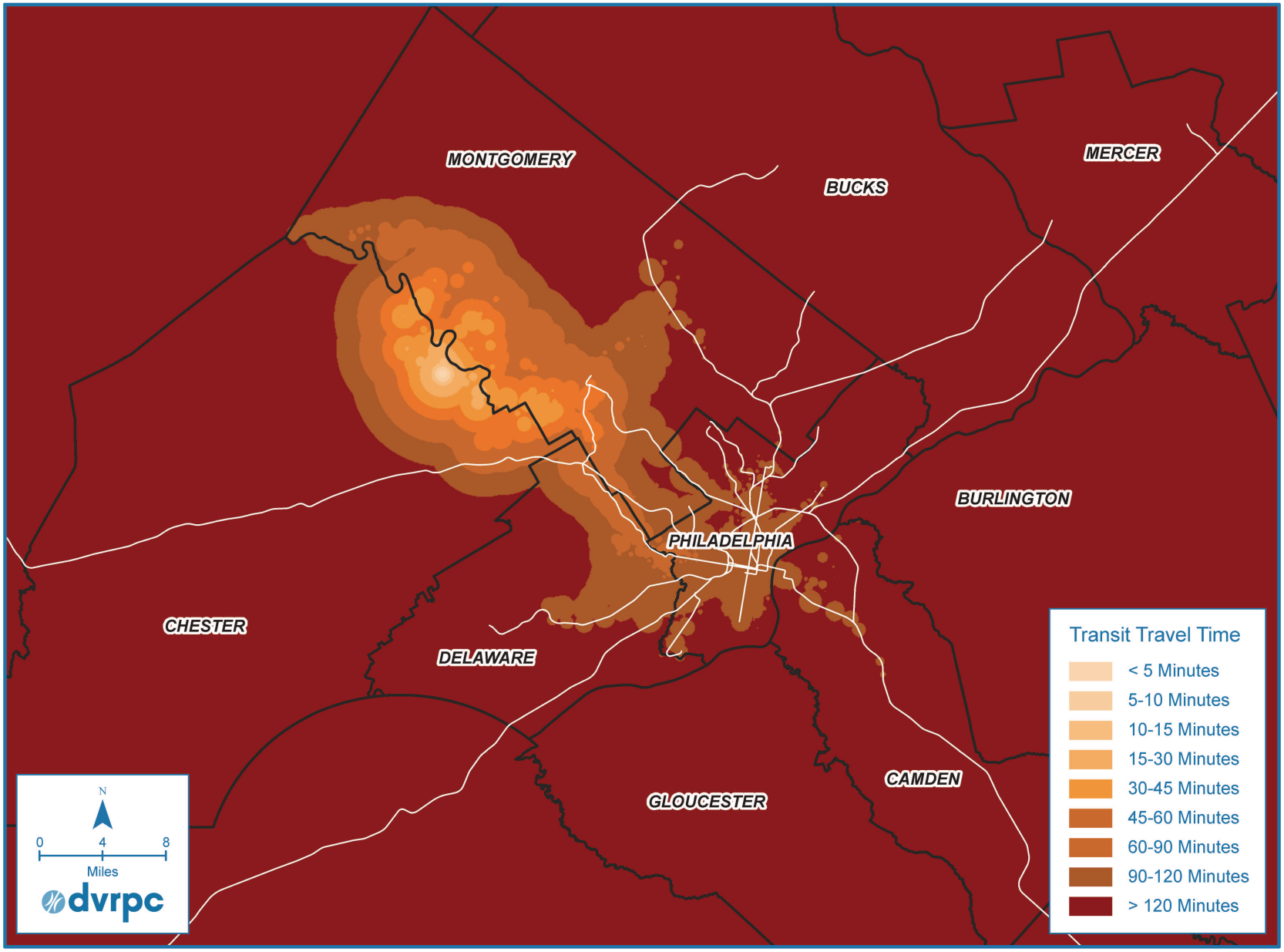
Source: DVRPC, 2021

Figure 79: Isochrone Map of the Valley Forge Station (Through Service)



