

# SmartMoves Corridors

Corridors of Regional Significance

## State Route 28

### Master Planning Framework

I-279/Veterans Bridge to Clarion County Line



Fall 2021



This document is available in alternate formats upon request. SPC will provide translation and interpretation services upon request at no charge. Please call SPC at (412) 391-5590 for more information.

### Italiano

Questo documento è disponibile in formati alternativi su richiesta. SPC fornirà servizi di traduzione e interpretazione su richiesta senza alcun costo. Per piacere, chiami SPC al numero (412) 391-5590 per maggiori informazioni.

### Espanol

El presente documento está disponible en formatos alternativos bajo solicitud. SPC ofrece servicios de traducción e interpretación gratis bajo solicitud. Comuníquese con SPC al (412) 391-5590 para obtener más información.

### 中文

本文件可根據要求以其他格式提供。SPC將根據要求提供免費筆譯和口譯服務。詳情請致電 (412) 391-5590與SPC聯系。

### Nepali

यो फाराम अनुरोध गरिएमा वैकल्पिक ढाँचाहरूमा उपलब्ध छन्। अनुरोध गरेमा बिना शुल्क SPC ले अनुवाद र दोभाषे सेवा उपलब्ध गराउँछ। थप जानकारीको लागि SPC (412) 391-5590 मा फोन गर्नुहोस्।

### Gujarati

આ દસ્તાવેજ વિનંતી પર વૈકલ્પિક ફોર્મેટમાં ઉપલબ્ધ હોય છે. SPC કોઈપણ શુલ્ક લીધા વિના વિનંતી પર અનુવાદ અને અર્થઘટન સેવાઓ પૂરી પાડશે. વધુ માહિતી માટે કૃપા કરી (412) 391-5590 પર SPCને કોલ કરો.

### Oriya

ଏହି ଡକ୍ୟୁମେଣ୍ଟର ଅନୁରୋଧରେ ବୈକଳ୍ପିକ ଫର୍ମାଟରେ ଉପଲବ୍ଧ। କୌଣସି ଚାର୍ଜ ଛଡ଼ା ଏସପିସି ଅନୁବାଦ ଏବଂ ବ୍ୟାଖ୍ୟା ସେବା ପ୍ରଦାନ କରିବ।

### Punjabi

ਇਹ ਦਸਤਾਵੇਜ਼ ਬੇਨਤੀ ਕਰਨ 'ਤੇ ਵਿਕਲਪਕ ਰੂਪਾਂ ਵਿੱਚ ਉਪਲਬਧ ਹੈ। SPC ਬਿਨਾਂ ਕਿਸੇ ਖਰਚ 'ਤੇ ਬੇਨਤੀ 'ਤੇ ਅਨੁਵਾਦ ਅਤੇ ਦੁਬਾਸ਼ੀਆ ਸੇਵਾਵਾਂ ਪ੍ਰਦਾਨ ਕਰੇਗਾ। ਵਧੇਰੇ ਜਾਣਕਾਰੀ ਲਈ ਕਿਰਪਾ ਕਰਕੇ SPC ਨੂੰ (412) 391-5590 'ਤੇ ਕਾਲ ਕਰੋ।

### Sinhalese

ඉල්ලීම මත මෙම ලේඛනය විකල්ප ආකෘතිවලින් ලබාගත හැකිය. SPC විසින් කිසිදු ගාස්තුවක් අය කිරීමකින් තොරව භාෂා පරිවර්තන හා භාෂණ පරිවර්තන සේවාවන් සපයනු ඇත. කරුණාකර වැඩි දුර විස්තර සඳහා (412) 391-5590 ඔස්සේ SPC අමතන්න.

### Marathi

हा दस्तऐवज विनंतीनुसार पर्यायी स्वरूपांमध्ये उपलब्ध आहे. विनंतीनुसार SPC भाषांतर आणि अर्थविवरण सेवा विनामूल्य प्रदान करेल. अधिक माहितीसाठी कृपया SPC ला (412) 391-5590 येथे कॉल करा.

### Bengali

অনুরোধ জানালে এই ডকুমেন্টটি অন্যান্য ফরম্যাটেও পাওয়া যায়। অনুরোধ জানালে SPC কোনও চার্জ ছাড়াই অনুবাদ এবং ব্যাখ্যা করার পরিষেবা প্রদান করবে। আরও তথ্যের জন্য অনুগ্রহ করে (412) 391-5590 নম্বরে SPC কে ফোন করুন।

### Hindi

यह दस्तावेज़ अनुरोध पर वैकल्पिक फॉरमेट में उपलब्ध है। एस पी सी (SPC) अनुवाद और व्याख्या सेवाएं अनुरोध पर बिना शुल्क उपलब्ध कराएगी। कृपया अधिक जानकारी के लिए (412) 391-5590 पर एस पी सी (SPC) को कॉल करें।

### Sindhi

درخواست جي صورت ۾ هي دستاويز متبادل ٻولي ۾ دستياب آهي. درخواست جي صورت ۾ SPC ترجمي ۽ ترجماني جون مفت خدمتون فراهم ڪندي. مهرباني ڪري وڌيڪ معلومات لاءِ (412) 391-5590 تي SPC کي ڪال ڪريو.

### Urdu

یہ دستاویز درخواست کیے جانے پر متبادل اشکال میں دستیاب ہے۔ SPC درخواست کیے جانے پر ترجمہ اور ترجمانی کی خدمات مفت فراہم کرے گا۔ مزید معلومات کیلئے SPC کو (412) 391-5590 پر کال کریں۔

# SmartMoves Corridors

Corridors of Regional Significance

## Southwestern Pennsylvania Commission

### 2021 Officers

**Chairman: Rich Fitzgerald**

**Vice Chairman: Leslie Osche**

**Secretary-Treasurer: Pat Fabian**

**Executive Director: Vincent Valdes**

#### Allegheny County

Jennifer Beer  
Rich Fitzgerald  
Lynn Heckman  
Clifford Levine  
Robert J. Macey

#### Armstrong County

Darin Alviano  
Pat Fabian  
Don Myers  
Jason L. Renshaw  
Kelli Wingard

#### Beaver County

Tony Amadio  
Daniel Camp III  
Kelly Gray  
Charles Jones  
Jack Manning

#### Butler County

Kevin Boozel  
Kim Geyer  
Mark Gordon  
Richard Hadley  
Leslie A. Osche

#### Fayette County

Scott Dunn  
Joe Grata  
Fred Junko  
Dave Lohr  
Vincent A. Vicites

#### Greene County

Mike Belding  
Rich Cleveland  
Jeff Marshall  
Betsy McClure  
Blair Zimmerman

#### Indiana County

Robin Gorman  
Sherene Hess  
Mark Hilliard  
Mike Keith  
Byron G. Stauffer, Jr.

#### Lawrence County

Morgan Boyd  
James Gagliano  
Amy McKinney  
Loretta Spielvogel  
Daniel J. Vogler

#### Washington County

Diana Irey-Vaughan  
Robert Griffin  
Larry Maggi  
Nick Sherman  
Christopher Wheat

#### Westmoreland County

Tom Ceraso  
Gina Cerilli  
Douglas Chew  
Sean Kertes  
Robert Regola III

#### City of Pittsburgh

Scott Bricker  
Rev. Ricky Burgess  
William Peduto  
Mavis Rainey  
Aurora Sharrard

#### Pennsylvania Dept. of Transportation (2 Votes)

Brian Allen  
Willaim Kovach  
Kevin McCullough  
Cheryl Moon-Sirianni  
Larry S. Shifflet

#### Governor's Office

Ali Doyle

#### Pennsylvania Department of Community & Economic Development

Johnna Pro

#### Port Authority of Allegheny County

Katharine Kelleman  
Ed Typanski

#### U. S. Economic Development Administration\*

#### Federal Transit Administration\*

Theresa Garcia-Crews

#### U.S. Environmental Protection Agency\*

Laura Mohollen

#### Transit Operators Committee

Sheila Gombita

#### Federal Highway Administration\*

Alicia Nolan

#### Federal Aviation Administration\*

\*Nonvoting Members

The preparation of this publication was financed in part through grants from the United States Department of Transportation's Federal Highway Administration and Federal Transit Administration; the U.S. Department of Commerce; the Appalachian Regional Commission; the Commonwealth of Pennsylvania; the Department of Transportation of the Commonwealth of Pennsylvania; and, the counties of Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Washington, Westmoreland, and the City of Pittsburgh. The views and opinions of the authors or agency expressed herein do not necessarily state or reflect those of these agencies.

**TABLE OF CONTENTS**

INTRODUCTION

5



CORRIDOR OVERVIEW

9

SEGMENT A PROFILE

22



SEGMENT B PROFILE

39

SEGMENT C PROFILE

56



SEGMENT D PROFILE

73

APPENDICES

90



APPENDIX A: STAKEHOLDER OUTREACH

91



## SECTION I: INTRODUCTION

---

Corridors of Regional Significance connect activity centers across multiple counties within and through Southwestern Pennsylvania. The corridors promote the multimodal movement of people and goods, critical to the quality of life and economic vitality of Southwestern Pennsylvania.



# PURPOSE

The goal of examining these corridors is to better inform project planning and coordination among agencies and municipalities, before transportation projects are programmed to receive funding through the region's Transportation Improvement Program (TIP).

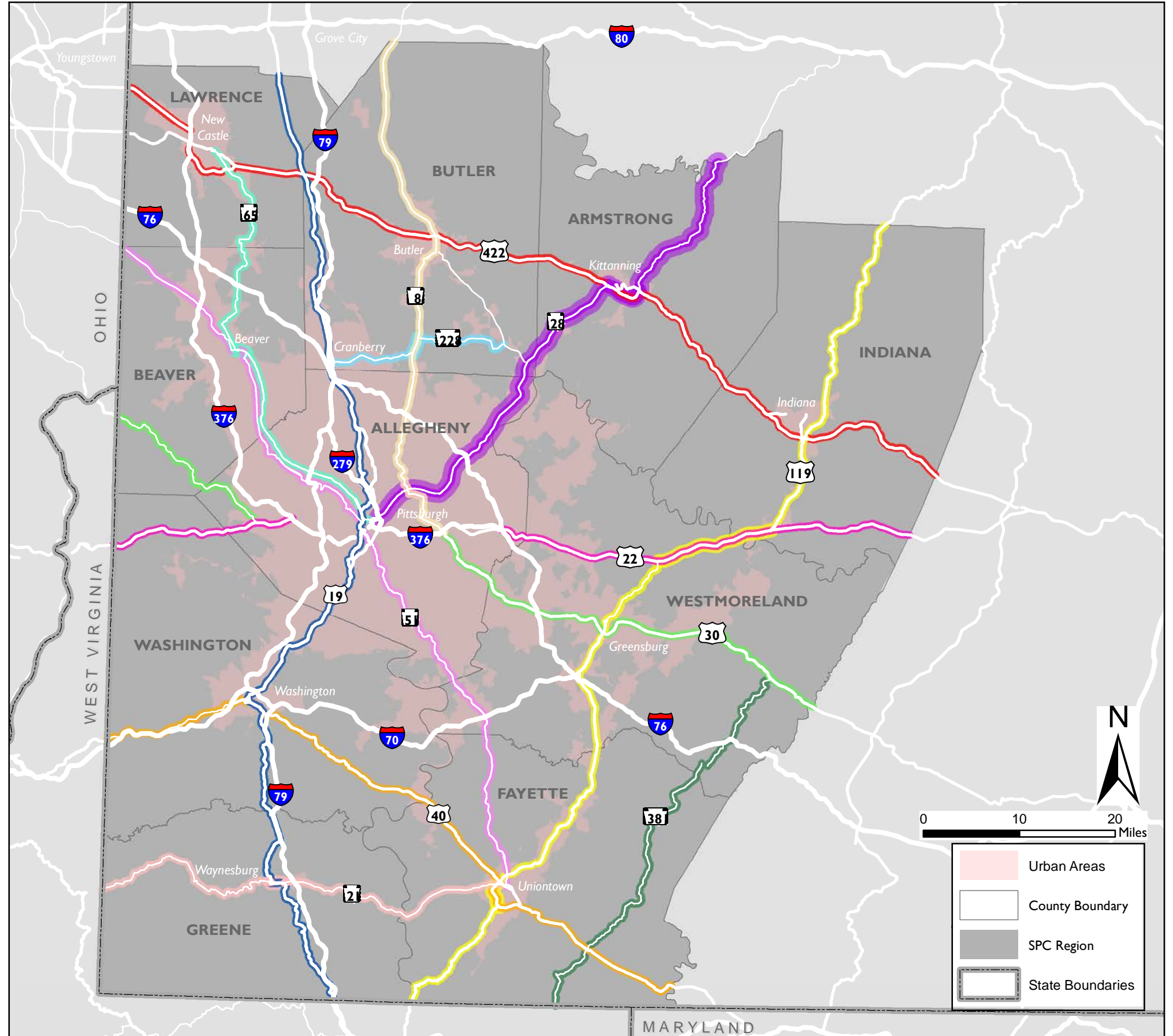
Historically, improvements made to these corridors were aimed at solving specific issues such as safety or operational deficiencies, reoccurring congestion or capital maintenance asset management needs. In order for the region to achieve the best use of these facilities and to strengthen communities and the economy, they must be examined as a holistically, rather than location by location.

The corridors are broadly drawn and include parallel facilities other than roadways and bridges. They include transit service, active transportation infrastructure, rail and port facilities, and airports.

The framework will identify considerations that should be taken into account when planning for new projects within the corridors with the ultimate goal of providing consistency across all future transportation improvements and ensuring the context of the corridor, communities and the facility users are considered.

### Corridors of Regional Significance

- State Route 8
- U.S. Route 19
- State Route 21
- U.S. Route 22
- State Route 28**
- U.S. Route 30
- U.S. Route 40
- State Route 51
- State Route 65
- U.S. Route 119
- State Route 228
- State Route 381



SMARTMOVES CORRIDORS

# GOALS

These regional corridors traverse multiple place types ranging from sparsely populated rural areas, to small towns and suburbs, to densely populated urban areas and urban core of the City of Pittsburgh. Each place type is accompanied by its own unique context as well as its own mobility, connectivity and accessibility needs.

When planning for transportation investments, the region must consider not just the transportation benefits, but also how well the improvements fit the context of the surrounding community it serves. The transportation system must be considered as a whole, rather than a series of separate networks. Involving the community in the early stages of the project development process will not only help to identify community needs and goals, but also assist in the delivery of projects by considering all factors before project design begins. This collaboration, along with strong partnerships between all parties involved, will assist in efficiently delivering projects, thereby enabling the region to capture as much state and federal funding as possible.

*SmartMoves for a Changing Region*, Southwestern Pennsylvania's Long Range Plan sets the vision, direction and context for this type of holistic corridor planning.



The Regional Vision is a world-class, safe and well maintained, integrated transportation system that provides mobility for all, enables resilient communities, and supports a globally competitive economy.

To support the Vision, the Plan sets three broad Goals for the region: Connected Mobility, Resilient Communities, and a Globally Competitive Economy. The Goals, supported by eight strategies each, work in concert to establish opportunities for collaboration across the region and to guide investments that make the region a better place for everyone.

## SMARTMOVES GOALS



### CONNECTED MOBILITY

A world-class, safe and well maintained, integrated transportation system that provides mobility for all.



### RESILIENT COMMUNITIES

The revitalization of our communities will make us a magnet for new investment. Intensive investments in connectivity, walkable neighborhoods, and green infrastructure will attract business and residents to newer and older communities alike.



### GLOBALLY COMPETITIVE ECONOMY

Strategic infrastructure investments and workforce training will make the region recognized as a global leader in technology and innovation.

This Master Planning Framework is directly supported by several of the *SmartMoves* Strategies:



#### PRIORITIZE AND STREAMLINE STRATEGY

Employ holistic planning for mobility and accessibility when developing and prioritizing projects. Make transportation improvements fit community context and enhance local quality of life and encourage strong, implementable complete streets policies.



#### PROMOTE INVESTMENT STRATEGY

Promote strategic infrastructure investment in communities that reduces physical exposure and vulnerability from natural hazards, including flooding and landslides.



#### INNOVATIVE IDEAS STRATEGY

Embrace emerging infrastructure innovations and technologies including planning, design, materials, and construction processes for an adaptable and resilient built environment.



#### CLEAN AIR STRATEGY

Support and encourage transportation projects and programs that will contribute to attainment or maintenance of the national ambient air quality standards (NAAQS) for ozone, carbon monoxide (CO), and particulate matter (PM).



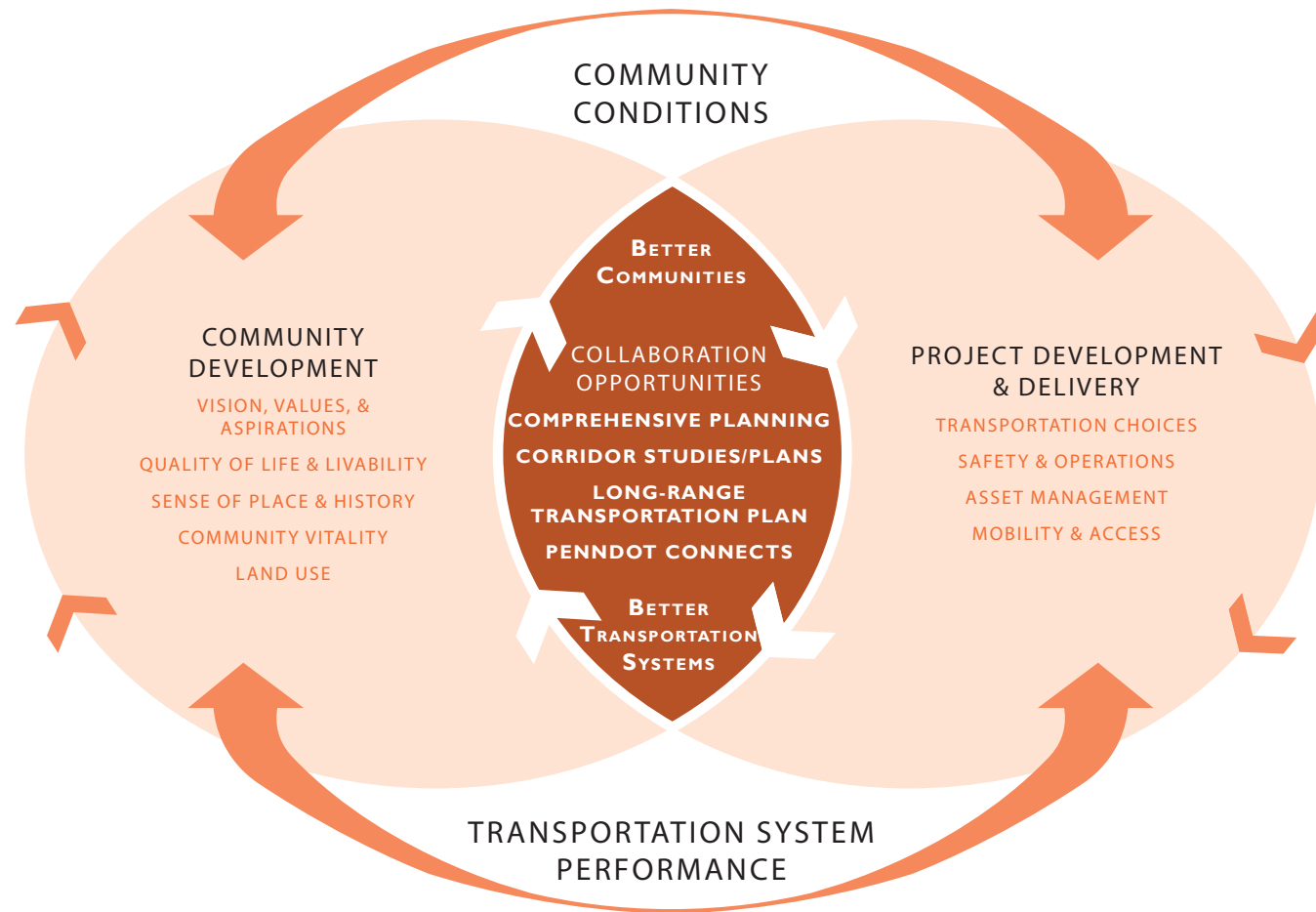
# CONTEXT

Anchored by the region's Long Range Plan, effective planning for a region of this size and diversity requires the cooperation and coordination of many planning partners and multiple, interconnected planning processes that work together toward achieving the Regional Vision.

The region's transportation network must function as an integrated system rather than a series of unrelated networks. It is imperative that the transportation agencies responsible for planning, implementing, and maintaining different components of the transportation system work in concert to give the region the opportunity to make better informed mobility choices.

If walking, cycling, and using public transportation are more attractive and convenient, it will help the region be more economically competitive by enhancing quality of life and the environment.

Not only do we need to continue to prioritize investment based on performance criteria at the corridor level, we also need to consider the context of each community in order to create genuine, livable places, emphasizing complete streets with a variety of mobility options. It is crucial to work toward the same shared goals of this plan, realizing that solutions to mobility are not one-size-fits-all and will look different across the urban, suburban, and rural areas of the region. Partnerships between transportation agencies, local governments, and the private sector are essential to this effort.



## Southwestern Pennsylvania Commission Planning Efforts

### Plan/Program

SmartMoves Long Range Transportation Plan (2019)

*SmartMoves Connections: A Regional Vision for Public Transit (2021)*

Congestion Management Program

Water Resource Center

Active Transportation Plan (2019)

Regional Transportation Demand Management Strategic Action Plan (2019)

Human Services Coordinated Transportation Plan (2019)

Transportation Improvement Program (2021-2024)

Regional Transportation Safety Action Plan (2020)

Regional Freight Plan (2016)

Regional Operations Plan (2019)





## SECTION II: CORRIDOR OVERVIEW

---

CORRIDOR DESCRIPTION

DEMOGRAPHIC AND EMPLOYMENT TRENDS

ENVIRONMENTAL JUSTICE

LAND USE CONTEXT

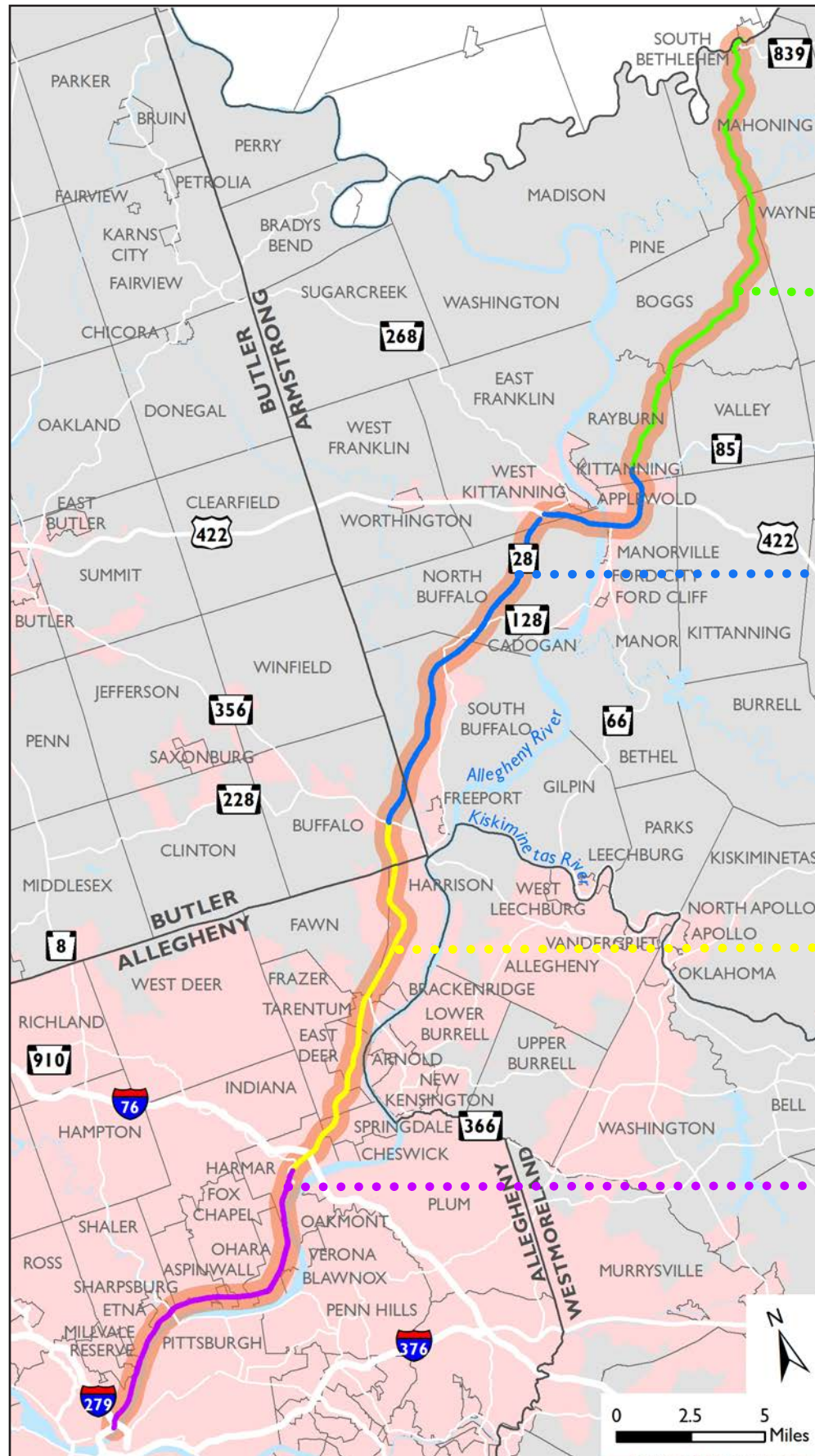
TRANSPORTATION SYSTEMS

FREIGHT NETWORK

FREIGHT ACTIVITY

CORRIDOR TRAVEL PATTERNS

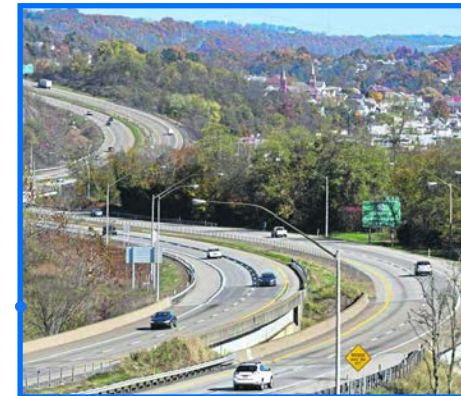
# CORRIDOR DESCRIPTION



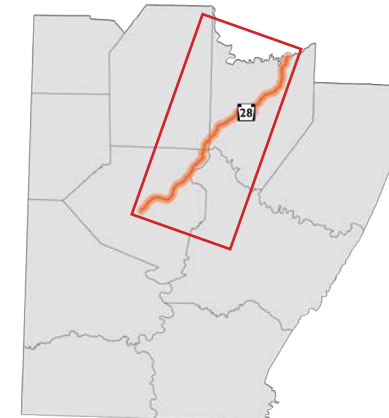
SEGMENT A



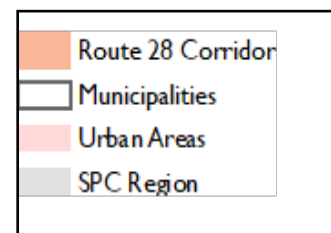
SEGMENT B



SEGMENT C



SEGMENT D



State Route 28 is a vital thoroughfare that connects Downtown Pittsburgh to its northeastern suburbs and beyond. Starting at the interchange with I-279 and the Veterans Bridge, SR 28 traverses approximately 60 miles through three counties (Allegheny, Butler, and Armstrong) and 27 municipalities in the SPC region. SR 28 also provides a significant connection to parts of the Alle-Kiski of Westmoreland County. Municipalities that are located along the SR 28 corridor include City of Pittsburgh, Harmar Township, Buffalo Township and Rayburn Township. SR 28 provides a connection between other major routes in the SPC region such as SR 8, US 422, SR 356 and I-76 (Pennsylvania Turnpike). Although not in the SPC region, SR 28 provides a valuable connection to I-80.

To achieve the best analysis of the SR 28 corridor, the corridor will be examined in four segment focus areas in this Master Planning Framework.

- Segment A- Armstrong/Clarion County Line to SR 85 in Rayburn Township.
- Segment B- SR 85 in Rayburn Township to SR 356 in Buffalo Township.
- Segment C- SR 356 in Buffalo Township to I-76 (Pennsylvania Turnpike) Interchange in Harmar Township.
- Segment D- I-76 (Pennsylvania Turnpike) in Harmar Township to the I-279/Veterans Bridge Interchange in the City of Pittsburgh.



## JURISDICTIONS

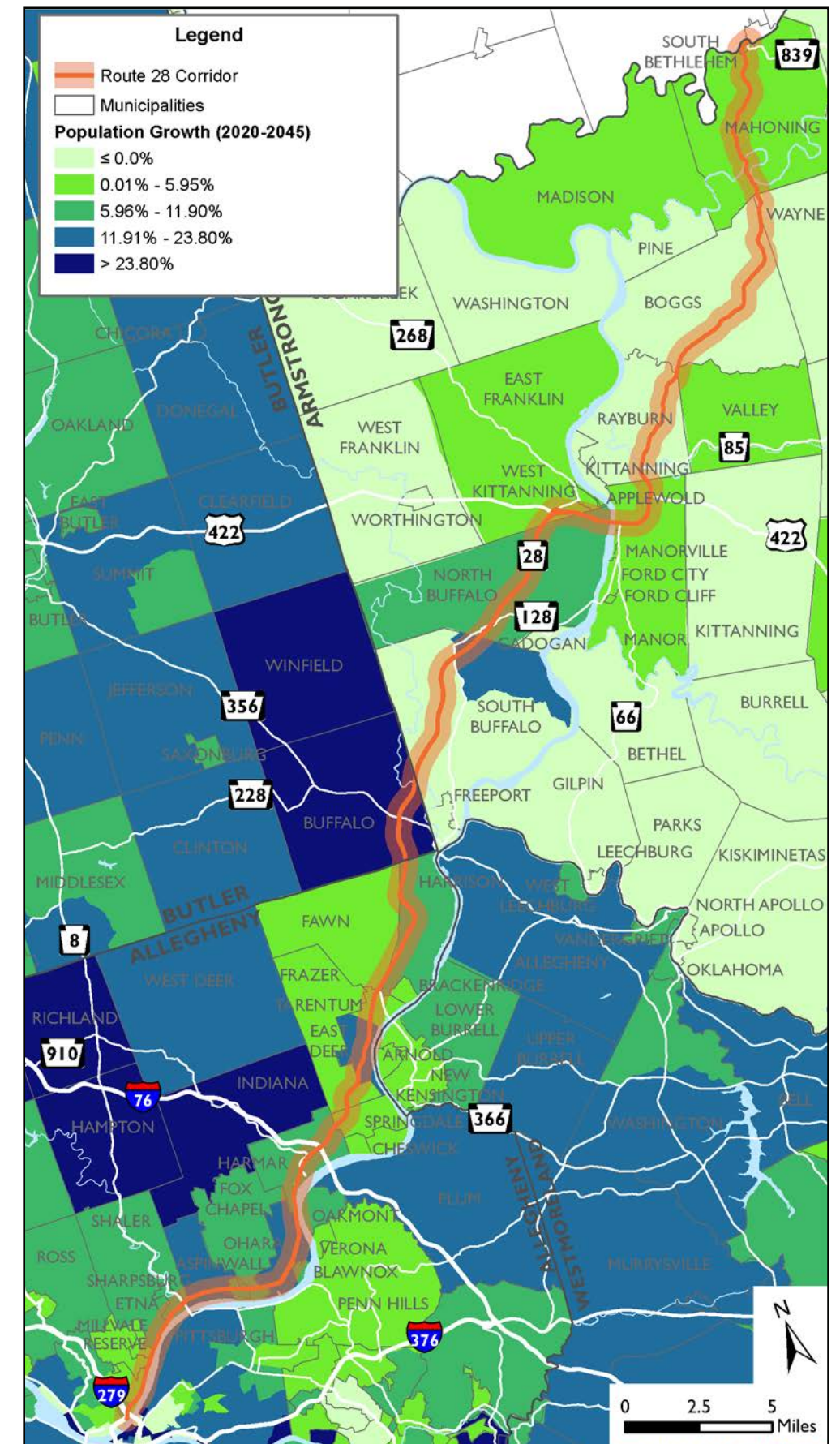
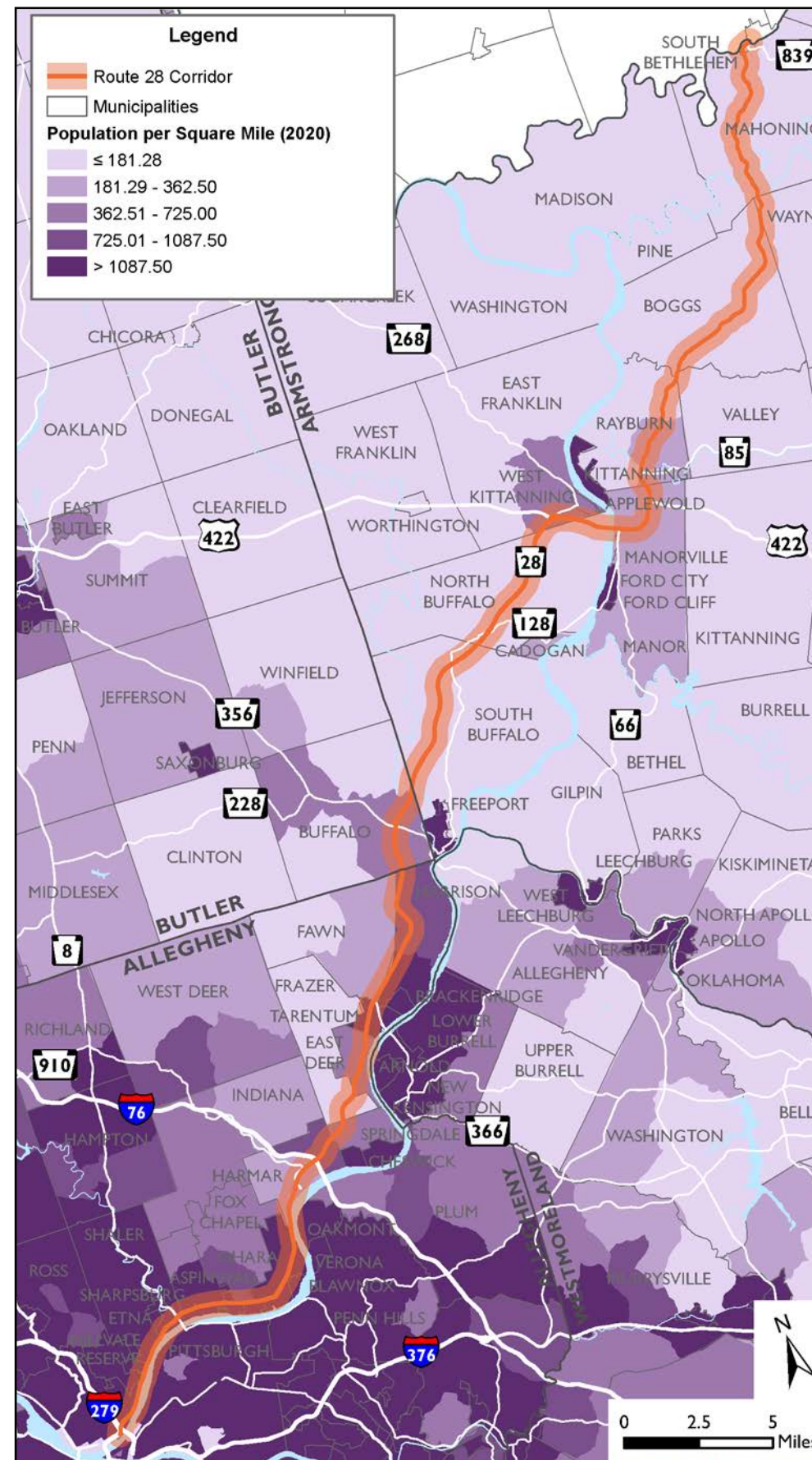
<b>Counties:</b>	Etna	O'Hara
Allegheny	Fawn	Pittsburgh
Butler	Fox Chapel	Rayburn
Armstrong	Frazer	Shaler
	Harmar	Sharpsburg
<b>Municipalities:</b>	Harrison	South Bethlehem
Aspinwall	Mahoning	South Buffalo
Boggs	Manor	Springdale
Buffalo	Millvale	Tarentum
East Deer	New Bethlehem	Valley
East Franklin	North Buffalo	Wayne

# DEMOGRAPHIC AND EMPLOYMENT TRENDS

Current population and employment densities, as well as projected growth in population and employment between 2020 and 2045, were derived from SPC's Cycle 11 forecasts. SPC's Cycle 11 forecasts of population, households and employment were prepared in April 2019 to support development of SPC's Long Range Plan update. *SmartMoves for a Changing Region*, including the Cycle 11 forecasts, was adopted by SPC in June 2019. Information on businesses within a one-mile and three-mile buffer area along the SR 28 corridor was derived from SPC's 2020 Mergent Intellect database.

The SR 28 corridor contains several population centers at multiple points along the Allegheny River and beyond. The regional average population density is 362.50 people per square mile. The majority of areas within the City of Pittsburgh have higher than the regional average population density, with key population centers in the Bluff, Oakland, Lawrenceville, Morningside, and elsewhere. Several areas outside of the City of Pittsburgh, but within Allegheny County, have higher than the regional average population density. These population centers are located in Reserve Township, Ross Township, Millvale Borough, Shaler Township, Sharpsburg Borough, O'Hara Township, Aspinwall Borough, Blawnox Borough, the Municipality of Penn Hills, Verona Borough, Oakmont Borough, Cheswick Borough, Springdale Borough, Tarentum Borough, Brackenridge Borough, and Harrison Township. Fewer areas outside of Allegheny County have higher than the regional average population density, with the highest population densities being in the cities of Lower Burrell, Arnold, and New Kensington in Westmoreland County, and in Freeport Borough, Ford City Borough, and Kittanning Borough in Armstrong County.

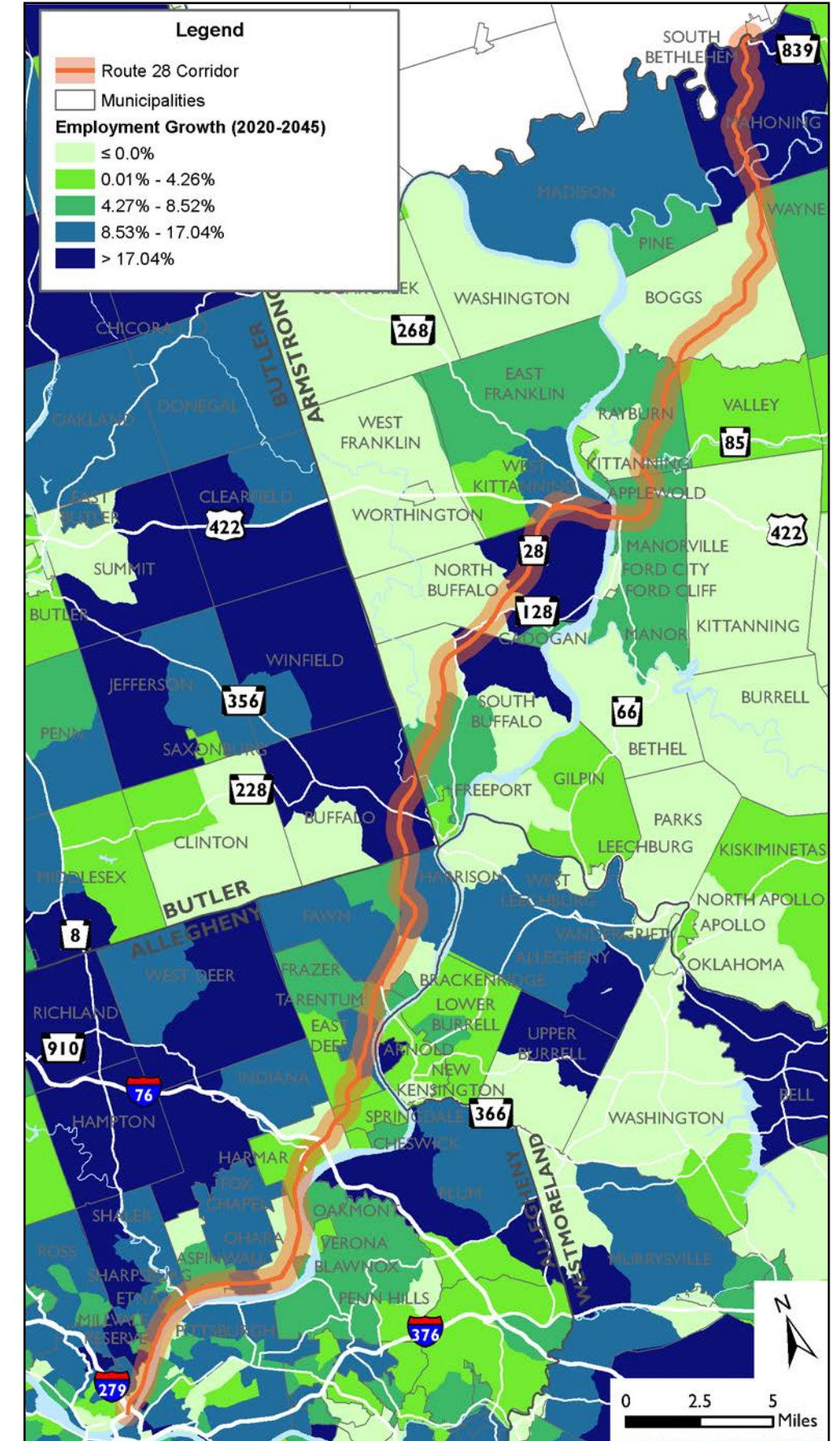
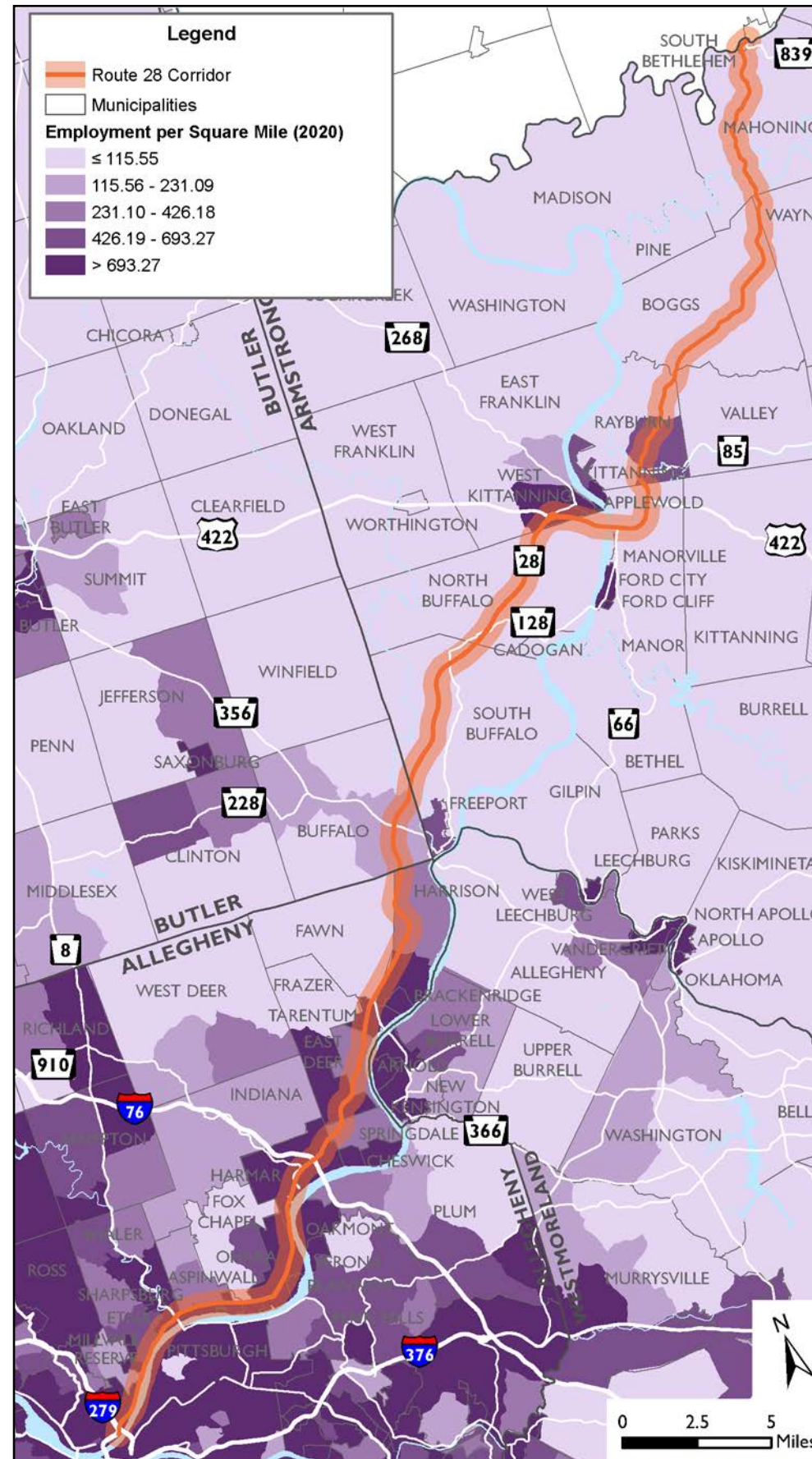
Many of the areas that have the greatest population densities are also projected to have the greatest population growth by 2045. The regional average population growth between 2020 and 2045 is estimated at 11.90%. Several areas within the City of Pittsburgh have higher than the regional average population growth, with the greatest projected population growth being in Hazelwood, the Chateau, the Strip District, the South Shore, the Bluff, and the Golden Triangle. Areas with the highest population growth outside of the City of Pittsburgh include Indiana Township, Hampton Township, and Richland Township in Allegheny County, and Buffalo Township and Winfield Township in Butler County. The majority of areas with lower than the regional average population growth include areas in Armstrong County to the north of Buffalo Township extending to the northern end of the SR 28 corridor. Areas with the least population growth include Rayburn Township, South Bend Township, and Hovey Township in Armstrong County.





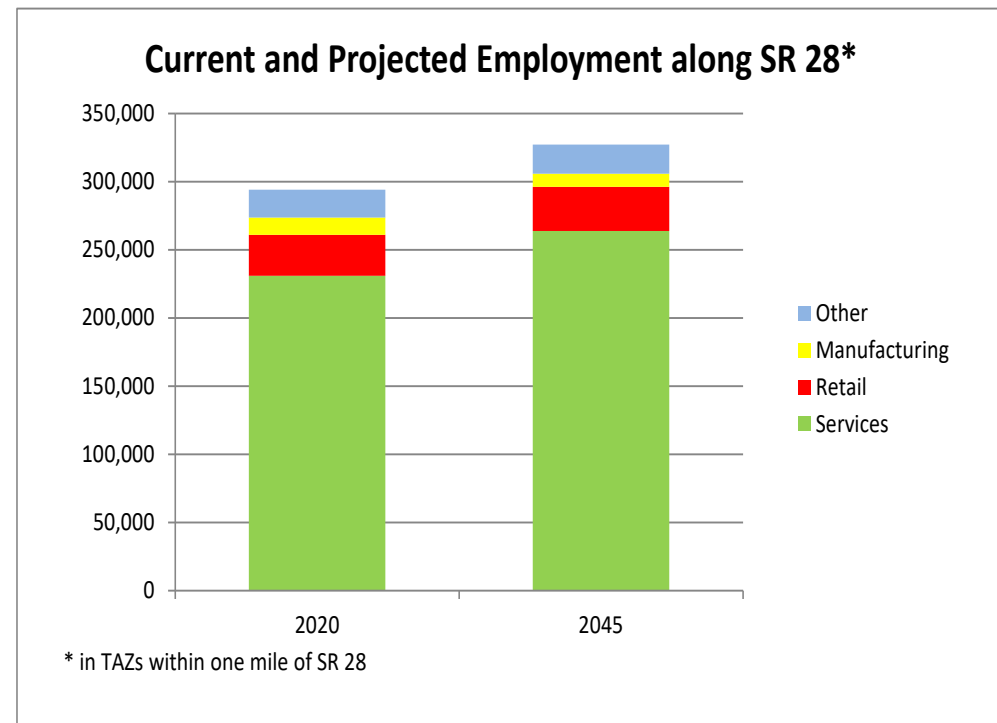
Many areas with population densities greater than the regional average also have employment densities greater than the regional average. The regional average employment density is estimated at 231.09 workers per square mile. There are several areas within the City of Pittsburgh that have employment densities greater than the regional average, with the highest being in the Golden Triangle, Oakland, the Chateau, the North Shore, and Lawrenceville. Several areas outside of the City of Pittsburgh, but within Allegheny County, have higher than the regional average employment density. These employment centers are located in Ross Township, Millvale Borough, Etna Borough, Shaler Township, Sharpsburg Borough, O'Hara Township, Aspinwall Borough, Blawnox Borough, Verona Borough, Oakmont Borough, Harmar Township, Cheswick Borough, Springdale Borough, Frazer Township, Tarentum Borough, Brackenridge Borough, and Harrison Township. Fewer areas outside of Allegheny County have higher than the regional average employment density, with the highest employment densities being in the cities of Arnold and New Kensington in Westmoreland County, and, in Freeport Borough, Ford Cliff Borough, Ford City Borough, parts of East Franklin Township, West Kittanning Borough, Applewood Borough, Kittanning Borough, and parts of Rayburn Township in Armstrong County.

Many of the areas that have the greatest employment density are also projected to have the greatest employment growth by 2045. The regional average employment growth between 2020 and 2045 is estimated at 8.52%. Several areas within the City of Pittsburgh have higher than the regional average employment growth, with the greatest projected employment growth being in Hazelwood, the Golden Triangle, the Strip District, and the Bluff. Areas with the highest employment growth outside of the City of Pittsburgh include Reserve Township, Shaler Township, Indiana Township, Hampton Township, Richland Township, West Deer Township, and Plum Township in Allegheny County; the city of Arnold, Upper Burrell Township, and Allegheny Township in Westmoreland County; Buffalo Township, Winfield Township, and Clearfield Township in Butler County; and South Buffalo Township, North Buffalo Township, and Mahoning Township in Armstrong County. The majority of areas with lower than the regional average employment growth include areas in Armstrong County to the north of Buffalo Township extending to the northern end of the SR 28 corridor, although fewer in this area as compared to the projected employment growth. Areas with the least population growth include West Leechburg Borough in Westmoreland County, and Bethel Township and West Franklin Township in Armstrong County.