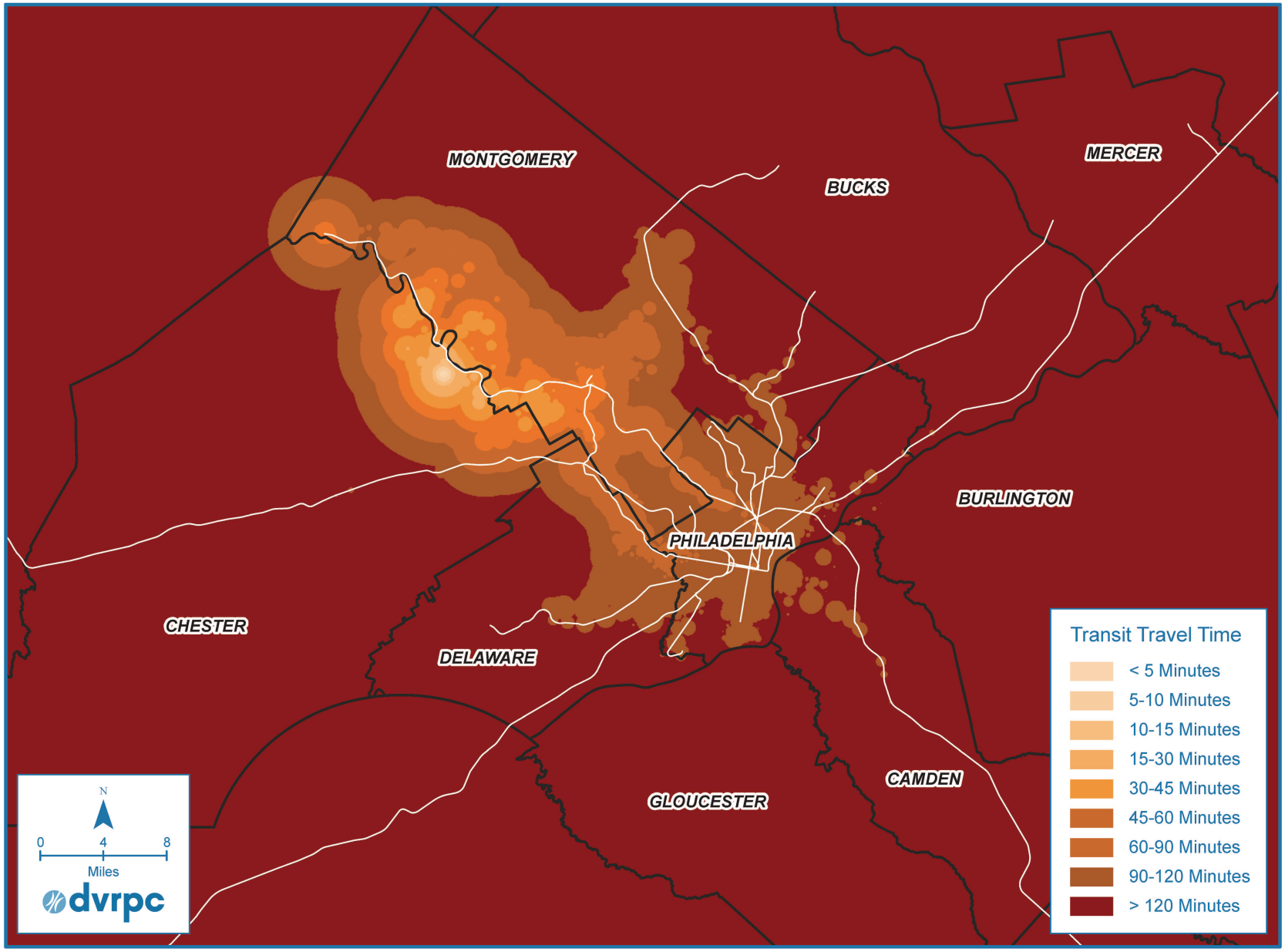
Source: DVRPC, 2021

Figure 80: Isochrone Map of the Phoenixville Station (No Build)