SMARTMOVES CORRIDORS

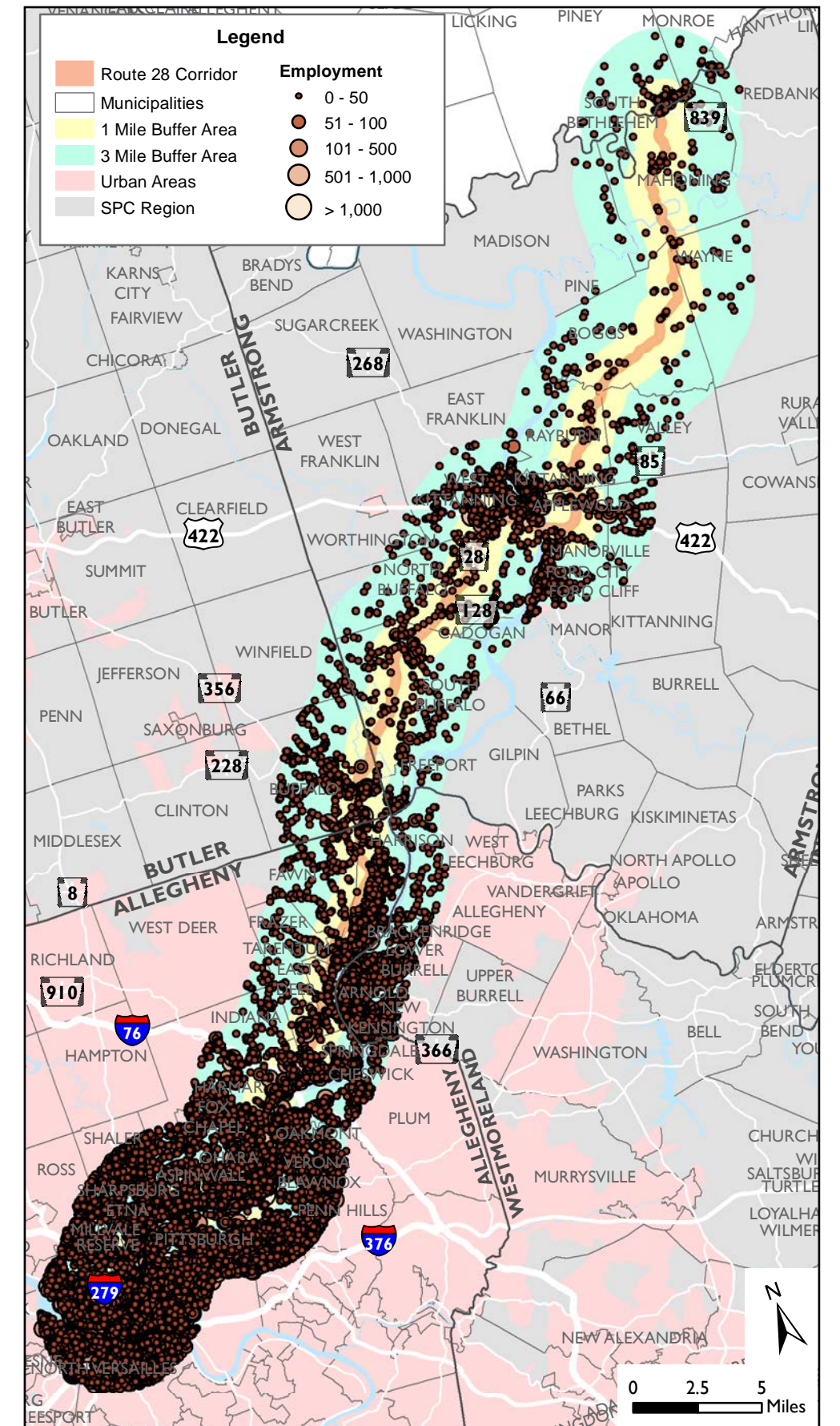
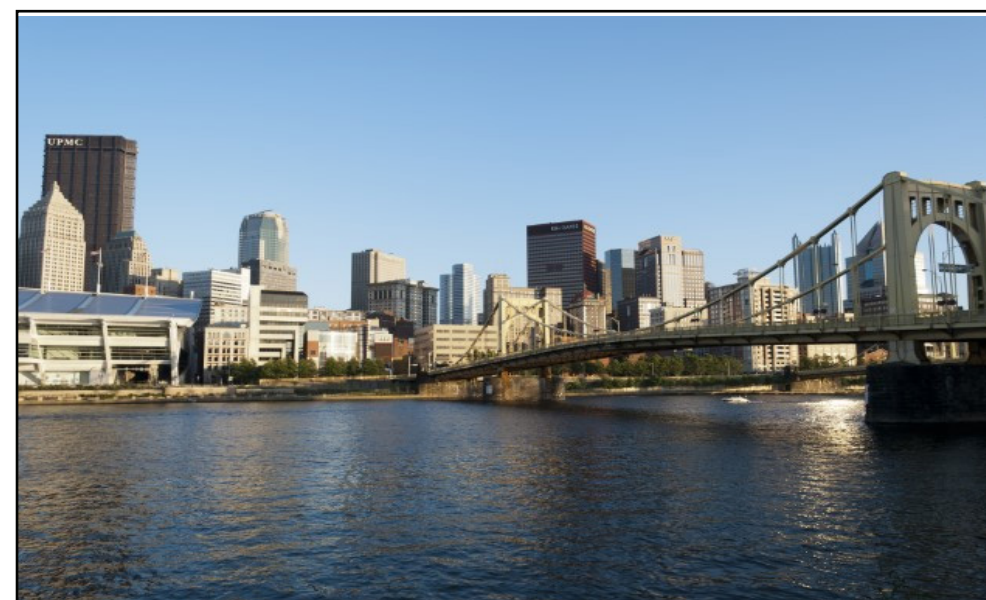
Service employment is by far the most prevalent sector in the SR 28 corridor. Examples of key service employers include major educational entities such as the Pittsburgh Public School System, the University of Pittsburgh, Carnegie Mellon University, and Duquesne University; healthcare insurance providers and major medical facilities such as Highmark and UPMC Health Plan, Allegheny General Hospital and numerous UPMC facilities; banking entities such as the Bank of New York Mellon; and, county government offices. The retail, manufacturing, and other sectors are also represented along the SR 28 corridor, just to a smaller degree. Examples of key employers in these other sectors include Giant Eagle, Walmart, Heinz Food Company, PPG Industries, Curtiss-Wright Corporation, Smithfield Meats, Herkules USA Corporation, Nature's Blend Wood Products, Avalotis Corporation, etc. Service employment will continue to be the most prevalent sector in the SR 28 corridor, as it is projected to be the sector with the highest growth by 2045. Retail and other employment is also projected to grow, although to a smaller extent, respectively. Manufacturing employment is projected to decline in this corridor.



### Businesses Located Along SR 28 (2020) \*\*

	1 Mile	3 Miles
Total Businesses	31,065	69,222
Total Employees	300,949	560,421
Total Sales	\$268 Billion	\$330 Billion

\*\* This data includes companies with centralized reporting; not all employees may be located at the central location.



# ENVIRONMENTAL JUSTICE

SR 28, from the Armstrong/Clarion County Line to the I-279/Veterans Bridge Interchange, goes through a variety of different areas ranging from the urbanized areas surrounding the City of Pittsburgh to the suburban towns along the Allegheny River to rural farmland in Armstrong County. When developing transportation projects, it is vital to take into consideration how projects can affect the people that live in the project's vicinity.

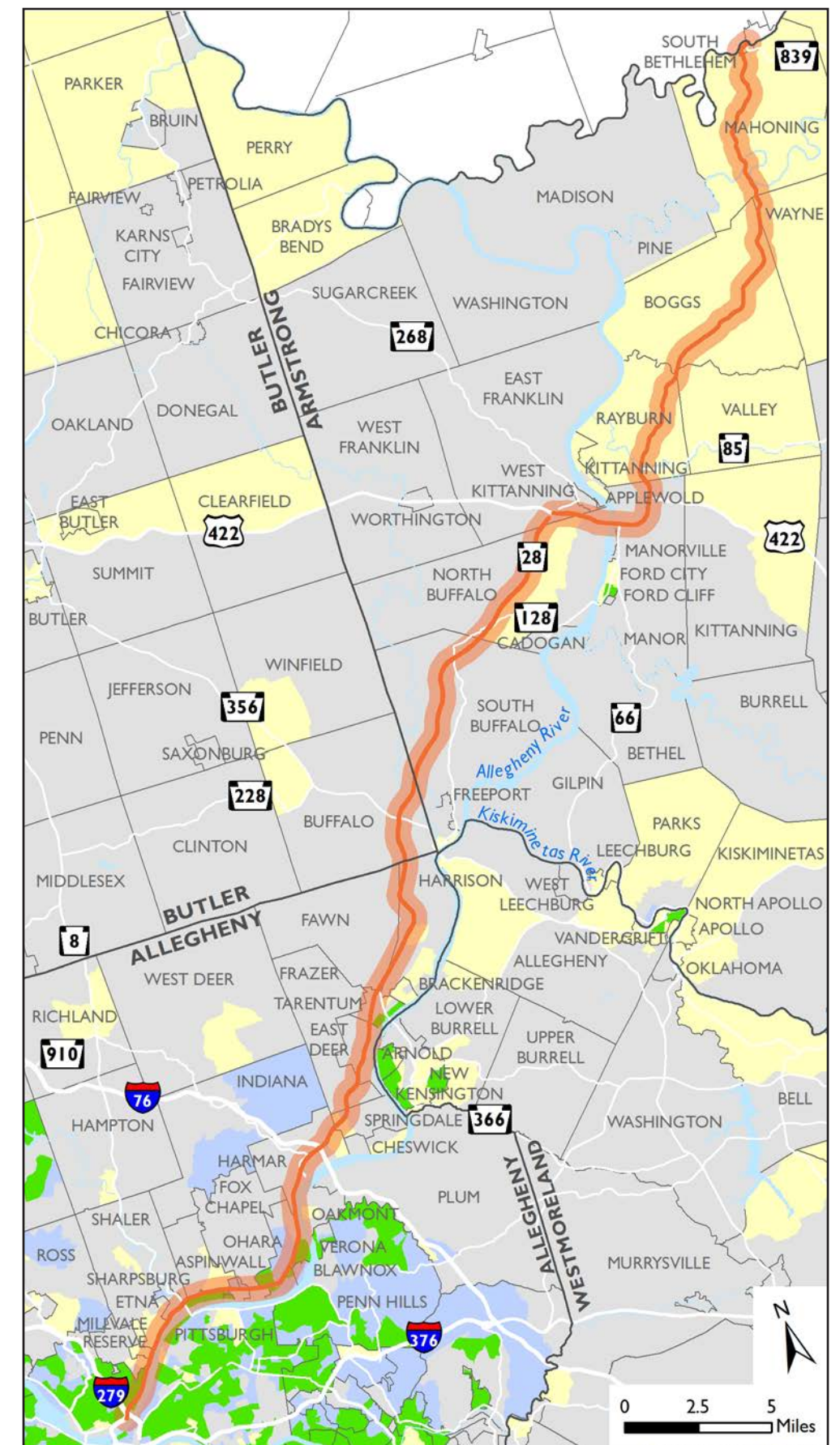
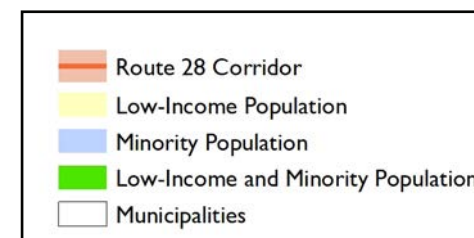
In determining potential burdens and/or benefits of projects to the people that live in this diverse landscape, SPC conducts Environmental Justice analyses. The US Environmental Protection Agency's Office of Environmental Justice defines Environmental Justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies".

- In the context of transportation, effective and equitable decision-making depends on understanding and properly addressing the unique needs of different socioeconomic groups. US Department of Transportation (USDOT) Order 5610.2(a), Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, identifies three fundamental principles of EJ that guide USDOT actions:
  - To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;
  - To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;
  - To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

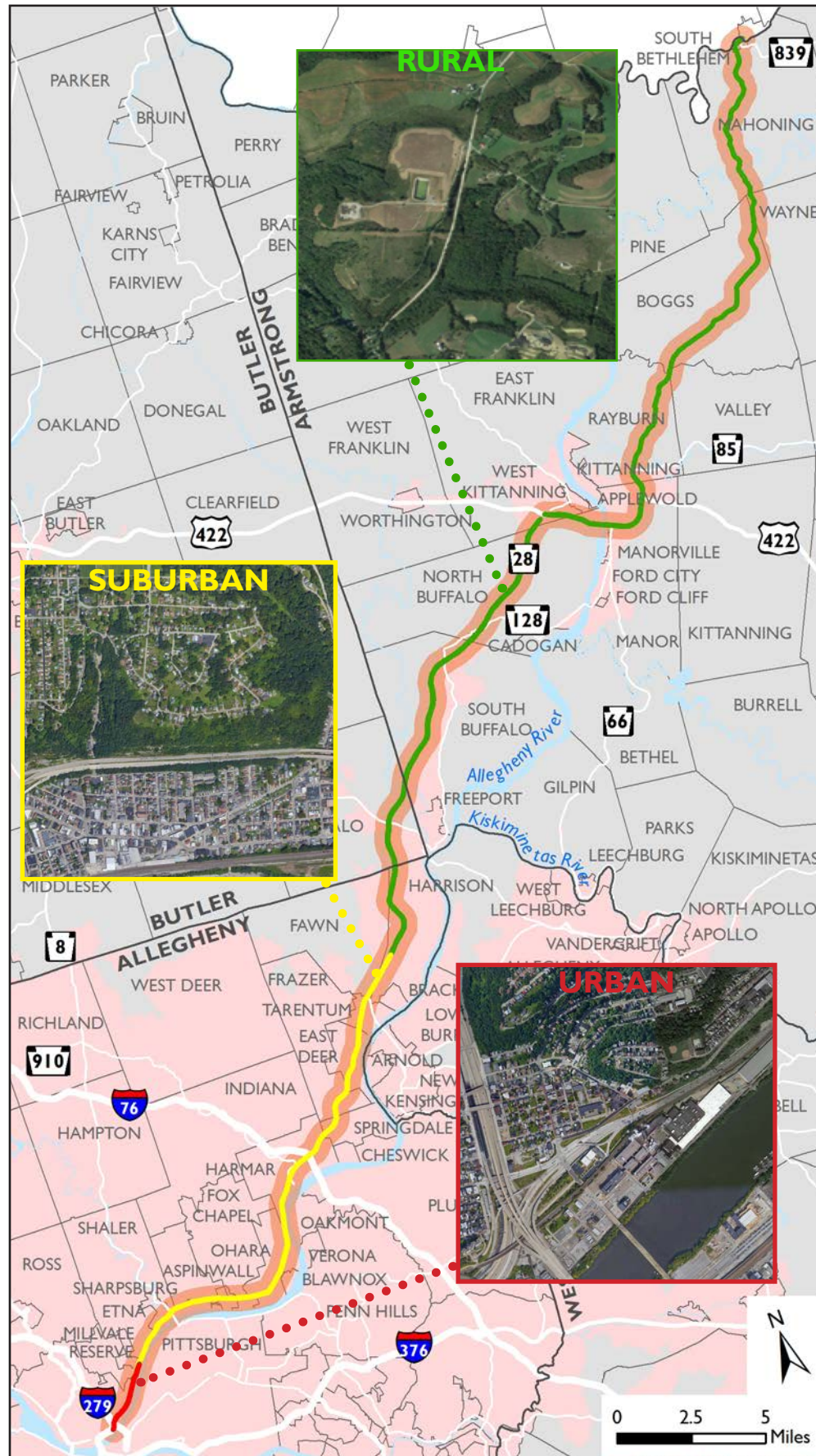
There are several areas with a higher percentage than the regional average of low-income and/or minority populations along multiple stretches of SR 28 throughout the SPC region; these are denoted as Environmental Justice areas of concern. Starting from the I-279/Veterans Bridge Interchange and continuing north to the PA Turnpike, SR 28 runs through multiple neighborhoods with low-income and minority populations that are higher than the regional average, from the City of Pittsburgh to Millvale and from Aspinwall to O'hara Township. Continuing north on SR 28, north of I-76 (PA Turnpike), there are pockets of lower-income communities surrounding SR 28 in Harmar and Springdale Townships, and to the east of SR 28 near Tarentum, Brackenridge, and Harrison Township. As SR 28 enters both Butler and Armstrong Counties, there are no Environmental Justice areas in this area until SR 28 reaches South Buffalo Township. In South Buffalo Township, there is a low-income area of concern to the east of SR 28. Along the SR 28/US 422 concurrency, there are no Environmental Justice areas nearby. Between SR 28 in Rayburn Township and continuing to the Clarion County Line, there are low-income areas surrounding both sides of SR 28.

SPC has defined Environmental Justice areas as follows:

- Low-Income Population - Where the percentage of households below the poverty level exceeds the regional average of 12.5%
- Minority Population - Where the minority population exceeds the regional average of 12.5%
- Low-Income and Minority Population- Where the percentage of households below the poverty level exceeds the regional average of 12.5% and where the minority population exceeds the regional average of 12.5%.



# LAND USE CONTEXT



## Context Categories and Primary Factors

Category	Density	Land Use	Setback
Rural	Lowest (few houses or other structures)	Agricultural, natural resource preservation, and outdoor recreation uses with some isolated residential and commercial	Usually large setbacks
Rural Town	Low to medium (single-family houses and other single-purpose structures)	Primarily commercial uses along a main street (some adjacent single-family residential)	On-street parking and sidewalks with predominately small setbacks
Suburban	Low to medium (single- and multifamily structures and multistory commercial)	Mixed residential neighborhood and commercial clusters (includes town centers, commercial corridors, big box commercial and light industrial)	Varied setbacks with some sidewalks and mostly off-street parking
Urban	High (multistory, low-rise structures with designated off-street parking)	Mixed residential and commercial uses, with some institutional and industrial and prominent destinations	On-street parking and sidewalks with mixed setbacks
Urban Core	Highest (multistory and high-rise structures)	Mixed commercial, residential and institutional uses within and among predominately high-rise structures	Small setbacks with sidewalks and pedestrian plazas

The NCHRP Expanded Functional Classification System states that “proper contextual roadway designs require an understanding of the function of the roadway within its current and expected future context and the needs of the potential roadway users.”

Enhanced roadway design context enables understanding of the role the roadway plays within the community; identifying the role of the roadway within the local, city, and regional transportation network; and identifying the multiple roadway user groups and their priorities within the design corridor.

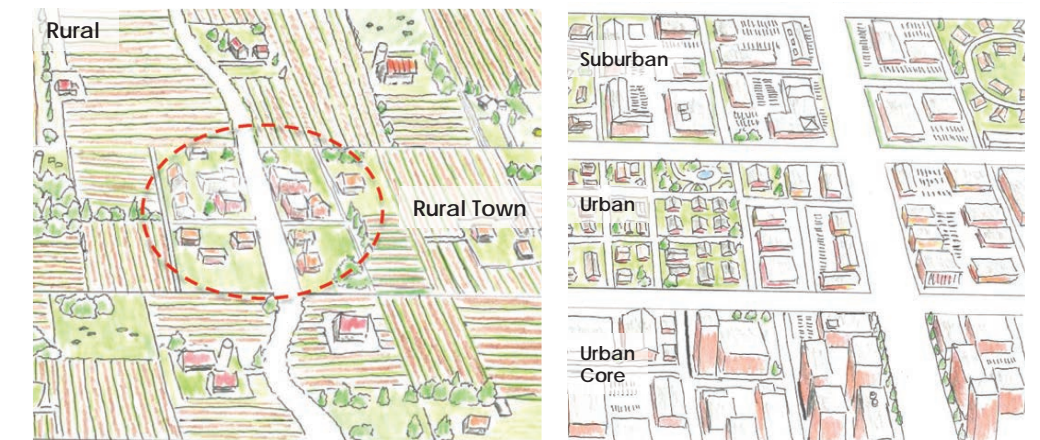
Five context categories (Rural, Rural Town, Suburban, Urban and Urban Core) can be compared to roadway functional classifications to provide insight on typical user priorities.

## Typical User Priorities

Context \ Roadway	Rural	Rural Town	Suburban	Urban	Urban Core
Principal Arterial					
Minor Arterial					
Collector					
Local					



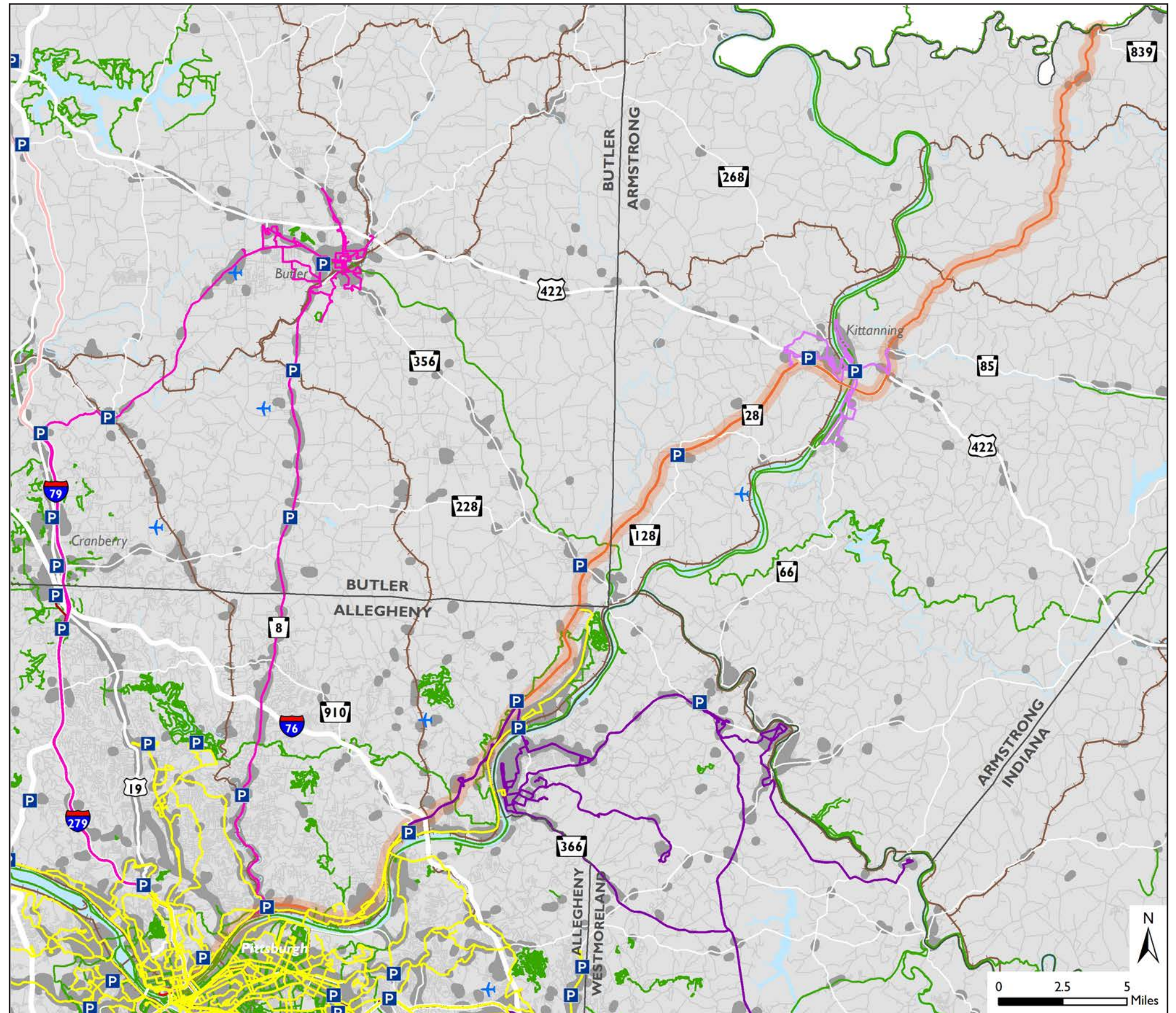
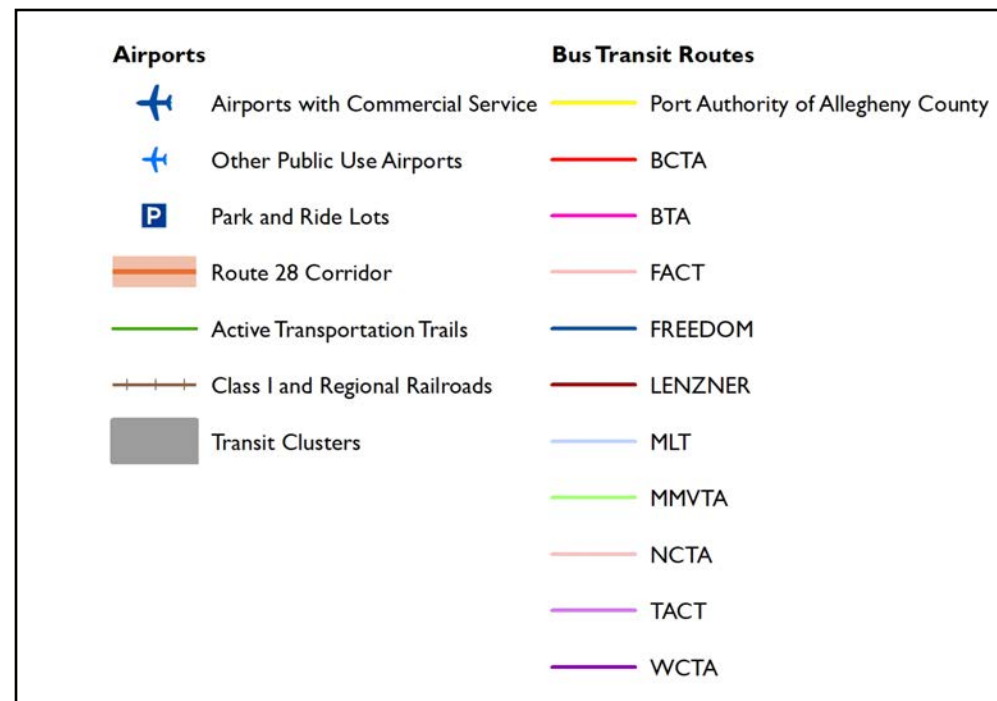
## Context Categories



In the SPC region, SR 28 traverses through several different land uses, going from the highly-dense urban core of downtown Pittsburgh to suburban communities in Allegheny County to rural countryside in Armstrong County. At the interchange with I-279 and the Veterans Bridge, SR 28 travels through an urban area characterized by dense residential and commercial areas up to the 40th Street Bridge. As SR 28 continues north past the 40th St. Bridge, it enters more suburban communities such as Millvale, Etna, and Fox Chapel until it enters Fawn Township. In Fawn Township, land use starts to transition from suburban landscape to rural areas. This rural landscape continues through the remainder of Allegheny County, and through Butler and Armstrong Counties.

# TRANSPORTATION SYSTEMS

SR 28 is a principal arterial and part of the National Highway System (NHS). Spanning approximately 60 miles within the SPC region, SR 28 connects to the Interstate network in the City of Pittsburgh at I-279. SR 28 continues outside the SPC region another 13 miles to connect with I-80 in Brookville. SR 28 is a significant regional corridor connecting the Allegheny River valley communities, southeastern Butler County, and northeastern Armstrong County to Pittsburgh. As a wider transportation corridor, the area includes transit service routes, railroad lines, river navigation, and pedestrian and bicycle trails. Transit service in the broader corridor of SR 28 is provided by the Port Authority of Allegheny County and Westmoreland Transit Authority. Both PAAC and WTA have commuter bus routes that utilize SR 28 within Allegheny County. More detail in regards to the transit operations by these providers is contained in the transit section of this report. There are nine park-n-ride facilities with a 518 vehicle space capacity within the corridor that serve transit commuters. More details on park-n-ride facilities are provided in later sections of this report. Active rail lines are within the broader transportation corridor roughly paralleling SR 28 from Pittsburgh to Kittanning along the north/northwest side of the Allegheny River. The Norfolk Southern Conemaugh line roughly parallels SR 28 from Pittsburgh to Freeport where it crosses the Allegheny River and continues on to Johnstown and points east. From Pittsburgh, the Norfolk Southern continues along the Ohio River to points west. The Buffalo and Pittsburgh line continues in the corridor to Kittanning Borough then connecting to Punxsutawney Borough, Dubois Borough, and points north. Two rail lines extend from the corridor from Pittsburgh to points north; the Buffalo and Pittsburgh line that continues up the SR 8 corridor. More detail regarding the railroad operations is contained in the freight section of this report.



SMARTMOVES CORRIDORS



## CORRIDOR COMPONENTS

Primary Highway	<ul style="list-style-type: none"> <li>SR 28 (59.1 miles)</li> </ul>
Other Highway Facilities	<ul style="list-style-type: none"> <li>Overlaps with U.S. 422 for 3.8 miles near Kittanning</li> </ul>
Transit Services	<ul style="list-style-type: none"> <li>Port Authority of Allegheny County</li> <li>Butler Transit Authority</li> <li>Town &amp; Country Transit (Kittanning)</li> <li>Westmoreland County Transit Authority</li> </ul>
Rail Facilities	<ul style="list-style-type: none"> <li>CSX (Class I)</li> <li>Norfolk Southern (Class I)</li> <li>BPRR Buffalo &amp; Pittsburgh Railroad (Regional)</li> </ul>
Water Facilities	<ul style="list-style-type: none"> <li>Port of Pittsburgh (freight)</li> <li>Allegheny River (freight and recreation)</li> </ul>
Airport Facilities	<ul style="list-style-type: none"> <li>McVie Airport (General Aviation)</li> </ul>
Active Transportation (nearby - no facilities on corridor)	<ul style="list-style-type: none"> <li>Three Rivers Heritage Trail</li> <li>Butler-Freeport Community Trail</li> <li>Rachel Carson Trail</li> <li>HBT Pedestrian Route</li> <li>Armstrong Trail</li> <li>Middle Allegheny Water Trail</li> <li>Three Rivers Water Trail</li> </ul>

The [SmartMoves Connections: A Regional Vision for Public Transit](#) is a comprehensive regional vision for public transit to drive cooperation and linkages across the region. This study identifies methodology for future investments in Multimodal Hubs connected by Multimodal Corridors, identify the best coordination strategies for operating these assets, and to ensure that the next generation of planning for multimodal investment is based on the needs of transit riders and communities. These assessments aim to identify hubs of low, medium, and high intensity in order to explore options that will align transit corridors in a way that optimizes inter-hub connections throughout the region. This CORS Master Planning Framework outlines further information on the *SmartMoves Connections* and its relationship to the SR 28 corridor.



## TRANSIT SERVICES

There is great potential within the corridor study area for a planning and project development emphasis on increasing the number of transit trips taken in the corridor. Such emphasis could lead to transit service expansion and transit oriented development that would ultimately help to alleviate recurring congestion on certain segments of SR 28. In this example, the City of Pittsburgh is a top destination (trips oriented toward downtown/Oakland and other activity centers); but there are key destinations along the corridor such as East Franklin and West Kittanning as well as Buffalo Township. The map shows that the demand is low compared to the needs to improve access to downtown and Oakland.

Currently, four different transit operators – Port Authority of Allegheny County; Mid-County Transit Authority – Armstrong County (a.k.a. Town and Country Transit); Butler Transit Authority; and, Westmoreland County Transit Authority – operate services in areas directly adjacent to the SR 28 corridor. While a limited number of buses actually traverse segments of the SR 28 corridor during a typical service day (six Port Authority routes and one BTA route traverse SR 28 on portions of Segment C), a great deal of route orientation follows prevailing travel patterns exhibited on the roadway. Prior to the service and ridership reductions due to the COVID-19 pandemic, nearly 100,000 transit trips a day (average weekday), were taken in parts of the SR 28 corridor.

Park and Ride Facilities				
Location	Municipality	County	Capacity	Transit Service
Hill St at Indiana Rd	Manor Township	Armstrong	40	No
SR 268 at Westgate Dr	East Franklin Township	Armstrong	64	No
Freeport Rd South of SR 28	South Buffalo Township	Armstrong	52	No
SR 356 at Silverville Rd	Buffalo Township	Butler	57	No
Bull Creek Rd at Ridge Road	Fawn Township	Allegheny	20	No
4th Ave at Ross St.	Tarentum	Allegheny	29	Yes
The Landings Shopping Center at Alpha Dr	Harmar Township	Allegheny	167	Yes
N. Main St. At SR 28 and SR 8	Sharpsburg	Allegheny	75	Yes
Spring Garden Ave Between Wicklines Ln & Haug St	City of Pittsburgh	Allegheny	14	Yes

Transit Routes Within 1 Mile of SR 28		
Route	Route Name	Provider
TB7	Butler and Pittsburgh Commuter	BTA
LENZNER	Lenzner Commuter	LENZNER
NC71	Pittsburgh	NCTA
1	Freeport Road	PAAC
2	Mount Royal	PAAC
4	Troy Hill	PAAC
6	Spring Hill	PAAC
7	Spring Garden	PAAC
8	Perrysville	PAAC
11	Fineview	PAAC
12	McKnight	PAAC
13	Bellevue	PAAC
15	Charles	PAAC
16	Brighton	PAAC
17	Shadeland	PAAC
18	Manchester	PAAC
19L	Emsworth Limited	PAAC
54	North Side-Oakland-South Side	PAAC
75	Ellsworth	PAAC
86	Liberty	PAAC
87	Friendship	PAAC
88	Penn	PAAC
91	Butler Street	PAAC
93	Lawrenceville-Oakland-Hazelwood	PAAC
O1	Ross Flyer	PAAC
O5	Thompson Run Flyer	PAAC
O12	McKnight Flyer	PAAC
P10	Allegheny Valley Flyer	PAAC
P13	Mount Royal Flyer	PAAC
P78	Oakmont Flyer	PAAC
Blue	Blue Line	TACT
Yellow	Yellow Line	TACT
W14J	New Kensington-Penn State- Pittsburgh Mills	WCTA

# FREIGHT NETWORK

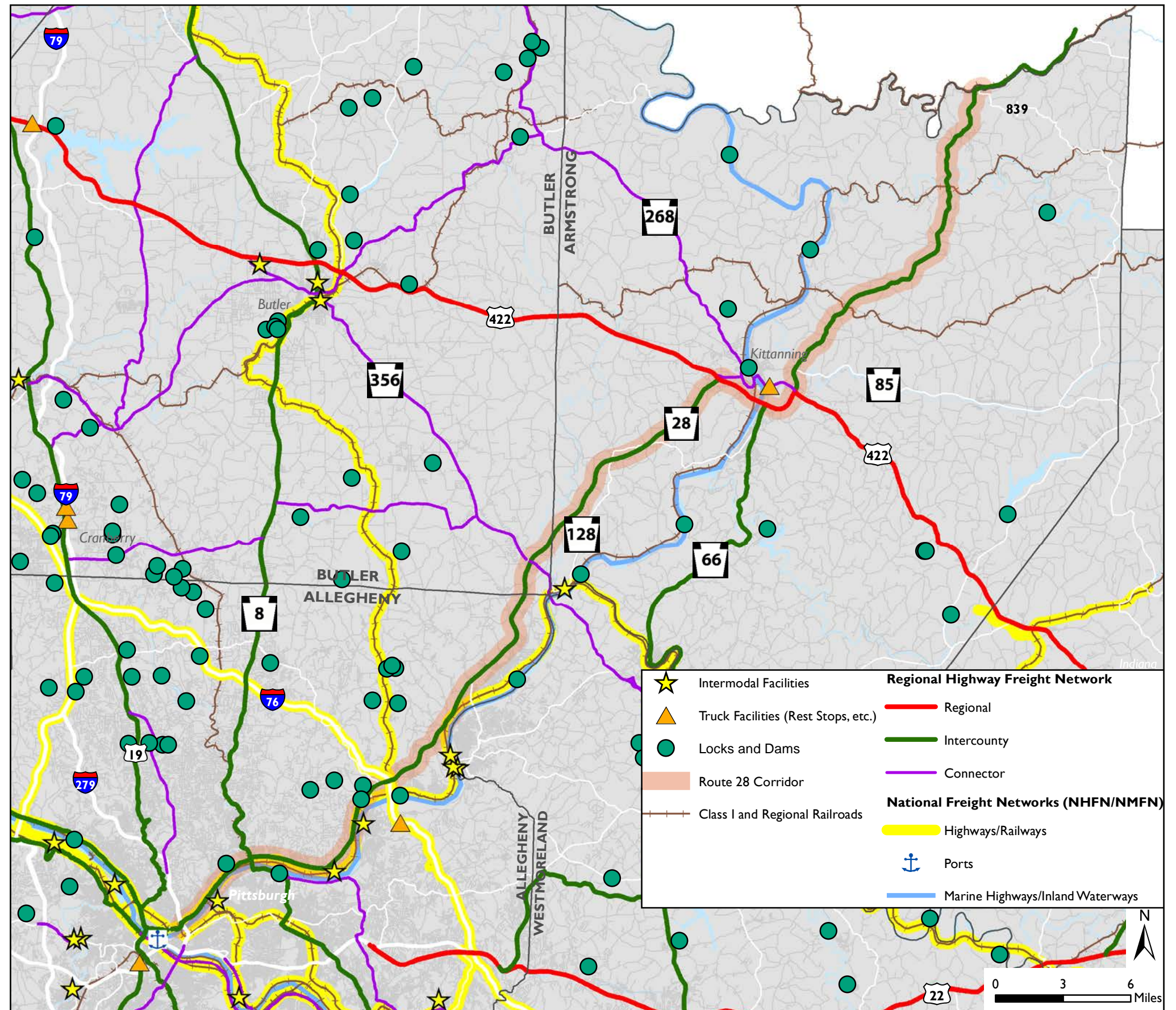
The **National Highway Freight Network (NHFN)** was established to strategically direct federal resources and policies toward improved performance of highway portions of the US freight transportation system.

The **National Multimodal Freight Network (NMFN)** looks beyond highway freight transportation to help assess and support federal investments to achieve national multimodal freight policy goals. The NMFN includes the following transportation subsystems: Highways (NHFN), freight rail, ports, inland ports and waterways, airports, and other strategic freight assets.

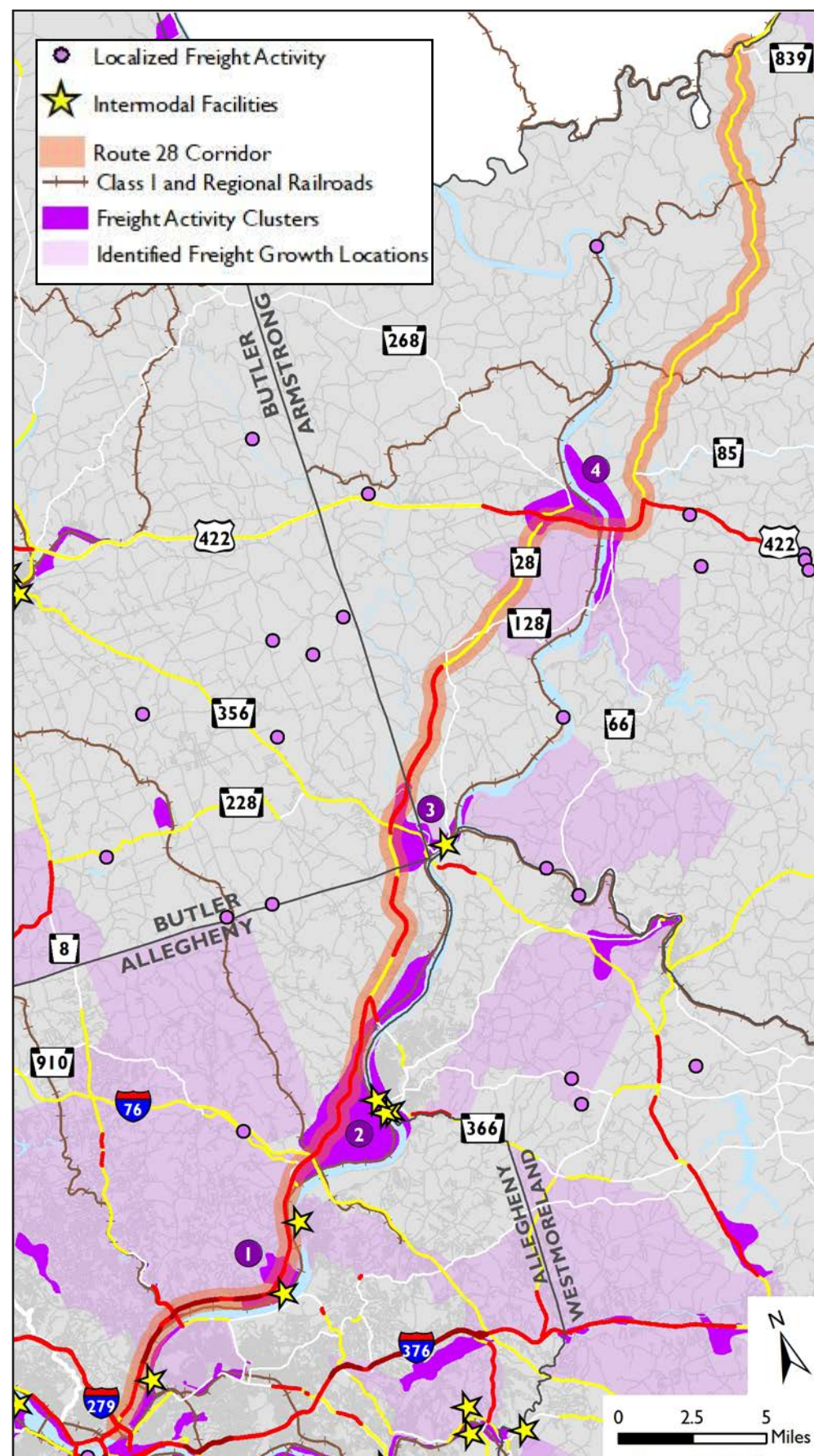
The **Regional Highway Freight Network** would supplement federal or state-designated highway freight networks to provide a more complete inventory of the key corridors and connections that serve the region's freight movement needs.

- **NHFN Routes** – as designated on the federal NHFN.
- **Regional Routes** – not on the NHFN, but typically include major corridors that carry freight through the 10-county region and/or provide important linkages to its surrounding areas.
- **Intercounty Routes** – not on the NHFN, but typically include important corridors that link freight flows between counties inside the SPC region, though not necessarily from a through-route perspective as per the Regional Routes.
- **Connector Routes** – not on the NHFN, but typically include important corridors that link the Regional or Intercounty Routes with other parts of the highway system, and/or that serve freight travel to/from larger freight activity sites or clusters.

There are multiple railroad lines within the SR 28 corridor. In Armstrong County, the Buffalo & Pittsburgh Railroad operates two railroad lines, the Shawmut Subdivision and the Main Line Subdivision. The Shawmut Subdivision crosses underneath SR 28 in Mahoning Township, just south of Mahoning Creek in North Buffalo Township. The Main Line Subdivision crosses underneath SR 28 in Wayne Township. In Allegheny County, the Conemaugh Rail Line, operated by NSCR, lies just east of SR 28. The Conemaugh Line comes into close contact with SR 28 in East Deer Township and follows a similar route to that of SR 28 from East Deer Township to Downtown Pittsburgh. The Bessemer and Lake Erie Railroad crosses underneath SR 28 in Harmar Township just east of the PA Turnpike (I-76) which goes over SR 28. The P&W Railroad crosses SR 28 in Etna then runs parallel to SR 28 and crosses the Allegheny River in the City of Pittsburgh.



# FREIGHT ACTIVITY



The value or importance of a roadway or multimodal corridor to regional freight movement is not measured solely in terms of truck volume or density. Rather, its role in the regional freight distribution network is the defining determinant of the value of a corridor to freight operations. This is evident in the SR 28 corridor, which serves urban commuter needs, regional services, and the specialized activity patterns of the agricultural and extractive industry sectors, as well as providing intermodal connectivity with rail and river barge operations along its length. Its importance to regional freight movement is clear: SR 28 is included on the NHS. According to the Federal Highway Administration, the 160,000-mile NHS includes roads important to the economy, defense, and mobility. Within that NHS structure, SR 28 is classified as an “Other Principal Arterial”, a term used to identify highways in rural and urban areas which provide access between a higher classification roadway (such as an Interstate Highway) and a major port, airport, public transportation facility, or other intermodal transportation facility. In total, the NHS includes only 4% of the nation’s roads, but carries more than 40% of all highway traffic, 75% of heavy truck traffic, and 90% of tourist traffic. Inclusion in the NHS is an indication of SR 28’s importance in the regional freight transportation network.

Supporting evidence of the corridor’s importance in the regional freight network is available from Transportation Improvement Program projects implemented and/or proposed over the past several decades. These include the need for a Truck Passing Lane on State Route 356 in Westmoreland County to facilitate safe truck movement between SR 28 and the Alle-Kiski communities of northern Westmoreland County; and the incorporation of specific truck design elements on the Freeport Bridge along that same route.

Further evidence of the regional role of SR 28 was obtained in a survey of residents and freight interests conducted in an assessment of the improvement needs of US Route 422 in neighboring Indiana County. In that survey, it was determined that many commercial users of US 422, were using the corridor to get to I-80, and were using SR 28 (west of the study area) or US 119 (east of the study area) to make that connection. The corridor evaluated in this CORS assessment begins a few miles south of I-80, one of the most heavily utilized freight corridors in the eastern United States. The presence of an interchange between SR 28 and I-80 ensures a steady flow of truck traffic between the two corridors. Along the length of the SR 28 corridor, the roadway intersects with two highways that have been designated at the state and regional level as Critical Urban Freight Corridors, namely US 422 and the Harmar Connector. Such corridors are deemed “as important to freight as” other roadways in the NHS, although they are not otherwise part of the NHS system. A third regional Critical Urban Freight Corridor, The I-579 Connector, forms the southern terminus of the SR 28 Corridor. Although not adopted as a Critical Urban Freight Corridor, the I-579 Connector was identified as a regional candidate for statewide designation to the federal Critical Urban and Rural Freight system due to its vital role in connecting the Monongahela River truck and barge network with SR 28 and I-279.

More specific descriptions of freight activities relating to the servicing the legacy extractive, industrial and manufacturing needs of the communities of the corridor, intermodal connections and other site specific variables will be addressed in this report.

2012 FAF Long distance truck volume	89 - 977
Projected growth 2012 - 2045	49% - 89%
2012 FAF Tonnage per year (kton)	632 - 6,925
Projected growth 2012 - 2045	46% - 89%

The **Freight Analysis Framework (FAF)** network assignment estimates commodity movements by truck over specific highways. Models are used to disaggregate interregional flows from the Origin-Destination Database into flows between localities and to assign these flows to individual highways using average payloads per truck, and truck counts on individual highway segments.

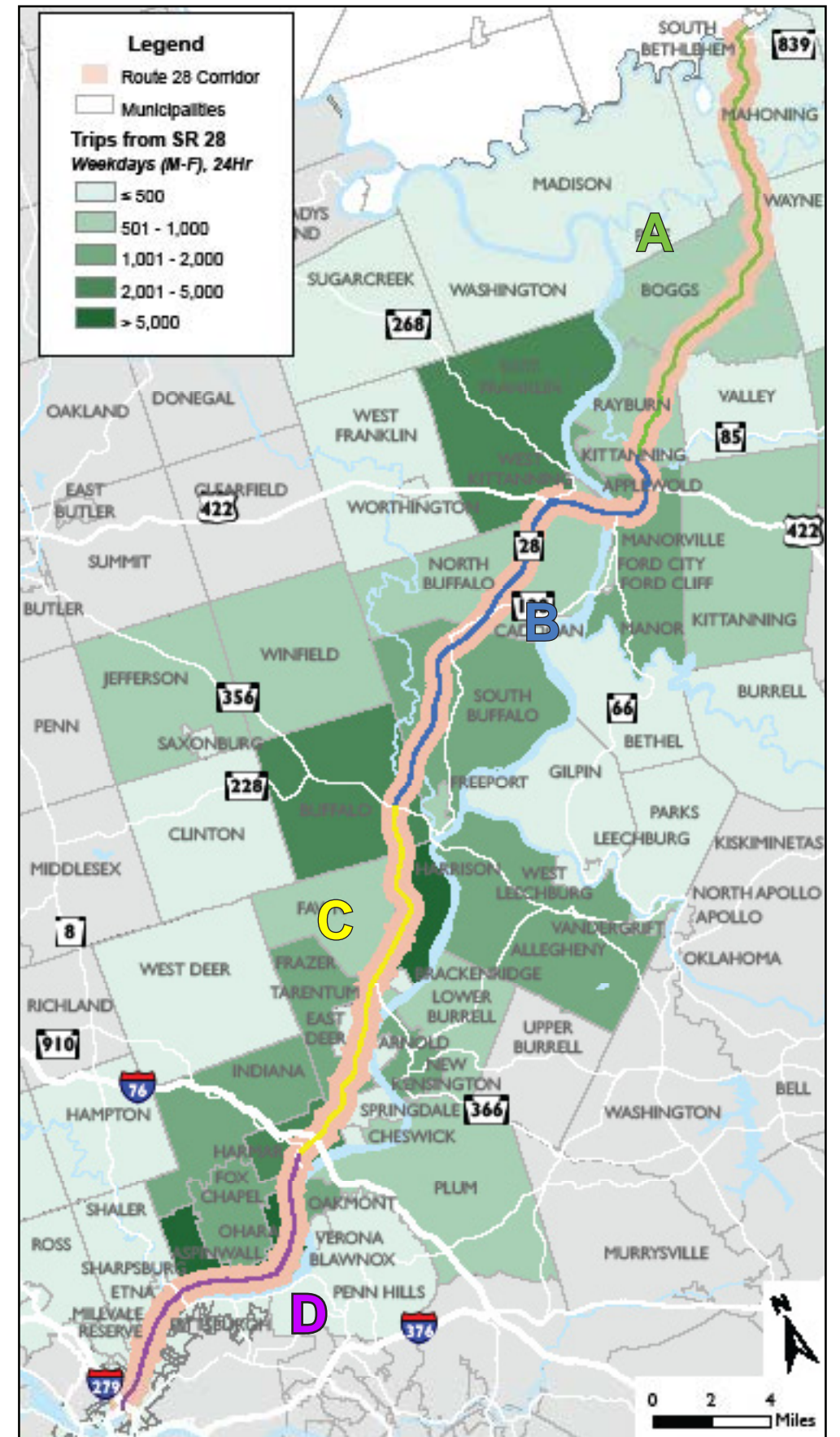
1	Fox Chapel - Blawnox
2	Harmar - New Kensington - Tarentum
3	Freeport
4	Kittanning

[SPC Freight Plan](#) includes further information on freight planning in Southwestern Pennsylvania.

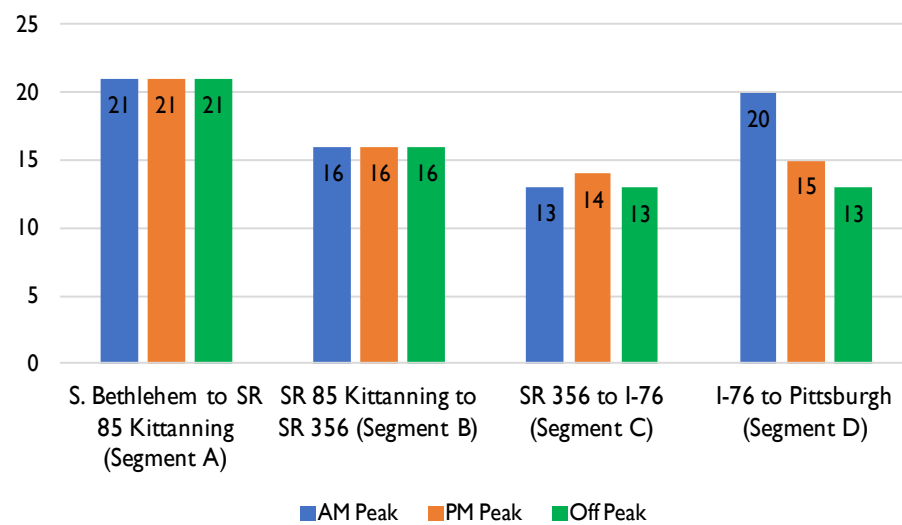
# CORRIDOR TRAVEL PATTERNS

Travel times along each segment are fairly consistent all day for Segments A (21-22 minutes), B (16 minutes), and C (13-14 minutes). Segment D travel times show considerable variation by direction and time of day. In the southbound direction, the AM peak travel time is 5 minutes longer than during the rest of the day. Similarly, in the northbound direction, the PM peak travel time is 6 minutes longer than during the rest of the day. Analysis of northbound trips shows that, overall, more than 110,000 trips use some portion of the corridor. Of the northbound trips, over half originate on Segment D, about 25% originate on Segment C, with Segments B and A having 12% and 7% of origins respectively. The proportion decreases as segments progress northbound. A similar pattern would be expected for analysis in the southbound direction.

High trip destination areas within the corridor include parts of O'Hara Township, Natrona Heights, Buffalo Township, and East Franklin Township. Over 50% of the northbound trips are destined to areas within the corridor. Roughly 15% are destined to areas near the corridor. Of the rest, about 33% are destined to areas beyond the corridor; of those, 60% (20% of the total) have destinations east of the corridor and 40% (13% of the total) have destinations west of the corridor.

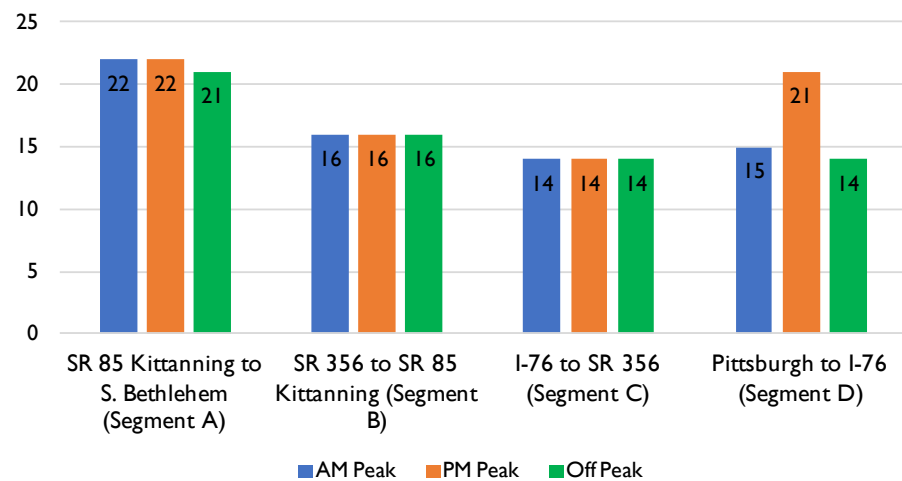


SR 28 Southbound Travel Times (Minutes)

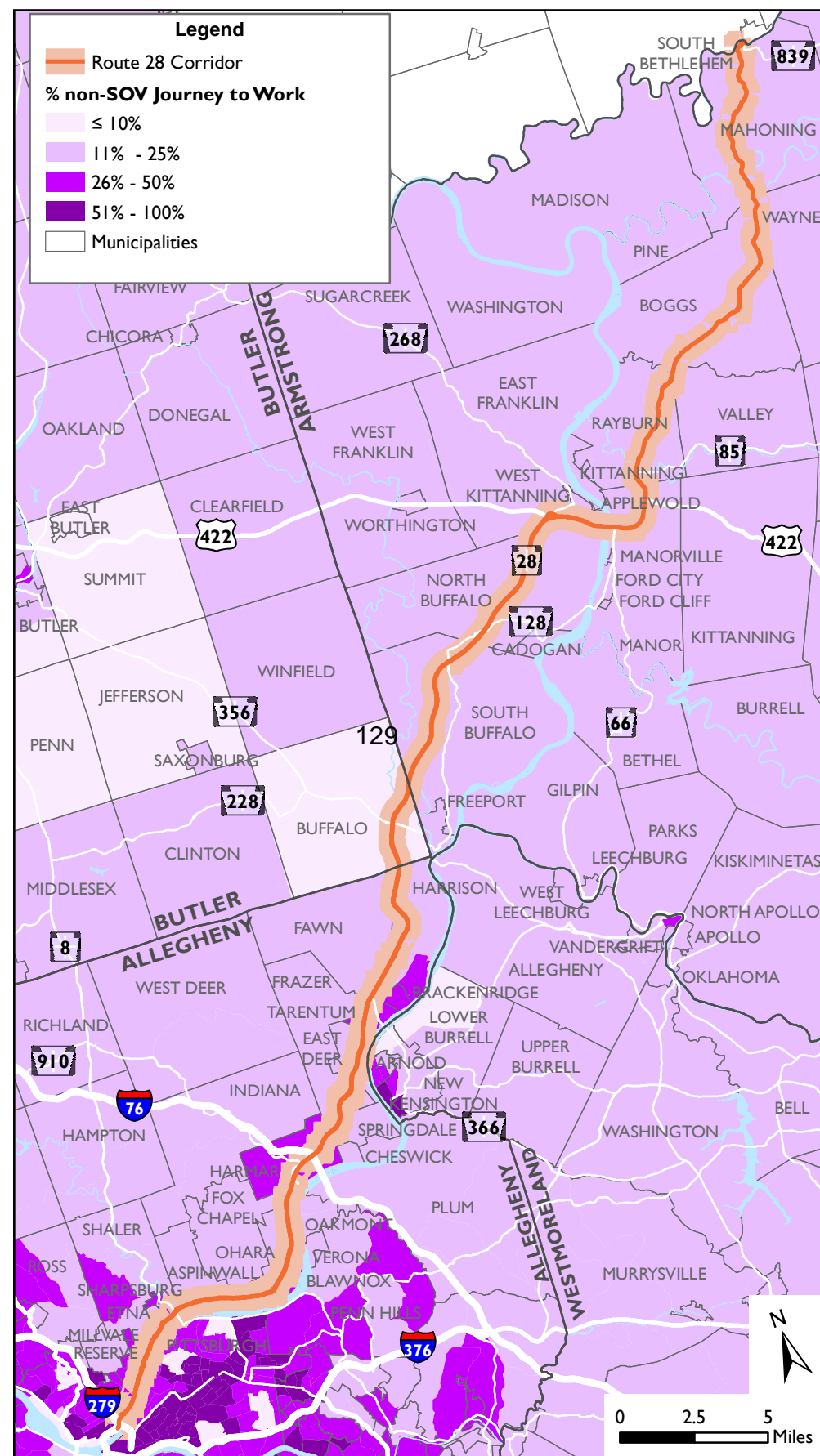


Segment A S. Bethlehem to SR 85		Segment B SR 85 Kittanning to SR 356	
Corridor Length (miles)	17.0	Corridor Length (miles)	16.6
Average Speed at Posted Speed Limit (mph)	51.1	Average Speed at Posted Speed Limit (mph)	63.8
Travel Time at Posted Speed Limit (minutes)	20.0	Travel Time at Posted Speed Limit (minutes)	15.7 (NB) 15.6 (SB)
Segment C SR 356 to I-76		Segment D I-76 to Pittsburgh	
Corridor Length (miles)	13.1 (NB) 12.9 (SB)	Corridor Length (miles)	11.8
Average Speed at Posted Speed Limit (mph)	60.6 (NB) 59.6 (SB)	Average Speed at Posted Speed Limit (mph)	49.9
Travel Time at Posted Speed Limit (minutes)	13.0	Travel Time at Posted Speed Limit (minutes)	14.2

SR 28 Northbound Travel Times (Minutes)



PERCENT NON-SINGLE OCCUPANT VEHICLE TRAVEL



Data from the US Census American Community Survey (ACS) provides information about the means of travel to work. Driving alone to work (single occupant vehicle – SOV travel), is the predominant travel mode to work in the US and the SPC region. Every month the Census Bureau collects data on a wide range of demographic characteristics. And, every year the Census Bureau reports data from the past five years. The annual sample size nationally is approximately 2.5% of all housing units. The five-year reports provide data summaries based on approximately 12.5% of the nation. The 2015-2019 ACS data tables for means of travel to work estimate that SOV travel accounted for 76.3% of travel to work in the US, and 76.9% in the SPC region. Currently, there is no reliable estimate available from any known source for travel by mode for non-work trips.

**Percent Non-Single Occupant Vehicle (SOV) Travel** is included in the set of federal Transportation Performance Measures (known as PM-3) created by the Moving Ahead for Progress in the 21st Century Act (MAP-21) and Fixing America's Surface Transportation (FAST) Act to ensure effective use of Federal transportation funds. The measures are implemented by the federal Highway Administration and PennDOT, with baseline and target levels for each state DOT and applicable MPOs.

Percent Non-Single Occupant Vehicle travel (Non-SOV) is included in the set of transportation system performance measures established by the USDOT to implement provisions of the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST) to ensure effective use of federal transportation funds. Baseline and target levels are set by states and MPOs in accordance with USDOT guidance. Non-SOV travel is travel to work by modes other than driving alone including carpool, vanpool, public transportation, taxi, bicycle, walking, and work at home, among others. SPC has adopted a Non-SOV target for the Pittsburgh Urbanized Area of 24.4% for 2021. Since the release of the 2005-2009 ACS data, this measure has ranged from a high of 25.84% (2006-2010) to a low of 24.78% (2010-2014) for the Pittsburgh Urbanized Area.

Within the SR 28 corridor, the 2015-2019 ACS data shows that the percent of Non-SOV travel to work varies widely. The area with the lowest level (10% or less) of Non-SOV travel is in southwestern Butler County. The highest levels (over 50% Non-SOV travel to work) are in the City of Pittsburgh within Downtown, Oakland, and other East End neighborhoods. Non-SOV travel in much of the corridor ranges between 11% to 25% of work trips, with slightly higher levels, in the 26% to 50% range, in and near Natrona Heights, New Kensington, Springdale, and parts of the City of Pittsburgh.

Generally, the areas with higher levels of Non-SOV travel to work correlate with areas of high population and employment density (see maps – pages 11 and 12) and areas well-served by transit (see map – page 16).

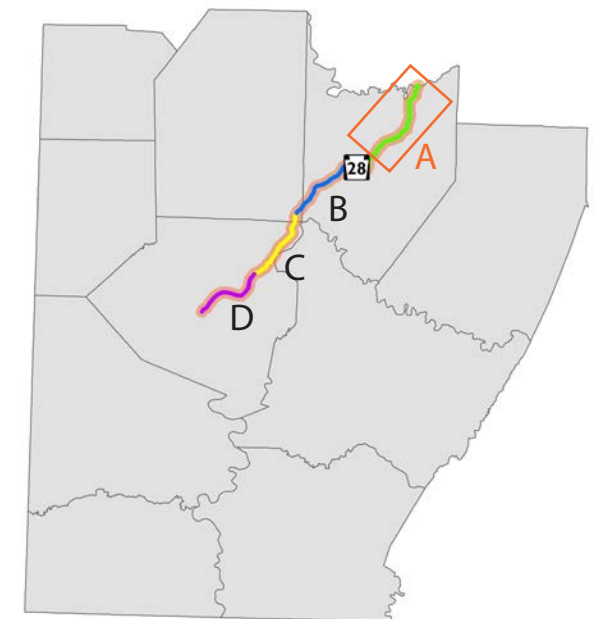


# SECTION III: SEGMENT PROFILES

---

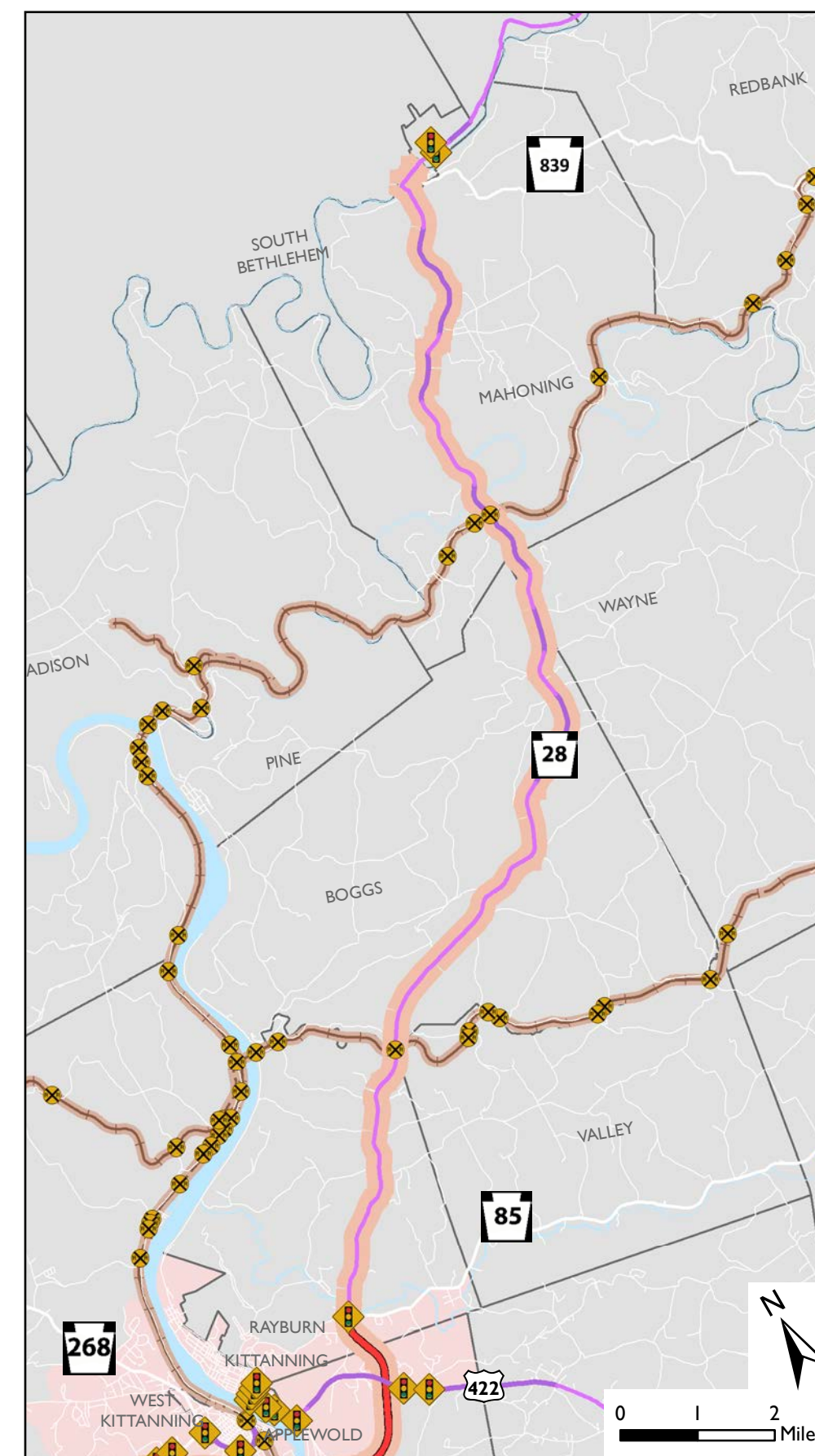
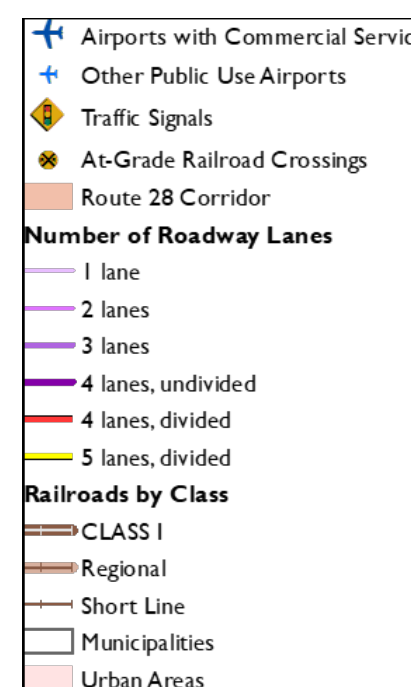
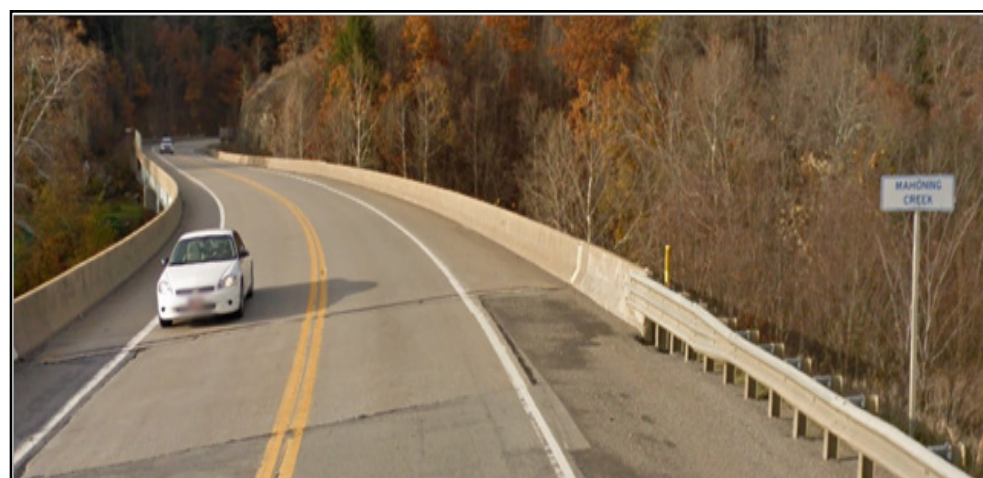
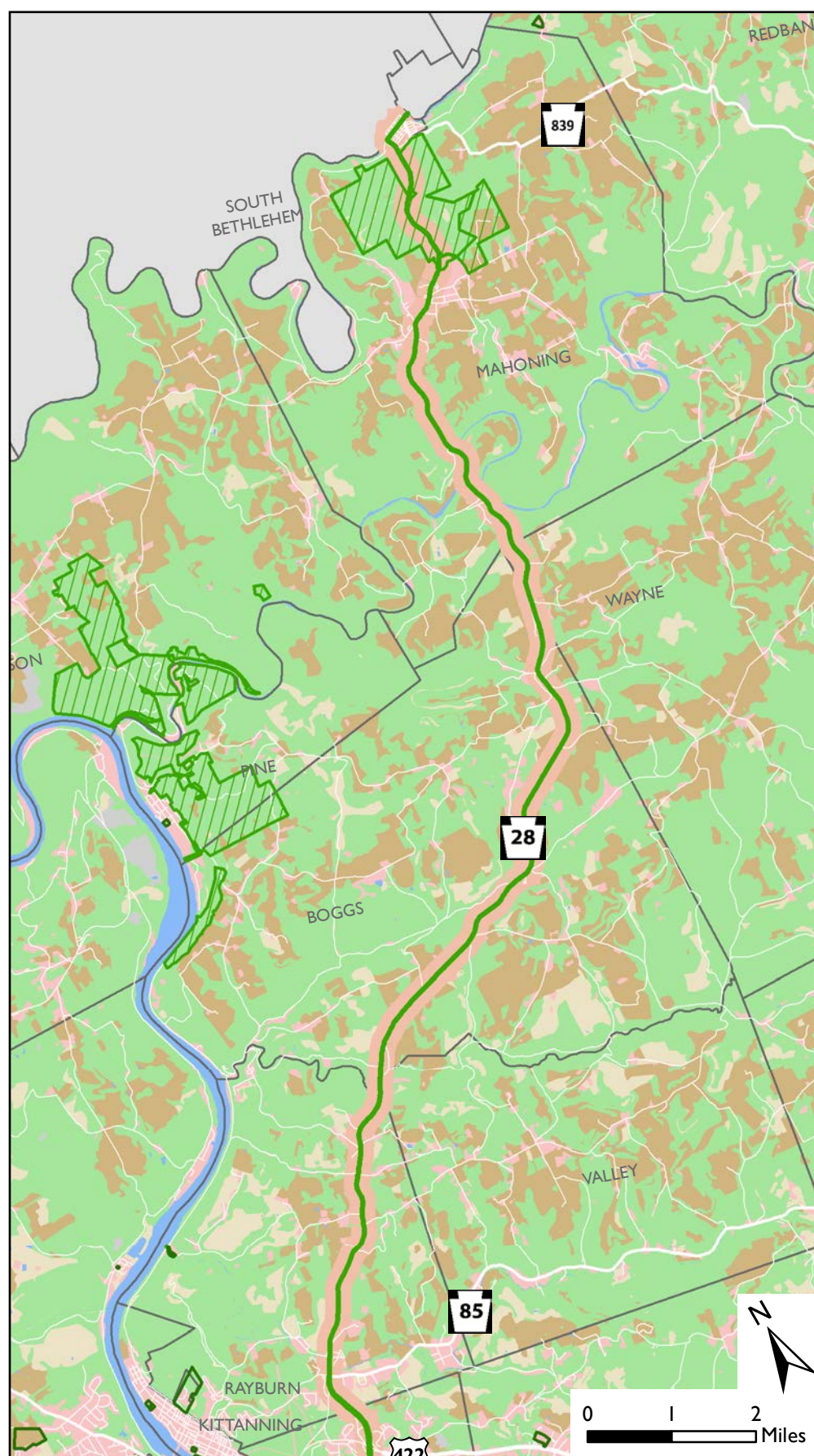
## SEGMENT A

- SEGMENT OVERVIEW
- ACTIVE TRANSPORTATION
- FUTURE HIGHWAY & BRIDGE PROJECTS
- ENVIRONMENTAL FEATURES
- FREIGHT
- REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES
- SEGMENT TRAVEL PATTERNS
- CONDITION OF ASSETS
- TRANSIT
- CONGESTION & RELIABILITY
- SAFETY
- FOCUS AREAS

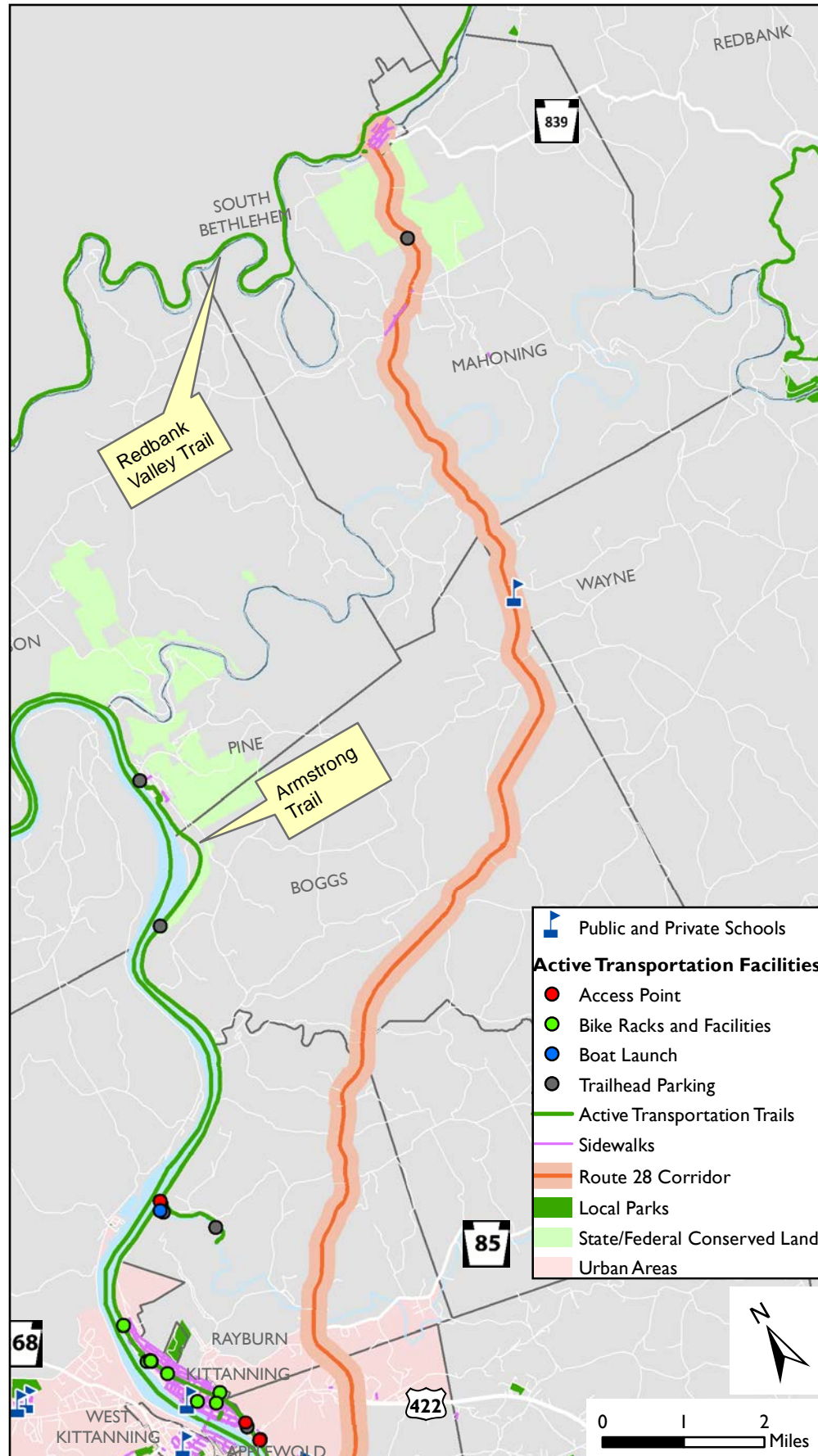


# SEGMENT A: OVERVIEW

SR 28 from the Clarion County Line to SR 85 in Rayburn Township is mostly a two-lane highway that covers rural, low density residential and agricultural areas. In this segment, SR 28, which shares a concurrency with SR 66, goes through Mahoning, Boggs, Wayne, Valley, and Rayburn Townships. Although SR 28 does not travel through its boundary, the Borough of Kittanning is roughly 2 miles to the southwest of SR 28. Going from the northern section of this segment. SR 28 is mostly a two-lane highway through this section; however, passing lanes are currently present along some portions of this corridor. Passing lanes are currently present on the northbound side of SR 28 in Mahoning Township. Passing lanes are present in Mahoning, Boggs and Wayne Township on the southbound side. SR 28 through this section is near other major routes such as US 422, SR 85, and I-80.



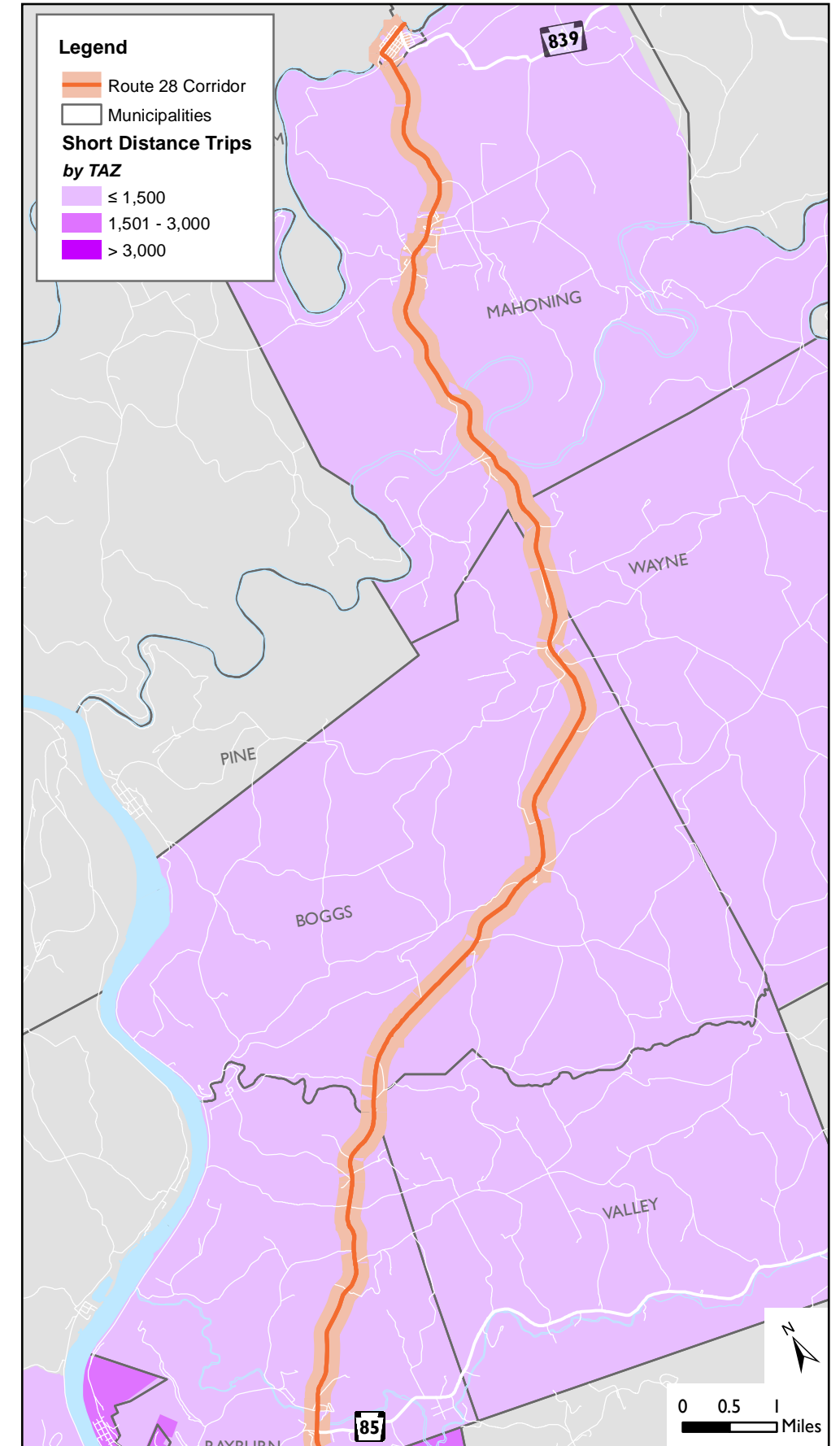
# ACTIVE TRANSPORTATION



There are no bicycle facilities on this segment of SR 28. Pedestrian facilities include incomplete sidewalk networks along the corridor in some rural towns. Nearby land trails include the Redbank Valley Trail, the Armstrong Trail and the Cowanshannock Trail. Trail descriptions, and trail functional classifications for those in the SPC region, are listed below.

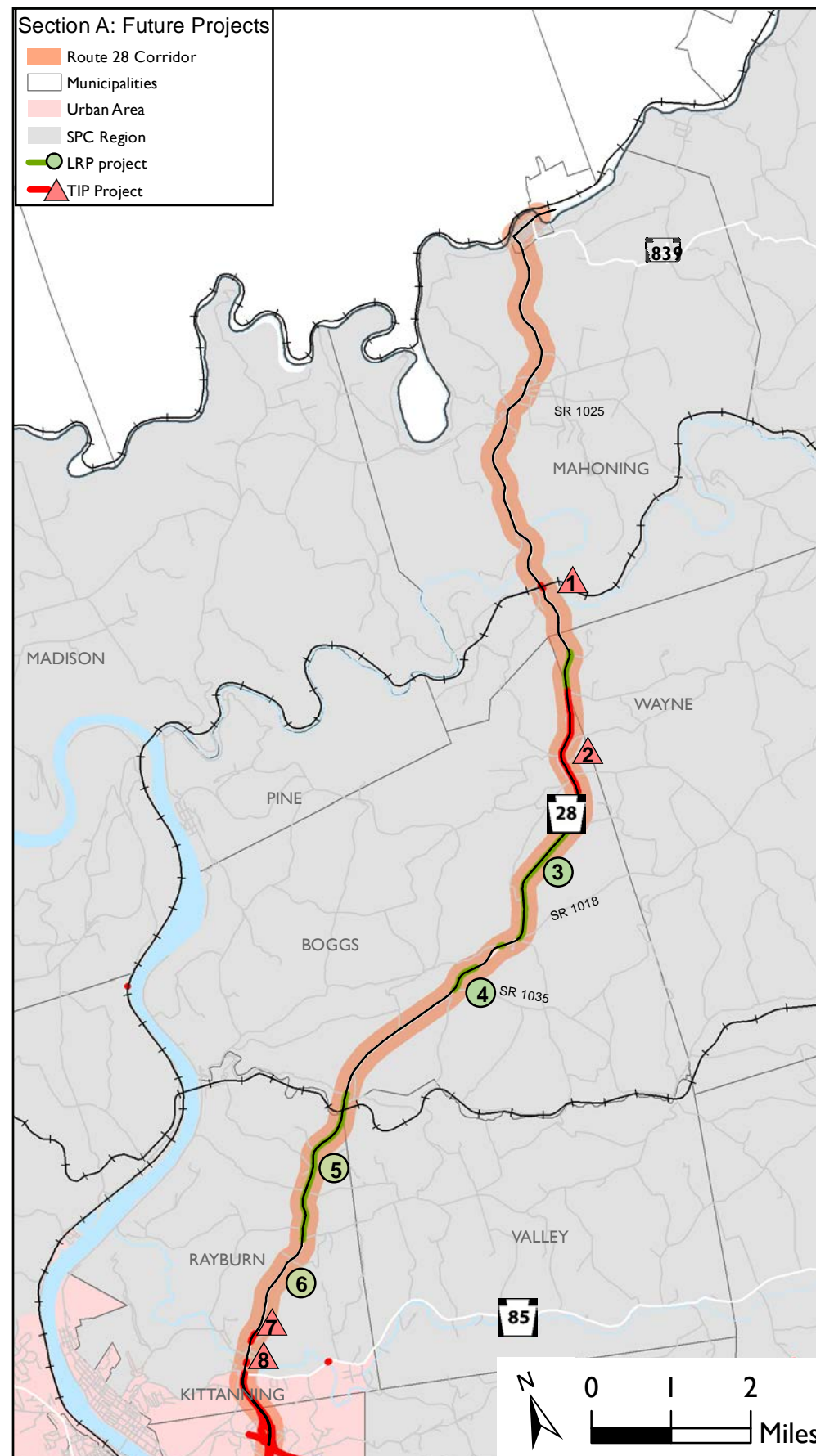
- The Redbank Valley Trail is located in Clarion County, with a spur into Mahoning Township near South Bethlehem. The Redbank Valley Trail travels eastward along the Red Bank Creek from the confluence with the Allegheny River where it connects with the Armstrong Trail. The Redbank Valley Trail is accessible from Kohlersburg Road, which intersects with the corridor in the northern section of this segment in South Bethlehem.
- The Armstrong Trail (community arterial) is located approximately 4-5 miles west of the southern segment of the corridor and is not directly accessible from the corridor, though it can be accessed via the Redbank Valley Trail. The Armstrong Trail runs along the east bank of the Allegheny River from Upper Hillville to Rosston.
- The Redbank Valley and Armstrong trails are part of the Erie to Pittsburgh Trail that will run from Presque Isle on Lake Erie to Pittsburgh's connection with the Great Allegheny Passage. Both of these trails are also part of the Industrial Heartland Trails Coalition's developing 1,500-mile trail network through Pennsylvania, West Virginia, Ohio, and New York.
- The Cowanshannock Trail (local), which follows the Cowanshannock Creek, is a short spur off the Armstrong Trail. It is located in the Gosford community (Rayburn Township).
- Nearby water trails include the Middle Allegheny Water Trail, which is a 61-mile recreational boat route for canoes, kayaks and rowboats. Armstrong County is seeking a PA Water Trail designation for this waterway.

Other initiative include completing sidewalk networks in rural towns, especially extending the existing sidewalk along W. Broad Street/SR 28 to Kohlersburg Road in South Bethlehem, which provides access to the Redbank Valley Trail; installing crosswalks, trail access signage, pedestrian crossing signs, improved lighting, line of sight improvements and/or other safety countermeasures near the corridor's intersection with Kohlersburg Road; assessing school bus stops and roadway characteristics in areas immediately surrounding stops and implementing improvements as needed; and widening shoulders to provide safer travel options for horse and buggy users from Amish communities near the corridor. There is a non-public school located on Calhoun School Road, which intersects with the corridor. It is located in a low density rural area and is not in close proximity to a residential development or a park. The northern limits of the corridor are primarily rural in nature and characterized by low population and employment density. There are relatively few short (less than 2 miles) trips and limited active and public transportation facilities.





# FUTURE HIGHWAY & BRIDGE PROJECTS



<b>1</b>	<p>Bridge Preservation   MPMS 111826 2021-2024 TIP   Department Force Bridge Maintenance Bridge maintenance of various state-owned structures on various routes, in various townships, Armstrong County.</p>
<b>2</b>	<p>Safety   MPMS 69141 2021-2024 TIP   Goheenville Dip Safety improvement (roadway realignment, bridge replacements, continuation of a truck climbing lane, and left turn lanes) along SR 28 from 0.53 mile north of SR 1027 to 0.30 mile south of SR 1016 (Calhoun School Road) in Boggs and Wayne Townships, Armstrong County.</p>
<b>3</b>	<p>Road Preservation   MPMS 99933 Fiscally Constrained List   SR 28 Resurfacing Resurfacing to include milling of existing bituminous wearing courses, bituminous patching, paving, leveling, binder and wearing courses and minor drainage and guiderail upgrades along SR 28 from 0.56 miles west of the SR 1027 intersection to the T-810 (Calhoun Road) intersection in Boggs and Mahoning Townships, Armstrong County.</p>
<b>4</b>	<p>Road Reconstruction   MPMS 101134 Fiscally Constrained List   SR 28 Slabtown South Recon Highway reconstruction along SR 28 between SR 1035 and T-821 (Heffelfinger Road) in Boggs Township, Armstrong County.</p>
<b>5</b>	<p>Safety   MPMS 91262 Fiscally Constrained List   Hays Run 3R Safety improvements including reconstruction, rehabilitation and resurfacing along SR 28 / SR 1028 (Anderson Creek Road) to T-535 (McAuley Falls Road) in Rayburn and Boggs Townships, Armstrong County.</p>
<b>6</b>	<p>Safety   MPMS YTD Fiscally Constrained List   SR 28 Corridor Improvemens-Kittanning to Clarion County Line Yet to be determined corridor and safety improvements SR 28 Kittanning to Clarion County Line.</p>
<b>7</b>	<p>Bridge Replacement   MPMS 24056 2021 - 2024 TIP   Poverty Hill Bridge Rehabilitation/replacement of the existing structure carrying SR 28 over a branch of Cowanshannock Creek in Rayburn Township, Armstrong County.</p>
<b>8</b>	<p>Bridge Restoration   Project ID 111826 2021-2024 TIP   Department Force Bridge Maintenance Bridge maintenance of various state-owned structures on various routes, in various townships, Armstrong County.</p>

Within Segment A of the corridor there are four TIP projects (Project 1, Project 2, Project 7, and Project 8).

- Project 1 is the SR 28 bridge over the Buffalo and Pittsburgh Rail Line, which is part of the PennDOT District 10 Department Force Bridge maintenance in 2021-2024.
- Project 2 is a safety project named Goheenville Dip. The project will address safety concerns at this location and will include, roadway realignment, turning lanes, and extension of a truck climbing lane. The project has construction funds of over \$18 million programmed in 2022, 2023, and 2024.
- Project 7 is the Poverty Hill Bridge. This project is a bridge replacement of the structure over a branch of Cowanshannock Creek. Phases on the 2021 TIP for this \$2.4 million project include final design, utilities, right-of-way, and construction.
- Project 8 is the Bridge Preservation activities on the SR 28 over Cowanshannock Creek via Department Force Bridge Maintenance.
- Long Range plan projects (Projects 3-6) in this segment include several mid-term road preservation, road reconstruction and safety projects. One long-term project includes to-be-determined safety and corridor improvements in this segment of roadway. A corridor study focusing on SR 28 from Kittanning to I-80 was recently completed by SPC and is available at <https://www.spcregion.org/>.
- For up to date information on TIP projects, please visit <https://www.spcregion.org/programs-services/transportation/smartmoves-long-range-plan-transportation-improvement-program/>.



Goheenville Dip

# ENVIRONMENTAL FEATURES

SR 28 has numerous crossings of surface water resources in Segment A. The most significant water resource in the section is the Pine Creek Watershed. This Watershed is classified as a high-quality cold water fishery and includes the North Fork of Pine Creek Watershed and the South Fork of Pine Creek watershed. The Pine Creek Watershed is traversed by SR 28 for a distance of approximately 5.4 miles. Just north of the SR 85 intersection, SR 28 crosses Cowanshannock Creek, which is a trout stocked fishery. Tributaries of Cowanshannock Creek that parallel SR 28 are classified as impaired by acid mine drainage. Approximately 4 miles north of the Pine Creek Watershed SR 28 crosses the Mahoning Creek. The northern extent of Segment A of SR 28 crosses Redbank Creek, a trout stocked fishery at the Armstrong/Clarion County border.

- There are no MS4 municipalities or Act 167 storm water plans present in Segment A of SR 28.



### Water Quality Standards

All commonwealth waters are protected for a designated aquatic life use as well as a number of water supply and recreational uses. The **use designation** shown in the water quality standards is the aquatic life use. These uses are Warm Water Fishes (WWF), Trout Stocking (TSF), Cold Water Fishes (CWF) and Migratory Fishes (MF). A body of water is considered **“impaired”** if it fails to meet one or more water quality standards.

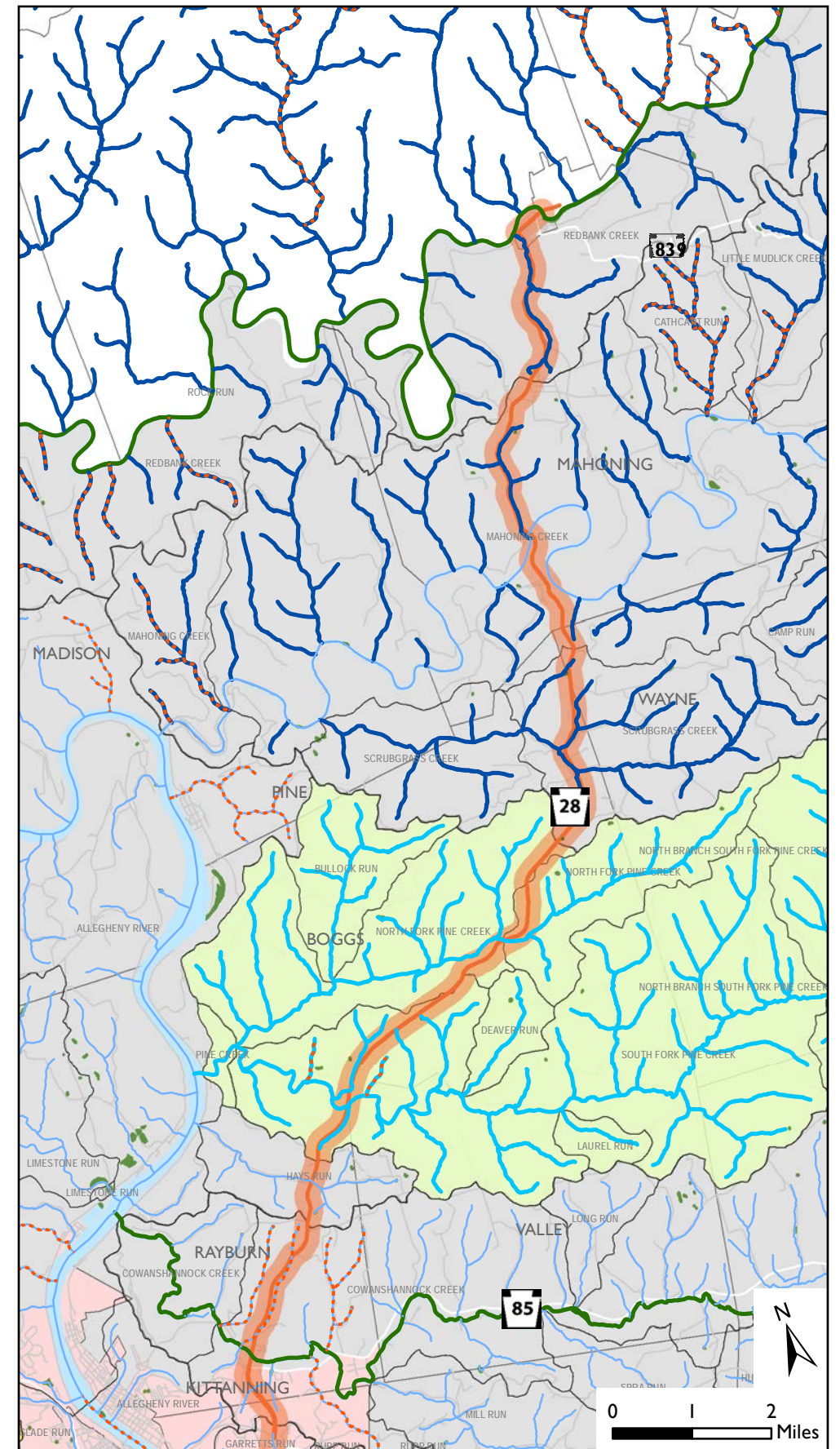
The water quality in a High Quality stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all existing uses of the stream are protected. Exceptional Value waters are to be protected at their existing quality; water quality shall not be lowered.

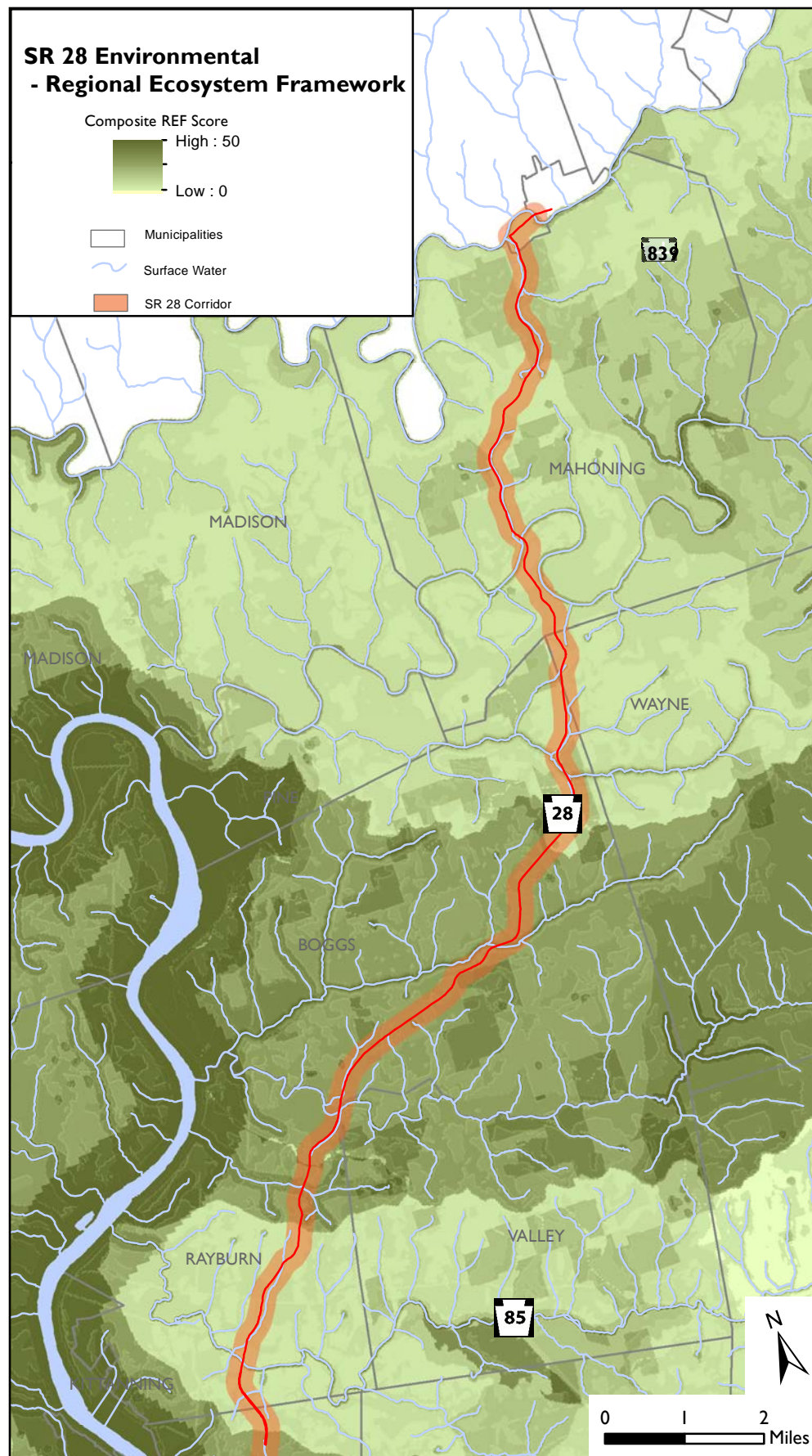
Some water resources are also part of the **Total Maximum Daily Load (TMDL)** program, which identifies sources of pollution and allocates pollutant loads in places where water quality goals are not being achieved.

### Stormwater Management

The **Storm Water Management Act (No. 167)** authorized a program of comprehensive watershed stormwater management that retains local implementation and enforcement of stormwater ordinances similar to local responsibility of administration of subdivision and land development regulations. Act 167 plans are required on a county-wide basis; however, the practice to this point has been to only develop plans for specific sensitive waters/watersheds.

A **Municipal Separate Storm Sewer System (MS4)** is owned or operated by a public agency, such as a city, town, county, flood control district, state, or federal agency that does not connect to the sanitary sewer system and does not lead to a wastewater treatment plant.





The **Regional Ecosystem Framework (REF)** integrates environmental inventory data, conservation priorities, maps, and plans, with input from and adoption by conservation and natural resource stakeholders identified that addresses species, habitats, and relevant environmental issues and regulatory requirements agreed upon by the stakeholders. SPC has identified available GIS data layers that when analyzed will spatially model ecological significance on a regional scale. The datasets that make up the prototype REF are included in Appendix B.

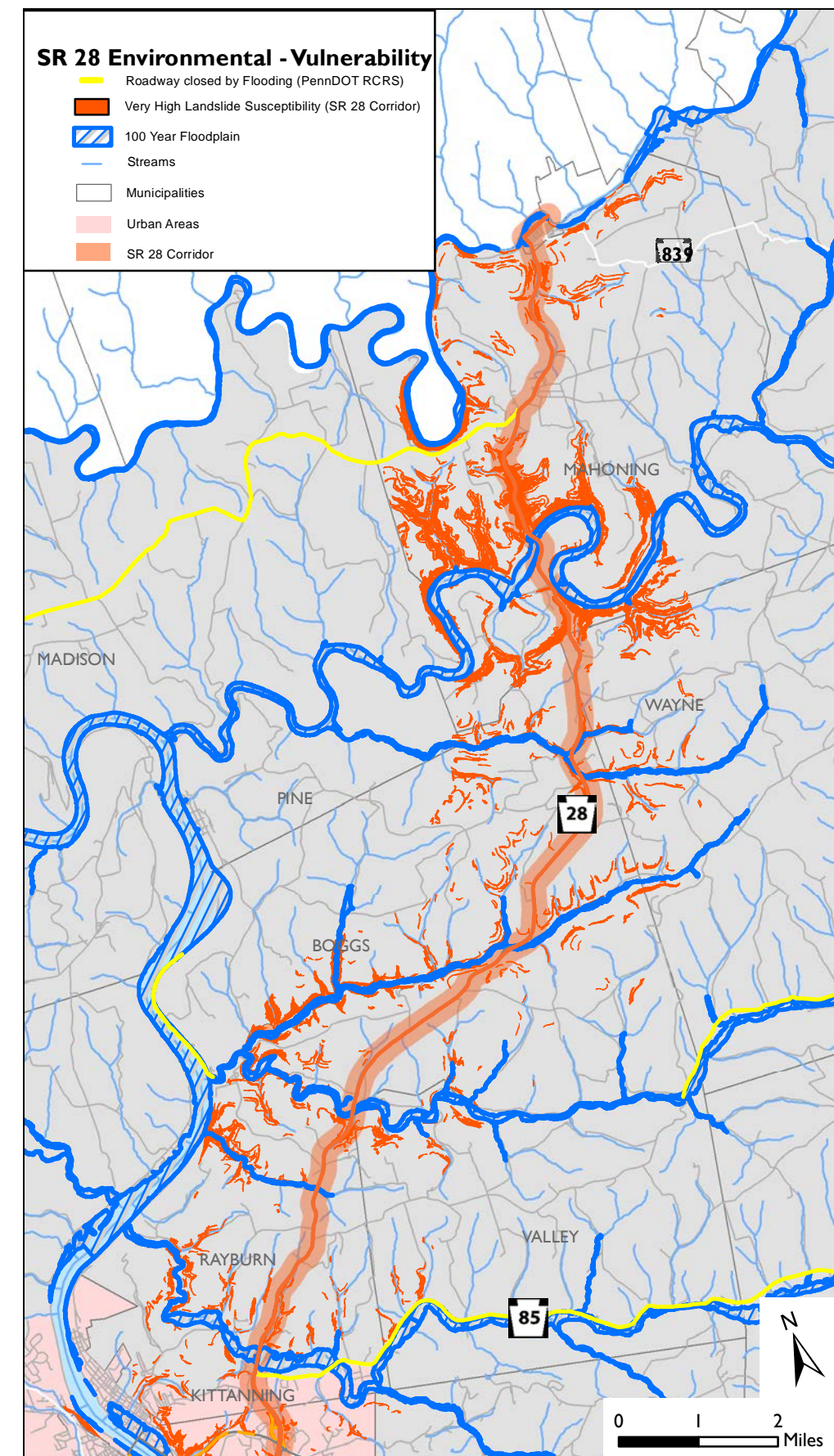
SPC staff assigned a score to the relevant attribute of each environmental data layer. The score reflects the relative importance of the occurrence of any certain resource found in a dataset relative to other resources used in the analysis.

Greater values in the REF indicate greater environmental significance.

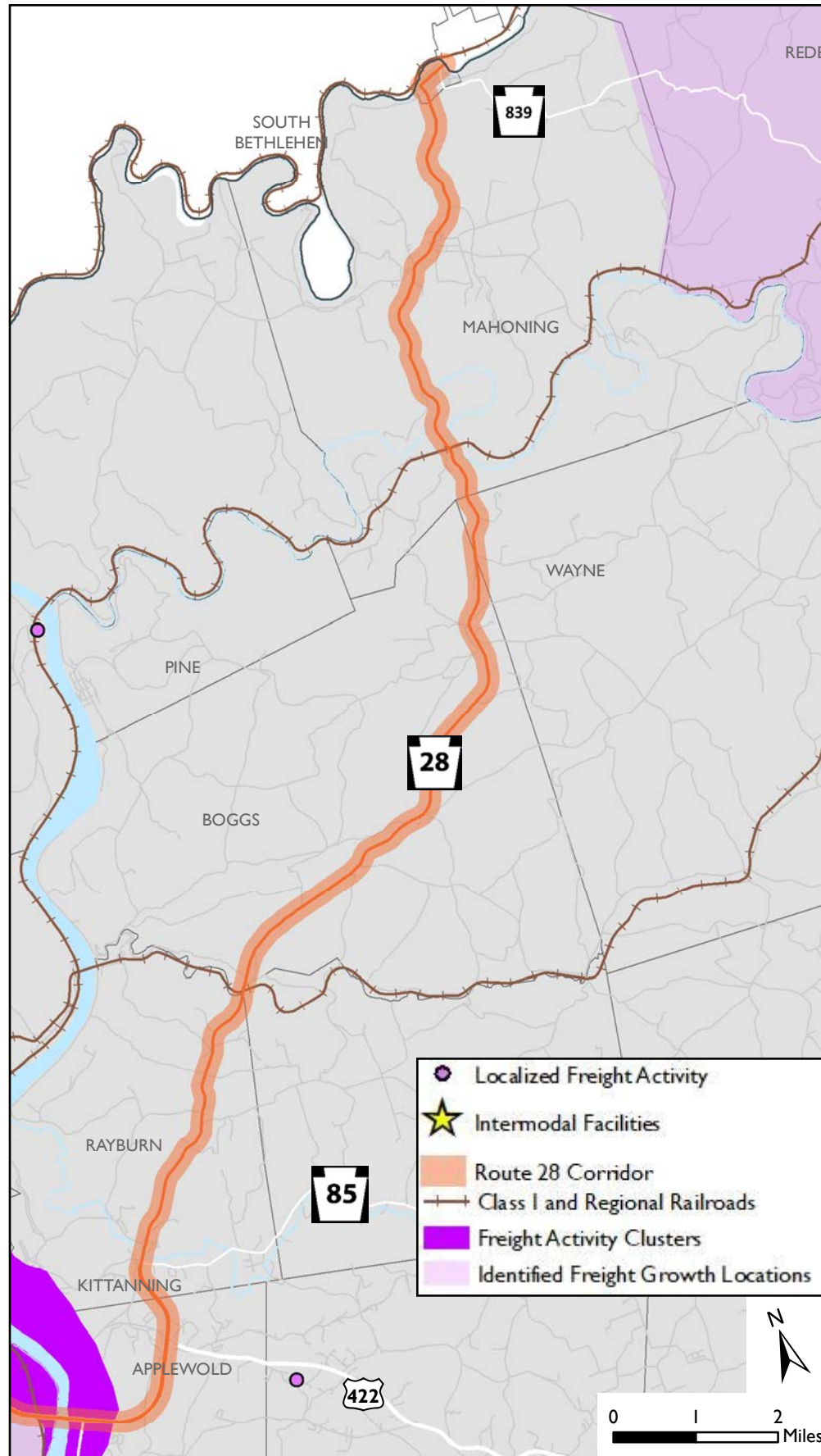
Within Segment A, the REF is showing a higher relative environmental value attributed to the Pine Creek Watershed in the middle of the segment (within Boggs, Rayburn, and Valley Townships). Darker green patches within the watershed constitute protected properties through either a conservation easement or agricultural preservation. The Pine Creek Watershed is classified as a high-quality cold water fishery. This watershed is traversed by SR 28 for a distance of approximately 5.4 miles. With this level of environmental quality, future projects on SR 28 in this watershed can anticipate additional restrictions or measures related to waterway permitting and may have an increased chance of encountering threatened and endangered species.