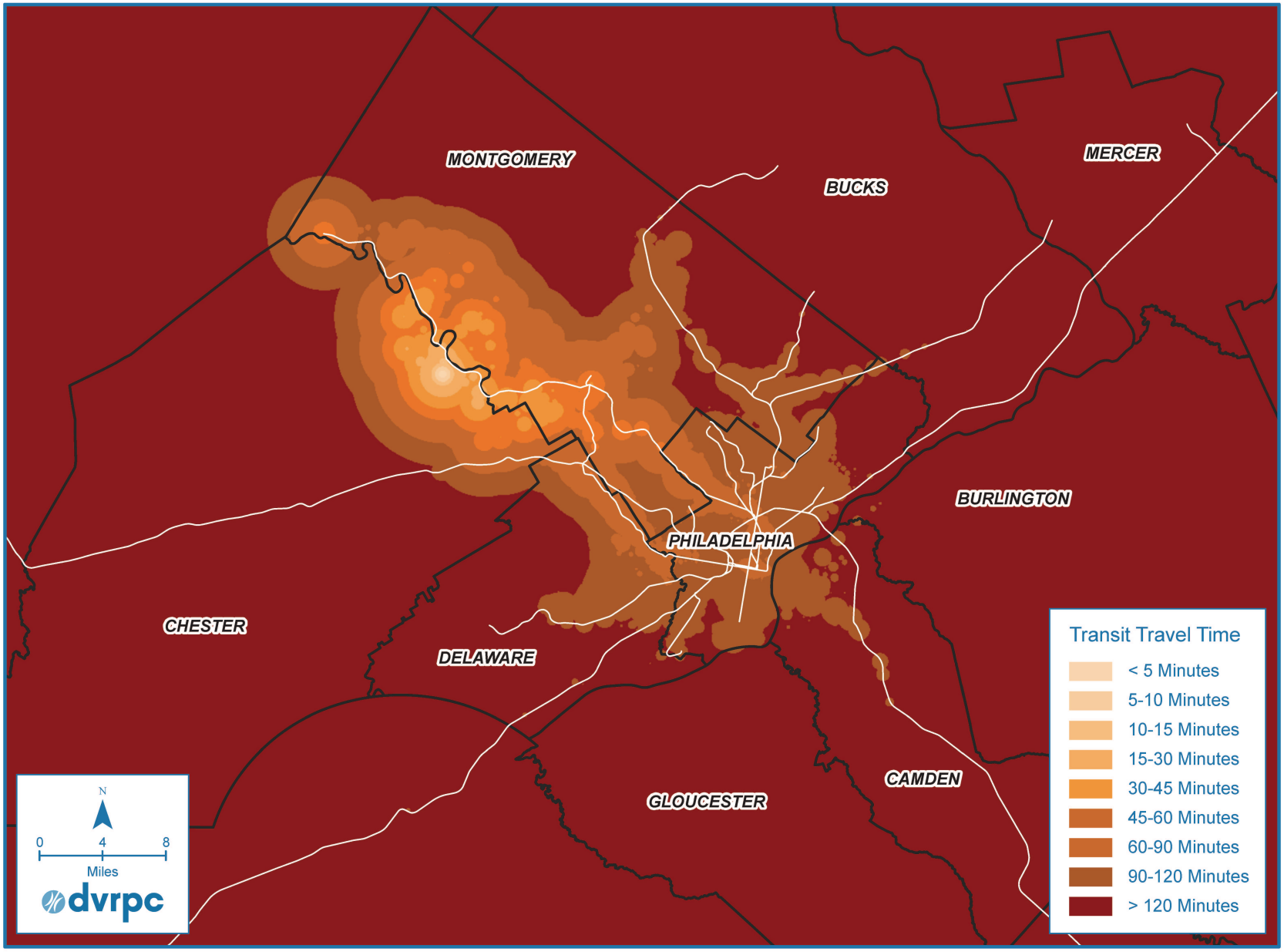
Source: DVRPC, 2021

Figure 81: Isochrone Map of the Phoenixville Station (Shuttle Service)