In Segment A, there are a few areas where SR 28 crosses the 100-year floodplain. However, there were no instances of roadway closure on SR 28 due to roadway flooding according to the PennDOT RCRS data. Some areas identified by the landslide model as highly susceptible exist in the immediate vicinity of SR 28 in Segment A. Notable areas of landslide vulnerability include:

- Mahoning Township, north of the Mahoning Creek crossing
- Rayburn Township, near the Valley Township line, just south of the crossing of the South Fork of Pine Creek
- Rayburn Township, just north of the crossing of Cowanshannock Creek



# FREIGHT

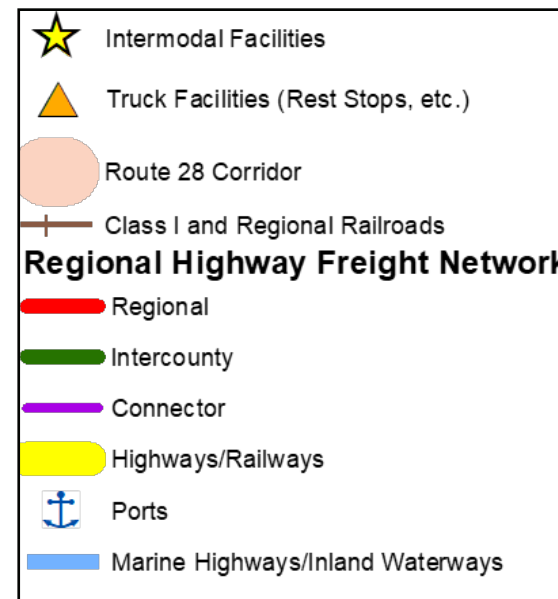
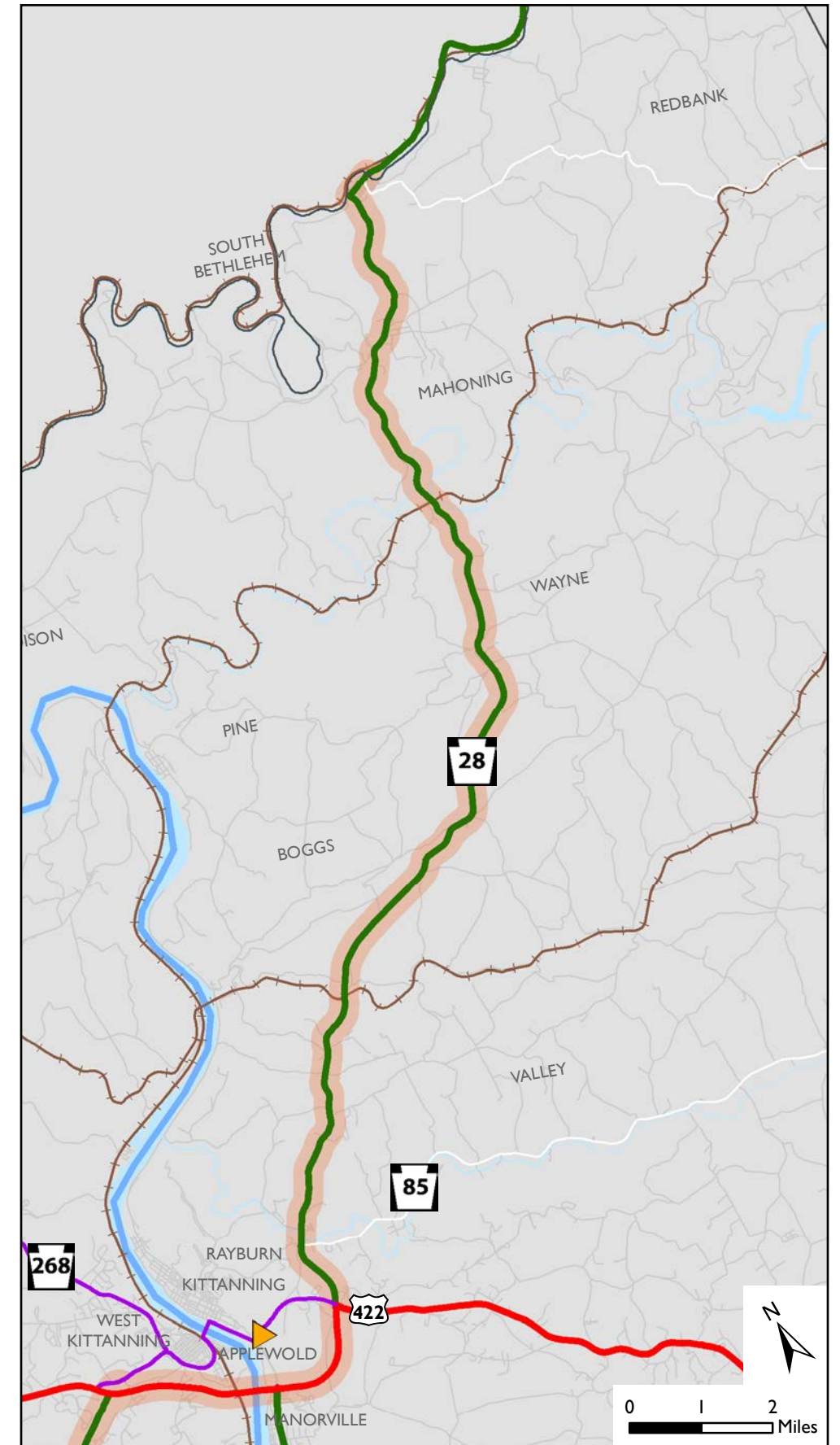


As noted elsewhere, the character of SR 28 changes significantly once north of the SR 422 interchanges, near Kittanning. Between Kittanning and the community of South Bethlehem on the Clarion County line, SR 28 is predominantly a two-lane road with frequent hills, dips and curves. Speed limits gradually diminish northbound, from 65 mph to 55 mph and in some areas, as low as 35 mph.

Numerous caution areas for trucks exist, with concentrations of truck hazards present in three areas: 1) between the communities of Boggs and Mahoning Furnace, 2) in the vicinity of the community of Distant, and at the northern terminus of the Study area, on approach to South Bethlehem. Specific road hazards in this segment include steep grades requiring trucks to remain in reduced gear, sharp curves, truck lane restrictions, a lane drop that requires trucks to merge into the left lane, and 3) a shoulder unable to accommodate trucks. Truck weight restrictions are frequent. Finally, two bridges carrying traffic over SR 28 have substandard vertical clearance, with the SR 128 bridge offering a clearance of only 14'1".

Yet it is in this section of SR 28 between US 422 and Clarion County that truck density is densest (measured by percentage of vehicles that are trucks.) This is attributable to an influx of truck traffic from US 422, as well as a reduction in the number of passenger vehicles using this roadway. These trucks are a mix of through vehicles destined to/from Interstate 80, and heavy haul vehicles serving the local industrial base.

There is no viable rail or river transportation in this corridor segment, although the Buffalo and Pittsburgh Railroad serves Armstrong County industry via rail lines running in an east-west direction through this area.



# REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES

Segment A is mostly characterized as rural towns, therefore there are no local plans for the communities in this area. However, the Armstrong County Comprehensive Plan outlines goals that may be relevant to the SR 28 corridor. They are listed below.

- Continue collaborative efforts with neighboring counties, transportation planning agencies, and PennDOT to seek and secure federal funding for the extension of SR 28 as a four-lane highway to I-80.
- To the greatest extent possible, link various modes of travel. Integrate transportation policies with land use policies to make them mutually supportive, i.e., target transportation improvements to growth areas/corridors.
- Most Armstrong County residents support the continuation of existing land use patterns, with new and/or higher-intensity development occurring in areas with adequate public infrastructure and along main transportation corridors.
- The quality of growth and development may depend largely on land use regulations. Although the county has a subdivision and land development ordinance, only 12 municipalities within the county have a zoning ordinance. As development pressures mount, more county municipalities may opt to adopt zoning in order to control land use.
- There are many opportunities for revitalization, redevelopment, and restoration of deteriorated residential, commercial, and industrial areas in Armstrong County. New residential development should include multi-family housing units in order to address the needs of current and future county residents.
- The county has significant natural, historic, and cultural resources that should not only be protected, but can also serve as a basis for economic development (e.g., tourism and recreation as economic development generators).

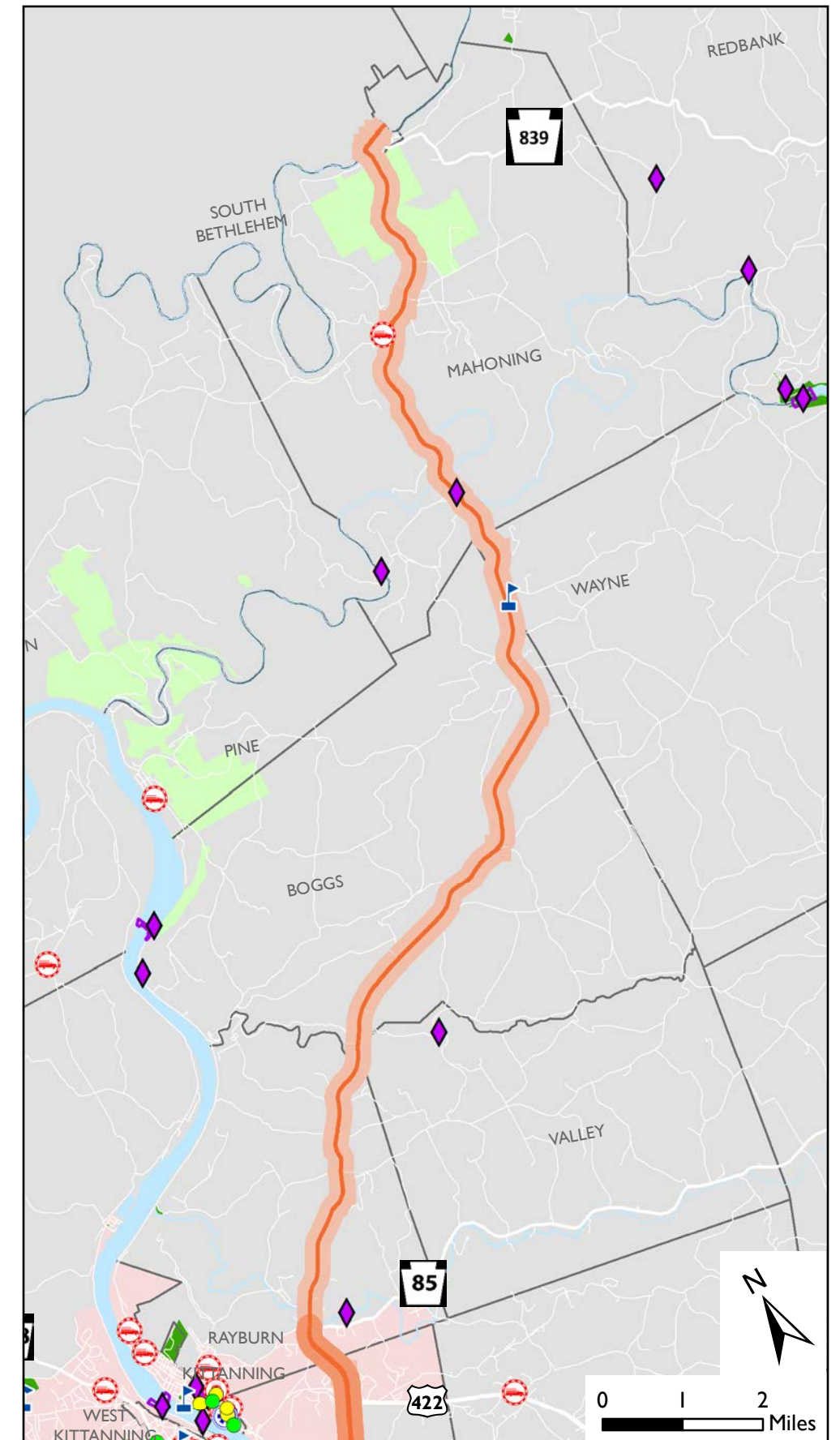
## Relevant Regional, County, & Local Plans

### Armstrong County Comprehensive Plan

Segment A, from the Clarion County Line to SR 85 in Rayburn Township, there are some community features that lie within the SR 28 corridor. In Mahoning Township, just north of Bostonia Lane there is a fire station along the southbound side of SR 28. Continuing south, but remaining in Mahoning Township, Colwell Cut Viaduct which carries SR 28 over the Pittsburgh and Shawmut Railroad is considered a historic point. Heading south into Wayne Township, the New Bethlehem Wesleyan Methodist school is located on the east side of SR 28.

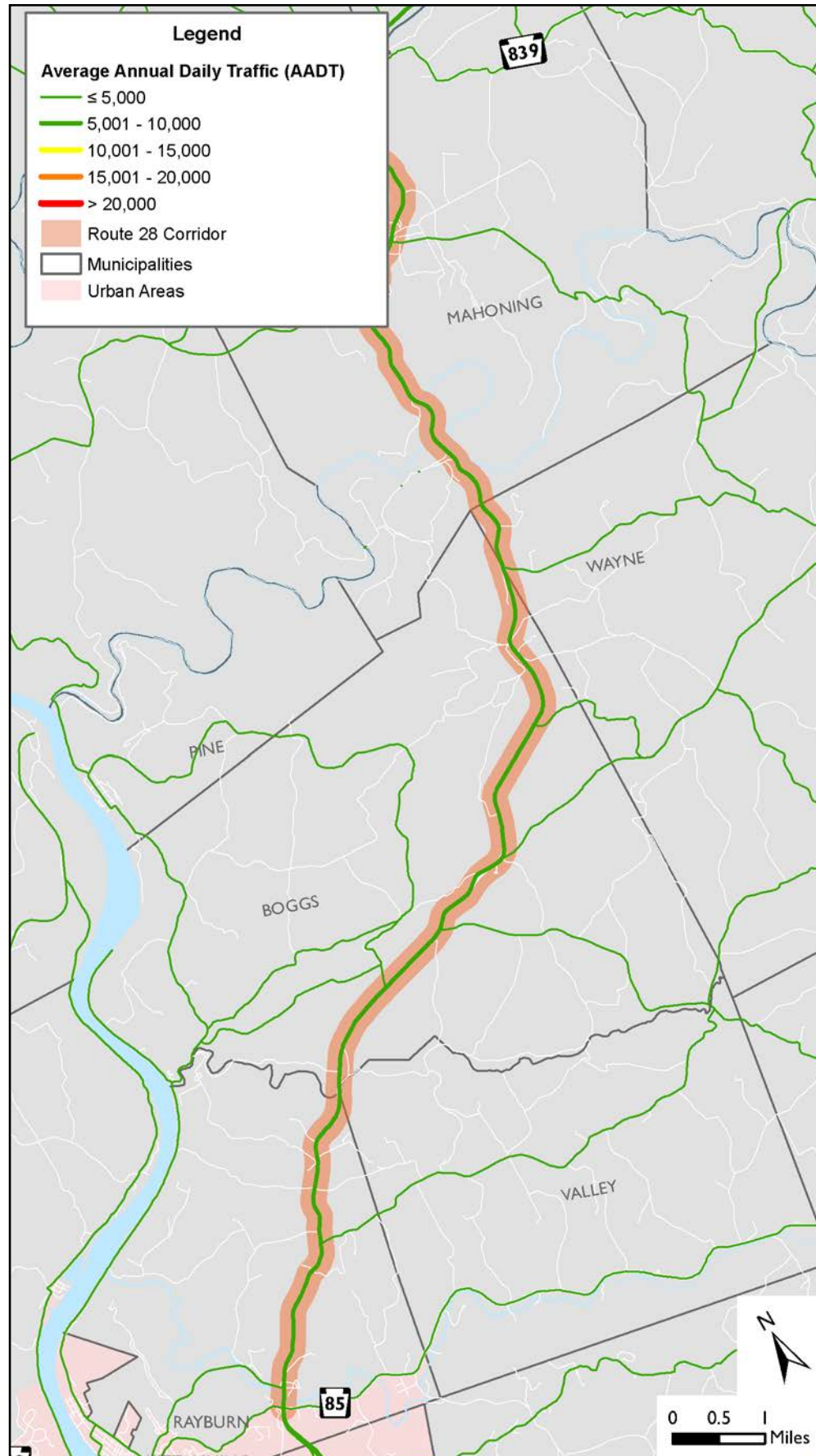


Colwell Cut Viaduct, Mahoning Township



	Public and Private Schools
	Fire Stations
	Police Stations
	Emergency Medical Services
	Historic Locations
	Top Local Businesses by Employees
	Top Local Businesses by Sales
	Route 28 Corridor
	Local Parks
	State/Federal Conserved Land
	Municipalities
	Urban Areas

# SEGMENT TRAVEL PATTERNS



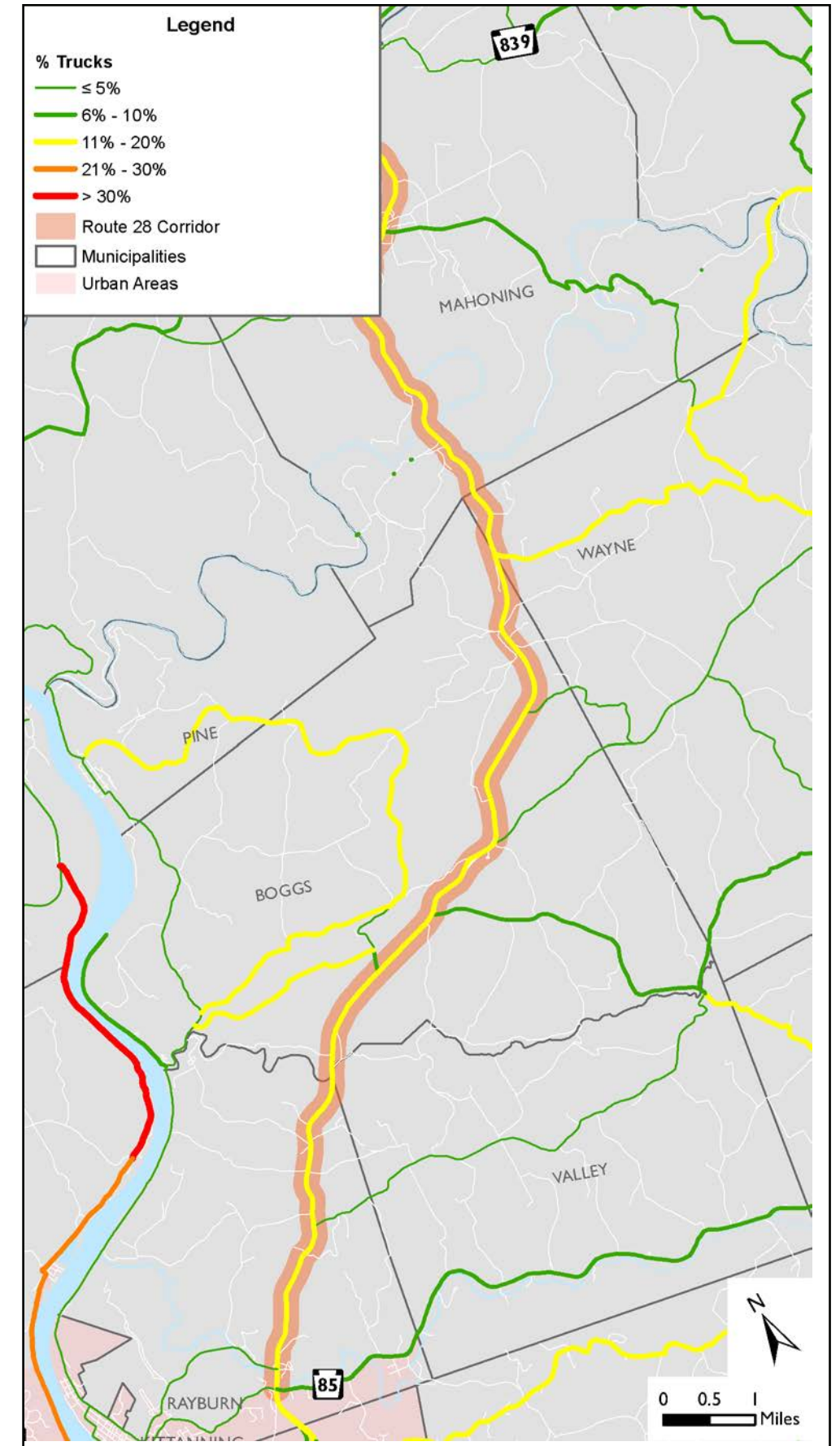
Annual Average Daily Traffic (AADT) is the typical daily traffic on a roadway segment for all the days in a week over a one-year period. Truck percent is the percent of the AADT that is comprised of truck traffic, excluding pickups, panels, and light trucks. The current AADT and truck percent figures included in this section were derived from the Pennsylvania Department of Transportation (PennDOT) Roadway Management System (RMS).

Traffic volumes are consistently lower on this section of the SR 28 corridor. The AADT for individual roadway segments on this portion of the corridor fall between 5,001 and 10,000 AADT for both travel directions combined. The southern portion of this section of SR 28 between SR 1027 and SR 85 has the highest AADT with over 7,300 vehicles per day.

Truck percents are relatively high on this section of the SR 28 corridor. Truck percents for individual roadway segments on this portion of the corridor fall between 11% and 20% for both travel directions combined. The middle portion of this section of SR 28 between SR 1004 and SR 1027 has the highest truck percent at 14%. This section of the SR 28 corridor has a relatively lower volume of traffic, but a comparatively higher proportion of truck traffic. The higher traffic volume is on the southern portion of this section of SR 28, while the higher truck percent is on the middle portion of this section of SR 28. This section of SR 28 covers a mostly rural area characterized by comparatively lower population and employment densities.

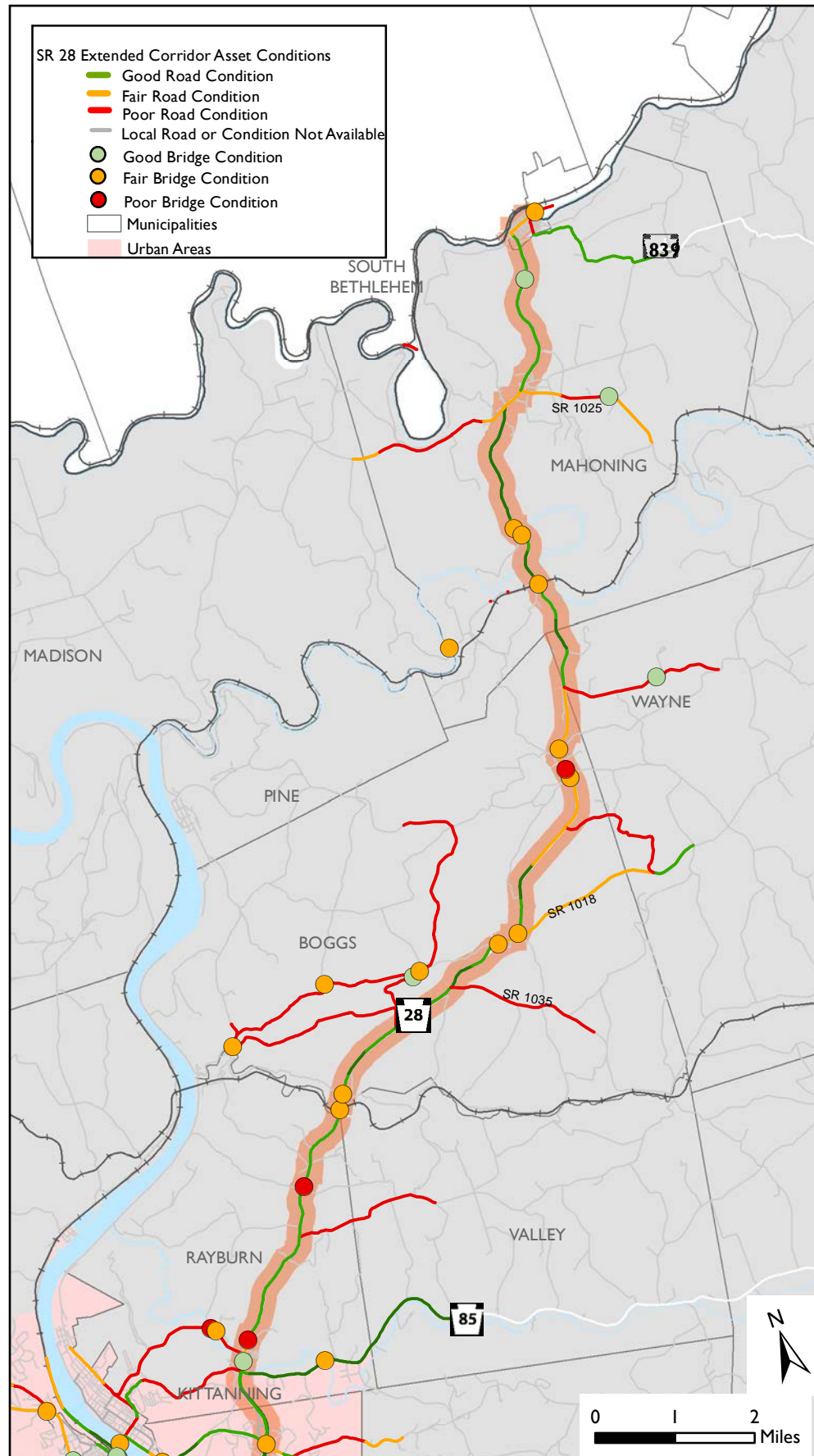


SR 28 at SR 1027



# CONDITION OF ASSETS

In Segment A, 88.5% of the bridges on SR 28 have a fair condition rating. Only three bridges are in poor condition: SR 28 over a tributary to Cowanshannock Creek (Poverty Hill Bridge), SR 28 over Scrubgrass Creek (Goheenville Bridge 2), and SR 28 over Hays Run. Both the Poverty Hill Bridge and the Goheenville Bridge are currently programmed TIP projects. In Segment A, the entire roadway surface is rated as fair or better.



SR 28 Bridge Condition			
Bridge Condition	Count	Deck Area (SQ Ft)	By %
Good	2	7753	9.3%
Fair	10	73427	88.5%
Poor	3	1815	2.2%

SR 28 Pavement Conditions			
Road Condition	Count (RMS Segments)	Miles	By %
Good/Excellent	30	13.9	78.0%
Fair	8	3.91	22.0%
Poor	0	0	0%

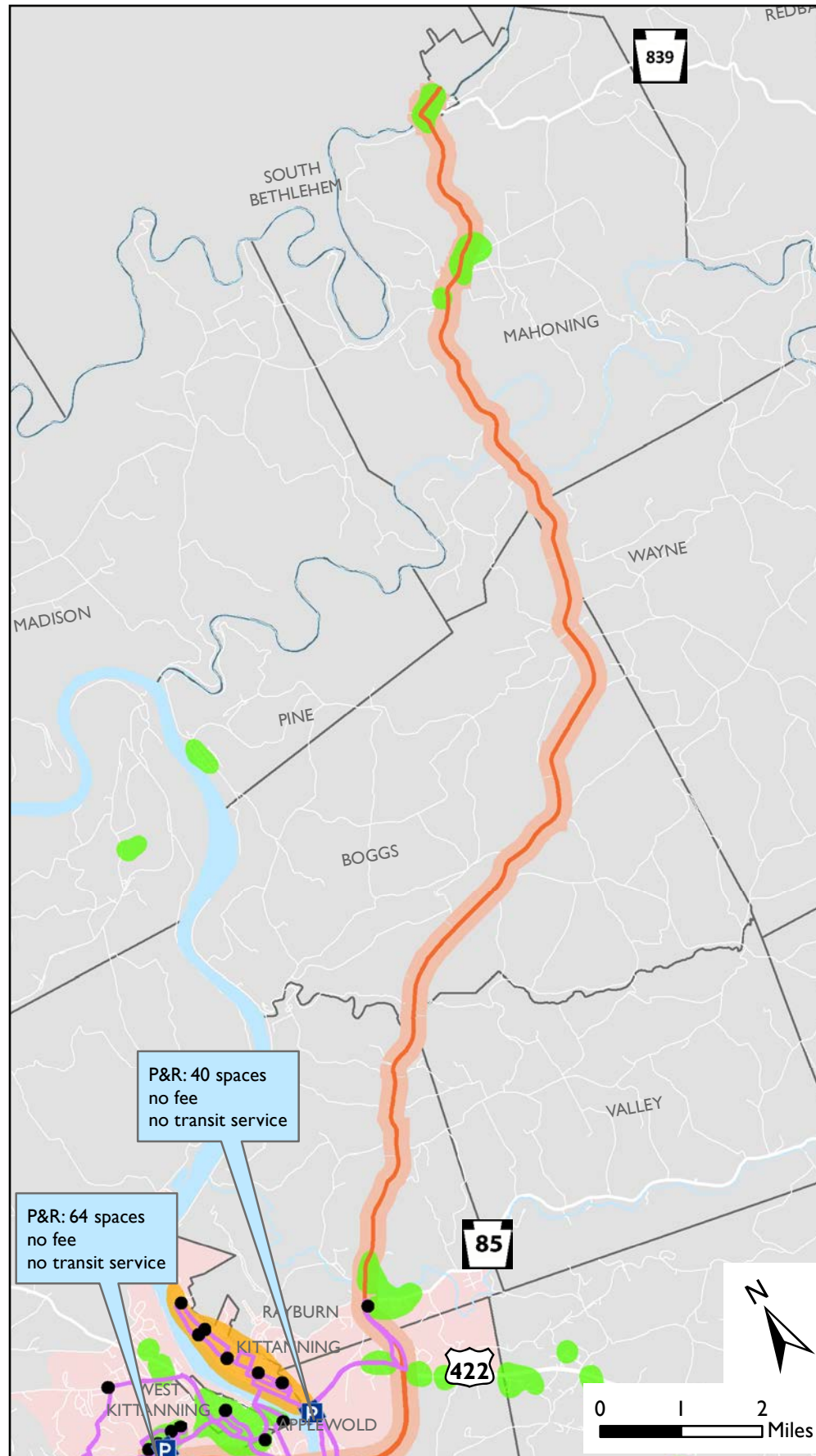


SR 28 Over Cowanshannock Creek



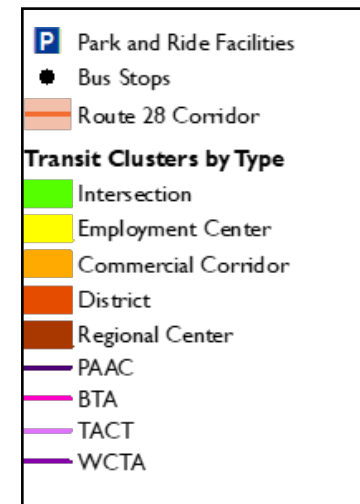
SR 28 over Hays Run

# TRANSIT



Although there is no fixed route transit service along SR 28 in Segment A, Town & Country Transit (TACT) does offer shared ride services along parts of SR 28 in Segment A. TACT Shared Ride Program provides door-to-door service to the general public, senior citizens, and persons with disabilities. This service operates on Monday through Friday from 6:00 am to 5:00 pm and on Saturday from 5:00 am to 3:00 pm. TACT Shared Ride Program provides this service for residents in the Distant/South Bethlehem area and to access Kittanning and Ford City.

The *Smart Moves Connections* has identified a few transit clusters in Segment A of the CORS Master Planning Framework. All of the SMC Transit Clusters located along the SR 28 CORS are intersections. In Mahoning Township, the area in and around South Bethlehem and the Distant Area near SR 1025 (Putneyville Rd) and SR 1004 (Madison Rd). There is also an Intersection Cluster identified at the southern section of Segment A at the intersection of SR 28 and SR 85 in Rayburn Township.





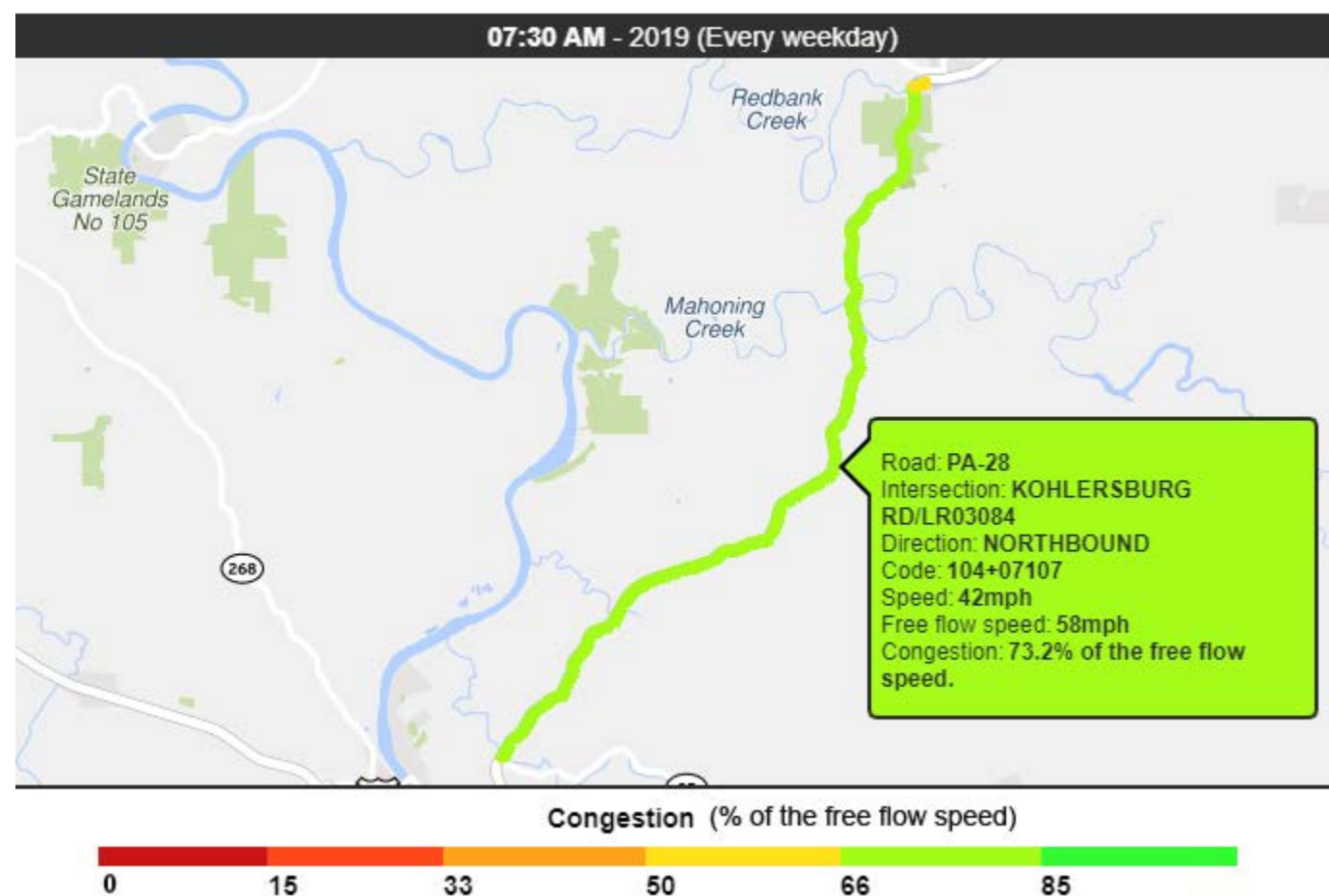
# CONGESTION & RELIABILITY

- Segment A is not monitored as part of SPC's Congestion Management Process network.
- AM and PM peak period congestion trend mapping is shown for Segment A. Congestion percentage is shown as the percent of free flow speed achieved on the segment. Higher percentages indicate less congestion (greener colors), lower percentages indicate more congestion (redder colors).
- In the AM peak period, travelers on Segment A approximately achieve 70 to 80% of free flow speed.
- In the PM peak period, travelers on Segment A approximately achieve 75 to 80% of free flow speed.
- Travelers on Segment A generally experience negligible to light congestion in the peak periods.
- Typical traffic signal delays are experienced by travelers at the signalized intersection of SR 28 and SR 85.

**Planning Time Index (PTI)** is the extra time required to arrive at a destination on time, 95% of the time. It is calculated as the ratio of the 95th-percentile highest vehicle hours traveled divided by the vehicle hours traveled if the same trips could have been completed at free flow speed. For example, a PTI of 1.5 means that a traveler should plan on 50% more time for their trip compared to light traffic conditions for a 95% probability of arriving on time (meaning that 15 minutes should be planned for what would be a 10-minute trip in light traffic conditions). SPC reports PTI for arterial CMP corridors in the region by direction for peak and off-peak times.

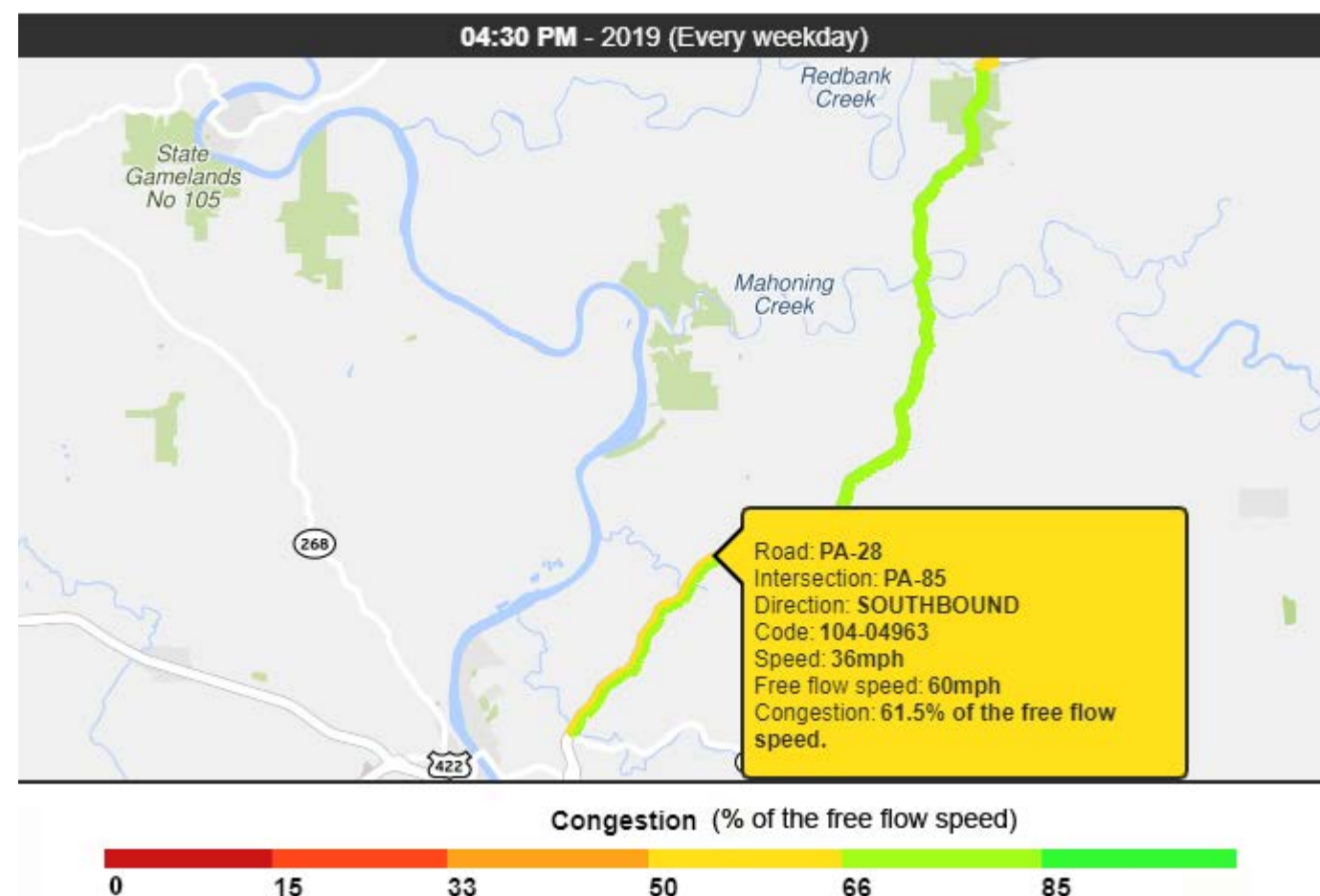
## AM CONGESTION

Route 28 Segment A Congestion Trend Map for 2019 (Every weekday)



## PM CONGESTION

Route 28 Segment A Congestion Trend Map for 2019 (Every weekday)



The above information was gathered from the Regional Integrated Transportation Information System (RITIS) available from the University of Maryland's Center for Advanced Transportation Technology (CATT) lab.

SR 28 CORS Segment A- Northbound 2019	
Corridor Length (miles)	17.0
Avg. Posted Speed Limit (mph)	51.1
Travel Time @ Posted Speed Limit (min)	20.0

Travel Time in Minutes Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				24.09
Monday	24.03	23.86	22.92	
Tuesday	23.64	23.61	22.8	
Wednesday	23.97	24.15	23.47	
Thursday	23.92	24.23	23.1	
Friday	24	24.23	22.88	
Saturday				23.33

Planning Time Index Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				2.01
Monday	1.97	1.96	1.94	
Tuesday	1.97	1.97	1.92	
Wednesday	1.98	1.92	1.98	
Thursday	1.99	2.02	1.91	
Friday	1.85	1.82	1.8	
Saturday				1.9

SR 28 CORS Segment A- Southbound 2019	
Corridor Length (miles)	17.0
Avg. Posted Speed Limit (mph)	51.1
Travel Time @ Posted Speed Limit (min)	20.0

Travel Time in Minutes Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				23.65
Monday	23.09	22.53	23	
Tuesday	22.99	22.78	22.78	
Wednesday	23.28	23.47	23.54	
Thursday	23.09	22.69	23.15	
Friday	23.27	23.33	22.51	
Saturday				22.92

Planning Time Index Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				1.93
Monday	1.93	1.93	1.93	
Tuesday	1.95	1.94	1.93	
Wednesday	1.95	1.98	1.92	
Thursday	1.99	2	1.96	
Friday	1.79	1.78	1.71	
Saturday				1.8

- PTI for Segment A in the northbound direction ranges from 1.8 to 2.02
- PTI for Segment A in the southbound direction ranges from 1.71 to 2

# CONGESTION MANAGEMENT PROCESS

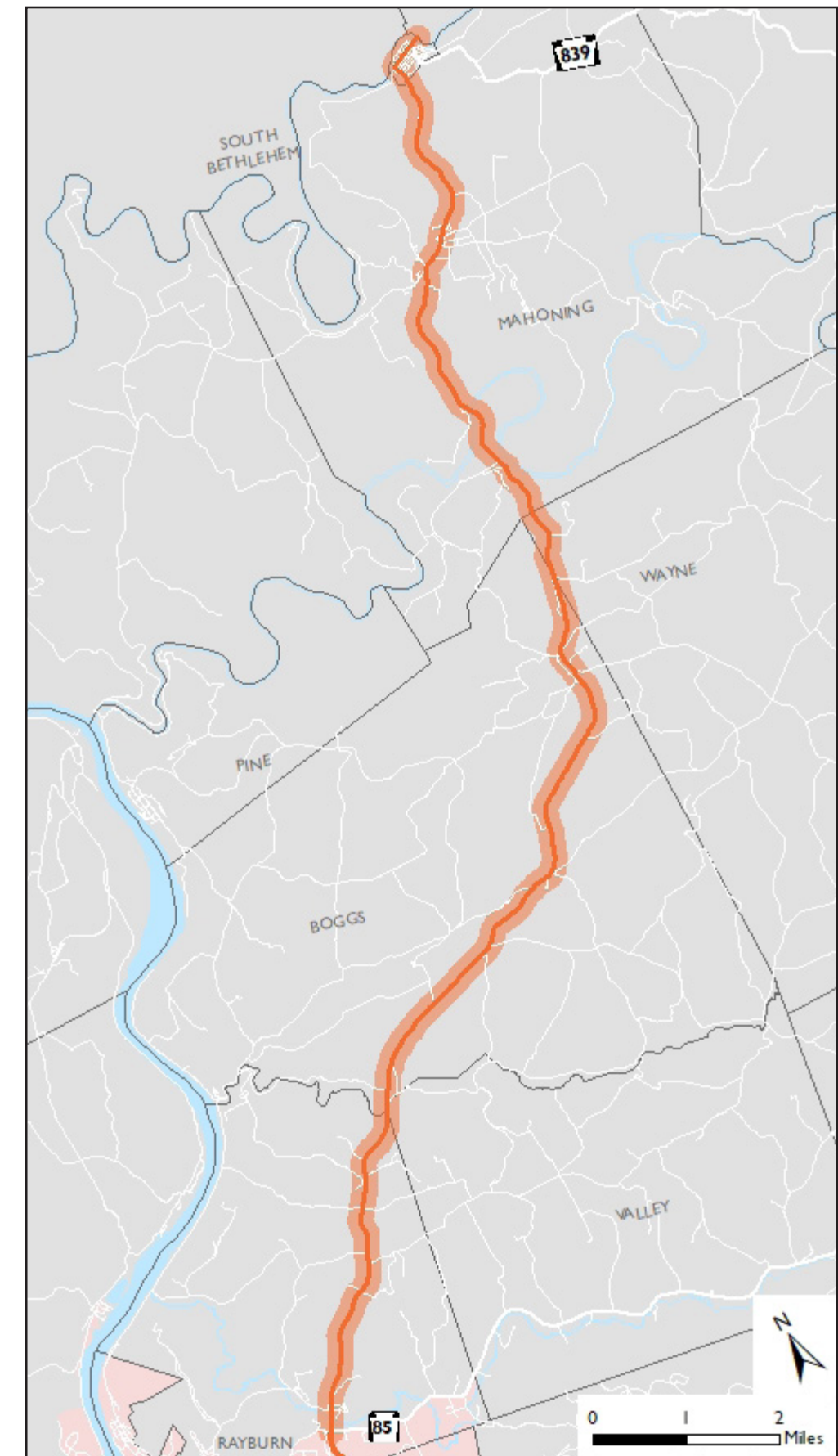
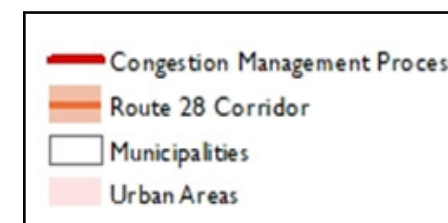
At the northern-most section of this corridor study area, the two lane portion of SR 28 displays vastly different characteristics than the southern segments. The vertical and horizontal grade changes in the roadway are amplified due to its narrow configuration and heavy truck volumes. These trucks are using SR 28 to connect to I-80, but will experience significant delay if an incident is encountered on this section. Responding emergency crews often face their own dilemmas compounded by the topography of the adjacent land and lack of access to alternate routes. Detours would typically utilize state route to state route connections and only utilize township roadways if no state routes are available.

As an example, a posted northbound detour is currently in place directing traffic off SR 28 North in West Kittanning to SR 268 to SR 68 to SR 861 to SR 66 and back to SR 28 in New Bethlehem. Similarly, a southbound detour currently in place has travelers taking SR 28 South at New Bethlehem to SR 66 to SR 861 to SR 68 to SR 268 and back to SR 28 in West Kittanning. Other state routes that could be utilized as emergency detours routes for Segment A include SRs 839,1025,1016,1027,1018,1028, and 85.

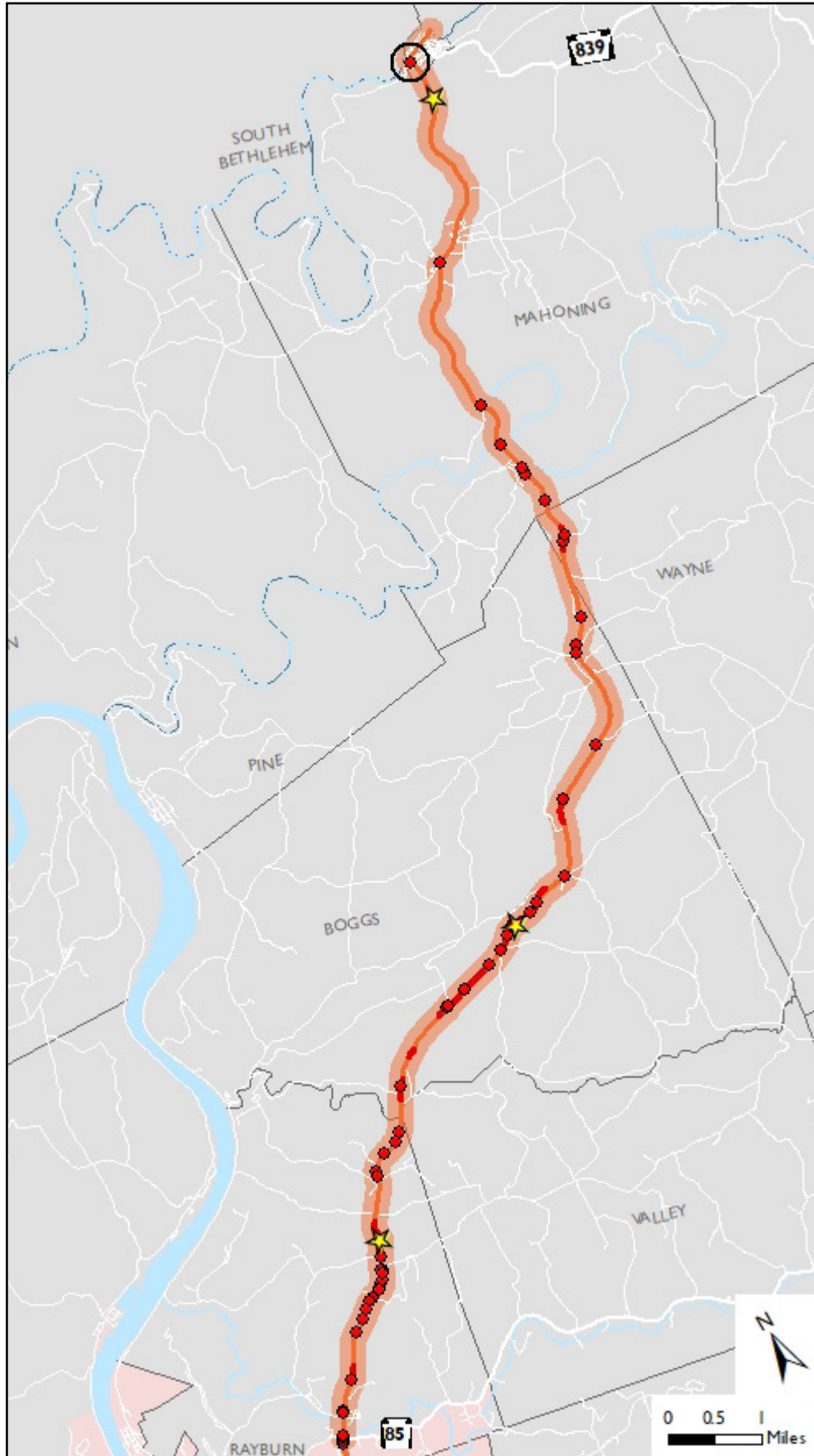
## CONGESTION MANAGEMENT STRATEGIES:

Category	Strategy	Baseline Prioritization*
DM	P.R. & Education for TDM	High
MOD	Rideshare Programs	
OPS	Incident Management Systems	
OPS	Intersection / Geometric Improvements	Medium
MOD	Park-n-ride & Other Intermodal Facilities	
OPS	Traffic Signal Improvements	
MOD	Improved Transit Service	
DM	Employer-Based Programs	
OPS	Intelligent Transportation Systems	Low
CAP	Lane Additions	
DM	Transit-Oriented Development Policies	
OPS	Elimination of Bottlenecks	
DM	Growth Management	
DM	P.R. & Education for TSD	
MOD	Bicycle Facilities & Information	
DM	Congestion Pricing	
CAP	New SOV Facilities	
MOD	Pedestrian Facilities & Information	
MOD	Transit Capital Improvements	Not Applicable
MOD	HOV & HOT lanes	
DM	Parking Management	
OPS	Ramp Metering	
OPS	Access Management	
OPS	One-way Streets	
OPS	Reversible Lanes	

\*Strategies are simply listed alphabetically within the High, Medium, Low, and N/A groupings. They are not individually prioritized within those groupings.



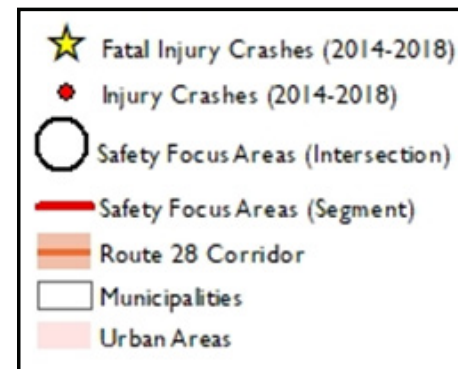
# SAFETY



- For Segment A, both the overall crash trend and fatal and suspected serious injury trend appear to be a flat trend.
- When comparing Segment A to the SPC region total crash trend, both have a flat trend.
- Segment A's 2019 crash rate (0.74 crashes/MVMT) is higher than the average 2019 crash rate for similar roadways in Armstrong County (0.36 crashes/MVMT) and higher than the average 2019 crash rate for similar roadways in the SPC region (0.5 crashes/MVMT).
- There are no Safety Action Plan Safety Focus Areas present in Segment A.

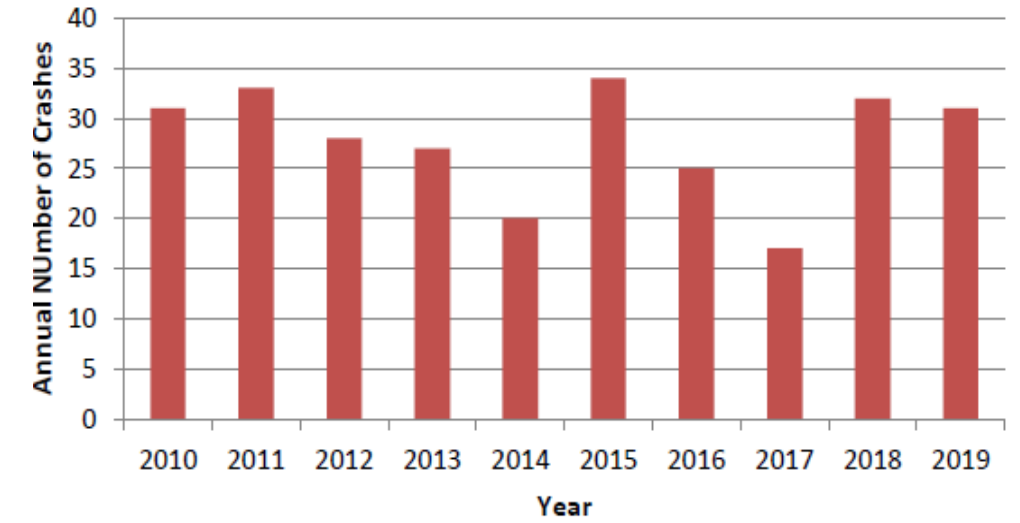
**SR 28 Segment A Crash Statistics**

Timeframe	2010-2019
All Crashes	278 (~1 crash per week)
Fatal and Serious Injury Crashes	21 (~7.5% of all crashes)
Non-Motorized Crashes	2
Noteworthy: Deer in Road Conditions	41 (~14% of all crashes)
Noteworthy: Dark, Dawn, Dusk Crashes	116
Crashes Involving Heavy Trucks	32 (~11% of all crashes) Trucks represent 11% of traffic on this segment.