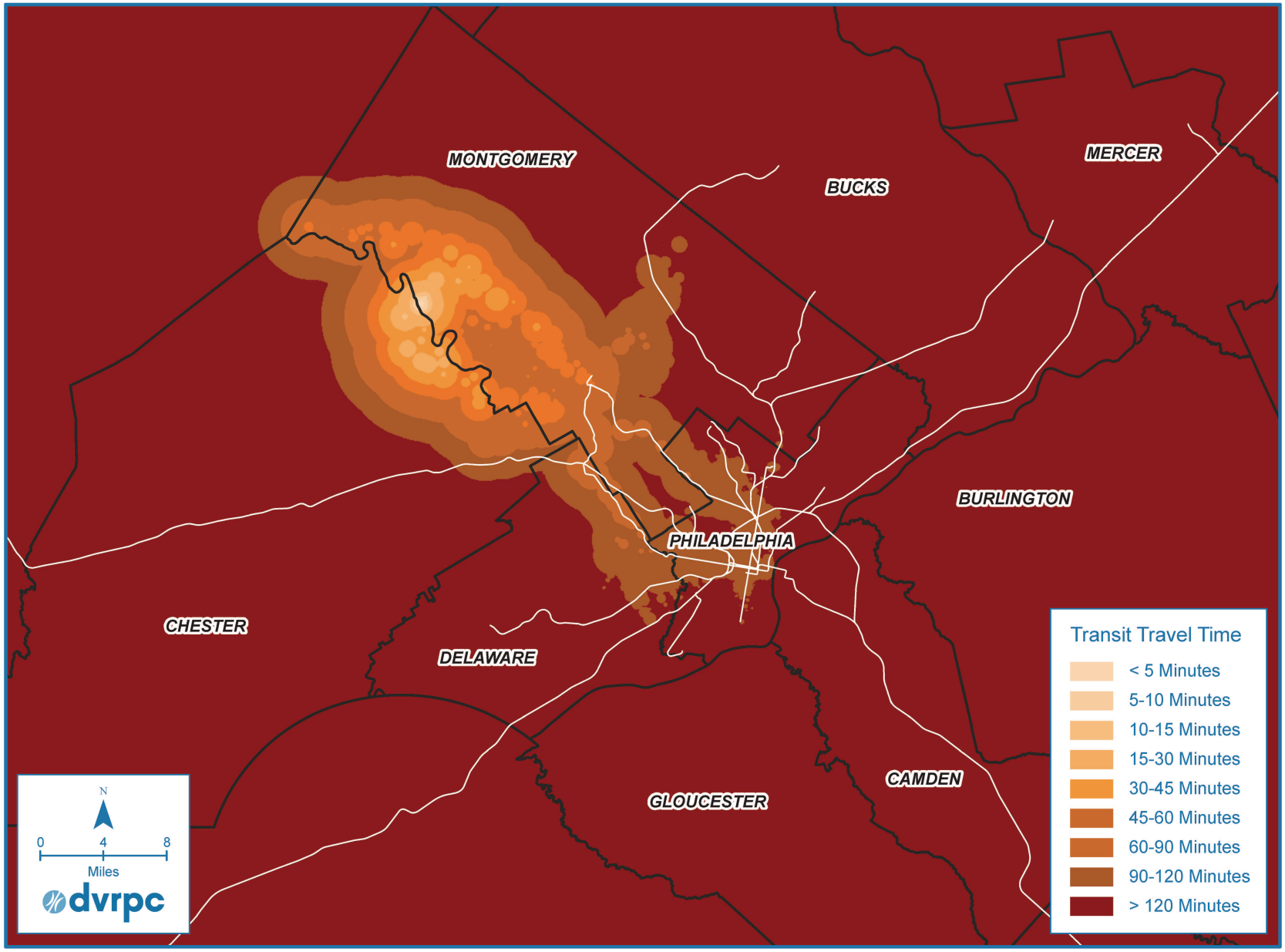
Source: DVRPC, 2021

Figure 82: Isochrone Map of the Phoenixville Station (Through Service)



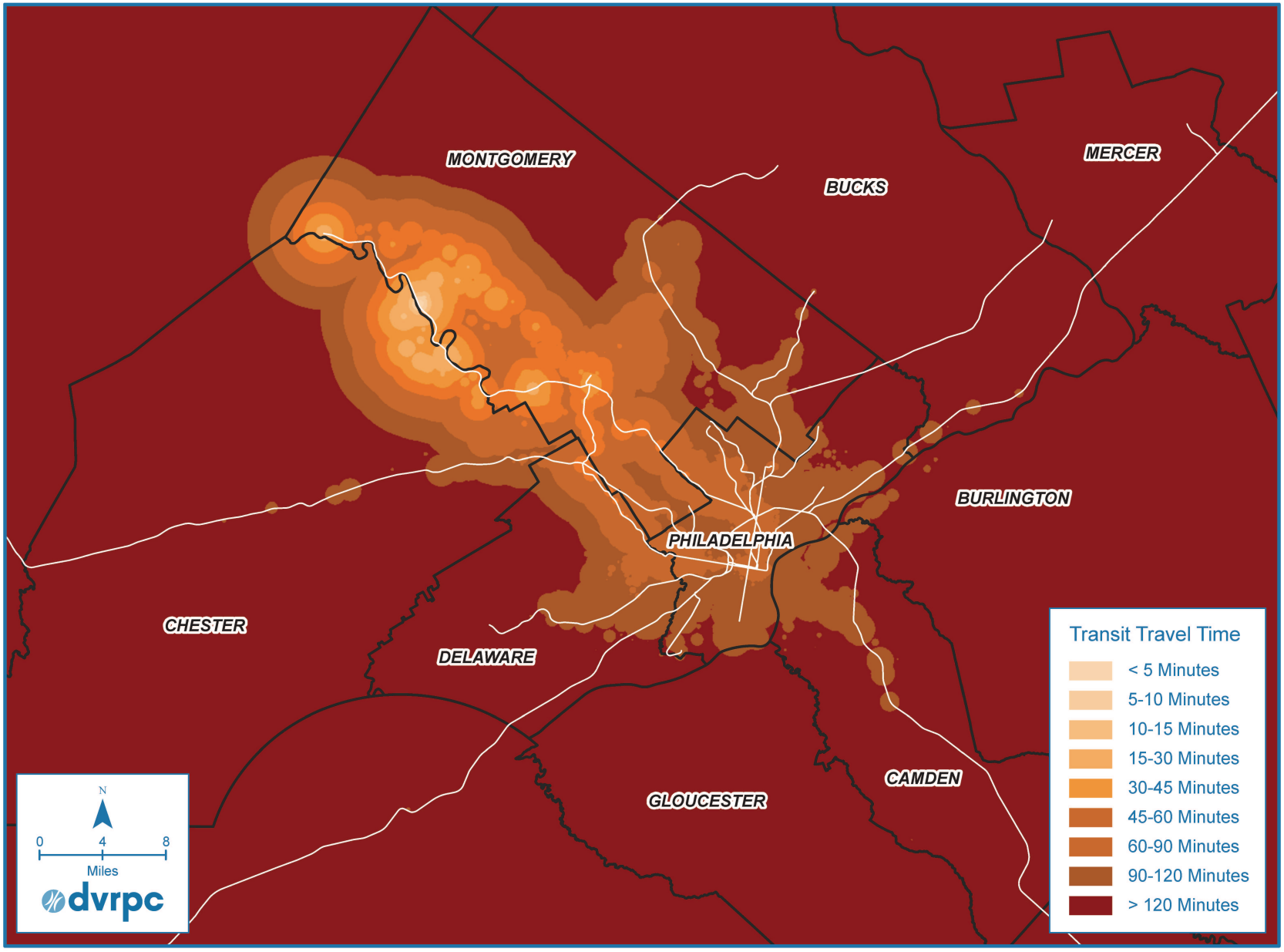
Source: DVRPC, 2021

Figure 83: Isochrone Map of the Royersford Station (No Build)