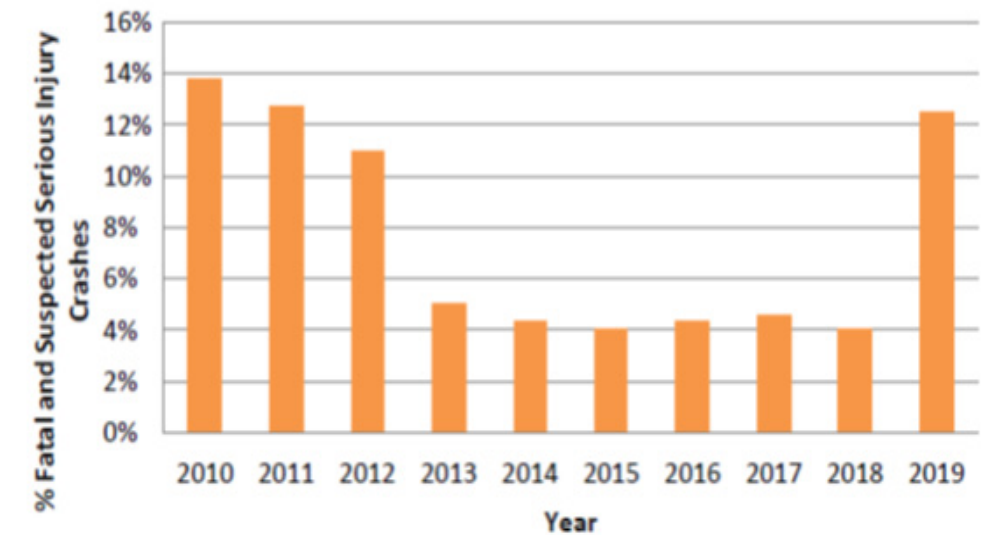


## SR 28 SEGMENT A CRASH TRENDS

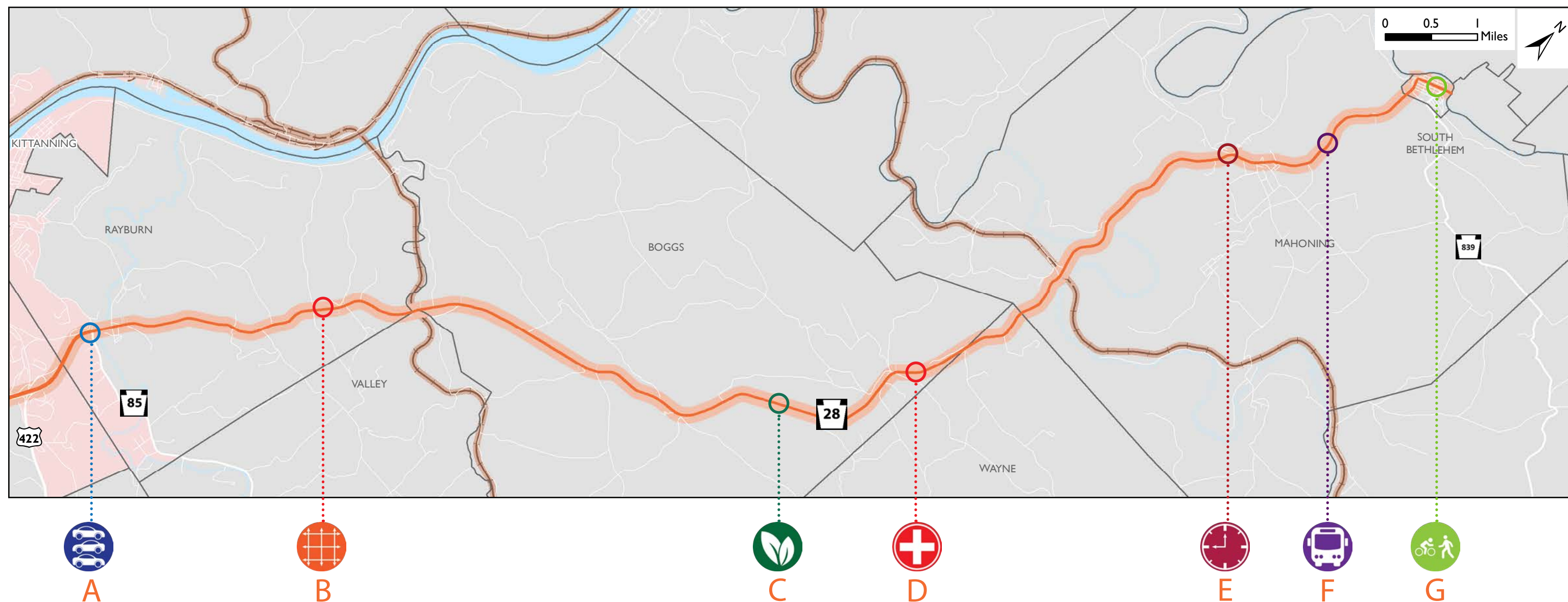
**Overall Crash Trend**



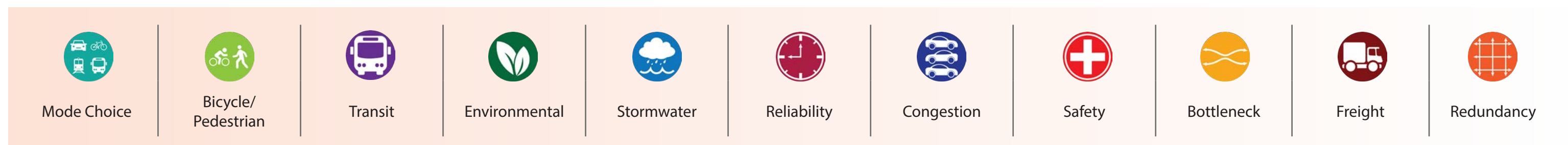
**Fatal and Suspected Serious Injury Trend**










# SEGMENT A: FOCUS AREAS



## FOCUS AREA CATEGORIES



# SEGMENT A: FOCUS AREAS

A		<p>Travelers along Segment A generally experience negligible to light congestion in the peak periods, however, typical traffic signal delays are experienced by travelers at the SR 28 and SR 85 intersection.</p>
B		<p>The SR 28 bridge over Hays Run in Rayburn Township is rated poor.</p>
C		<p>In Boggs, Rayburn, and Valley Townships, there is a higher relative environmental value as indicated in the Regional Ecosystem Framework. This is due to the Pine Creek Watershed, protected properties (i.e. conservation easement or agricultural), and possible threatened and endangered species.</p>
D		<p>Segment A 2019 crash rate is higher than the average for similar roadways in Armstrong County and higher than the average 2019 crash rate for similar roadways in the SPC region.</p>
E		<p>If an incident occurs in the northern section of Segment A, there will be significant delay. This is due to the vertical and horizontal grade, narrow configuration, heavy truck volume, topography and lack of access to alternate routes.</p>
F		<p>There is no fixed route transit service along Segment A of SR 28.</p>
G		<p>Completing sidewalk networks in rural towns, especially extending the existing sidewalk along W. Broad Street/SR 28 to Kohlersburg Road in South Bethlehem is essential.</p>



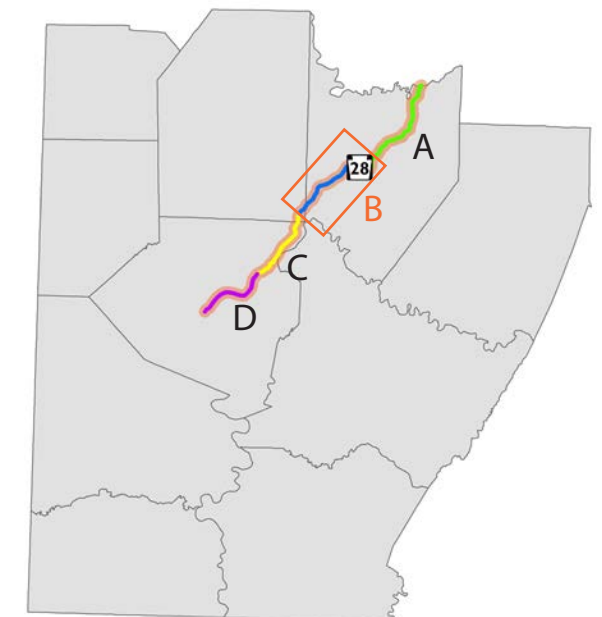


# SECTION III: SEGMENT PROFILES

---

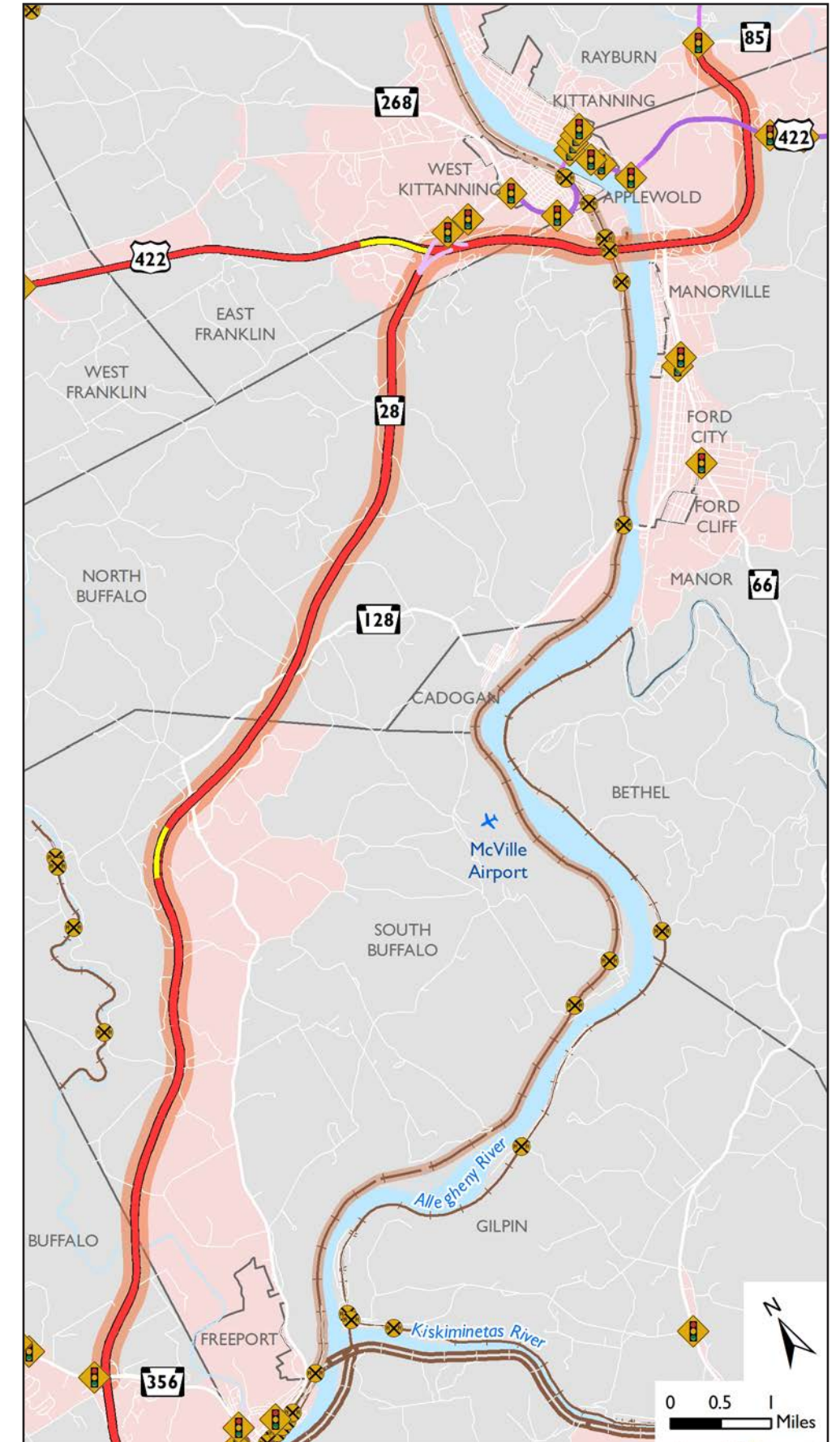
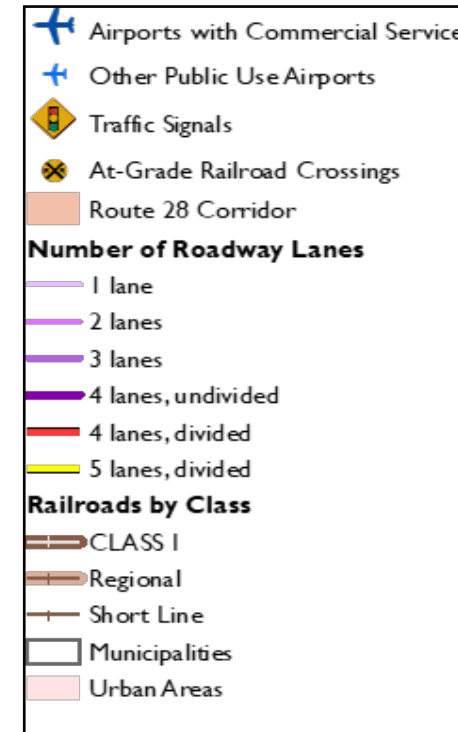
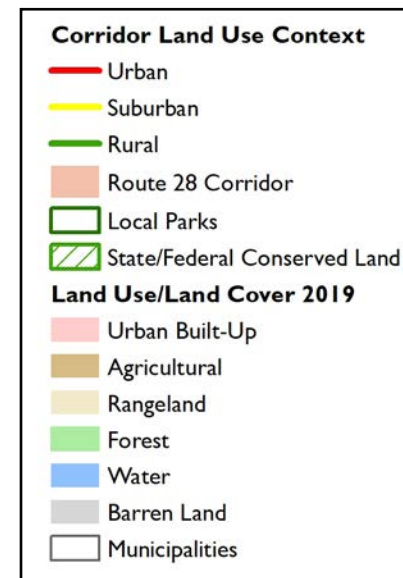
## SEGMENT B

- SEGMENT OVERVIEW
- ACTIVE TRANSPORTATION
- FUTURE HIGHWAY & BRIDGE PROJECTS
- ENVIRONMENTAL FEATURES
- FREIGHT
- REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES
- SEGMENT TRAVEL PATTERNS
- CONDITION OF ASSETS
- TRANSIT
- CONGESTION & RELIABILITY
- SAFETY
- FOCUS AREAS



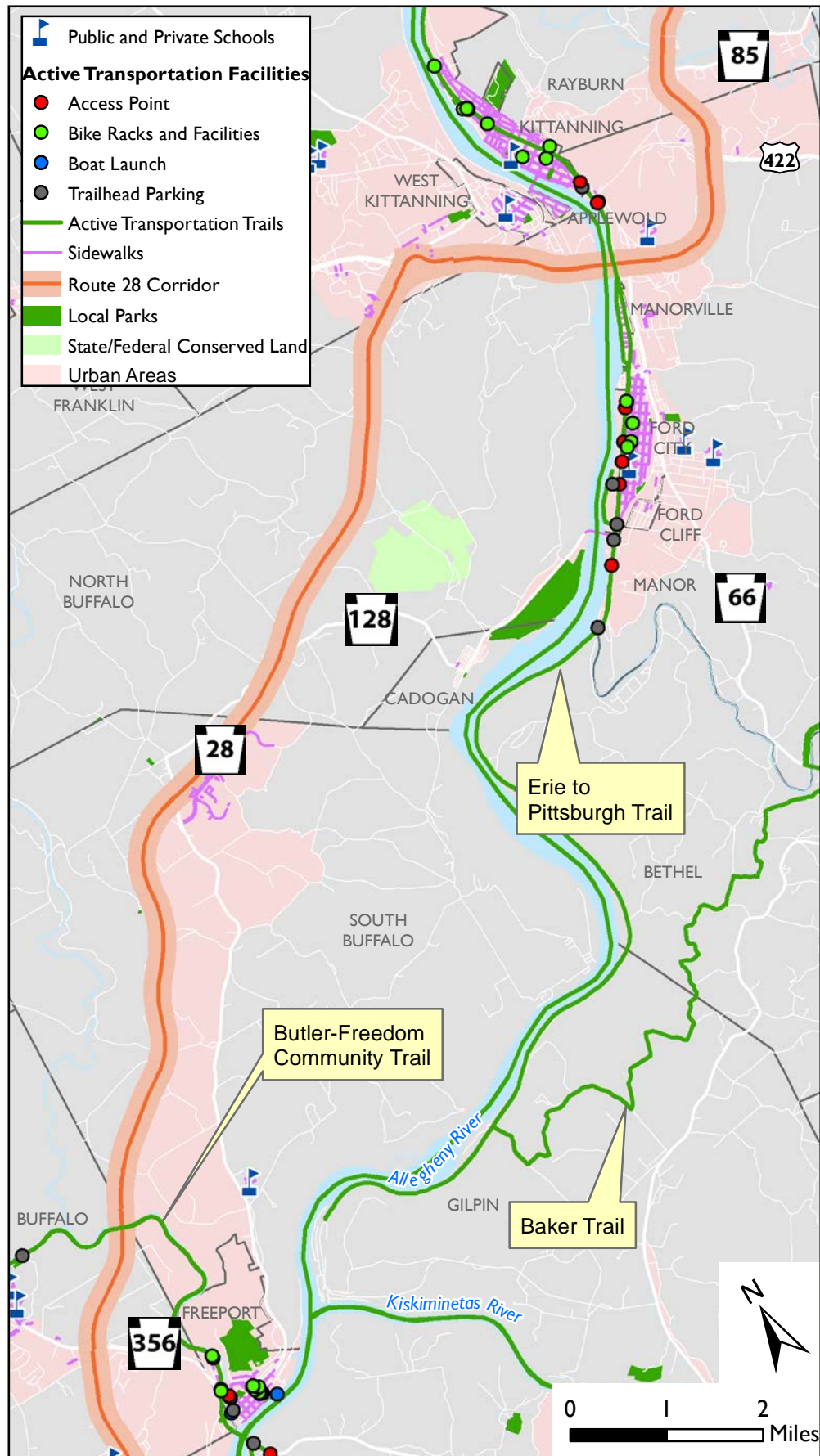
# SEGMENT B: OVERVIEW

Segment B, SR 28 from SR 85 in Rayburn Township to SR 356 in Buffalo Township is mostly a rural highway; however, there are some differences in this segment of SR 28 when compared to Segment A. Heading south from SR 85, SR 28 becomes a four-lane highway that bypasses Kittanning to the south and southeast. Along the bypass, SR 28 becomes concurrent with US 422. US 422 is a major thoroughfare that traverses through the northern parts of the SPC region and provides a valuable connection from Armstrong County to Indiana County to the east and Butler and Lawrence Counties to the west. In East Franklin Township, US 422 continues west while SR 28 heads south thereby ending the concurrency. In East Franklin Township, SR 28 becomes a four-lane divided rural highway and this continues south into North and South Buffalo Townships. After crossing into Buffalo Township in Butler County, SR 28 provides a connection to SR 356. SR 356 connects travelers using SR 28 to parts of Butler County to the northwest and Westmoreland County to the southeast.





# ACTIVE TRANSPORTATION



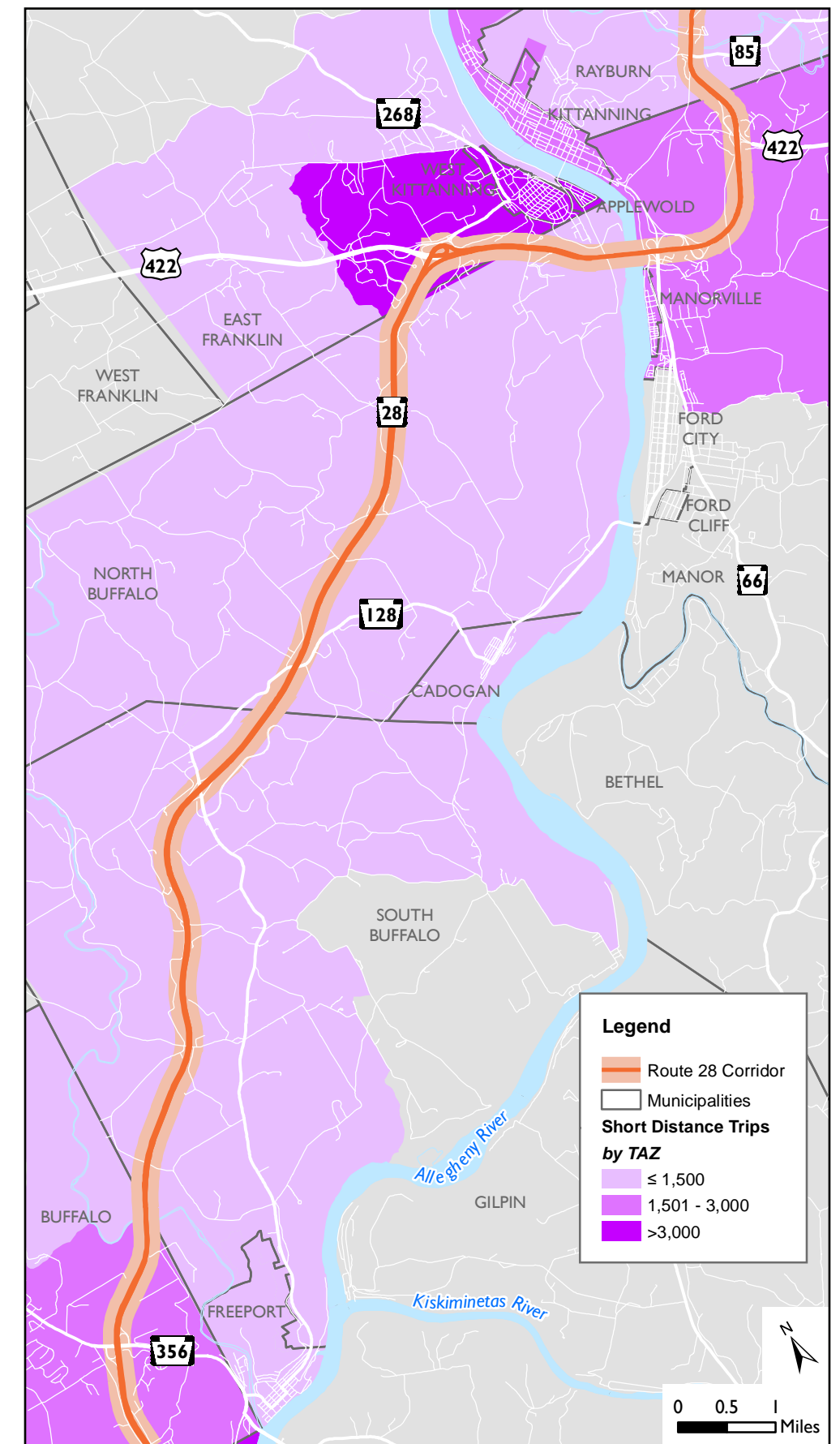
There are no bicycle or pedestrian facilities on Segment B. Nearby land trails near Segment B include the Armstrong Trail, and the Butler Freeport Community Trail. The map portrays the existing Armstrong Trail and its proposed extension from Rosston to Gilpin Township. Trail descriptions and trail functional classifications are listed below.

- The Armstrong Trail (community arterial) is located to the west of the corridor in the northern section of this segment and then approximately three miles to the east, after the corridor crosses over the Allegheny River south of Kittanning. The trail passes under the corridor at points, but it is not accessible from the corridor. The trail is part of the Erie to Pittsburgh Trail that will run from Presque Isle on Lake Erie to Pittsburgh’s connection with the Great Allegheny Passage and also part of the Industrial Heartland Trails Coalition’s developing 1,500-mile trail network through Pennsylvania, West Virginia, Ohio, and New York.
- The Butler Freeport Community Trail (community arterial), starting in Laneville in Butler County, follows the Little Buffalo Creek to Buffalo Creek and on to the Allegheny River at Freeport. After crossing the Allegheny River, it connects to the Wynn + Clara Tredway Trail in Westmoreland County. The trail passes under SR 28 in Buffalo Township.

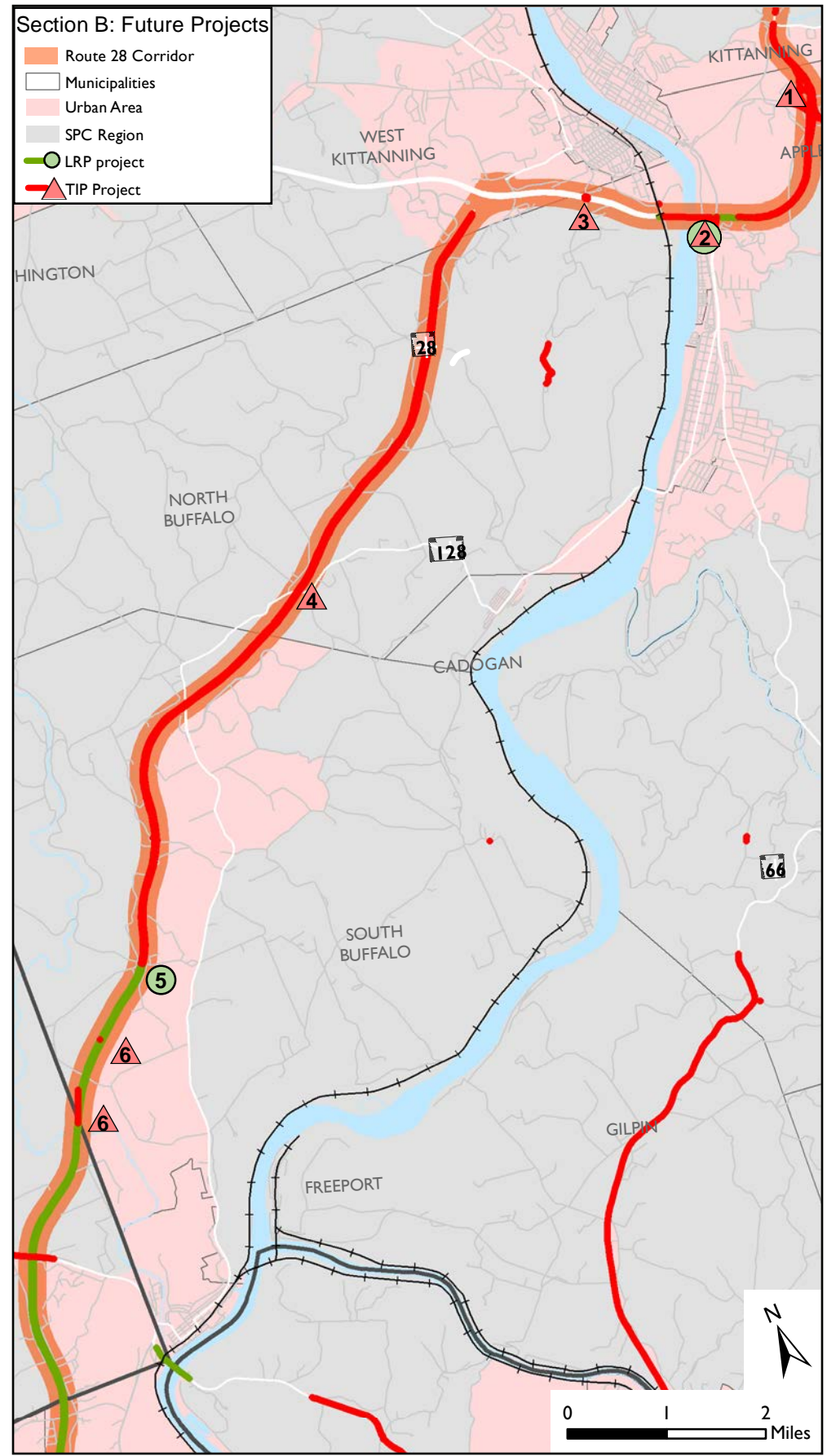
Water trails near the corridor include the Middle Allegheny River water trail and the Kiski-Conemaugh River water trail (regional), which is a designated PA Water Trail. Armstrong County is seeking a PA Water Trail designation for this waterway.

There are no bicycle or pedestrian crossings in this segment of the corridor. The corridor shifts from a two-lane undivided roadway in Segment A to a four-lane divided roadway in Segment B. Limited opportunities exist for improving active transportation along this segment of the corridor. The Freeport Area Middle School and the Freeport Senior High School are located approximately one mile west of the corridor and are accessible from SR 356 in Buffalo Township. Suburban residential developments are located near the schools. The Buffalo Township Community Park and the Butler Freeport Community Trail are located approximately one-half mile northwest of the schools.

The corridor segment in southern Armstrong County has higher-density development in the towns of Freeport at the southern end of the segment, and both in and near Kittanning and Ford City at the northern end. Much of the rest of the segment is rural. There are moderate levels of short trips in and near the higher-density parts of the corridor, where active transportation facilities are in place (primarily along the Allegheny riverfront and the Freeport Trail). There are relatively few short trips in the rural portions of the segment where there is limited access to active transportation facilities.



# FUTURE HIGHWAY & BRIDGE PROJECTS



- 1** Bridge Preservation | MPMS 113645  
 2021-2024 TIP | US 422 A-15 Concrete Preservation  
 Resurfacing to include milling of existing bituminous wearing courses, bituminous patching, paving, leveling, binder and wearing courses and minor drainage and guiderail upgrades along US 422, SR 28 and SR 8014 in Manor Township, Armstrong County

---

- 2** Bridge Preservation | MPMS 23978  
 2021-2024 TIP | Graff Bridge Preservation  
 Preservation of the existing structure carrying US 422 over the Allegheny River in North Buffalo Township, Armstrong County.

---

- 3** Bridge Replacement | MPMS 110602  
 2021-2024 TIP | SR 422 over Pony Farm Rd  
 Replacement of the existing structures carrying US 422 eastbound and westbound over SR 3005 (Pony Farm Road) in North Buffalo Township, Armstrong County.

---

- 4** Road Preservation | MPMS 109624  
 2021-2024 TIP | SR 28 Allegheny Expressway Preventative Maintenance  
 Resurfacing to include milling of existing bituminous wearing courses, bituminous patching, paving, leveling, binder and wearing courses, and minor drainage and guiderail upgrades along SR 28 from Allegheny Valley Expressway Iron Bridge to US 422 in North and South Buffalo Township, Armstrong County.

---

- 5** Road Reconstruction | MPMS 112427  
 Fiscally Constrained List | SR 28 Reconstruction  
 Highway reconstruction along SR 28 from the Allegheny/Butler County Line north to US 422 Interchange in Buffalo, North Buffalo, South Buffalo and East Franklin Townships, Armstrong County.

---

- 6** Efficiency & Operations | MPMS 114843  
 2021-2024 TIP | SR 28 ITS-TSMO  
 Intelligent Transportation Systems along SR 28 at various locations in North and South Buffalo Townships, Armstrong County and Buffalo Township, Butler County.

- Within Segment B of the corridor there are five TIP projects:
- Project 1 is the US 422 A-15 Concrete Preservation Project, which includes some road preservation work on SR 28 near the US 422 interchange.
  - Project 2 is the preservation of the existing bridge structure carrying US 422 over the Allegheny River in North Buffalo Township, Armstrong County. The project is programmed for a total of \$1,109,200 for preliminary and final design in 2023 and 2024. The subsequent phases including construction are listed on the second stage of the LRP.
  - Project 3 is the replacement of existing structures carrying US 422 eastbound and westbound over SR 3005 (Pony Farm Road) in North Buffalo Township. They are programmed for construction in 2021 for \$3,193,000.
  - Project 4 is the resurfacing of SR 28 from Allegheny Valley Expressway Iron Bridge to US 422 in North and South Buffalo Townships. Total programmed amount of \$13,002,000 for construction in 2023 and 2024.
  - Project 6 is a transportation efficiency and operations project to place variable message signs along SR 28 at various locations in North and South Buffalo Townships, Armstrong County and Buffalo Township, Butler County. A total of \$532,000 is programmed in 2021 and 2022.
- The long range transportation plan contains one project in this section for the reconstruction of SR 28 from the Allegheny County/Butler County line to US 422 listed in the second stage of the LRP. Project has an estimated cost of at \$35,800,000. Preservation work can dramatically extend the life span of roadways, but eventually they require a total reconstruction.
- For up to date information on TIP projects, please visit <https://www.spcregion.org/programs-services/transportation/smartmoves-long-range-plan-transportation-improvement-program/>.



# ENVIRONMENTAL FEATURES

The Allegheny River is the predominant water resource within Segment B of the SR 28 corridor. The river is a critical resource from an environmental, economic, and cultural perspective. SR 28 crosses numerous other surface water streams within the segment. In the Glade Run watershed including Glade Run and its associated tributaries, the streams are classified as trout stocked fisheries. SR 28 also traverses approximately 7 miles within the Buffalo Creek Watershed. Streams within the Buffalo Creek Watershed are classified as high quality cold water fisheries.

**Areas on this segment with Stormwater 167 plans:**

- Glade Run (East Franklin and North Buffalo Townships, Armstrong County)
- Buffalo Creek-Allegheny (Buffalo Township, Butler County)

**Areas on this segment with MS4 Permits:**

- South Buffalo Township, Armstrong County (Permit PAG136226)
- Buffalo Township, Butler County (Permit PAG138304)



SR 28 over Buffalo Creek

**Water Quality Standards**

All commonwealth waters are protected for a designated aquatic life use as well as a number of water supply and recreational uses. The **use designation** shown in the water quality standards is the aquatic life use. These uses are Warm Water Fishes (WWF), Trout Stocking (TSF), Cold Water Fishes (CWF) and Migratory Fishes (MF). A body of water is considered **“impaired”** if it fails to meet one or more water quality standards.

The water quality in a High Quality stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all existing uses of the stream are protected. Exceptional Value waters are to be protected at their existing quality; water quality shall not be lowered.

Some water resources are also part of the **Total Maximum Daily Load (TMDL)** program, which identifies sources of pollution and allocates pollutant loads in places where water quality goals are not being achieved.

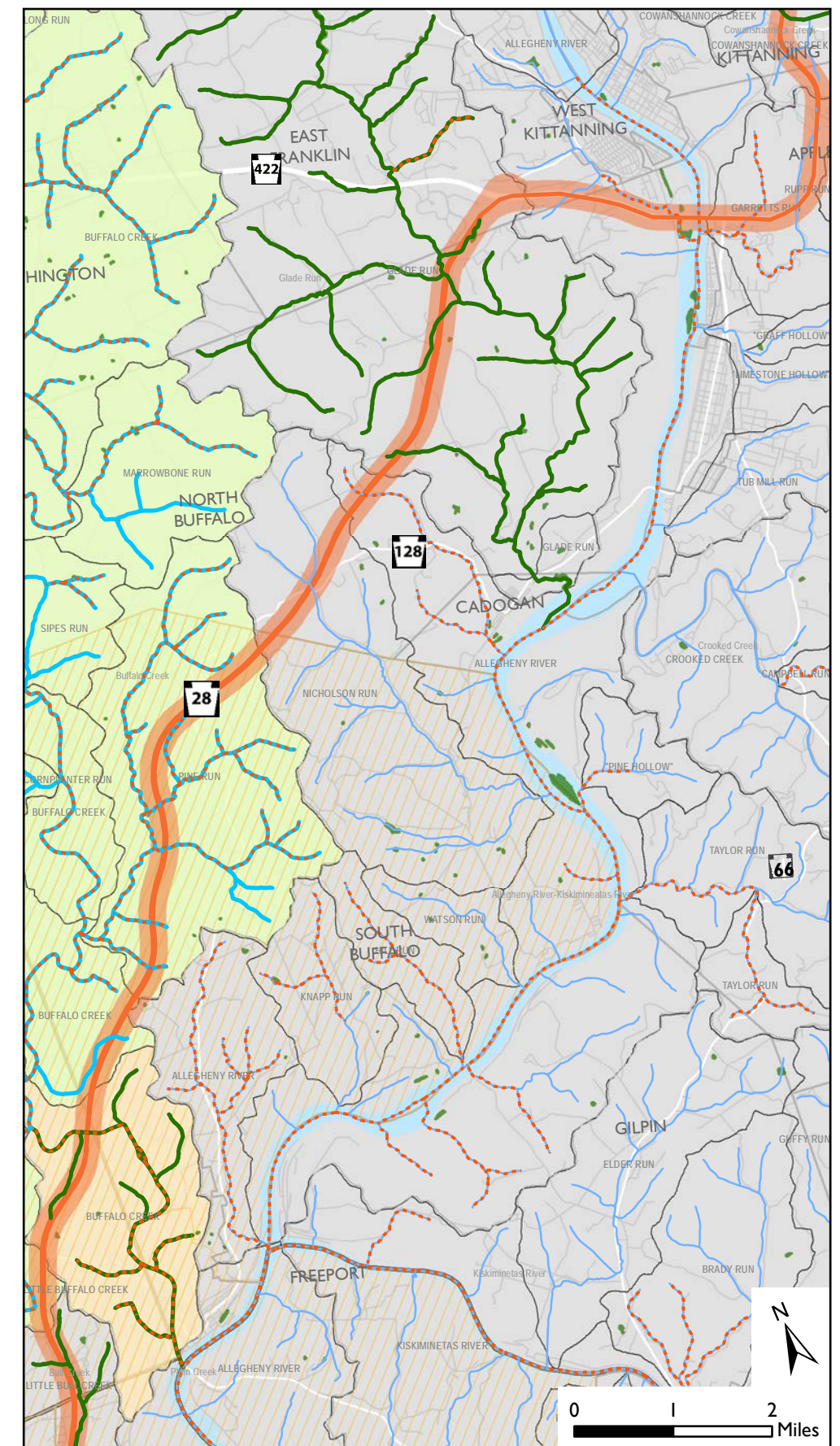
**Stormwater Management**

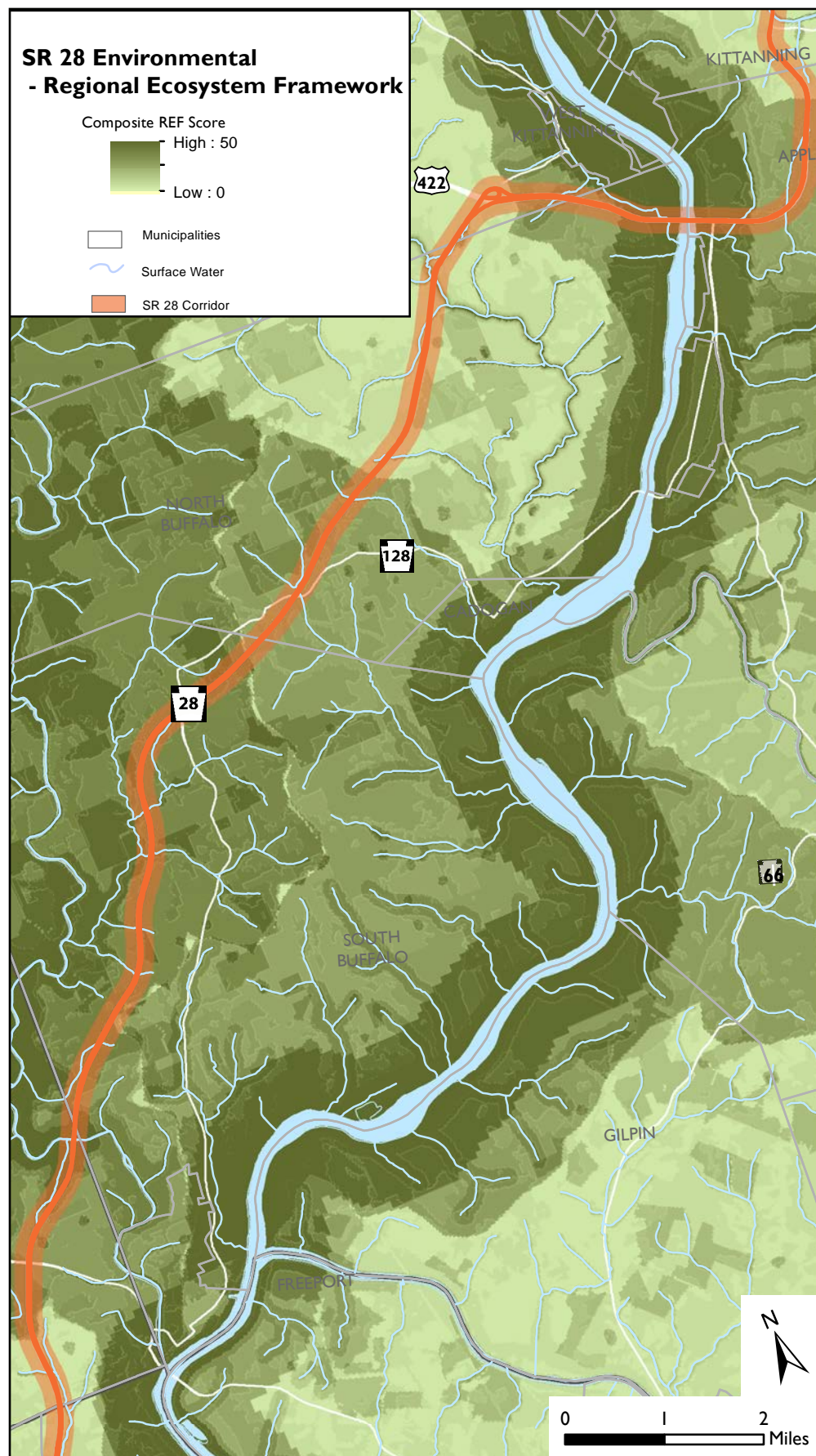
The **Stormwater Management Act (No. 167)** authorized a program of comprehensive watershed stormwater management that retains local implementation and enforcement of stormwater ordinances similar to local responsibility of administration of subdivision and land development regulations. Act 167 plans are required on a county-wide basis; however, the practice to this point has been to only develop plans for specific sensitive waters/watersheds.

A **Municipal Separate Storm Sewer System (MS4)** is owned or operated by a public agency, such as a city, town, county, flood control district, state, or federal agency that does not connect to the sanitary sewer system and does not lead to a wastewater treatment plant.

**SR 28 Environmental -Water Resources**

	Ch 93 Designated Cold Water Fishery		High Quality Watershed
	Ch 93 Designated Exceptional Value Stream		Watersheds
	Ch 93 Designated High Quality Stream		Act 167 Stormwater Plan
	Ch 93 Designated Trout Stocking		MS4 Municipality
	Other Streams		Municipalities
	Impaired Stream		Urban Areas
	NW Wetland		SR 28 Corridor
	SPC Region		





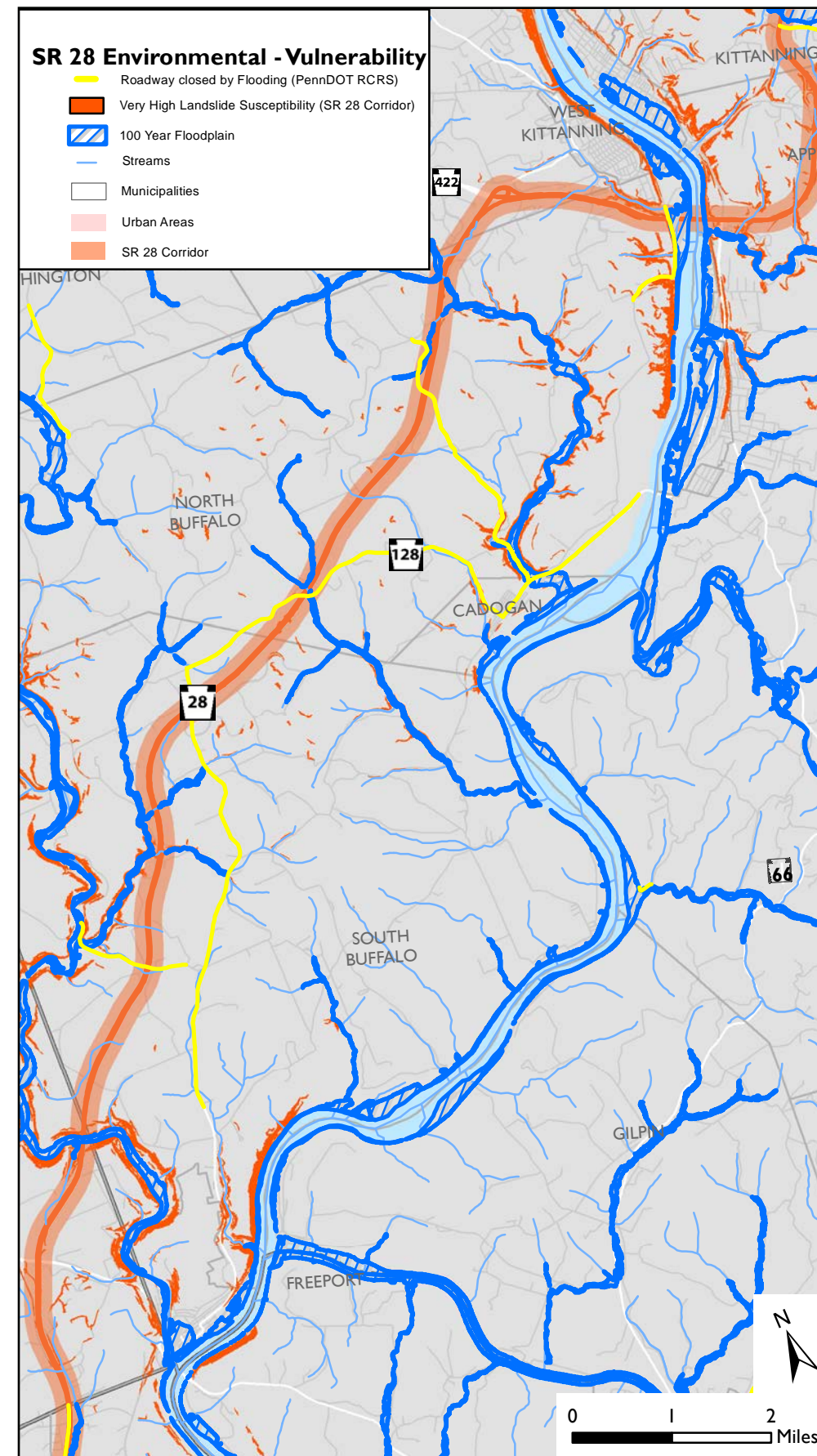
The **Regional Ecosystem Framework (REF)** integrates environmental inventory data, conservation priorities, maps, and plans, with input from and adoption by conservation and natural resource stakeholders identified that addresses species, habitats, and relevant environmental issues and regulatory requirements agreed upon by the stakeholders. SPC has identified available GIS data layers that when analyzed will spatially model ecological significance on a regional scale. The datasets that make up the prototype REF are included in Appendix B.

SPC staff assigned a score to the relevant attribute of each environmental data layer, the score reflects the relative importance of the occurrence of any certain resource found in a dataset relative to other resources used in the analysis.

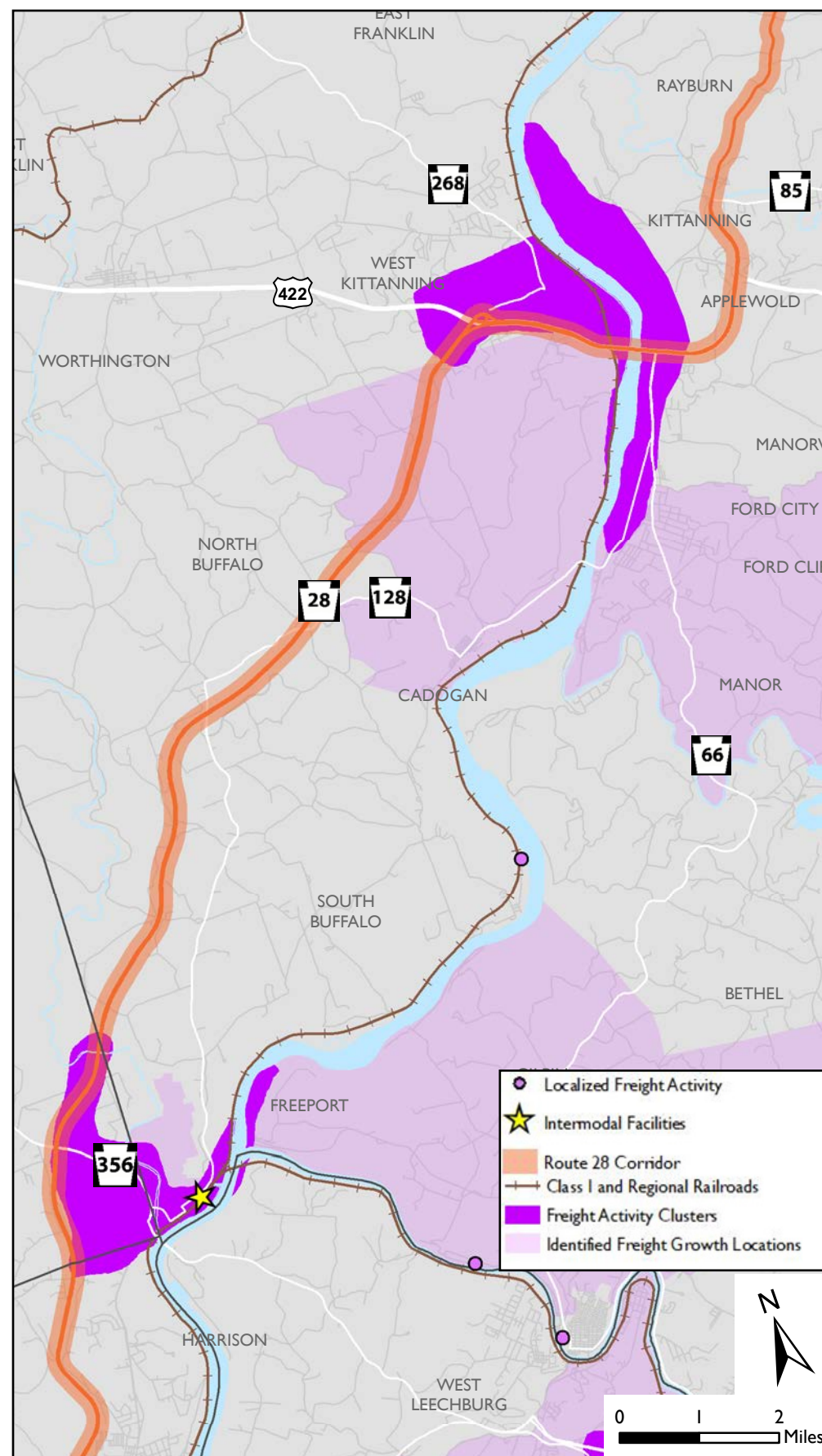
Greater values in the REF indicate greater environmental significance.

Within Segment B, the REF is showing the regional significance of the Allegheny River, which is identified as a critical resource within the region's natural heritage inventory. Approximately three miles from the US 422 Interchange, SR 28 enters an area the REF evaluates as higher natural environmental value. This is the result of the quality of the Buffalo Creek Watershed. Buffalo Creek is a high quality cold water fishery watershed. Darker green patches within the watershed constitute natural heritage areas or protected properties through either a conservation easement or agricultural preservation.

In Segment B, there are a few areas where SR 28 crosses the 100-year floodplain. However, there were no instances of roadway closure on SR 28 due to roadway flooding according to the PennDOT RCRS data. Segment B is relatively stable in terms of landslide susceptibility particularly compared to the other segments.



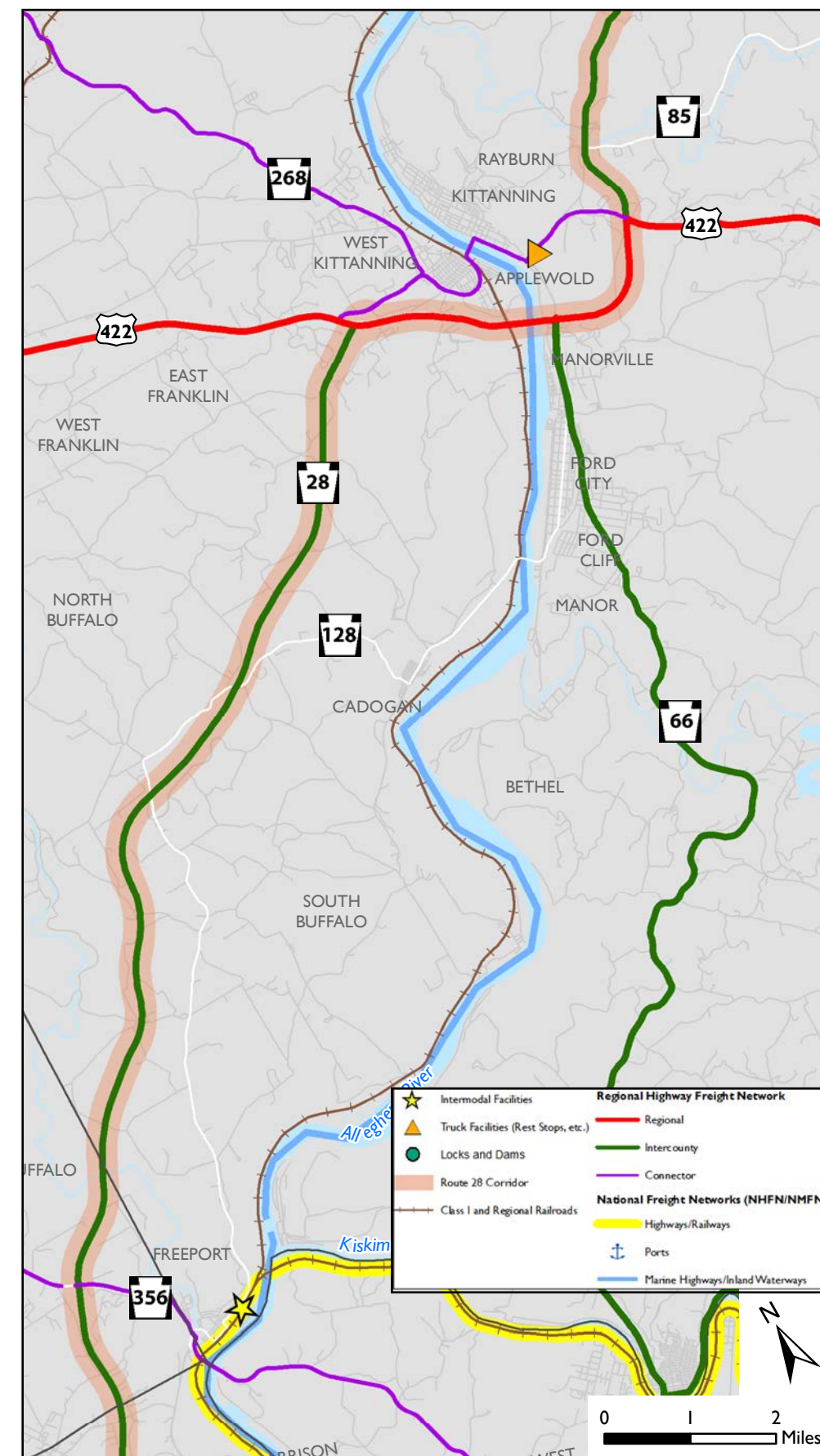
# FREIGHT



Traffic within Segment B represents a well blended mix of passenger vehicles and trucks. At the north end of this corridor segment, SR 28 (concurrent with SR 66) runs contiguous to US 422, a major east-west connector through western PA. Previous studies of US 422 have included user surveys indicating that east of Kittanning, truck operators frequently use US 422 and then SR 28 to get north to I-80. Truck volume and density levels north of US 422 would support these survey findings. In light of the importance of the US 422 corridor to freight operations, it was identified as a Critical Rural Freight Corridor between Kittanning and Butler.

The “merger” of SR 28 and US 422 features curves with sharp turn radii at both ends, requiring trucks to slow considerably. South of US 422, SR 28 extends south and west, paralleling the Allegheny River, which is a few miles to the east. The Allegheny River is commercially navigable in the southern extent of this corridor segment. Barge loading operations occur at the Freeport Intermodal Terminal on the west shore of the Allegheny River, and near Schenley, on the east shore of the river. Commodities carried by river barge in this area include crude materials such as coal and aggregate, petroleum and petroleum products and, manufactured goods. Some manufacturing interests in the corridor have reduced their reliance on the river navigation system in recent years due to uncertainties over continued lock serviceability (locks and dams north of Clinton have been put on a “commercial lockage by appointment only” service level.) These manufacturing companies now are either completely truck dependent, or ship and receive materials via rail to truck or barge to truck transload facilities. Most of these are located well outside the SR 28 corridor in this area, but such services are available both at the Freeport Intermodal Terminal and in Schenley, PA.

Between the community of Freeport and the Butler County line, SR 356 provides important truck access between the industries of the northern Westmoreland communities of Vandergrift, Leechburg, and Apollo, PA and SR 28. For many years, elected officials from Westmoreland County stressed the need for safety enhancements on this portion of SR 356, most notably a truck climbing lane, to address the needs of trucks climbing out of the Allegheny River Valley. Similarly, the truck facilities and accommodation were key considerations in the design of the Freeport Bridge reconstruction project. In each case, the desire was to accommodate safe truck access to SR 28. Both Norfolk Southern and the Buffalo and Pittsburgh railroad operate in the corridor, but neither has a significant operational footprint at this time within this corridor segment. The Kiski Junction Railroad has maintained freight service, mostly tied to Rosebud mine operations taking place on the east side of the Allegheny River.



# REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES

Along Segment B, many municipalities lack local plans so agencies should consider both the Armstrong County and Butler County comprehensive plans when developing projects. Notable points from the Butler County Comprehensive Plan are listed below:

- While none of the top ten employers in the County are here, there is a significant business base. Penn United Technologies, a tooling and precision metal manufacturing business, has a significant presence in the region. Other major employers include Concordia Lutheran Ministries ( a housing and social service nonprofit), II-VI Incorporated, which is known worldwide for advance materials development, Oberg Industries machining, and many successful businesses in the Victory Road Business Park (located in Clinton Township).
- Growth and land use changes in this region have created areas of traffic congestion. In the past, the County has supported active transportation and land use planning: for SR 356.
- The Audubon Society of Western Pennsylvania has both acquired land and purchased conservation easements. They also completed an important multimunicipal conservation plan for the for the Buffalo Creek Watershed. As this area grows, conservation Regional Planning Priorities will actually add value to residential neighborhoods. By building partnerships between conservation organizations like Audubon and developers or residents, southeast Butler County can enjoy both the economic benefits of growth and preservation of rural and scenic character.

Segment B, from SR 85 in Rayburn Township to SR 356 in Buffalo Township, has multiple community features located near the corridor. Along the concurrency of SR 28/US 422, many community features are located north in the borough of Kittanning. As SR 28 heads south of US 422 , there is not a lot of community features along this section of SR 28 from the US 422 interchange to SR 356. At SR 356 in Buffalo Township, on the west side of the interchange is the Freeport Area Middle and High School along SR 356.

## Relevant Regional, County, & Local Plans

[Butler County Comprehensive Plan](#)

[Armstrong County Comprehensive Plan](#)

[Manor Township Ordinances](#)

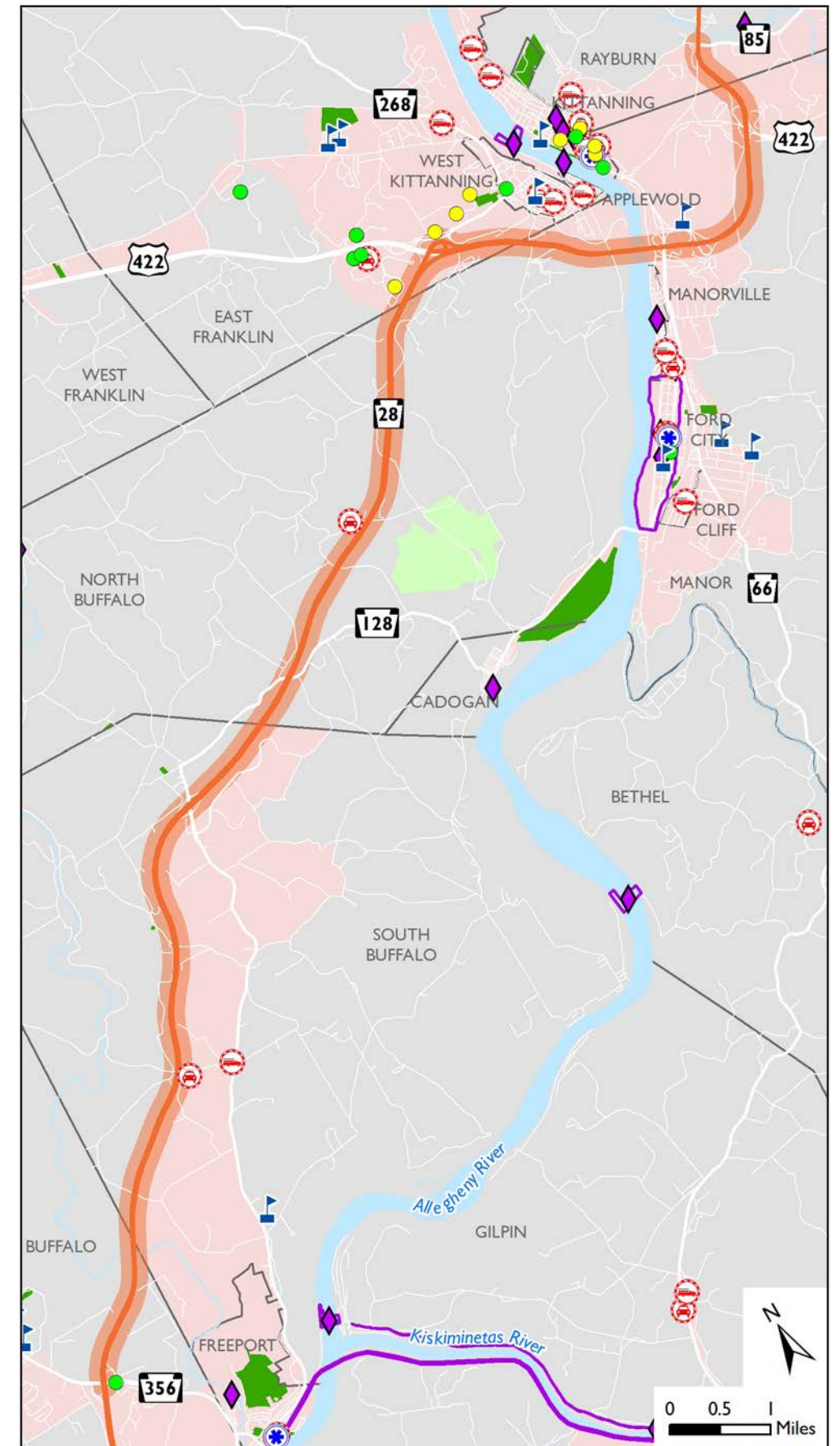
[East Franklin Township Ordinances](#)

[North Buffalo Township Zoning Ordinances](#)

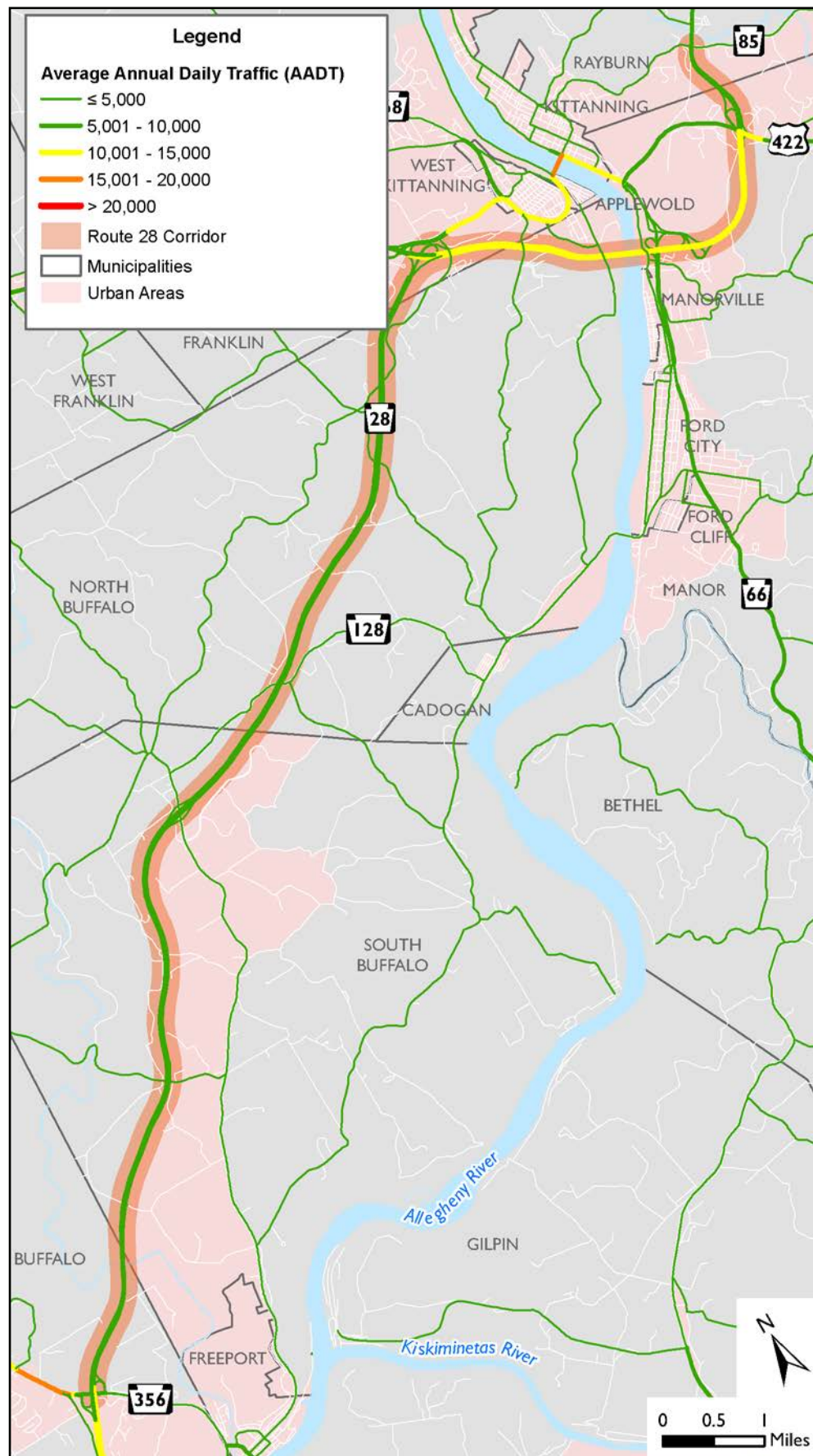
[South Buffalo Township Ordinances](#)



- Public and Private Schools
- Fire Stations
- Police Stations
- Emergency Medical Services
- Historic Locations
- Top Local Businesses by Employees
- Top Local Businesses by Sales
- Route 28 Corridor
- Local Parks
- State/Federal Conserved Land
- Municipalities
- Urban Areas



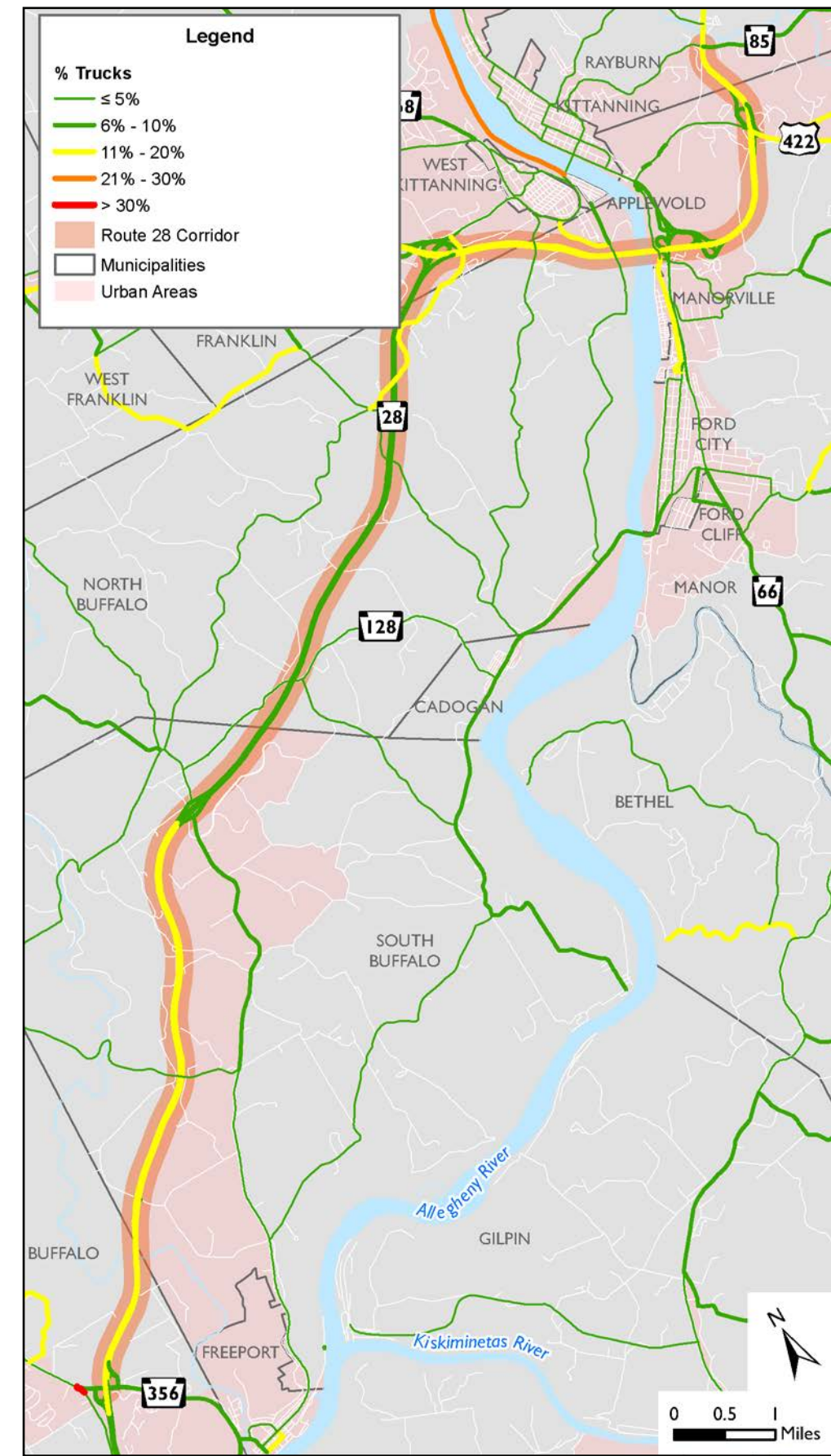
# SEGMENT TRAVEL PATTERNS



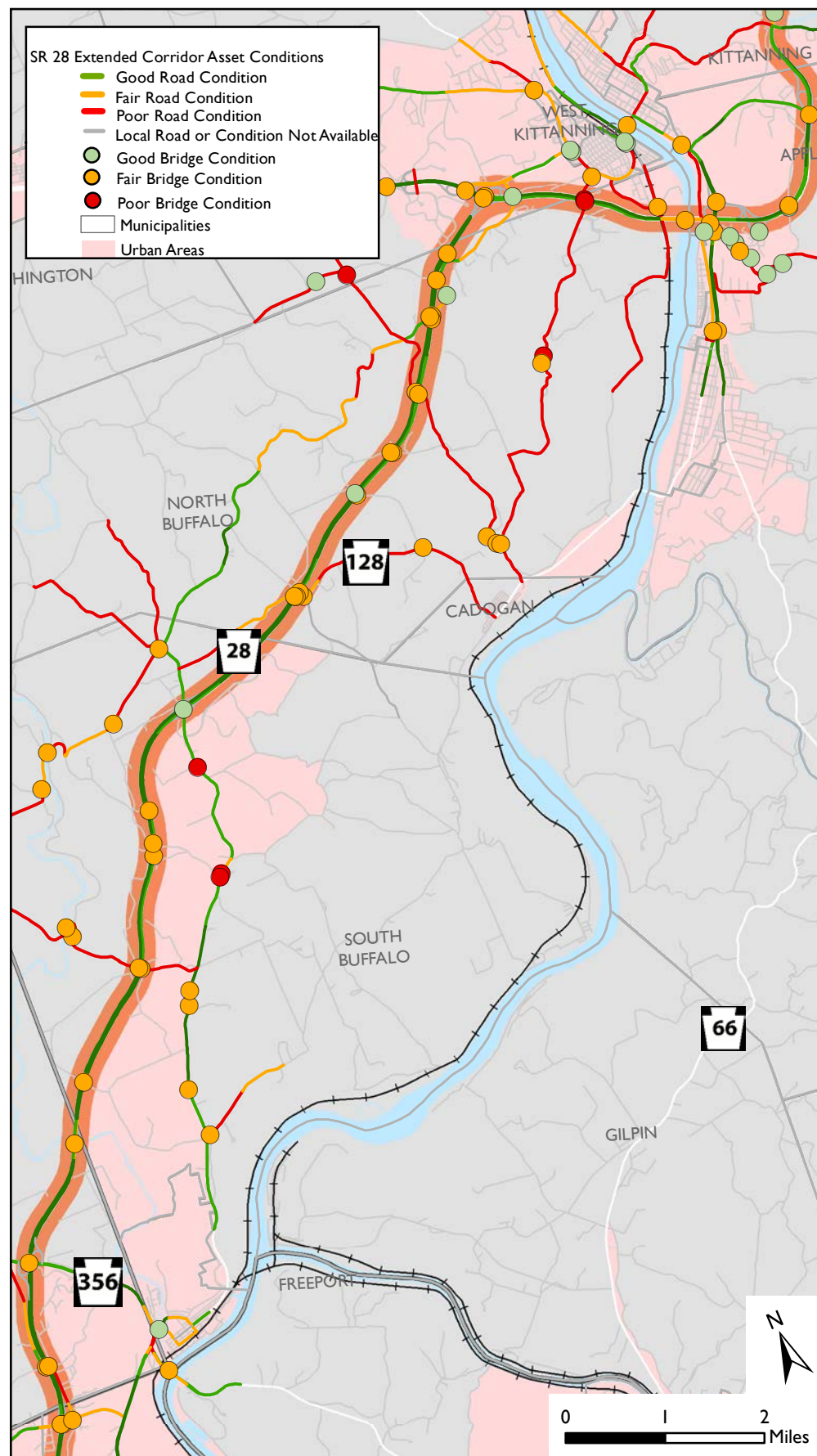
Annual Average Daily Traffic (AADT) is the typical daily traffic on a roadway segment for all the days in a week over a one-year period. Truck percent is the percent of the AADT that is comprised of truck traffic, excluding pickups, panels, and light trucks. The current AADT and truck percent figures included in this section were derived from the Pennsylvania Department of Transportation (PennDOT) Roadway Management System (RMS).

Traffic volumes on this section of the SR 28 corridor are highest in the vicinity of US 422. The AADT for individual roadway segments on this portion of the corridor falls between 10,001 and 15,000 AADT in each travel direction. The AADT for the remaining segments on this section of SR 28 fall between 5,001 and 10,000 in each travel direction. Truck percents on this section of the SR 28 corridor are highest in the vicinity of US 422, as well as for the portion of this section of SR 28 that is south of SR 128. Truck percents for individual roadway segments on these portions of the corridor fall between 11% and 20% in each travel direction. Truck percents for the portion of SR 28 that is between US 422 and SR 128 fall between 6 and 10%.

This section of the SR 28 corridor has relatively higher volumes of overall traffic and truck traffic in the vicinity of US 422. There is also higher truck traffic in the southern portion of SR 28 between US 422 and SR 128. This section of SR 28 includes segments where SR 28 becomes concurrent with US 422, a major thoroughfare that transverses through the northern parts of the SPC region and provides a valuable connection between those counties. Population and employment densities are comparatively higher in this area.



# CONDITION OF ASSETS



In Segment B, 88.5% of the bridges on SR 28 have a fair condition rating. The only two bridges that are in poor condition are the eastbound and westbound bridges over SR 3005 (Pony Farm Road). These bridges are currently programmed on the 2021-2024 TIP. In Segment B, the entire SR 28 roadway surface is rated as being in fair or better condition.

SR 28 Bridge Conditions			
Bridge Condition	Count	Deck Area (SQ Ft)	By %
Good	3	51564	9.3%
Fair	23	492557	88.5%
Poor	2	12528	2.3%

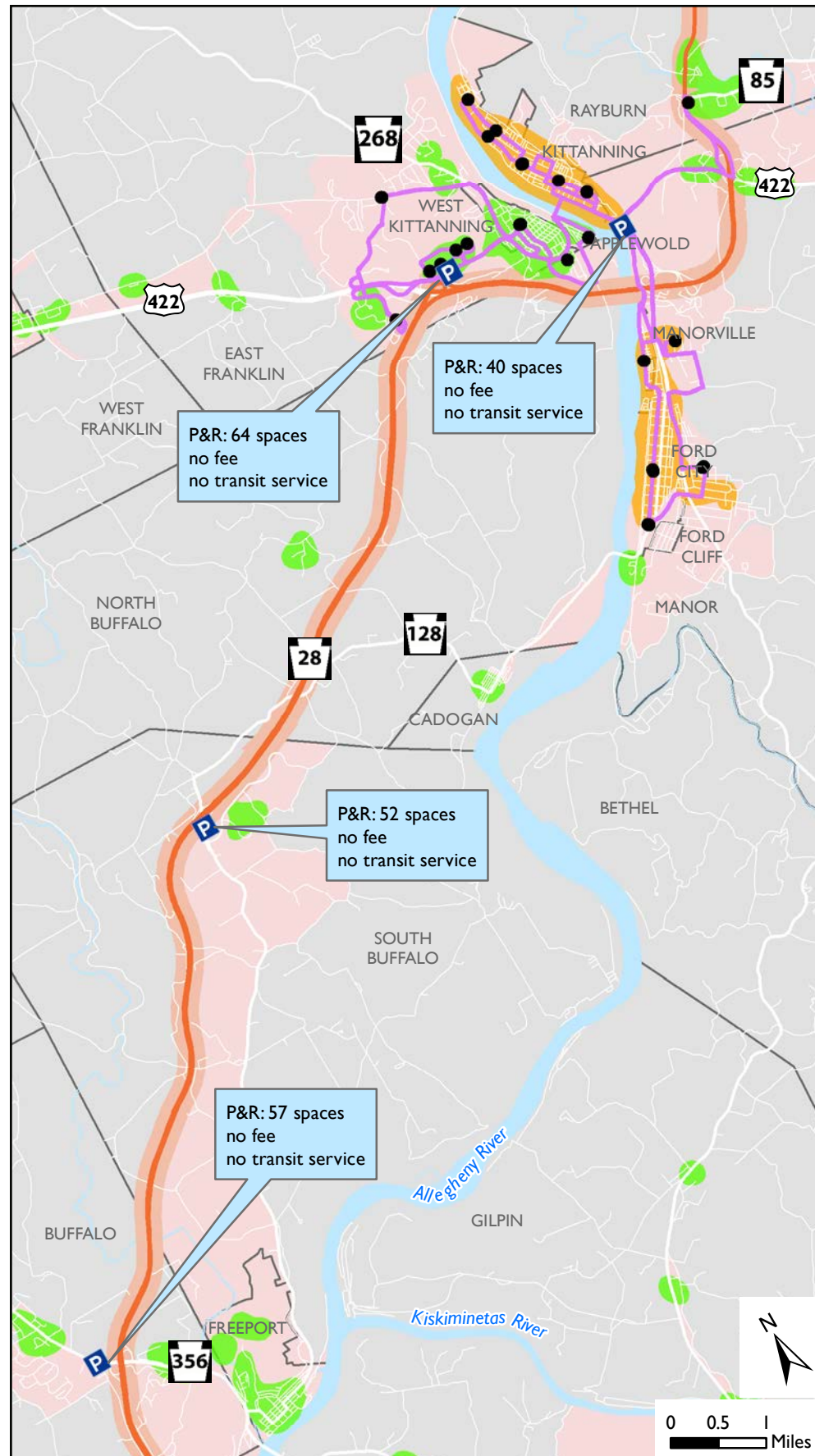
SR 28 Pavement Conditions			
Road Condition	Count (RMS Segments)	Miles	By %
Good/Excellent	72	34.4	94.5%
Fair	4	2	5.5%
Poor	0	0	0%



SR 28 over SR 3005 (Pony Farm Road)



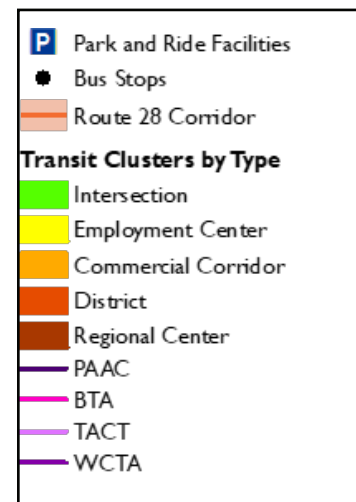
# TRANSIT



TACT TDP citation – showed potential for commuter service or regional transit connections – Ford City or New Kensington. There are some potentially longer-term options (i.e., post-Phase Five) that merit a more in-depth study in the future. These services are presented in this section of the report; however, their more detailed service characteristics were not developed.

- Pittsburgh via IUP Northpointe and Allegheny Valley Freeway – One longer-term possibility is to extend the Purple Line all the way to and from central Pittsburgh, thus not requiring a transfer at the Walmart in Natrona Heights to Port Authority transit service. Service would operate via IUP Northpointe. This route is anticipated to require an approximately 180 minute cycle time. The potential route alignment in central Pittsburgh has also not been developed, and it should be noted that the reliability of this route may be relatively poor as it would have to negotiate traffic on SR 28, which is frequently congested.
- Butler via U.S. Route 422 – Another potential longer-term option is to operate a new fixed route service between Kittanning and Butler.
- Sunday Service – Finally, another potential longer-term option is to operate some or all of the MCTA fixed routes on Sundays.

*SmartMoves Connections* has identified transit clusters located along Segment B of SR 28. The Intersection Transit Cluster is identified at the northern intersection of SR 28 and US 422 in Manor Township. While not directly on SR 28, there are commercial corridors identified south of SR 28 in Ford City and west of SR 28 in Kittanning. Continuing south, there are intersection clusters located within West Kittanning and in East Franklin Township, west of the SR 28 and the US 422 interchange. Continuing south into South Buffalo Township, there is an intersection transit cluster near the SR 128 interchange. Heading into Buffalo Township in Butler County, there are intersection transit clusters along SR 356 near SR 28.



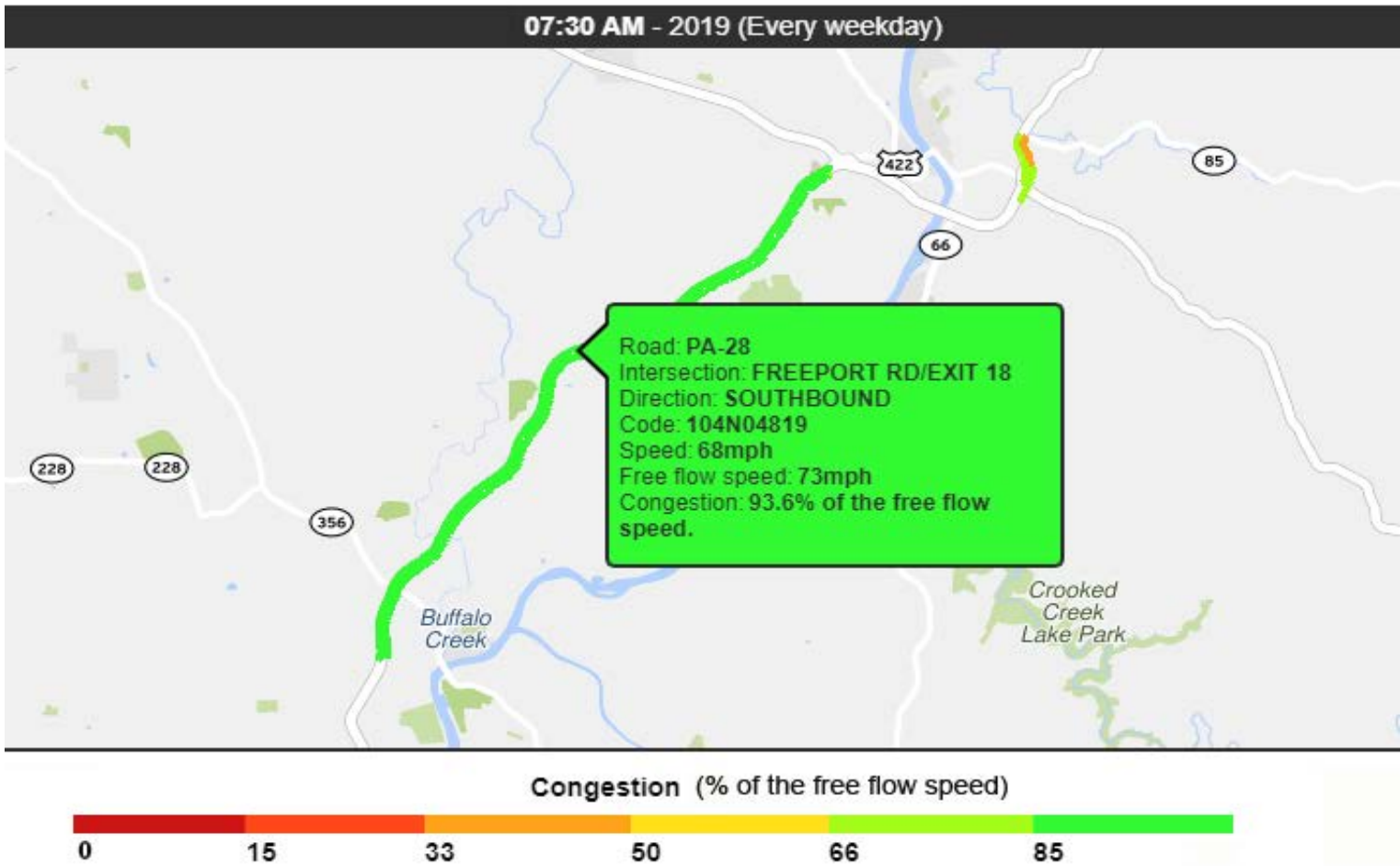
# CONGESTION & RELIABILITY

- Segment B is not monitored as part of SPC’s Congestion Management Process network.
- AM and PM peak period congestion trend mapping is shown for Segment B. Congestion percentage is shown as the percent of free flow speed achieved on the segment. Higher percentages indicate less congestion (greener colors), lower percentages indicate more congestion (redder colors).
- In the AM peak period, travelers on Segment B approximately achieve 85% to 94% of free flow speed.
- In the PM peak period, travelers on Segment B approximately achieve 87% to 92% of free flow speed.
- Travelers on Segment B experience negligible congestion in the peak periods.

**Planning Time Index (PTI)** is the extra time required to arrive at a destination on time, 95% of the time. It is calculated as the ratio of the 95th-percentile highest vehicle hours traveled divided by the vehicle hours traveled if the same trips could have been completed at free flow speed. For example, a PTI of 1.5 means that a traveler should plan on 50% more time for their trip compared to light traffic conditions for a 95% probability of arriving on time (meaning that 15 minutes should be planned for what would be a 10 minute trip in light traffic conditions). SPC reports PTI for arterial CMP corridors in the region by direction for peak and off-peak times.

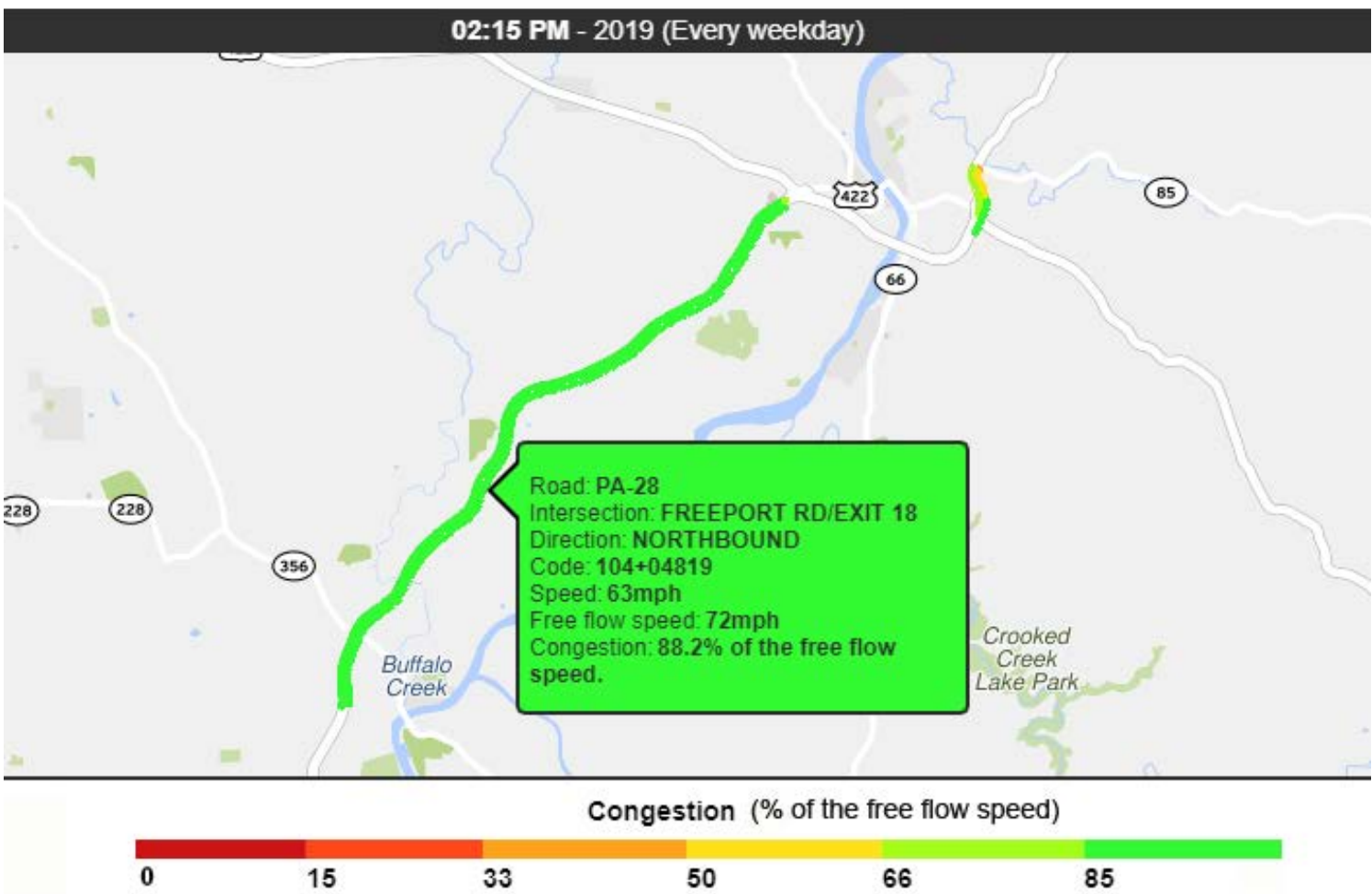
## AM CONGESTION

PA-28 between PA-85 and PA-356/Exit 17 Congestion Trend Map for 2019 (Every weekday)



## PM CONGESTION

PA-28 between PA-85 and PA-356/Exit 17 Congestion Trend Map for 2019 (Every weekday)



The above information was gathered from the Regional Integrated Transportation Information System (RITIS) available from the University of Maryland’s Center for Advanced Transportation Technology (CATT) lab.

SR 28 CORS Segment B- Northbound 2019	
Corridor Length (miles)	16.6
Avg. Posted Speed Limit (mph)	63.8
Travel Time @ Posted Speed Limit (min)	15.7

Travel Time in Minutes Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				16.65
Monday	16.61	16.79	16.1	
Tuesday	16.68	16.64	16.3	
Wednesday	16.71	17.08	16.23	
Thursday	16.53	16.54	16.12	
Friday	16.56	16.58	16.21	
Saturday				16.27

Planning Time Index Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				1.42
Monday	1.36	1.36	1.31	
Tuesday	1.38	1.37	1.32	
Wednesday	1.37	1.41	1.32	
Thursday	1.36	1.34	1.31	
Friday	1.38	1.39	1.33	
Saturday				1.38

SR 28 CORS Segment B- Southbound 2019	
Corridor Length (miles)	16.6
Avg. Posted Speed Limit (mph)	63.8
Travel Time @ Posted Speed Limit (min)	15.6

Travel Time in Minutes Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				16.43
Monday	16.36	16.22	16.08	
Tuesday	16.4	16.26	16.21	
Wednesday	16.47	16.4	16.31	
Thursday	16.61	16.3	16.14	
Friday	16.36	16.19	16.15	
Saturday				16.18

Planning Time Index Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				1.42
Monday	1.31	1.27	1.3	
Tuesday	1.33	1.29	1.31	
Wednesday	1.34	1.33	1.32	
Thursday	1.33	1.28	1.31	
Friday	1.34	1.3	1.31	
Saturday				1.35

- PTI for Segment B in the northbound direction ranges from 1.31 to 1.42
- PTI for Segment B in the southbound direction ranges from 1.27 to 1.42

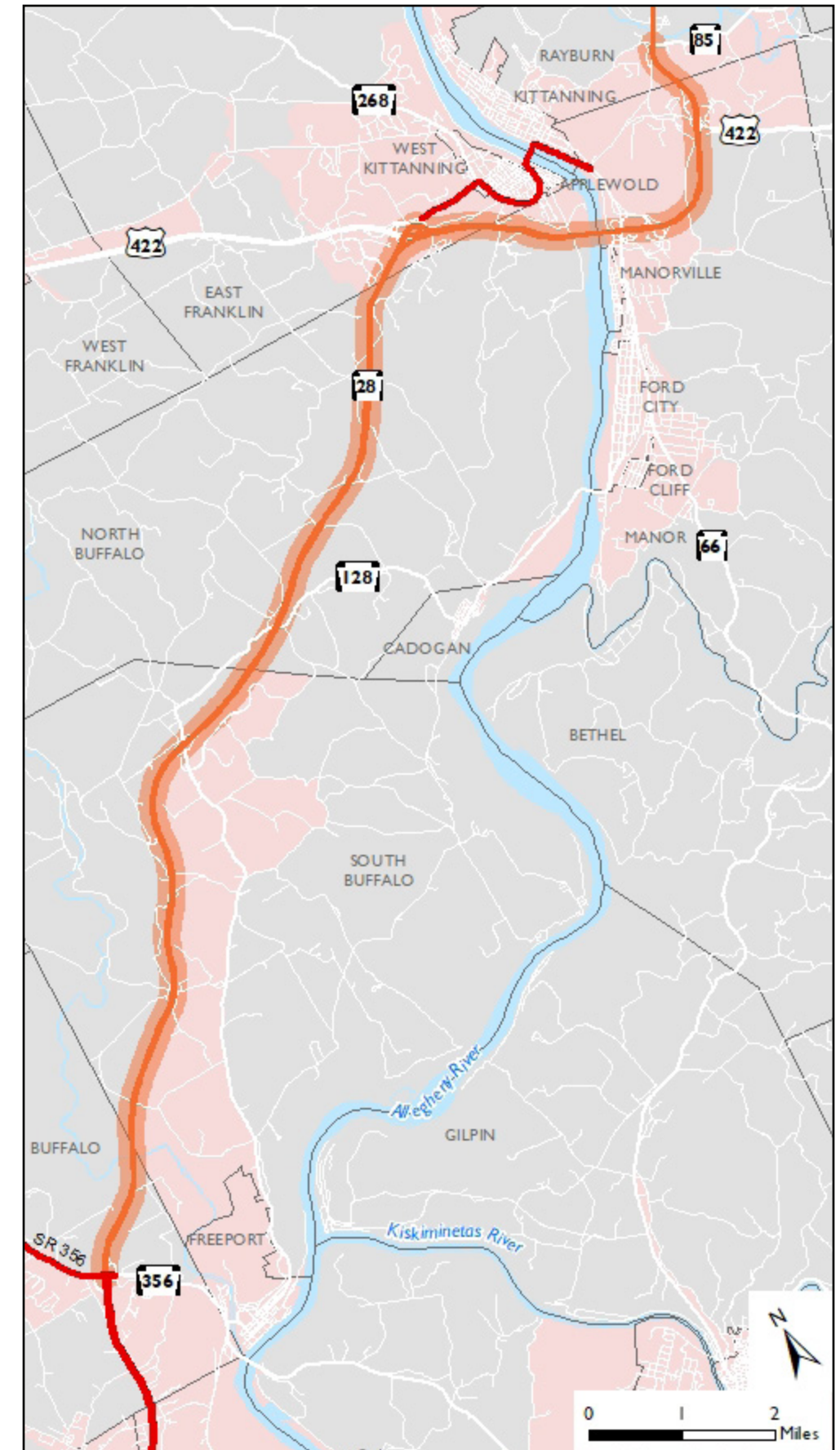
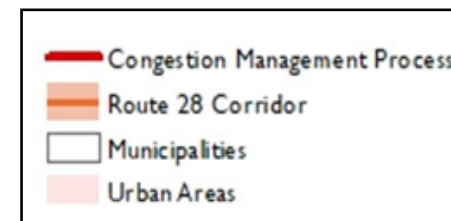
# CONGESTION MANAGEMENT PROCESS

- South of the intersection with Route 85, SR 28 takes on the characteristics of a limited access freeway. A portion of this segment coincides with US 422 and cross the Allegheny River in Kittanning. This section of SR 28 has a parallel road running alongside it that provides an alternate route during emergencies.
- Northbound: Sarver Road, Freeport Road (SR 3017)
- Southbound: Freeport Road, Sarver Road (SR 3017)

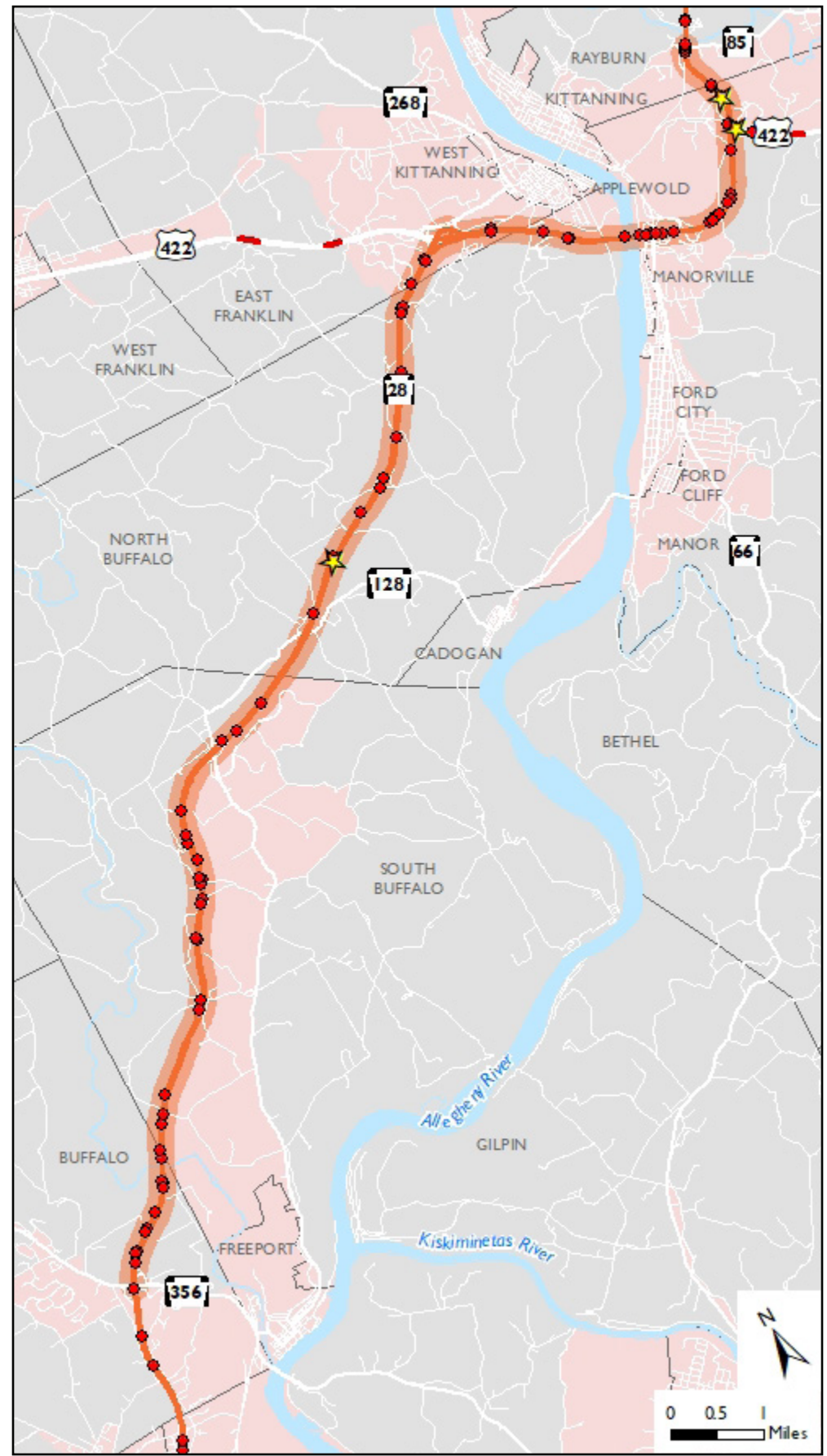
## CONGESTION MANAGEMENT STRATEGIES:

Category	Strategy	Baseline Prioritization*
DM	P.R. & Education for TDM	High
MOD	Rideshare Programs	
OPS	Incident Management Systems	
OPS	Intersection / Geometric Improvements	
MOD	Park-n-ride & Other Intermodal Facilities	
OPS	Traffic Signal Improvements	Medium
MOD	Improved Transit Service	
DM	Employer-Based Programs	
OPS	Intelligent Transportation Systems	
CAP	Lane Additions	
DM	Transit-Oriented Development Policies	Low
OPS	Elimination of Bottlenecks	
DM	Growth Management	
DM	P.R. & Education for TSD	
MOD	Bicycle Facilities & Information	
DM	Congestion Pricing	Not Applicable
CAP	New SOV Facilities	
MOD	Pedestrian Facilities & Information	
MOD	Transit Capital Improvements	
MOD	HOV & HOT lanes	
DM	Parking Management	
OPS	Ramp Metering	
OPS	Access Management	
OPS	One-way Streets	
OPS	Reversible Lanes	

\*Strategies are simply listed alphabetically within the High, Medium, Low, and N/A groupings. They are not individually prioritized within those groupings.



# SAFETY

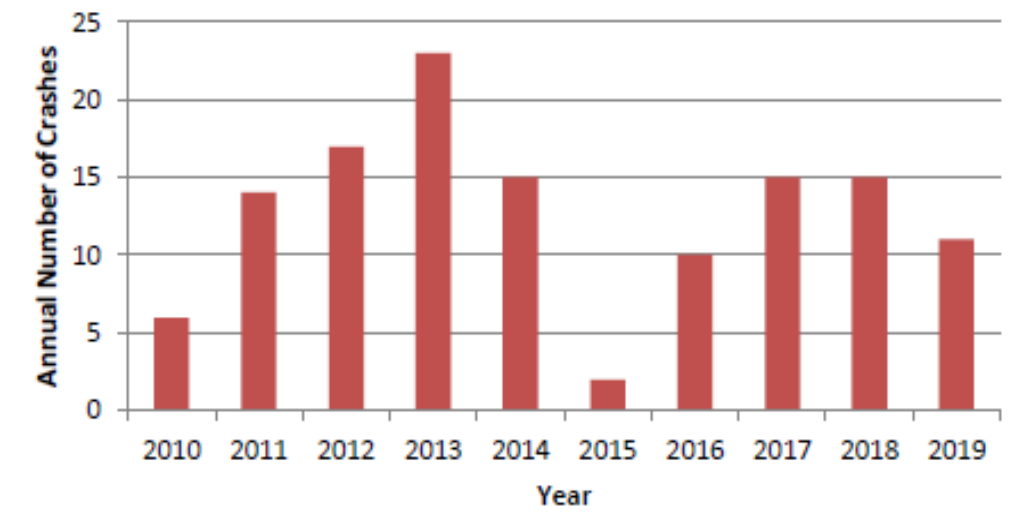


- For Segment B, the overall crash trend is flat. Additionally, one thing to note is that there were no fatal and suspected serious injury crashes for this segment for the period of 2010-2019.
- When comparing Segment B to the SPC region total crash trend, both have a flat trend.
- Segment B's 2019 crash rate (0.101 crashes/MVMT) is lower than the average crash rate for similar roadways in Armstrong County (0.36 crashes/MVMT) and lower than the average 2019 crash rate for similar roadways in the SPC region (0.5 crashes/MVMT).
- There are no Safety Action Plan Safety Focus Areas present in this segment.

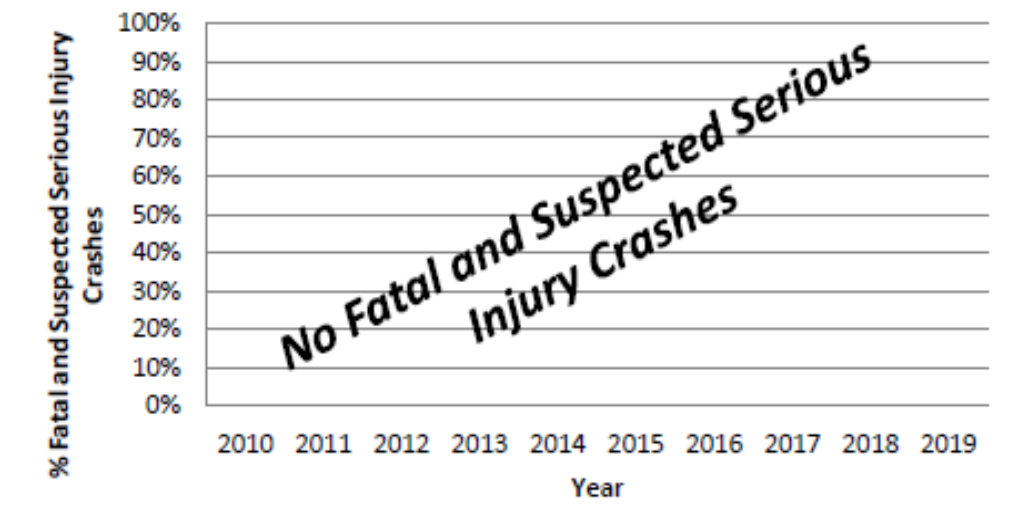
SR 28 Segment B Crash Statistics	
Timeframe	2010-2019
All Crashes	146 (<1 crash per week)
Fatal and Serious Injury Crashes	0
Non-Motorized Crashes	0
Noteworthy: Deer in Road Crashes	61 (~42% of all crashes)
Noteworthy: Dark, Dawn, Dusk Crashes	81 (~55% of all crashes)
Crashes Involving Heavy Trucks	6 (~4% of all crashes) Trucks represent 10% of traffic on this segment.