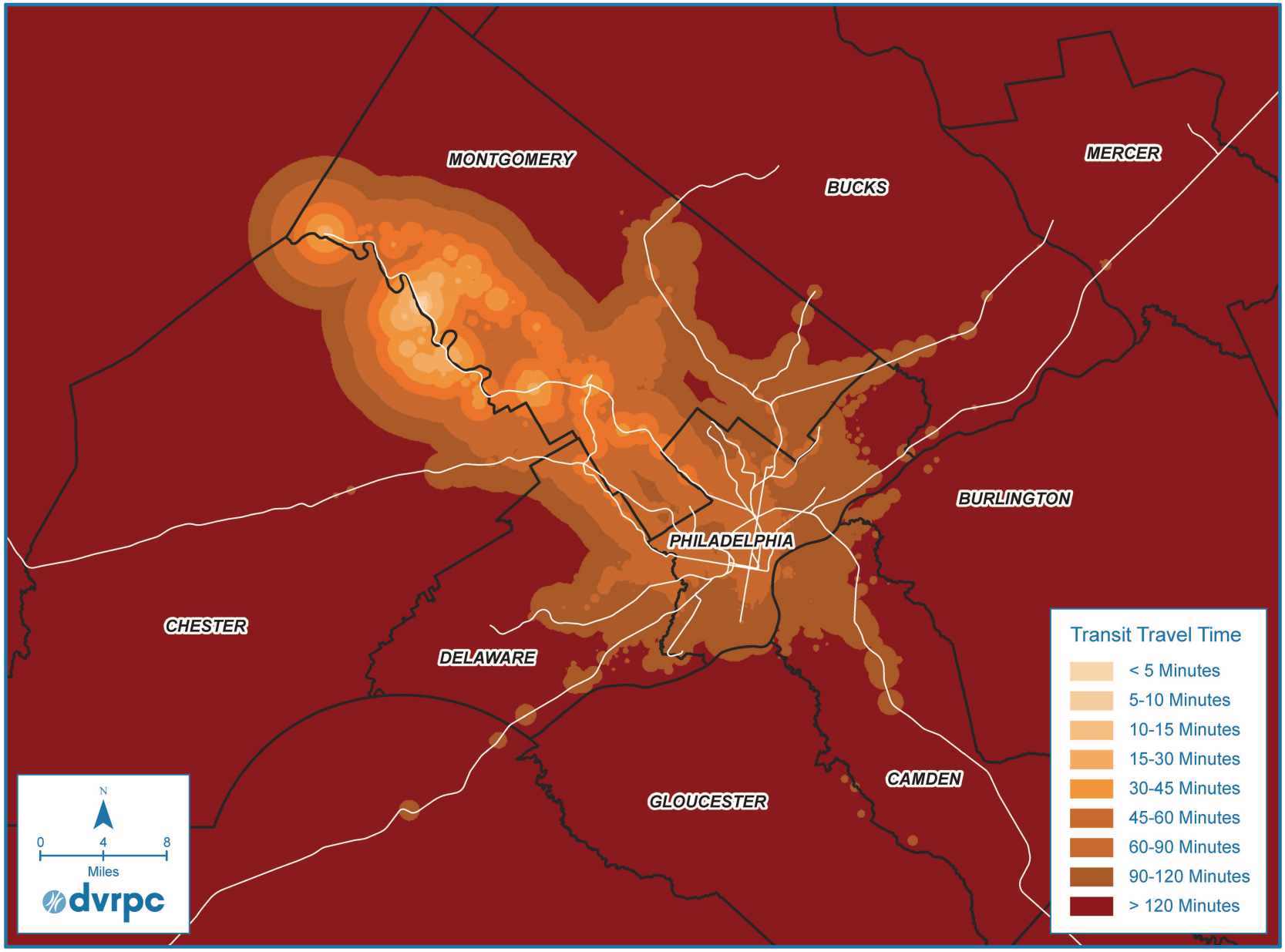
Source: DVRPC, 2021

Figure 84: Isochrone Map of the Royersford Station (Shuttle Service)