## SR 28 SEGMENT B CRASH TRENDS

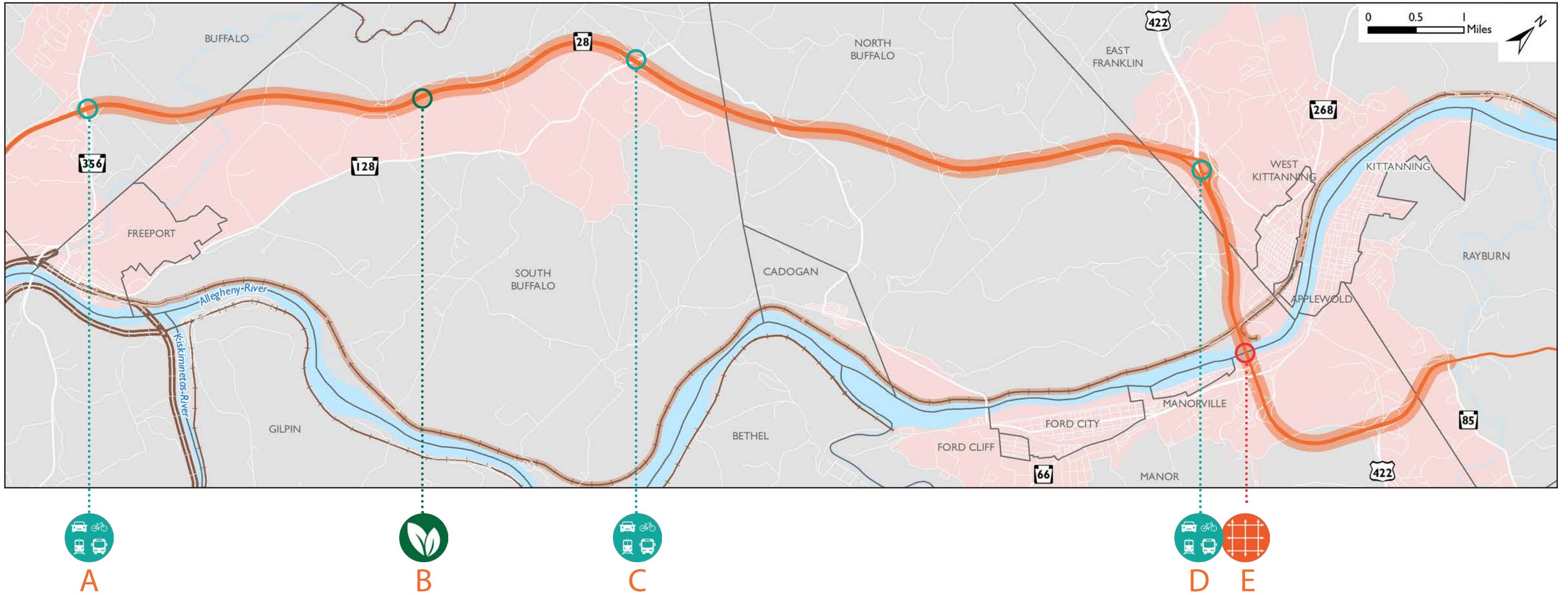
Overall Crash Trend



Fatal and Suspected Serious Injury Trend








# SEGMENT B: FOCUS AREAS



## FOCUS AREA CATEGORIES



# SEGMENT B: FOCUS AREAS

A		<p>There is a free, 57 lot park and ride facility located near the SR 28/ SR 356 Interchange. There is no transit service to this park and ride facility.</p>
B		<p>SR 28 enters the Buffalo Creek Watershed, which is a high quality cold water fishery, therefore the Regional Ecosystem Framework value is higher in this area. Also in this area are protected properties such as conservation easements or agricultural preservation, which also increases the REF value.</p>
C		<p>There is a free, 52 lot park and ride facility located along SR 128 near SR 28. There is no transit service to this park and ride facility.</p>
D		<p>There is a free, 64 lot park and ride facility located near the SR 28/US 422 interchange. There is no transit service to this park and ride facility.</p>
E		<p>The continued preservation and maintenance of the SR 28 bridge over the Allegheny River is essential.</p>

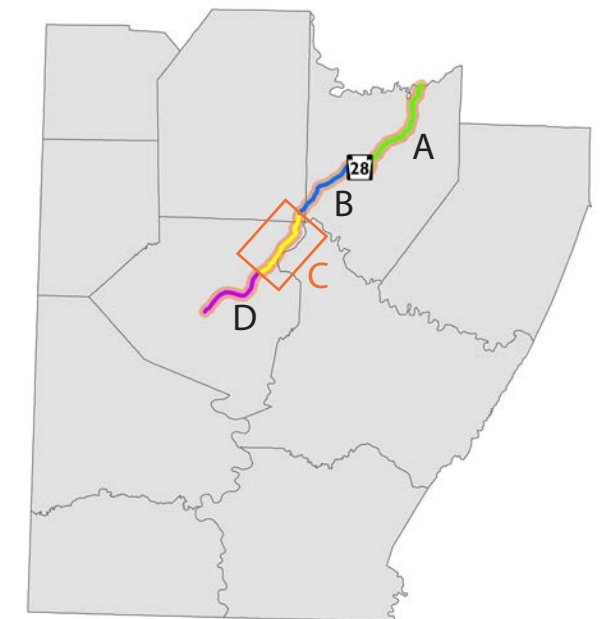


# SECTION III: SEGMENT PROFILES

---

## SEGMENT C

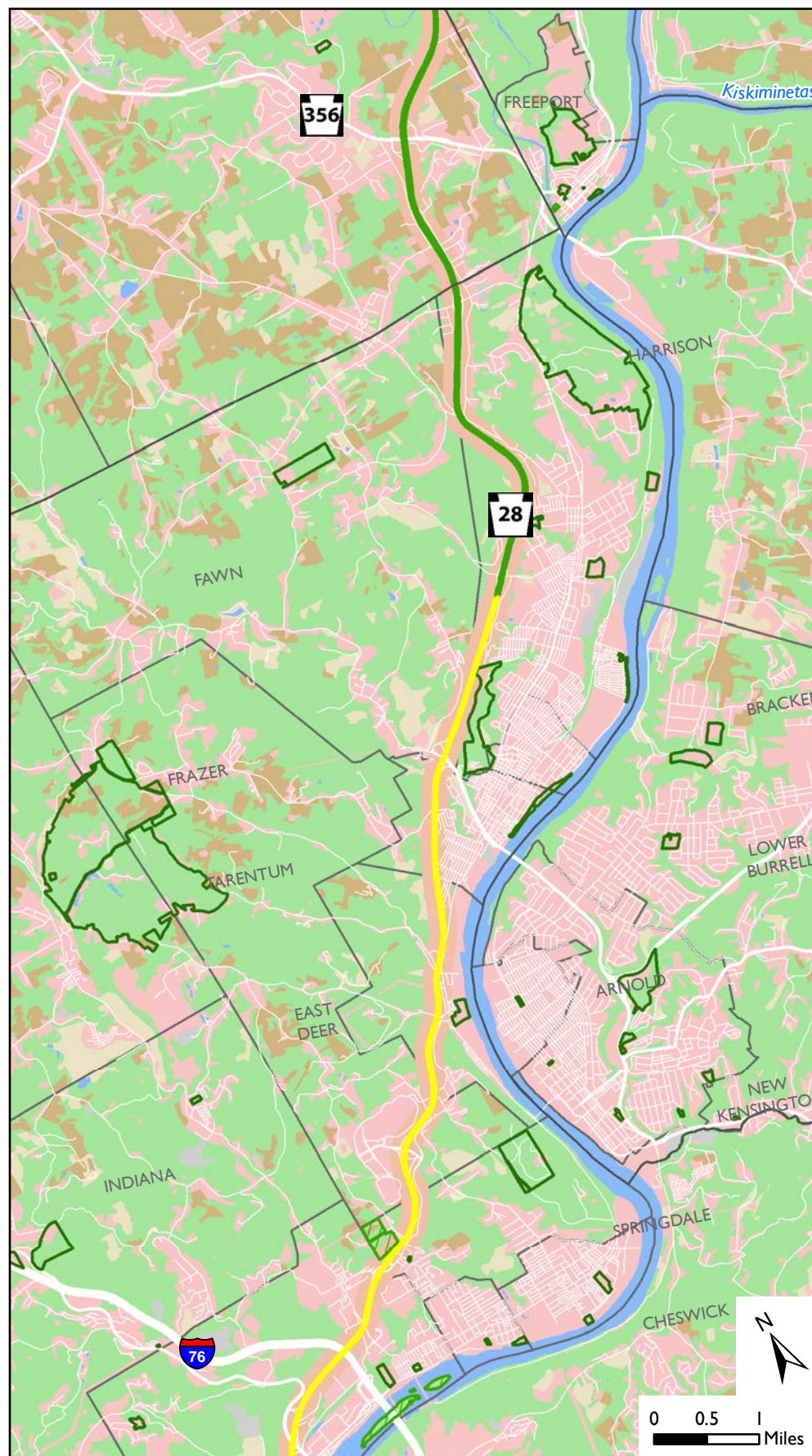
- SEGMENT OVERVIEW
- ACTIVE TRANSPORTATION
- FUTURE HIGHWAY & BRIDGE PROJECTS
- ENVIRONMENTAL FEATURES
- FREIGHT
- REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES
- SEGMENT TRAVEL PATTERNS
- CONDITION OF ASSETS
- TRANSIT
- CONGESTION & RELIABILITY
- SAFETY
- FOCUS AREAS



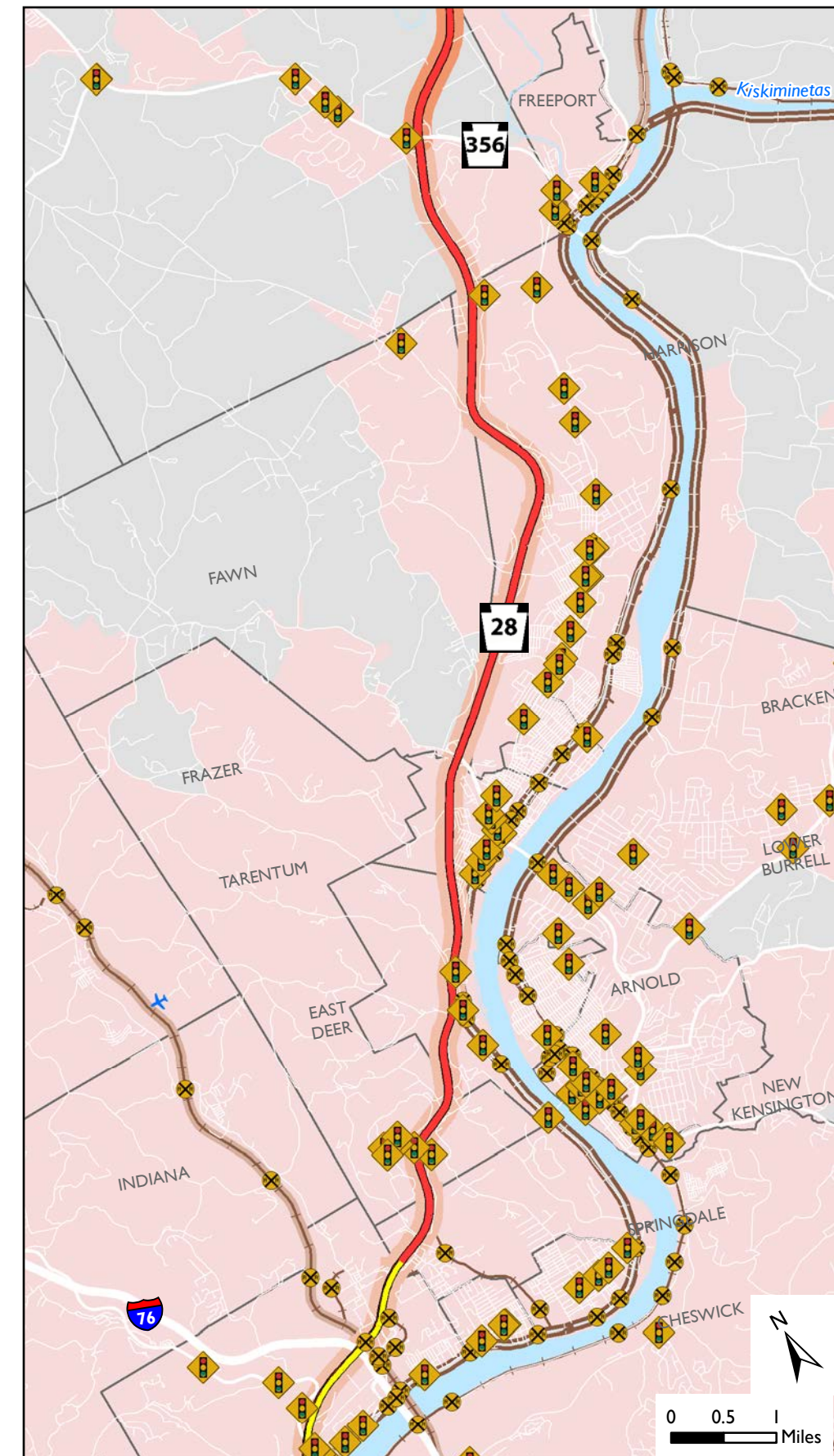
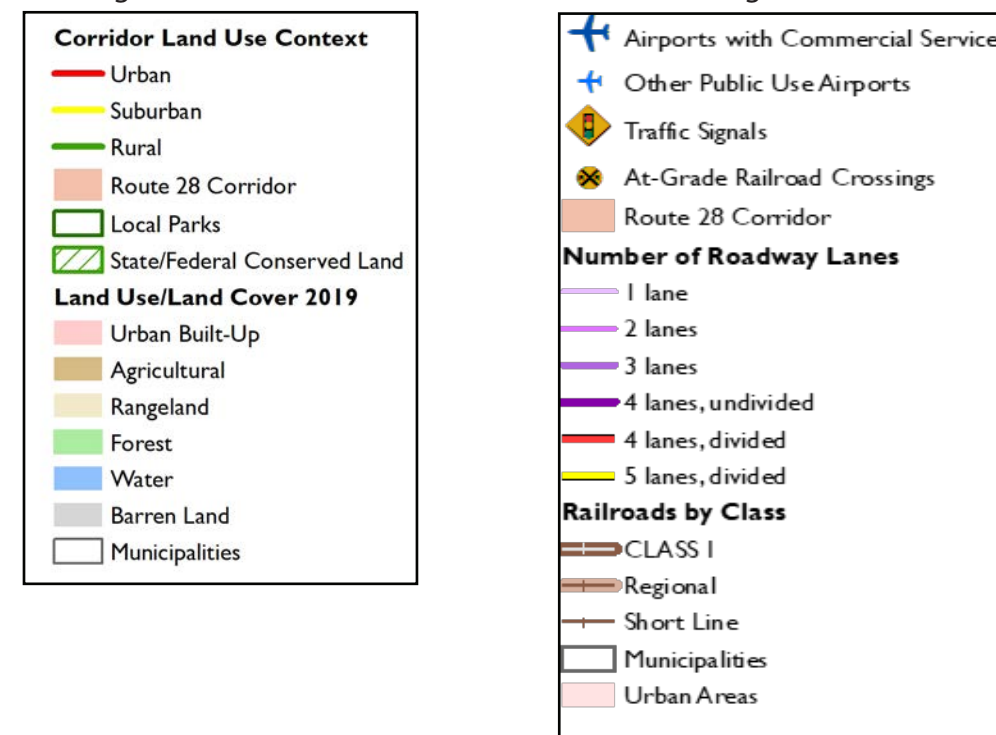


# SEGMENT C: OVERVIEW

Segment C, SR 28 from SR 356 in Buffalo Township to I-76 (Pennsylvania Turnpike) in Harmar Township remains a four-lane limited access divided highway but with some changes. SR 28 remains a rural highway into Allegheny County. SR 28 remains a rural highway in Allegheny County until the Natrona Heights/Brackenridge Interchange in Harrison Township. At this interchange, SR 28 becomes a suburban highway. Continuing south, SR 28 enters the communities of Tarentum, East Deer Township, Frazier Township, Springdale Township, and Harmar Township. Through this section, SR 28 bypasses Brackenridge, Springdale, and Cheswick. Segment C provides a connection to I-76 (Pennsylvania Turnpike) via Route 910 and Freeport Road.

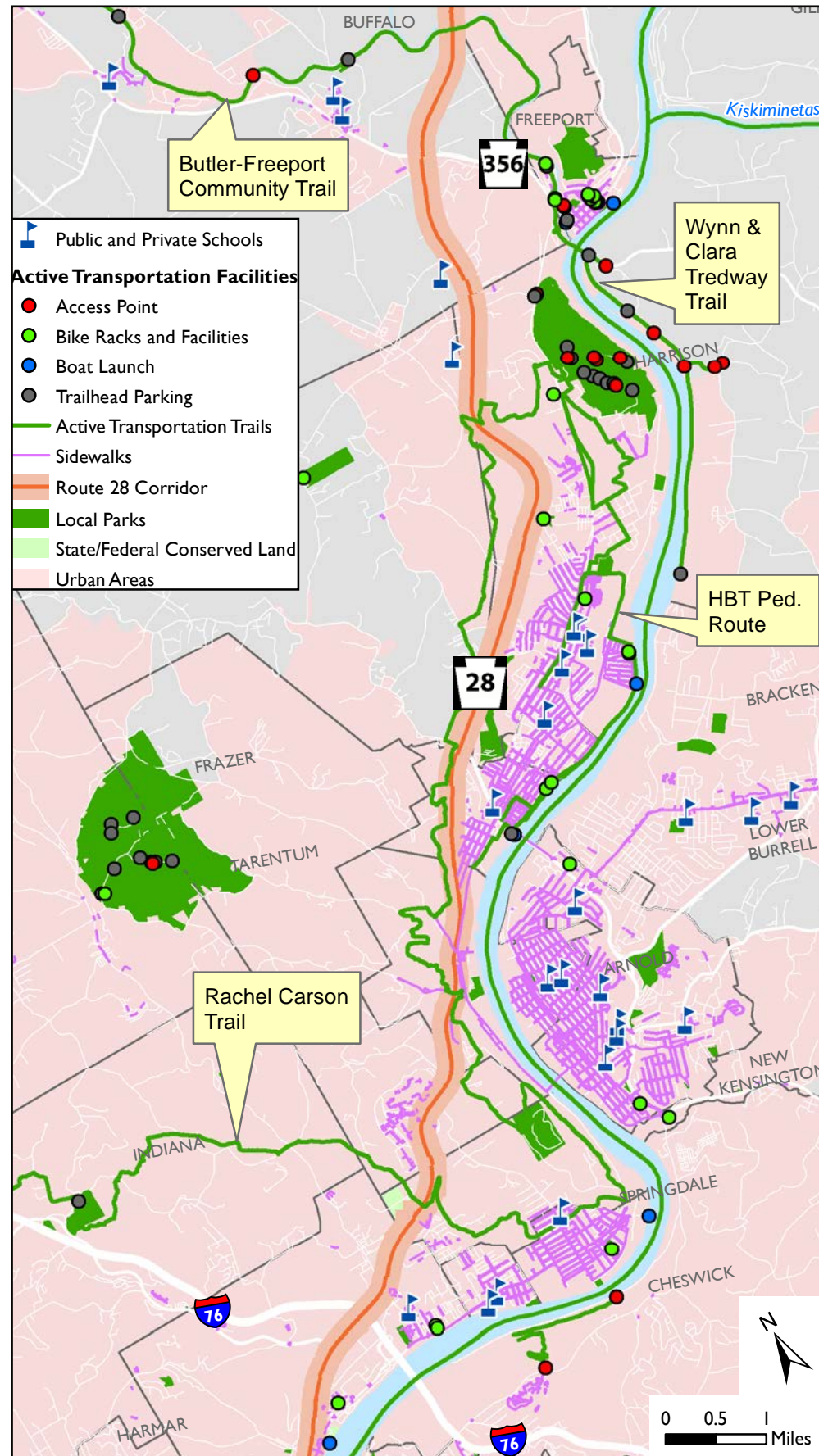


Looking South: SR 28 at Exit 14 (Tarentum/New Kensington)





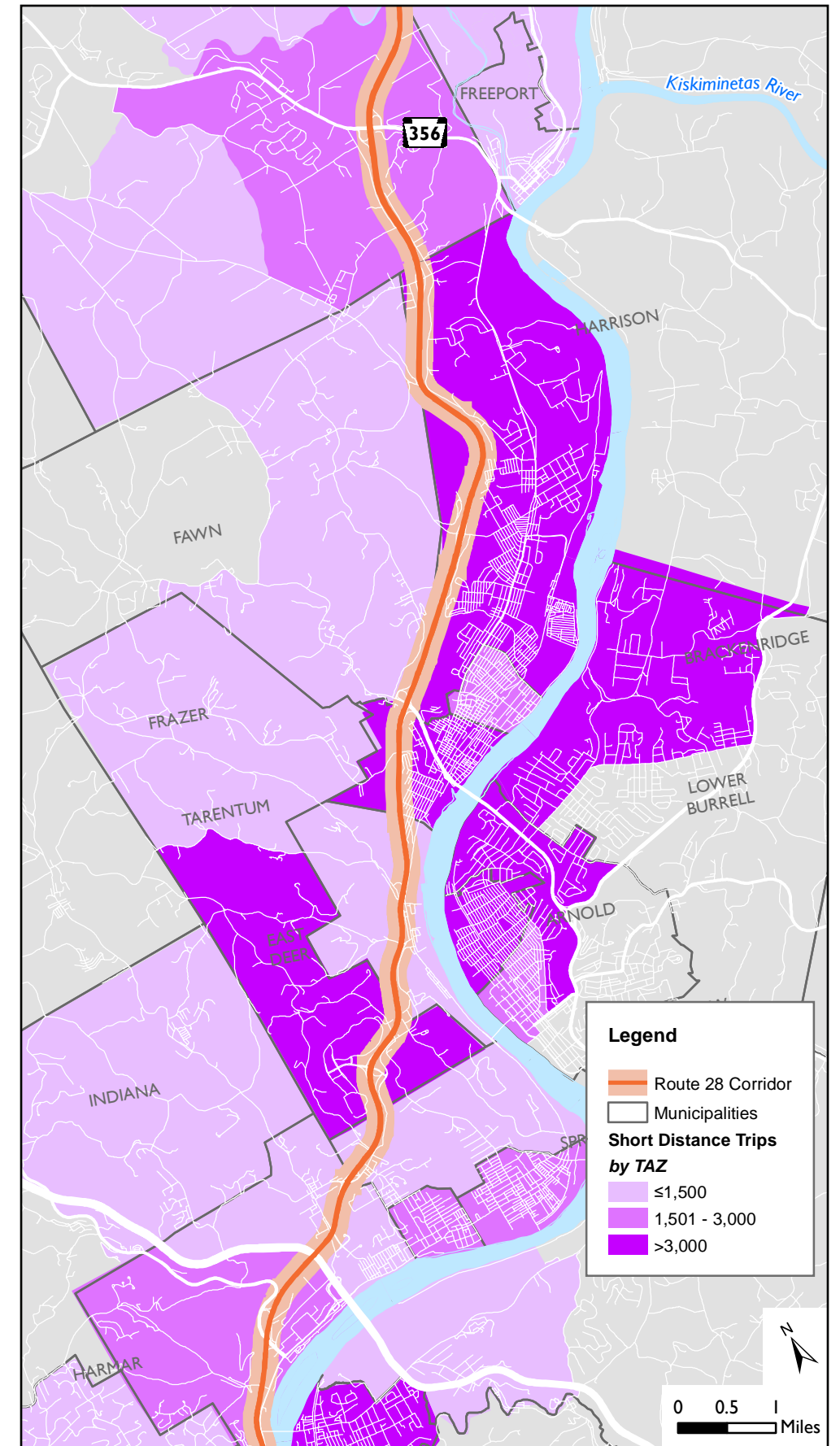
# ACTIVE TRANSPORTATION



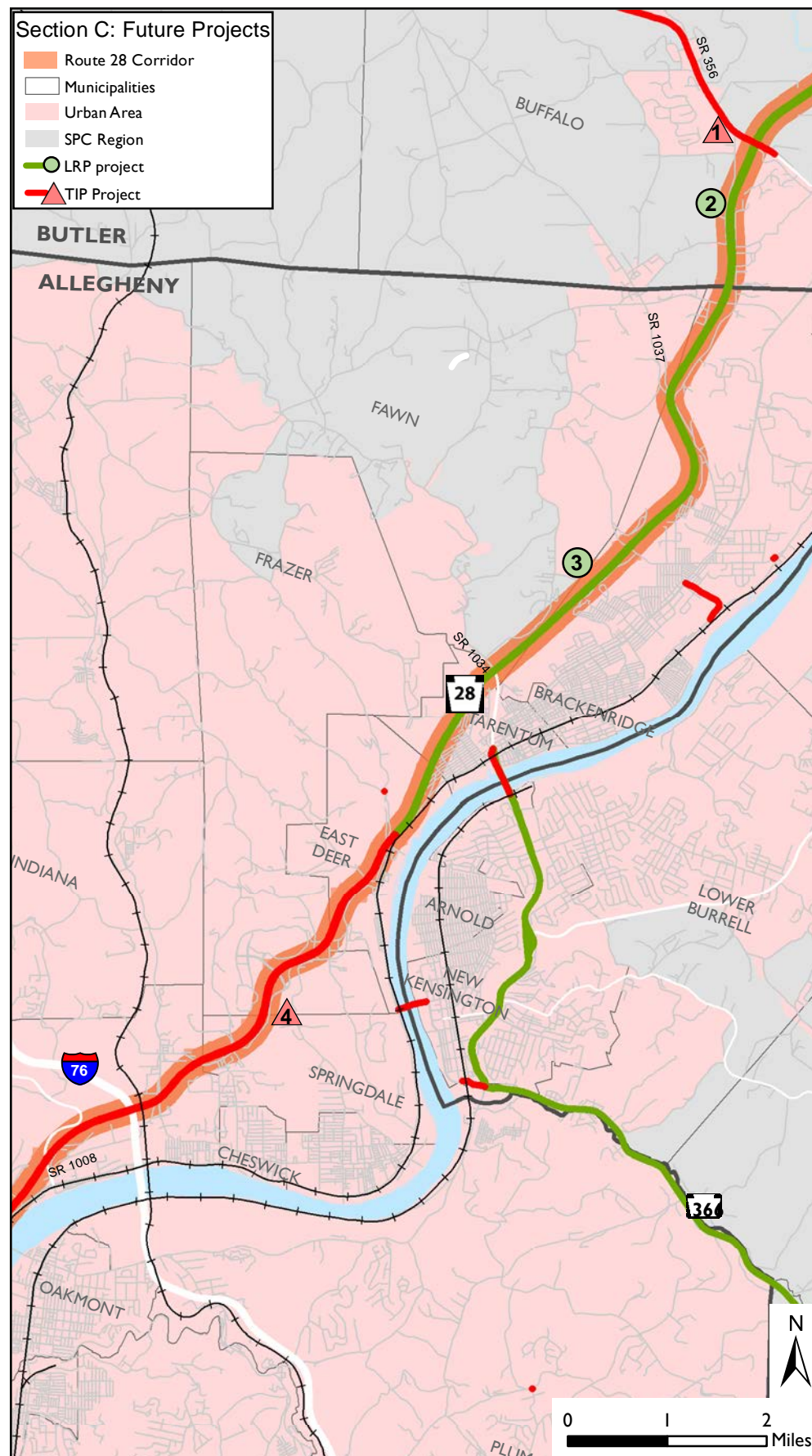
There are no bicycle/pedestrian facilities on Segment C. Land trails near the corridor include the Rachel Carson Trail and the Silver Lake Park Trail. Trail descriptions and trail functional classifications are listed below.

- The Rachel Carson Trail (regional arterial) is a hiking trail north and east of Pittsburgh that covers over 45 miles between Harrison Hills Park in the northeastern corner of Allegheny County and North Park in the north-central area of the county. From north to south, the trail is located east of this segment of the corridor where it traverses Harrison Hills Park before passing under SR 28 utilizing Saxonburg Road. The trail then resumes off-street and is located west of and runs parallel to the corridor from Harrison Township south to Creighton in East Deer Township. At times, the trail is in very close proximity to the corridor, especially in Tarentum. In East Deer Township, the trail follows Crawford Run Road as it passes back under SR 28 and continues on the eastern side of the corridor through East Deer Township, Frazer Township and Springdale Township. Near Springdale, the trail continues on in a westerly direction toward North Park and crosses under SR 28 again utilizing Yule Run Road.
- The Silver Lake Park Trail (local) is located on the eastern side of the corridor in Harrison Township. The trail, which is approximately 2-miles long, runs from Silver Lake Park to Burtner Road, parallel to the northbound lanes of SR 28.
- Water trails near the corridor include the Allegheny River, which is part of the Three Rivers Water Trail - a system of 23 access points for non-motorized recreational boats on the Allegheny, Monongahela, Ohio, and Youghiogheny Rivers. The Three Rivers Water Trail is a designated PA Water Trail and was awarded National Recreation Trail status by the US Department of the Interior.

For potential enhancements for improving bicycle/pedestrian infrastructure include developing trail connections near the Freeport Bridge in Buffalo Township. Trails such as the Rachel Carson, Butler-Freeport Community Trail, Wynn & Clara Tredway and many others converge near the Freeport Bridge. There is an opportunity to create a trail junction to provide a connection to multiple trails at a single point. This corridor segment includes moderately-high development density in the towns along the Allegheny River with lower-density suburban development in the uplands. Suburban development is characterized by relatively few short trips there. The areas where there are relatively high numbers of short trips are the areas with active transportation facilities. Areas where there are fewer short trips are the areas with limited active transportation facilities.



# FUTURE HIGHWAY & BRIDGE PROJECTS



<b>1</b>	<p>Efficiency &amp; Operations   MPMS 106486                  2021-2024 TIP   SR 356 Corridor Improvements                  Upgrades/improvements to the flow of traffic with the addition of turning and through lanes, signal retiming and signal coordination along SR 356 from SR 228 to SR 28 in Buffalo Township, Butler County.</p>
<b>2</b>	<p>Road Reconstruction   MPMS 112427                  Fiscally Constrained List   SR 28 Reconstruction                  Highway reconstruction along SR 28 from the Allegheny/Butler County Line north to US 422 Interchange in Buffalo, North Buffalo, South Buffalo and East Franklin Townships, Armstrong County.</p>
<b>3</b>	<p>Road Reconstruction   MPMS 100778                  Fiscally Constrained List   SR 28: Bull Creek to Butler                  Reconstruction of SR 28 from Bull Creek to the Butler County Line in Harrison, Fawn Townships and Tarentum Borough Allegheny County.</p>
<b>4</b>	<p>Road Preservation   MPMS 92276                  Fiscally Constrained List   SR 28 Harmarville to Russelton                  Mill and overlay, guiderail and minor bridge work on SR 28 - Harmarville to Russelton in East Deer, Frazer, Harmar and Springdale Townships, Allegheny County.</p>

- Project 1 is along the SR 356 corridor in Buffalo Township, Butler County. The southern project limits extend to the SR 28 interchange. The project is addressing congestion and operational efficiency including addition of turning lanes and signal upgrades. The project has a total of \$9,242,450 programmed on the 2021-2024 TIP in 2021 and 2022 for preconstruction and construction phases.
- Project 4 is road preservation activities on SR 28 from Harmarville to Russelton. The project has a total of \$22.3 million for construction programmed in 2021-2024.
- The SPC Long Range Transportation Plan contains two projects in this section for the reconstruction of SR 28. Project 2 is from the Allegheny County/Butler County line to US 422 listed in the second stage of the LRTP. The project has an estimated cost of at \$35.8 million. Project 3 is the reconstruction of SR 28 from Bull Creek to the Butler County Line in Harrison Township, Fawn Township and Tarentum Borough. The project is listed in the third stage of the SPC Long Range Transportation Plan for \$22.7 million.
- For up to date information on TIP projects, please visit <https://www.spcregion.org/programs-services/transportation/smartmoves-long-range-plan-transportation-improvement-program/>.



# ENVIRONMENTAL FEATURES

SR 28 has numerous crossings of surface water resources in Segment C. Heading south, the first half of the segment is in the Bull Creek Watershed. SR 28 from the Allegheny/Butler County line to Tarentum roughly parallels Little Bull Creek. All streams that SR 28 crosses in this watershed have a designated use of Trout Stocked Fishery (TSF). From Tarentum, SR 28 traverses the Bailey Run Watershed, Crawford Run Watershed, Riddle Run Watershed, Tawney Run Watershed, and Deer Creek Watershed. Streams in these watersheds are designated as Warm Water Fisheries.

### Areas on this segment with Stormwater 167 plans:

- Buffalo Creek – Allegheny River (Buffalo Township, Butler County)
- Deer Creek – (Harmar Township, Allegheny County)

### Areas on this segment with MS4 Permits:

- Buffalo Township, Butler County (Permit PAG138304)
- Harrison Township, Allegheny County (Permit PAG136177)
- Fawn Township, Allegheny County (Permit PAG136215)
- Frazier Township, Allegheny County (PAG136273)
- Tarentum Borough, Allegheny County (PA136248)
- East Deer Township, Allegheny County (PA136229)
- Springdale Township, Allegheny County (PA136153)
- Harmar Township, Allegheny County (PA136354)



SR 28 over Deer Creek

### Water Quality Standards

All commonwealth waters are protected for a designated aquatic life use as well as a number of water supply and recreational uses. The **use designation** shown in the water quality standards is the aquatic life use. These uses are Warm Water Fishes (WWF), Trout Stocking (TSF), Cold Water Fishes (CWF) and Migratory Fishes (MF). A body of water is considered **“impaired”** if it fails to meet one or more water quality standards.

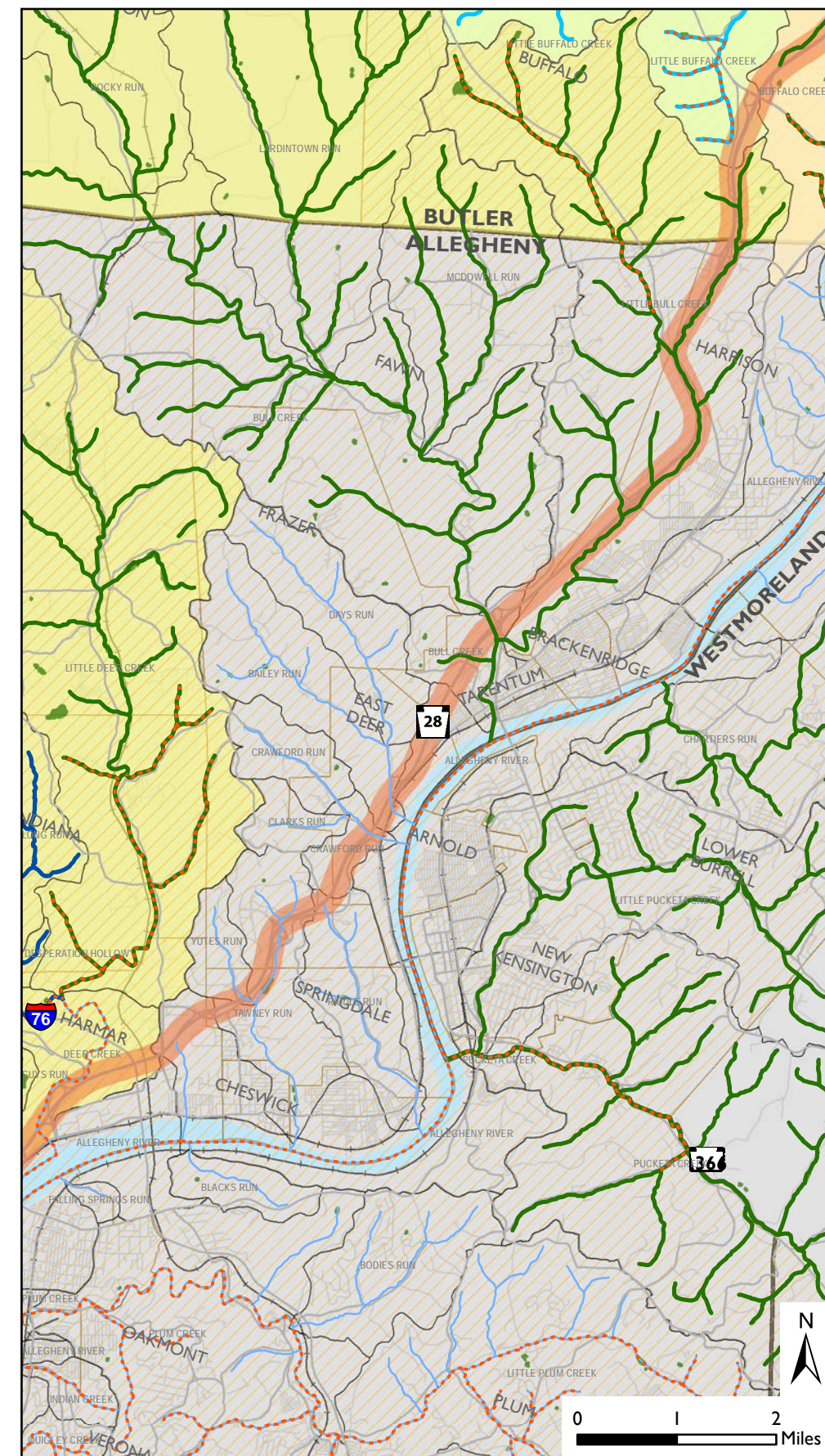
The water quality in a High Quality stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all existing uses of the stream are protected. Exceptional Value waters are to be protected at their existing quality; water quality shall not be lowered.

Some water resources are also part of the **Total Maximum Daily Load (TMDL)** program, which identifies sources of pollution and allocates pollutant loads in places where water quality goals are not being achieved.

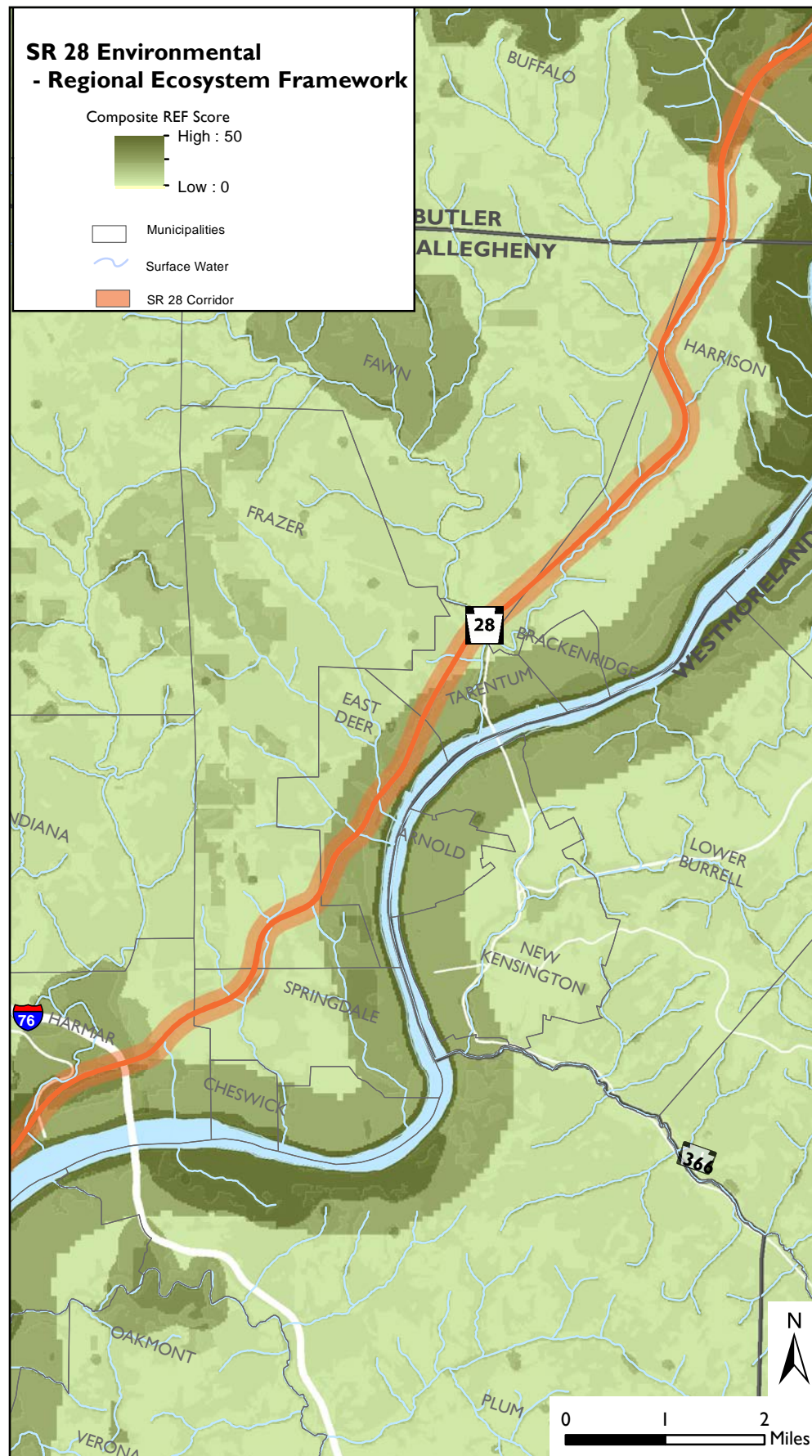
### Stormwater Management

The **Storm Water Management Act (No. 167)** authorized a program of comprehensive watershed stormwater management that retains local implementation and enforcement of stormwater ordinances similar to local responsibility of administration of subdivision and land development regulations. Act 167 plans are required on a county-wide basis; however, the practice to this point has been to only develop plans for specific sensitive waters/watersheds.

A **Municipal Separate Storm Sewer System (MS4)** is owned or operated by a public agency, such as a city, town, county, flood control district, state, or federal agency that does not connect to the sanitary sewer system and does not lead to a wastewater treatment plant.



SR 28 Environmental -Water Resources			
	Ch 93 Designated Cold Water Fishery		High Quality Watershed
	Ch 93 Designated Exceptional Value Stream		Watersheds
	Ch 93 Designated High Quality Stream		Act 167 Stormwater Plan
	Ch 93 Designated Trout Stocking		MS4 Municipality
	Other Streams		Municipalities
	Impaired Stream		Urban Areas
	NW Wetland		SR 28 Corridor
	SPC Region		



The **Regional Ecosystem Framework (REF)** integrates environmental inventory data, conservation priorities, maps, and plans, with input from and adoption by conservation and natural resource stakeholders identified that addresses species, habitats, and relevant environmental issues and regulatory requirements agreed upon by the stakeholders. SPC has identified available GIS data layers that when analyzed will spatially model ecological significance on a regional scale. The datasets that make up the prototype REF are included in Appendix B.

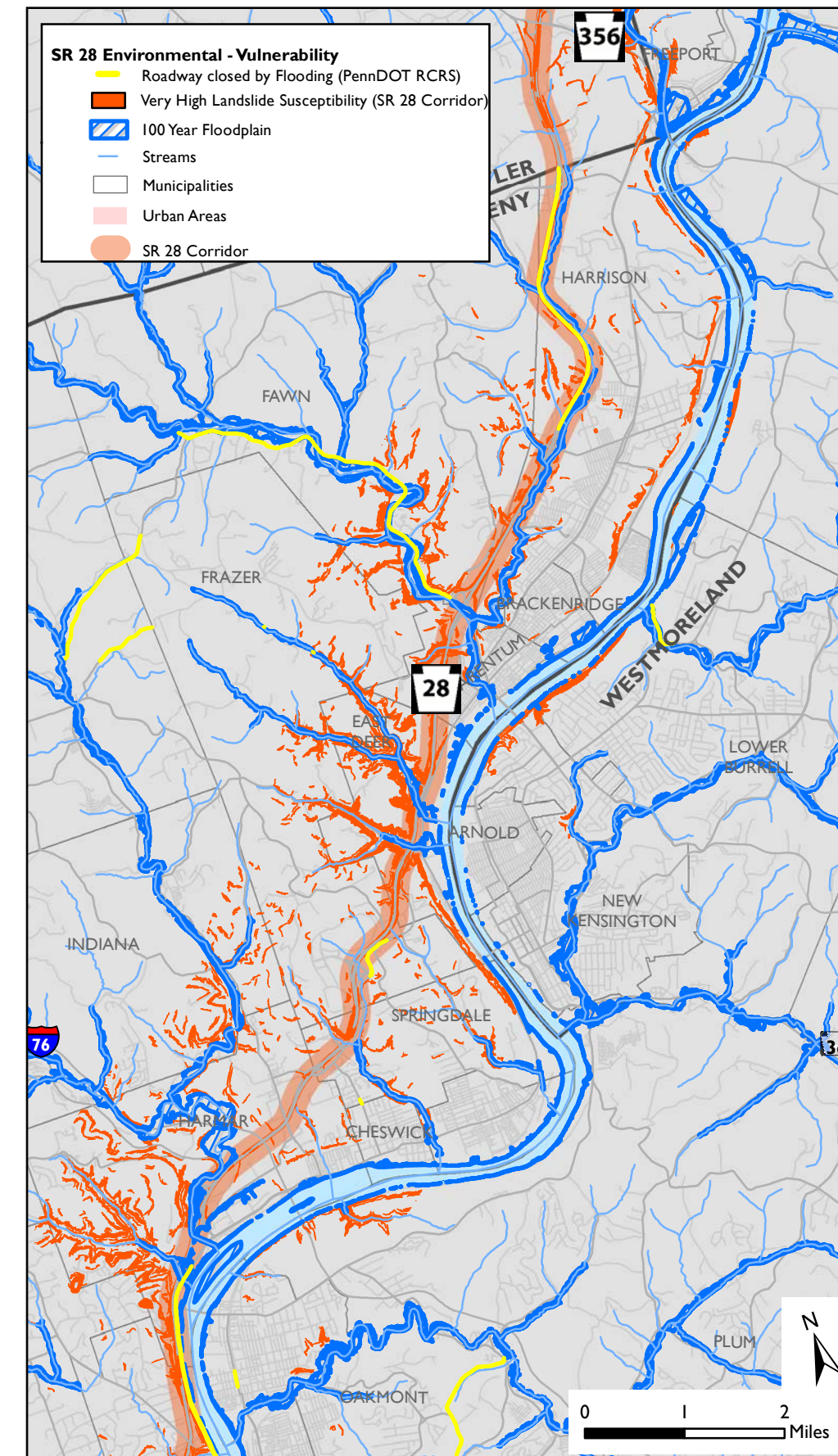
SPC staff assigned a score to the relevant attribute of each environmental data layer; the score reflects the relative importance of the occurrence of any certain resource found in a dataset relative to other resources used in the analysis. Greater values in the REF indicate greater environmental significance.

Within Segment C, the REF is showing the regional significance of the Allegheny River, which is identified as a critical resource within the region's natural heritage inventory.

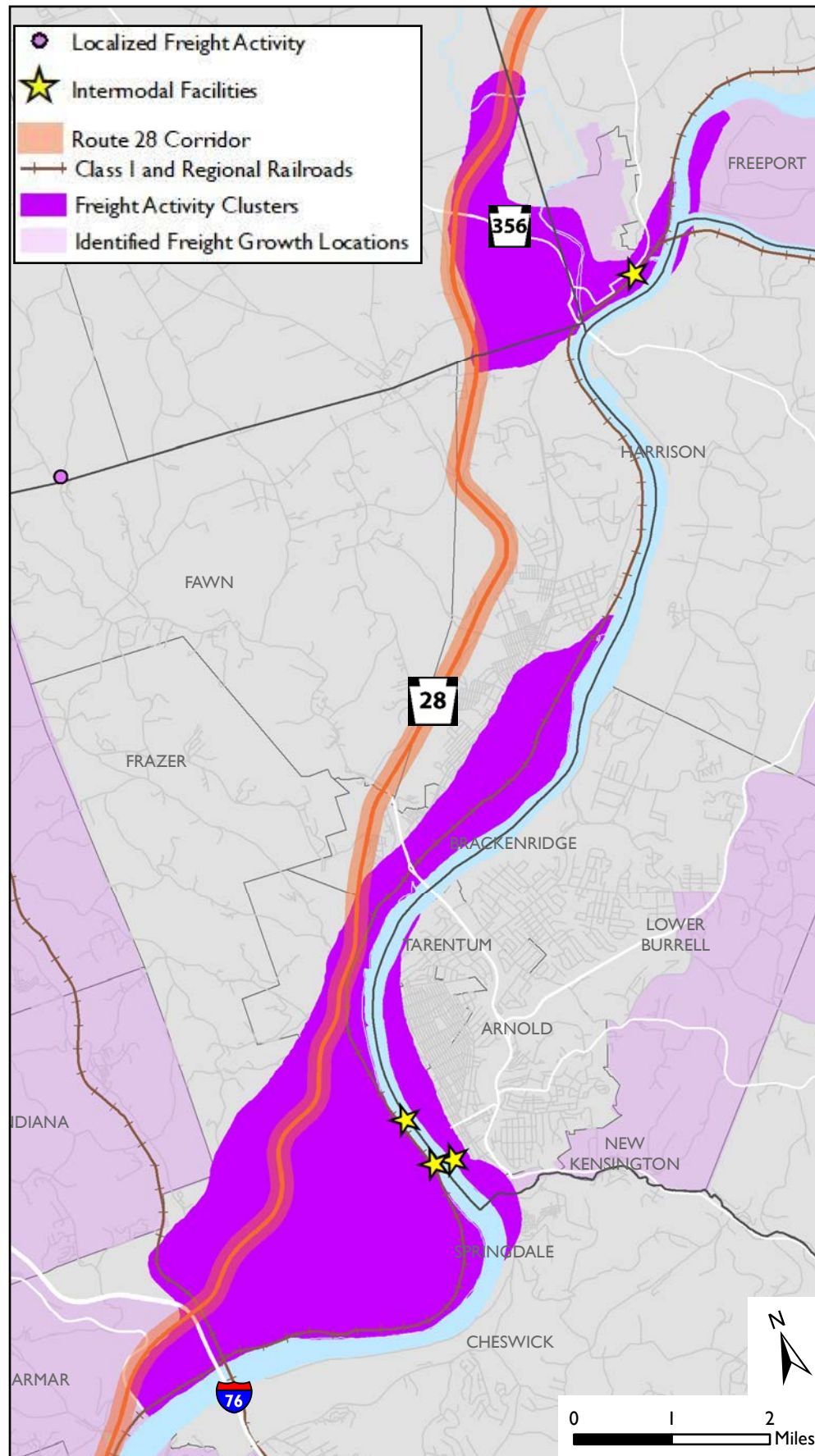
In Segment C there are some locations with vulnerabilities to both landslide susceptibility and floodplain and flash flooding potential. The PennDOT road closure data indicates one section of SR 28 that experienced lane closure due to flooding. This section is in Harrison Township along Little Bull Creek and the associated floodplain. Steep slopes within the Harmarville and Tarentum portion of the segment represent high susceptibility for landslides and rockfalls. Maintenance activities and protections put in place have recently reduced the vulnerability in the segment.



SR 28 near Little Bull Creek



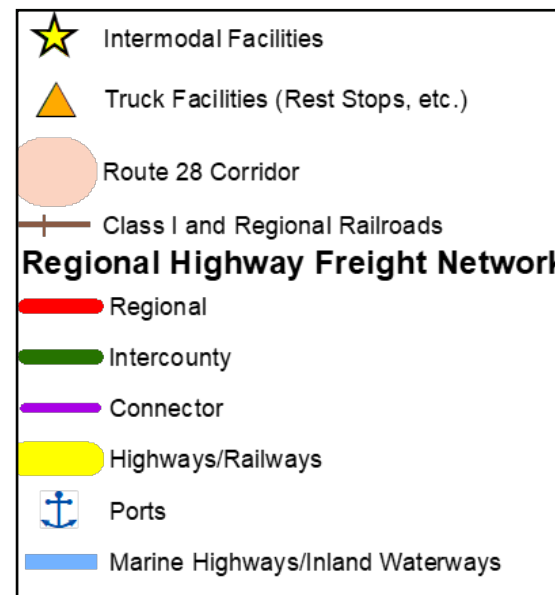
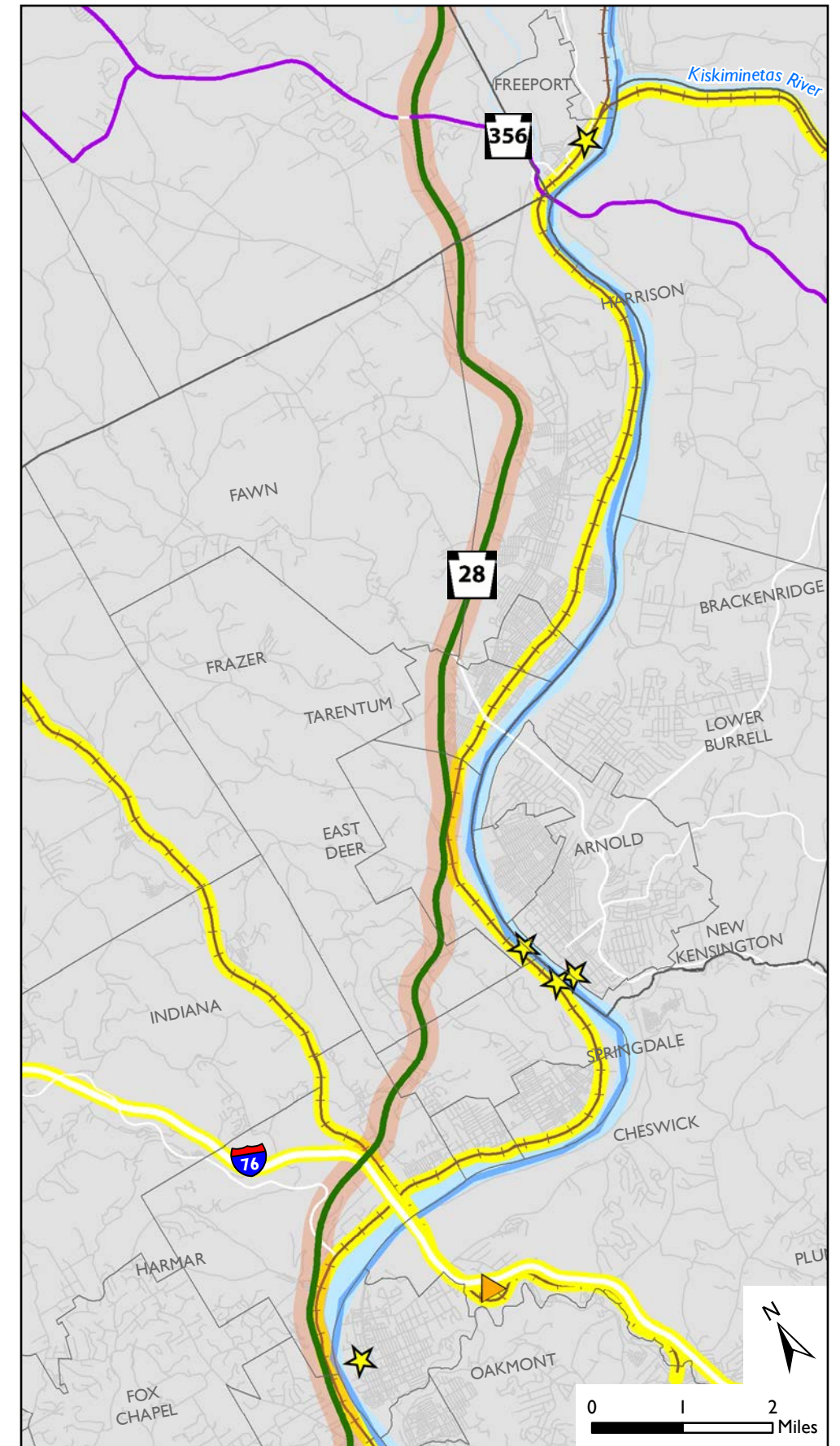
# FREIGHT



South of SR 356, as SR 28 enters Allegheny County, the corridor becomes more urbanized, and truck density drops, although truck utilization of the corridor remains significant.