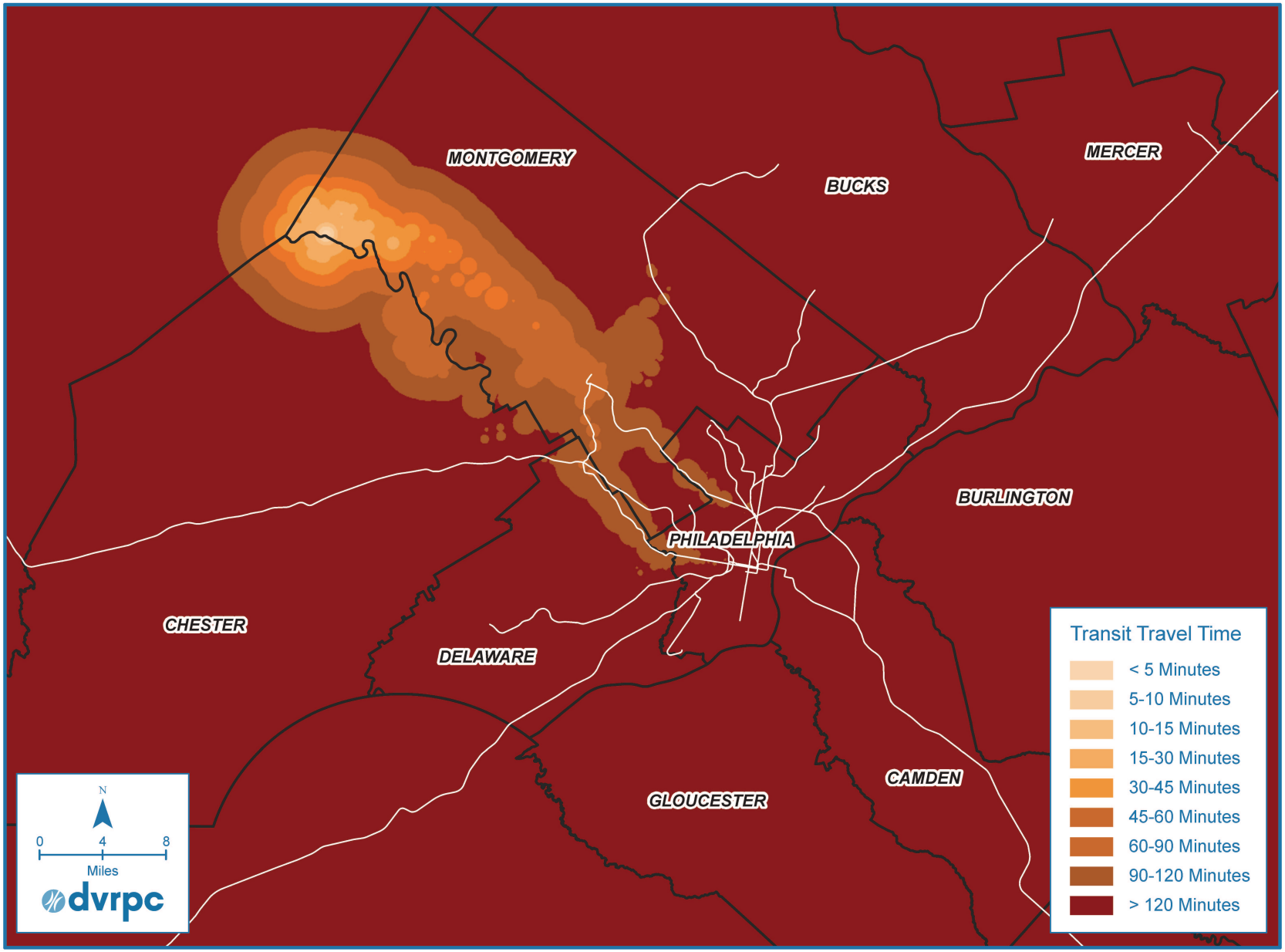
Source: DVRPC, 2021

Figure 85: Isochrone Map of the Royersford Station (Through Service)



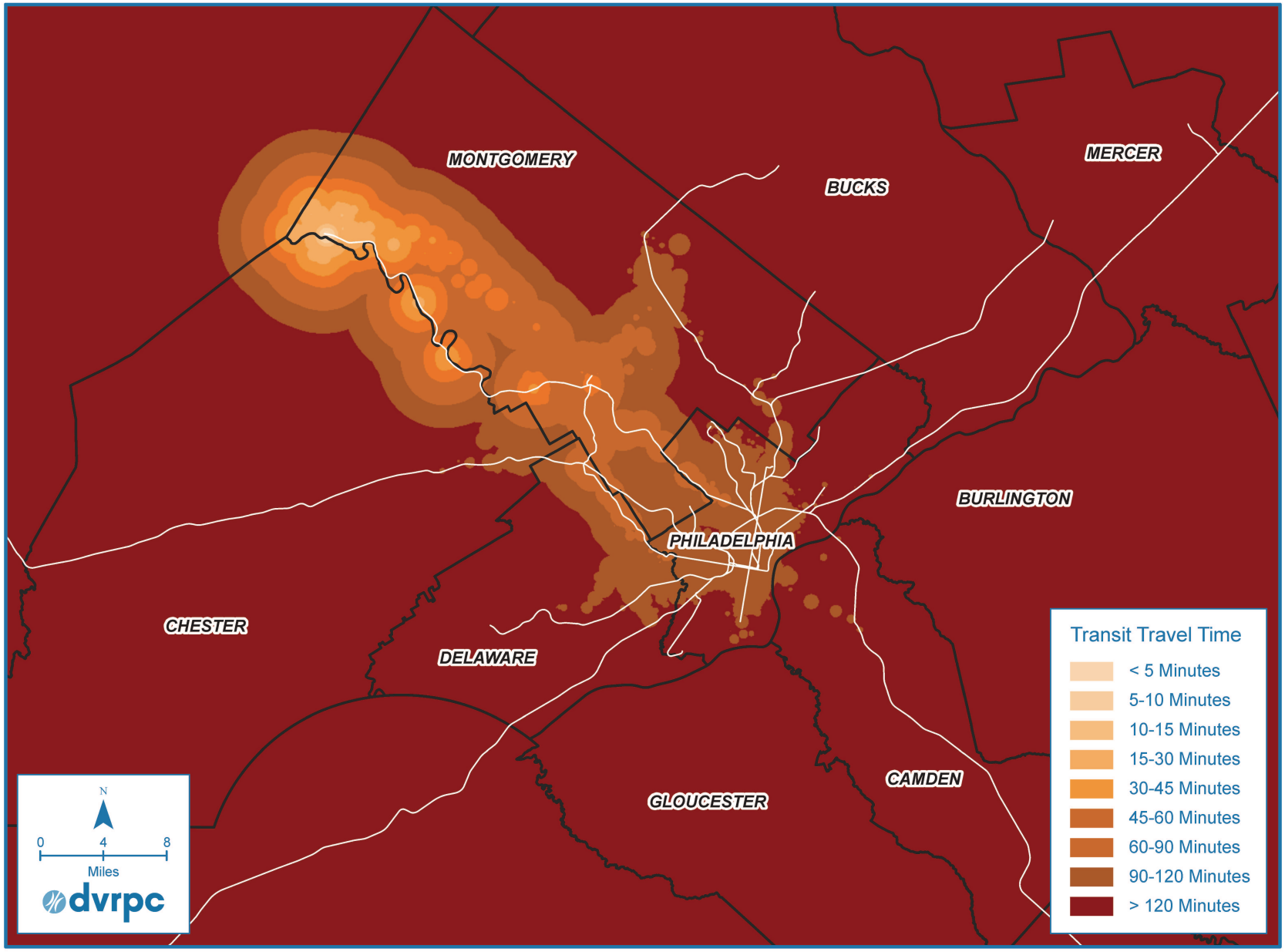
Source: DVRPC, 2021

Figure 86: Isochrone Map of the Pottstown Station (No Build)



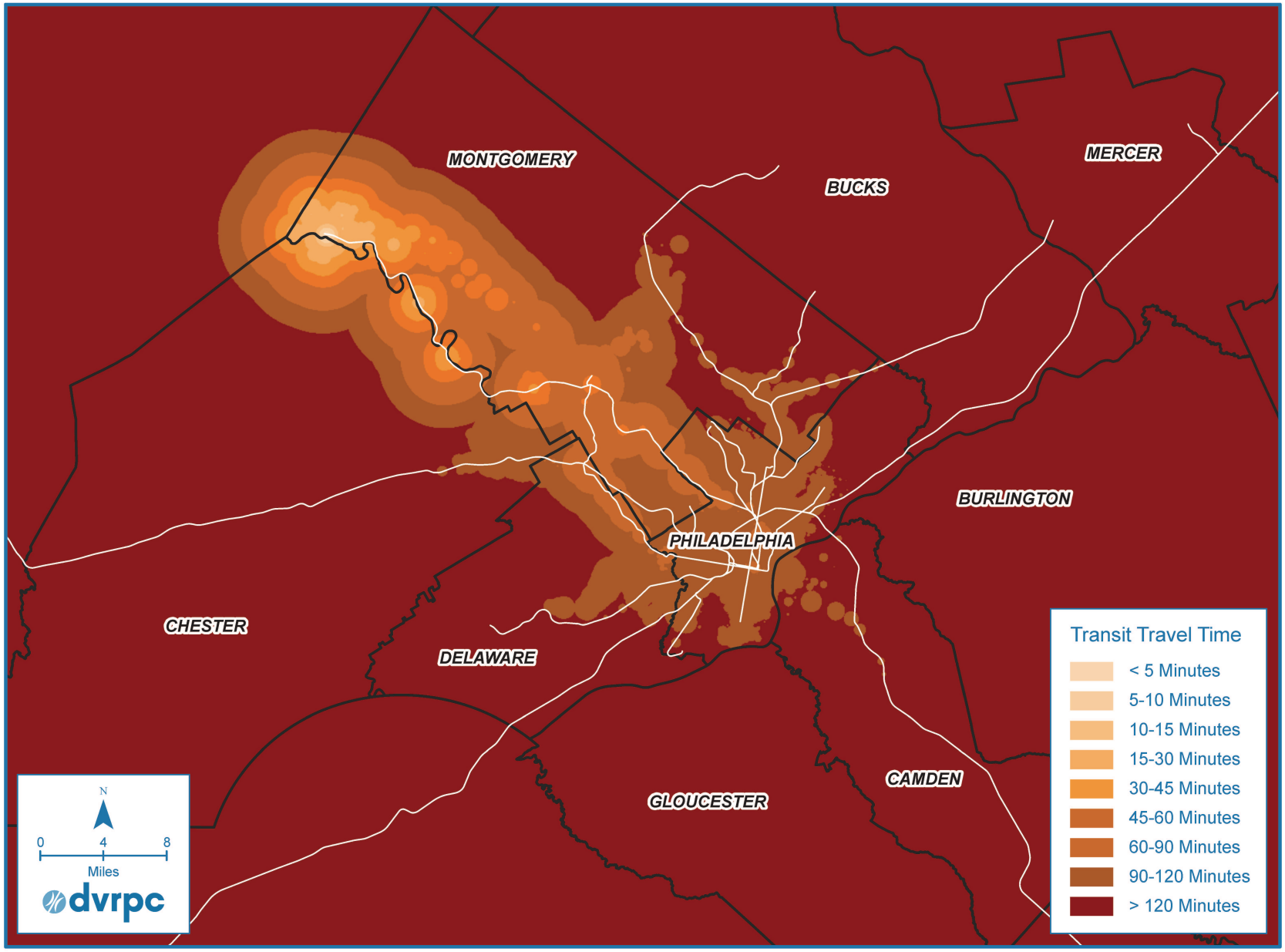
Source: DVRPC, 2021

Figure 87: Isochrone Map of the Pottstown Station (Shuttle Service)



Source: DVRPC, 2021

Figure 88: Isochrone Map of the Pottstown Station (Through Service)



Source: DVRPC, 2021

CHAPTER 4
CONCLUSIONS

Four new stations were proposed for the passenger rail extension: Valley Forge, Phoenixville, Royersford, and Pottstown. Shuttle service between Pottstown and Norristown and through service between Pottstown and Philadelphia were both modeled. By 2030, the new stations and the Norristown Transportation Center are expected to serve approximately 2,000 to 3,000 regional rail riders per day, depending on service type and frequency. The through service option achieves the highest ridership.

Several boroughs along the passenger rail corridor are older communities seeking revitalization. There have been developments and redevelopments in these communities. But the revitalization effort should come along with a robust public transportation system, including the commuter rail system that are affordable and accessible. A lack of efficient and economic means of transportation could compromise their success to retain or attract residents, businesses, and jobs. With the traditional downtown settings and very often, smaller blocks that are friendly to pedestrians and bicyclists, these historic places in nature support an effective use of transit. So regardless of different strategies in different boroughs to reinvent the communities, an enhanced public transportation system can serve as a catalyst, making these boroughs more livable and sustainable.

Somewhat different from other older boroughs, Valley Forge in Upper Merion is one of the largest retail centers in the country and a major employment center in the region. The large developments, such as the Village at Valley Forge, not only bring in opportunities, but also present challenges to the transportation system. The passenger rail service, together with the connecting bus service, would allow people to travel more efficiently. An additional benefit is the easy access to the Valley Forge National Historical Park.

Although the scenarios proposed here only extend to Pottstown, the success of this project can be used to support a further extension to Reading, Berks County. To advance the implementation of this project, the negotiation between SEPTA and NS is important. The funding application is also a key to the success of this project.

The extension of the passenger rail service would provide transit access to jobs and other destinations, encourage transit-oriented development, reduce auto dependency, support the revitalization effort in older communities along the corridor, enhance the livability and sustainability, and strengthen the connections to other environmental resources, such as the trail network and open space.

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Ryan Judge, Southeastern Pennsylvania Transportation Authority
William Lawson, Southeastern Pennsylvania Transportation Authority
Marian Moskowitz, Chester County Commissioner
Brian O'Leary, Chester County Planning Commission
Matthew Popek, Montgomery County Planning Commission
Brian Styche, Chester County Planning Commission
Angela Watson, Pennsylvania Department of Transportation

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Phoenixville Rail Extension

A Ridership Forecast Study

Publication Number: 21046

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Geographic Area Covered:

Phoenixville in Chester County, and Norristown, Valley Forge, Royersford, and Pottstown in Montgomery County

Key Words:

Passenger Rail Extension, SEPTA Regional Rail, Ridership Forecast, Travel Demand Model, Origin and Destination Pattern, Manayunk/Norristown Line, Historic Towns, Revitalization, Livability, Sustainability

Abstract:

This study estimated the ridership for a proposed service extension of the existing Manayunk/Norristown Regional Rail line from the Norristown Transportation Center to Pottstown via Phoenixville. Two types of service were modeled, shuttle service between Pottstown and Norristown and through service between Pottstown and Philadelphia. It was projected that the new stations and the Norristown Transportation Center are expected to serve approximately 2,000 to 3,000 regional rail riders per day by 2030. It would fill in the commuter rail gap, enhance access to employment and other destinations, reduce auto dependency, improve quality of life, and support smart growth and revitalization effort.

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