Between SR 28 and the Allegheny River are the legacy industrial centers of Creighton, Tarentum, Brackenridge and Natrona Heights, among others. Many manufacturing operations remain, and they rely primarily on SR 28 for the movement of materials and finished products. Rail service is available via the Norfolk Southern Conemaugh line. River barge service is also available on a 24/7 operations protocol.

As with SR 356 to the north, the Alle-Kiski communities of Leechburg, Vandergift, Apollo and New Kensington have long stressed the importance of SR 366 to the economic (freight) viability of their manufacturing base. South of SR 366, the heaviest user of river freight on the Allegheny River can be found in the Cheswick Generating Plant, a coal fired power plant. This facility receives coal deliveries via river and rail. Also south of SR 366, the Allegheny Valley Railroad provides freight rail service from New Kensington south to the City of Pittsburgh along the east shore of the Allegheny River.



# REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES

- As SR 28 enters portions of northeastern Allegheny County, the landscape starts changing from rural areas to the beginning of more developed suburban communities. In Harrison Township, there is a plan to develop a 162 acre mixed use development near the Tarentum interchange. This development, called Harrison Point, will consist of a community park, senior independent living units, medical office space, technology park, and commercial space. The Tarentum-Brackenridge-Harrison Comprehensive Plan also lays out a vision to maximize the Allegheny Riverfront as a prime community asset.
- Allegheny County Future Land Use Map can help assist in providing a connection between transportation and land use planning. This map illustrates where particular land uses are supported such as corridors, rural areas and community downtowns. Other significant points from their Comprehensive Plan are listed below.
- A key recommendation of the Plan is the completion of access management plans and their implementation for US Routes 19, 22 and 30, and SRs 8, 28, 48, 50, 51 60, 65 and 88. Access management measures will allow these arterial roadways to function effectively as thoroughfares and provide a high level of accessibility.
- Local roadways in the freight corridors often do not have the capacity to handle the type and amount of vehicles accessing river ports, such as large trucks that have wide turning radii. 'Last mile' of roadways refers to the local roadways that connect the river ports with the interstate and arterial roadways system. These routes should be signed to assist drivers to efficiently move freight.

Segment C, from SR 356 in Buffalo Township to I-76 (Pennsylvania Turnpike) in Harmar Township, SR 28 starts to enter more suburban areas where there are more community features. Remaining in Butler County, south of SR 356, there are two community features that are near SR 28 that may need to be considered when developing projects along SR 28. Although not directly on SR 28, Oberg Industry on Silverberg and Evangel Heights Academy on Sarver Road are near the corridor. Further south and into Allegheny County, located at the Natrona Heights/Brackenridge Interchange is Burtner Stone House, which is a historical site. Located in Harrison Township, a section of Silver Lake Park is borders SR 28 on the north bound side. Also located in Segment C is Pittsburgh Mills, which is a major shopping center in northeastern Allegheny County. Heading further south into Harmar Township, state forest borders a section of the southbound lanes as you approach the Cheswick/Springdale Interchange. Also located at the interchange is Watson Industry.

## Relevant Local, County and Regional Plans

[Allegheny County Comprehensive Plan](#)

[Westmoreland County Comprehensive Plan](#)

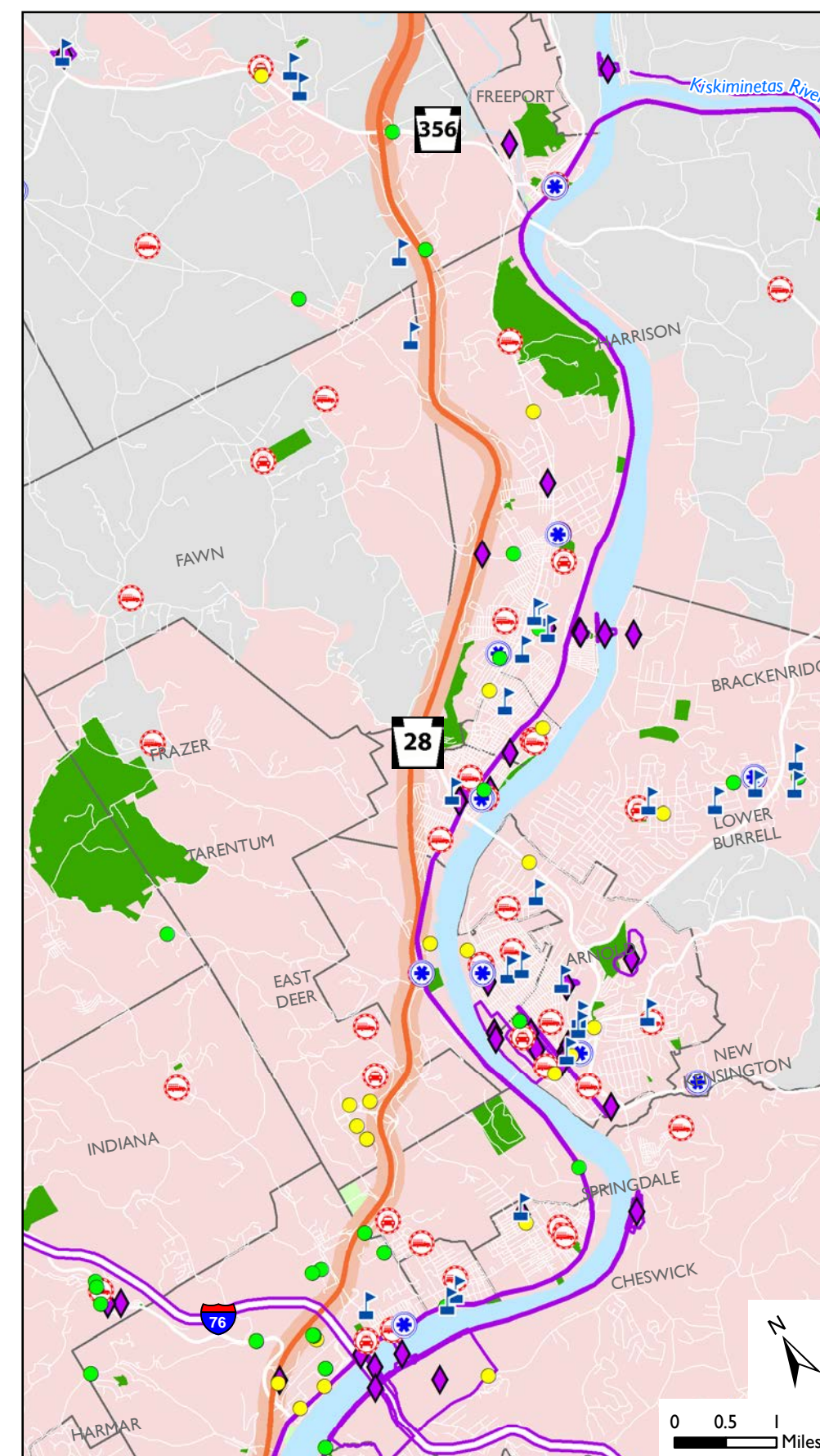
[Tarentum-Brackenridge-Harrison Comprehensive Plan](#)

[East Deer Township Zoning Ordinances](#)

[Frazer Township Zoning Ordinances](#)

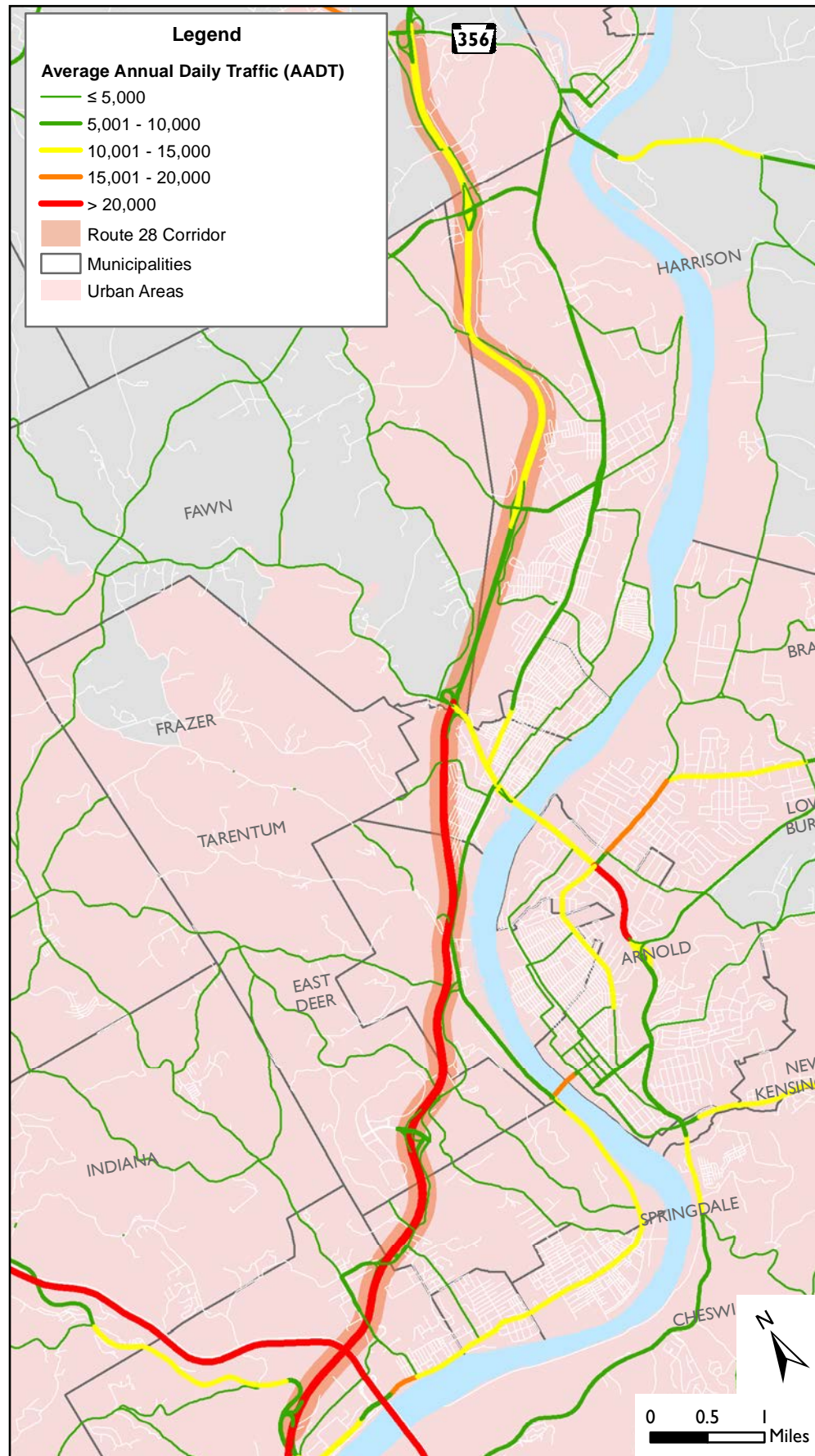
[Allegheny Valley Multi-Municipal Plan \(Springdale Township, Springdale Borough, Cheswick, Harmar Township\)](#)

	Public and Private Schools
	Fire Stations
	Police Stations
	Emergency Medical Services
	Historic Locations
	Top Local Businesses by Employees
	Top Local Businesses by Sales
	Route 28 Corridor
	Local Parks
	State/Federal Conserved Land
	Municipalities
	Urban Areas





# SEGMENT TRAVEL PATTERNS



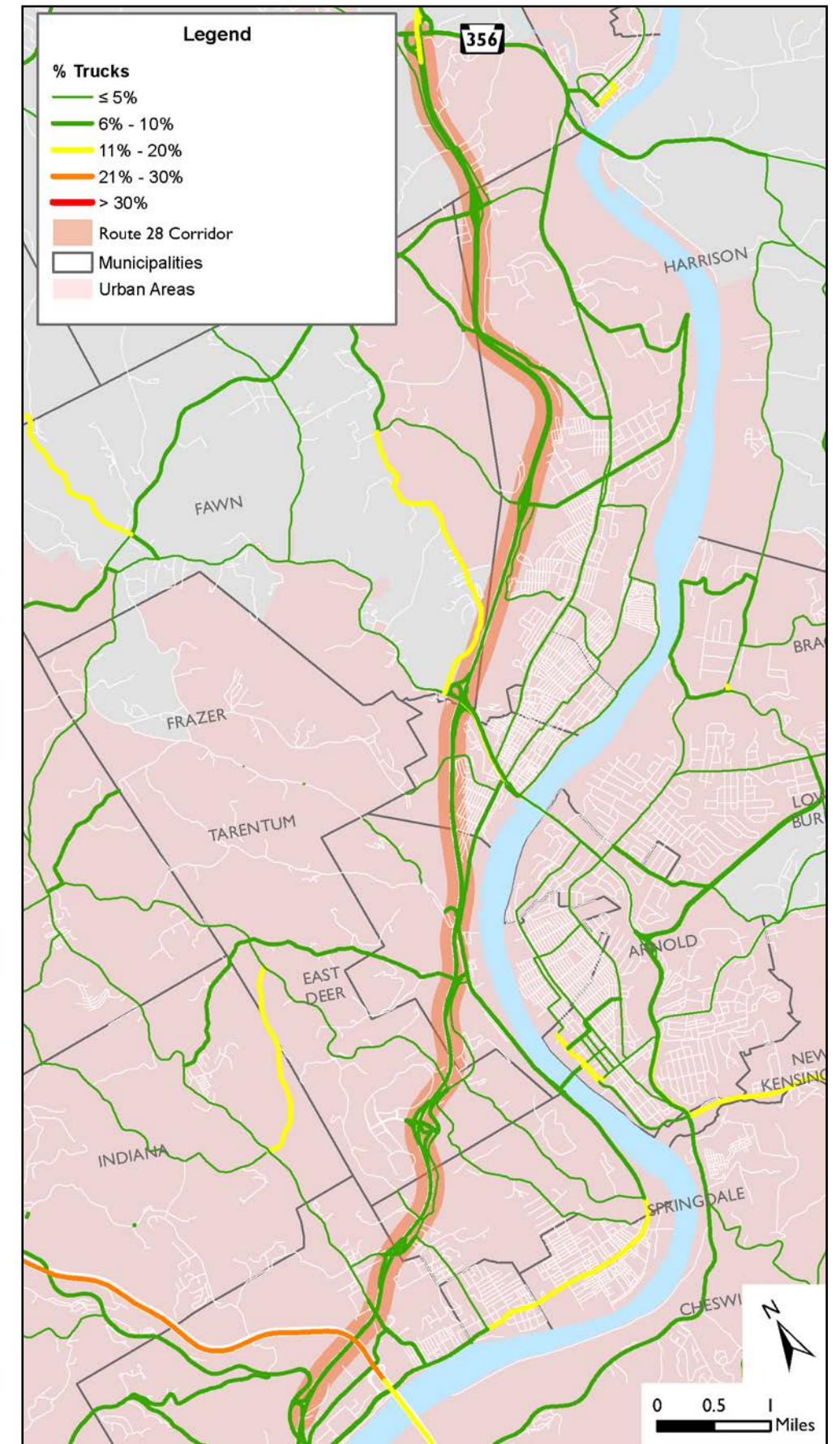
Annual Average Daily Traffic (AADT) is the typical daily traffic on a roadway segment for all the days in a week over a one-year period. Truck percent is the percent of the AADT that is comprised of truck traffic, excluding pickups, panels, and light trucks. The current AADT and truck percent figures included in this section were derived from the Pennsylvania Department of Transportation (PennDOT) Roadway Management System (RMS).

Traffic volumes on this section of the SR 28 corridor are highest in the area between SR 366 extending down past the PA Turnpike (I-76) in Harmar Township to the Borough of Aspinwall. The AADT for individual roadway segments on this portion of the corridor is greater than 20,000 AADT in each travel direction. The AADT for the portion of SR 28 between SR 356 and SR 1032 fall between 10,001 and 15,000 in each travel direction. The AADT for the remainder of segments on this section of SR 28 located between SR 1032 and SR 366 fall between 5,001 and 10,000 in each travel direction.

Truck percents on this section of the SR 28 corridor are highest in the area of SR 356. Truck percents for individual roadway segments on this portion of the corridor fall between 11% and 20% in each travel direction. The truck percents for the remainder of segments on this section of SR 28 fall between 6% to 10%, with higher truck percents in the vicinity of SR 1028 and SR 1032 at 7% to 8%, as well as on a few of the northbound segments located south of SR 366 (7%).

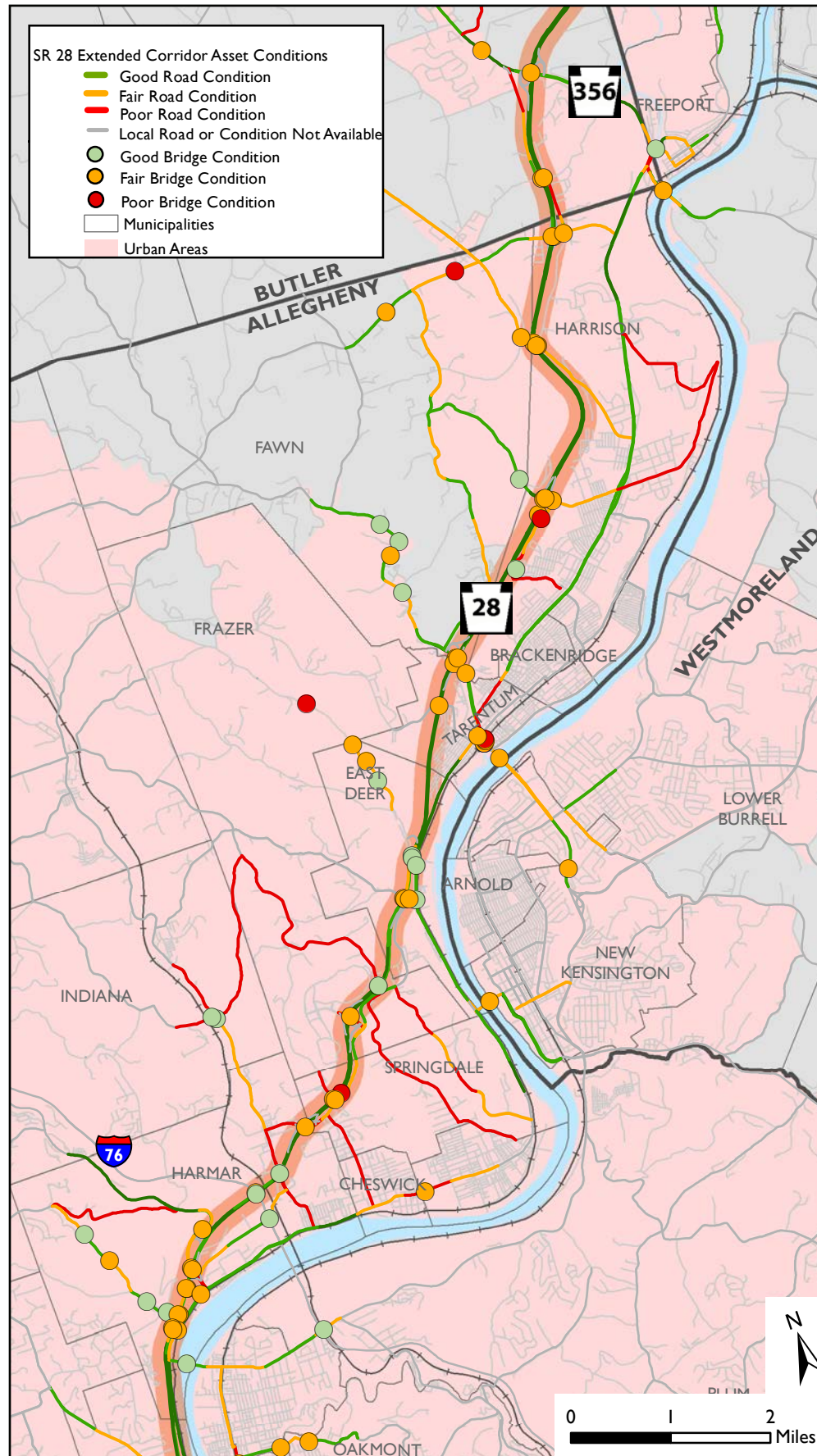
The southern portion of this section of the SR 28 corridor has relatively higher volumes of traffic, but in most cases a comparatively lower proportion of truck traffic. The exception is on a few of the northbound segments located south of State Route 366. Most of the higher truck percents fall on the northern portion of this section of SR 28.

This section of SR 28 includes segments in Allegheny County that provide a connection to the Pennsylvania Turnpike (I-76) via SR 910 and Freeport Road. Population and employment densities are comparatively higher in this area.





# CONDITION OF ASSETS



In Segment C, 72.4% of the bridges on SR 28 have a fair condition rating. The only bridge that is rated in poor condition is the SR 28 bridge over Yutes Run in Springdale Township. This bridge is nine feet in length carrying SR 28 over the culvert at this location. In Segment C, the entire SR 28 roadway surface is rated as fair or better.

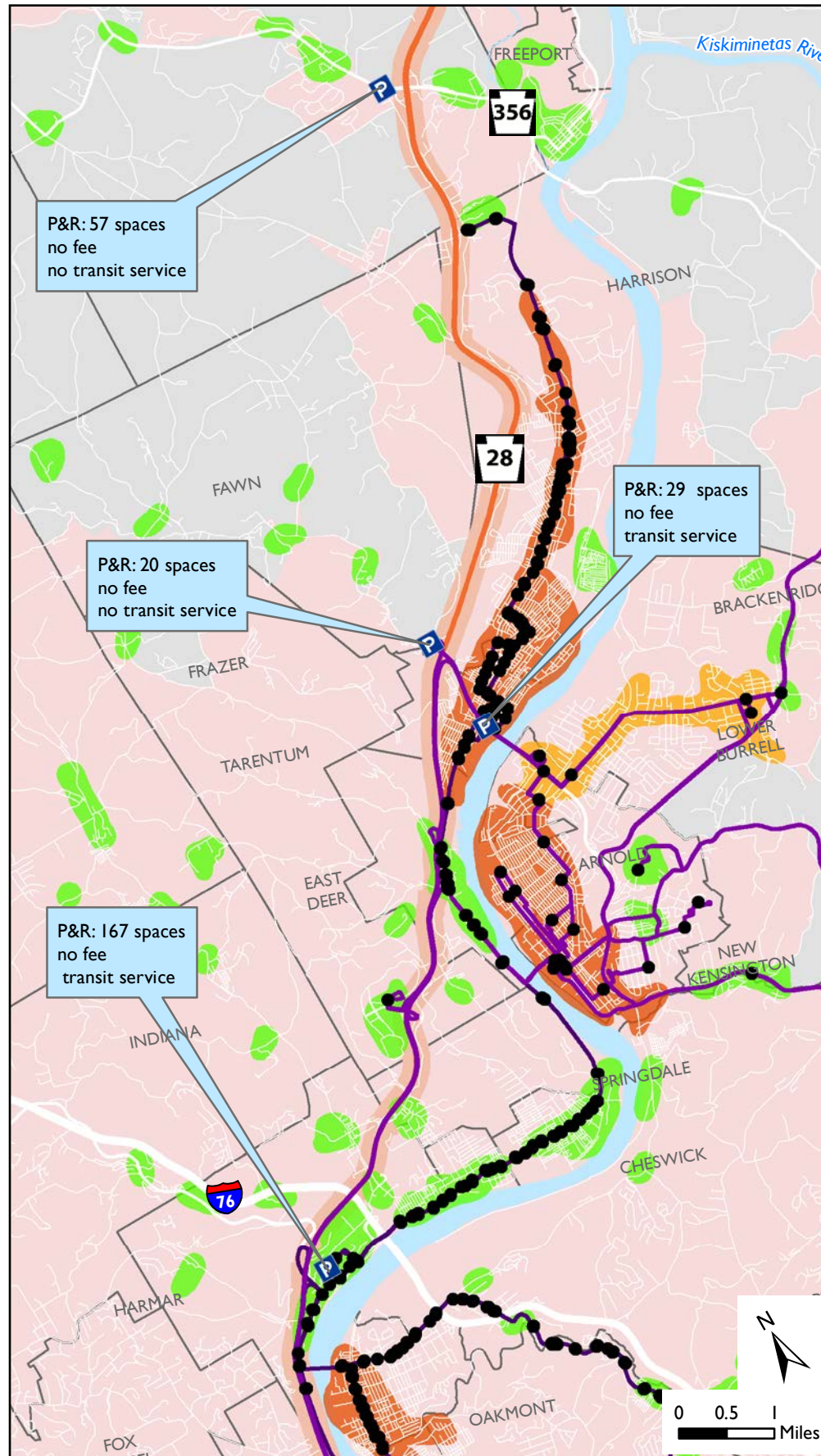
SR 28 Bridge Conditions			
Bridge Condition	Count	Deck Area (SQ Ft)	By %
Good	3	55040	27.1%
Fair	17	147127	72.4%
Poor	1	1080	0.5%

SR 28 Pavement Conditions			
Road Condition	Count (RMS Segments)	Miles	By %
Good/Excellent	53	27.14	97.8%
Fair	2	0.6	2.2%
Poor	0	0	0%



SR 28 near Yutes Run

# TRANSIT



Port Authority of Allegheny County's service could be a focus of attention for Segment C, in terms of commuter service and also as one of the only viable methods to connect to neighboring destinations and origins. *SmartMoves Connections* identifies transit clusters located on or near Segment C of SR 28. Freeport Road through Harrison Township, Brackenridge, Tarentum, and East Deer Township is identified as a commercial corridor in the *SmartMoves Connections*. The study has identified multiple intersection transit clusters along Segment C. Intersection transit clusters are listed below.

- Bakerstown Road east of SR 28 (Harrison Township)
- Saxonburg Road west of SR 28 (Fawn Township)
- Freeport Road (Creighton, East Deer Township)
- Pittsburgh Mills (Frazer Township)
- Hite Road West of SR 28 (Harmar Township)
- Cheswick/Springdale Interchange (Frazer and Springdale Townships)
- Freeport Road (Harmar Township)



Harmar Park and Ride Facility

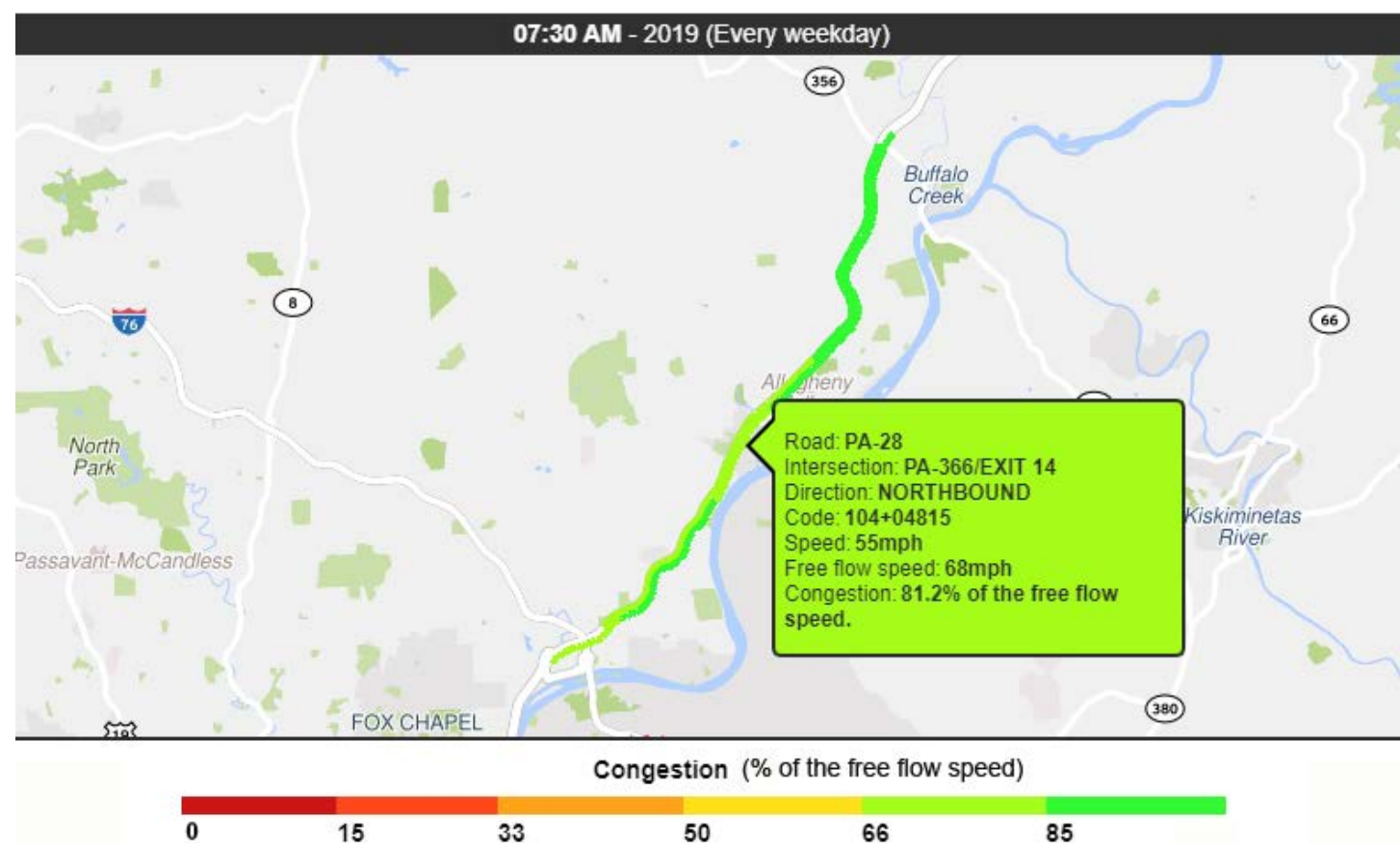
# CONGESTION & RELIABILITY

- Segment C is monitored as part of SPC’s Congestion Management Process network. It is CMP corridor number 129.
- AM and PM peak period congestion trend mapping is shown for Segment C. Congestion percentage is shown as the percent of free flow speed achieved on the segment. Higher percentages indicate less congestion (greener colors), lower percentages indicate more congestion (redder colors).
- In the AM peak period, travelers on Segment C achieve approximately 76% to 91% of free flow speed.
- In the PM peak period, travelers on Segment C achieve approximately 78% to 93% of free flow speed.
- Travelers on Segment C experience light-moderate congestion in the peak periods.

**Planning Time Index (PTI)** is the extra time required to arrive at a destination on time, 95% of the time. It is calculated as the ratio of the 95th-percentile highest vehicle hours traveled divided by the vehicle hours traveled if the same trips could have been completed at free flow speed. For example, a PTI of 1.5 means that a traveler should plan on 50% more time for their trip compared to light traffic conditions for a 95% probability of arriving on time (meaning that 15 minutes should be planned for what would be a 10-minute trip in light traffic conditions). SPC reports PTI for arterial CMP corridors in the region by direction for peak and off-peak times.

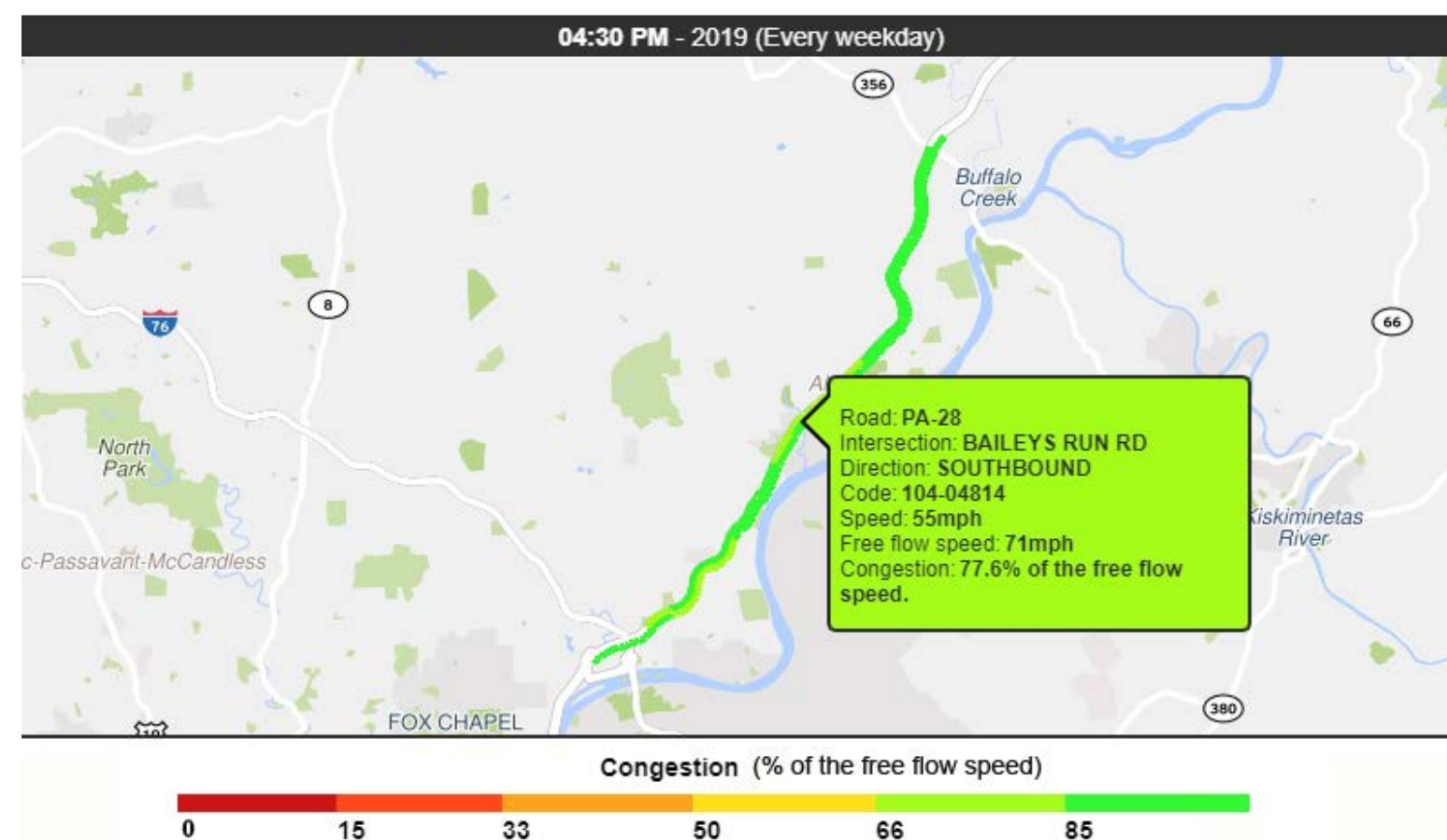
## AM CONGESTION

PA-28 between PA-356/Exit 17 and Hite Rd/Exit 12 Congestion Trend Map for 2019 (Every weekday)



## PM CONGESTION

PA-28 between PA-356/Exit 17 and Hite Rd/Exit 12 Congestion Trend Map for 2019 (Every weekday)



The above information was gathered from the Regional Integrated Transportation Information System (RITIS) available from the University of Maryland’s Center for Advanced Transportation Technology (CATT) lab.



SR 28 CORS Segment C- Northbound 2019	
Corridor Length (miles)	13.1
Avg. Posted Speed Limit (mph)	60.6
Travel Time @ Posted Speed Limit (min)	13.0

Travel Time in Minutes Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				13.21
Monday	13.44	13.61	12.92	
Tuesday	13.61	13.6	13.38	
Wednesday	13.6	13.85	13.06	
Thursday	13.49	13.72	13.02	
Friday	13.46	13.57	13.02	
Saturday				13.15

Planning Time Index Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				1.41
Monday	1.36	1.35	1.28	
Tuesday	1.37	1.36	1.33	
Wednesday	1.39	1.43	1.29	
Thursday	1.36	1.37	1.3	
Friday	1.37	1.38	1.3	
Saturday				1.36

SR 28 CORS Segment C- Southbound 2019	
Corridor Length (miles)	12.9
Avg. Posted Speed Limit (mph)	59.6
Travel Time @ Posted Speed Limit (min)	13.0

Travel Time in Minutes Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				12.8
Monday	13.06	12.94	12.85	
Tuesday	13.12	12.88	13.06	
Wednesday	13.33	13.58	12.97	
Thursday	13.24	13.17	12.95	
Friday	13.12	13.11	12.85	
Saturday				12.75

Planning Time Index Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				1.43
Monday	1.4	1.36	1.37	
Tuesday	1.42	1.36	1.4	
Wednesday	1.46	1.53	1.4	
Thursday	1.43	1.39	1.4	
Friday	1.42	1.39	1.37	
Saturday				1.4

- PTI for Segment C in the northbound direction ranges from 1.28 to 1.43
- PTI for Segment C in the southbound direction ranges from 1.36 to 1.53

# CONGESTION MANAGEMENT PROCESS

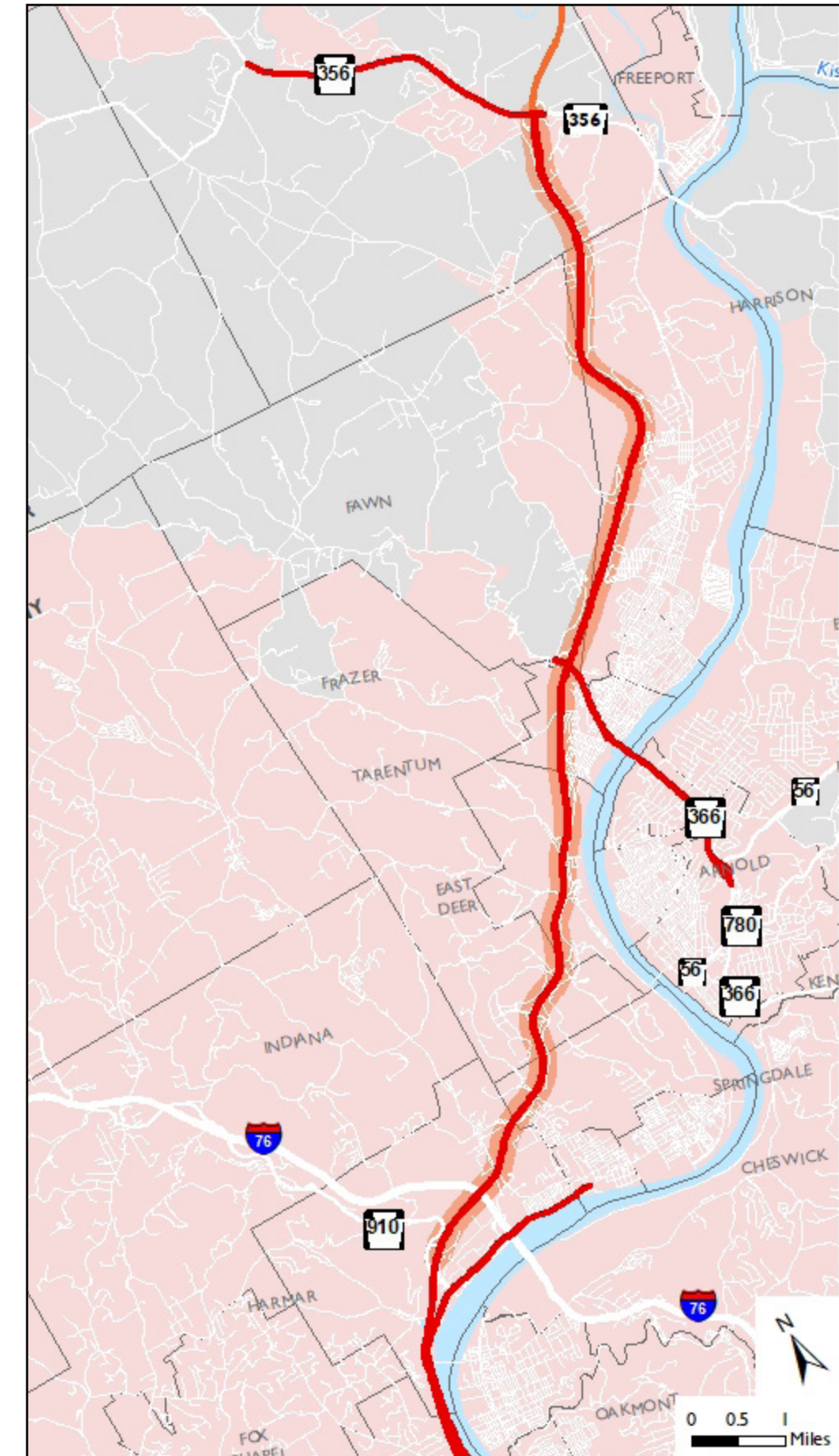
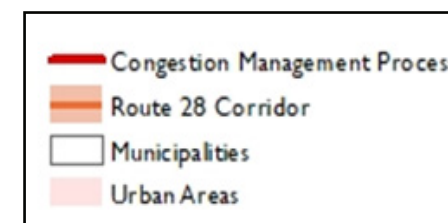
- Much like the Segment B to the north, this section of SR 28 has roads running adjacent to it providing easily accessible emergency detour routes.
- Northbound: Freeport Road, Ekastown Road, SRs 228 and 356.
- Southbound: SRs 356 and 228, Ekastown Road, Freeport Road
- Other detour routes in Segment C include SR 910, SR 366, and Burtner Road.

## CONGESTION MANAGEMENT STRATEGIES:

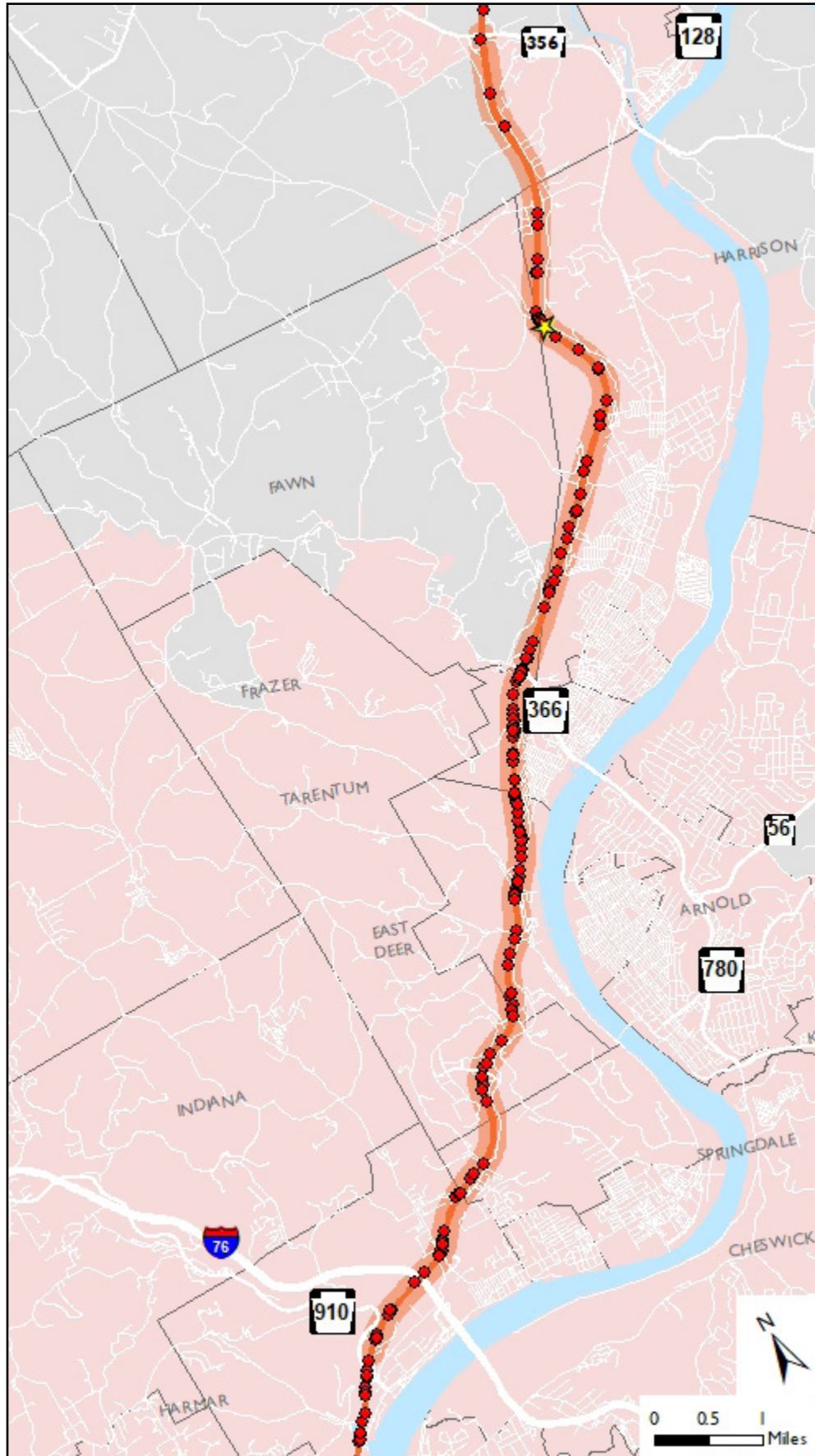
### Corridor 16

Category	Strategy	Baseline Prioritization*	
DM	P.R. & Education for TDM	High	
MOD	Rideshare Programs		
OPS	Incident Management Systems		
OPS	Intersection / Geometric Improvements		
MOD	Park-n-ride & Other Intermodal Facilities		
OPS	Traffic Signal Improvements		
MOD	Improved Transit Service		
DM	Employer-Based Programs		
OPS	Intelligent Transportation Systems		
CAP	Lane Additions		Medium
DM	Transit-Oriented Development Policies		
OPS	Elimination of Bottlenecks		
DM	Growth Management		
DM	P.R. & Education for TSD		
MOD	Bicycle Facilities & Information		
DM	Congestion Pricing		
CAP	New SOV Facilities		
MOD	Pedestrian Facilities & Information		
MOD	Transit Capital Improvements	Low	
MOD	HOV & HOT lanes		
DM	Parking Management		
OPS	Ramp Metering		
OPS	Access Management		
OPS	One-way Streets		
OPS	Reversible Lanes		
			Not Applicable

\*Strategies are simply listed alphabetically within the High, Medium, Low, and N/A groupings. They are not individually prioritized within those groupings.

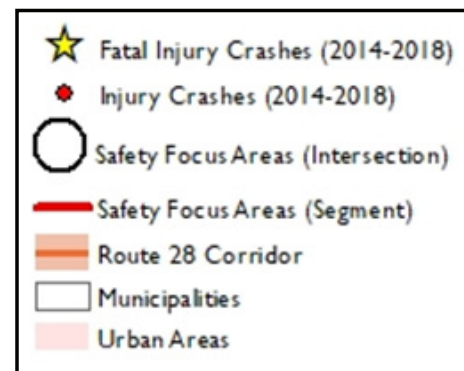


# SAFETY



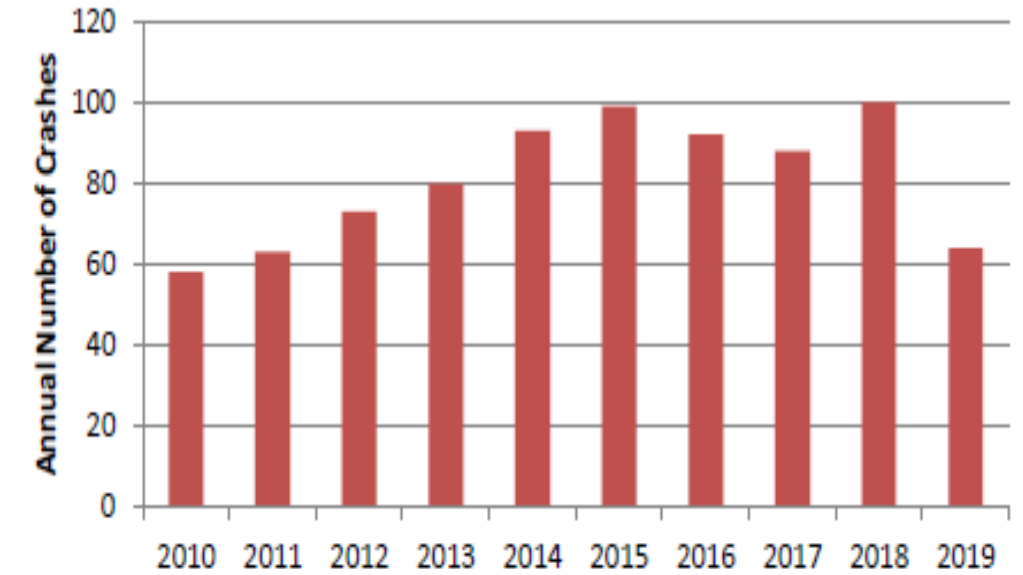
- For Segment C, the overall crash trend has an upward trend; however, 2019 had a significant drop in overall crashes. The fatal and suspected serious injury crashes have a downward trend; however, 2019 saw an increase in the percentage of fatal and suspected serious injury crashes.
- When comparing Segment C to the SPC region total crash trend, this segment is trending upward while the regional trend appears to be flat.
- Segment C's 2019 crash rate (0.43 crashes/MVMT) is lower than the average crash rate for similar roadways in Allegheny County (0.86 crashes/MVMT) and lower than the average 2019 crash rate for similar roadways in the SPC region (0.5 crashes/MVMT).
- There are no Safety Action Plan Safety Focus Areas present in this segment.

SR 28 Segment C Crash Statistics	
Timeframe	2010-2019
All Crashes	810 (>1 crash per week)
Fatal and Serious Injury Crashes	12 (~1% of all crashes)
Non-Motorized Crashes	0
Noteworthy: Deer in Road Crashes	164 (~20% of all crashes)
Noteworthy: Dark, Dawn, Dusk Crashes	206 (~25% of all crashes)
Crashes Involving Heavy Trucks	32 (~3% of all crashes) Trucks represent 3% of traffic on this segment.

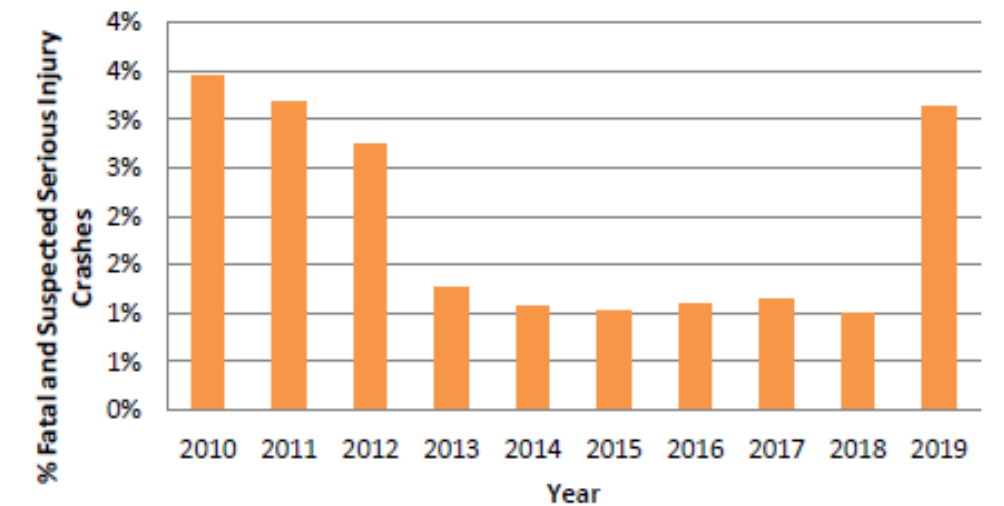


## SR 28 SEGMENT C CRASH TRENDS

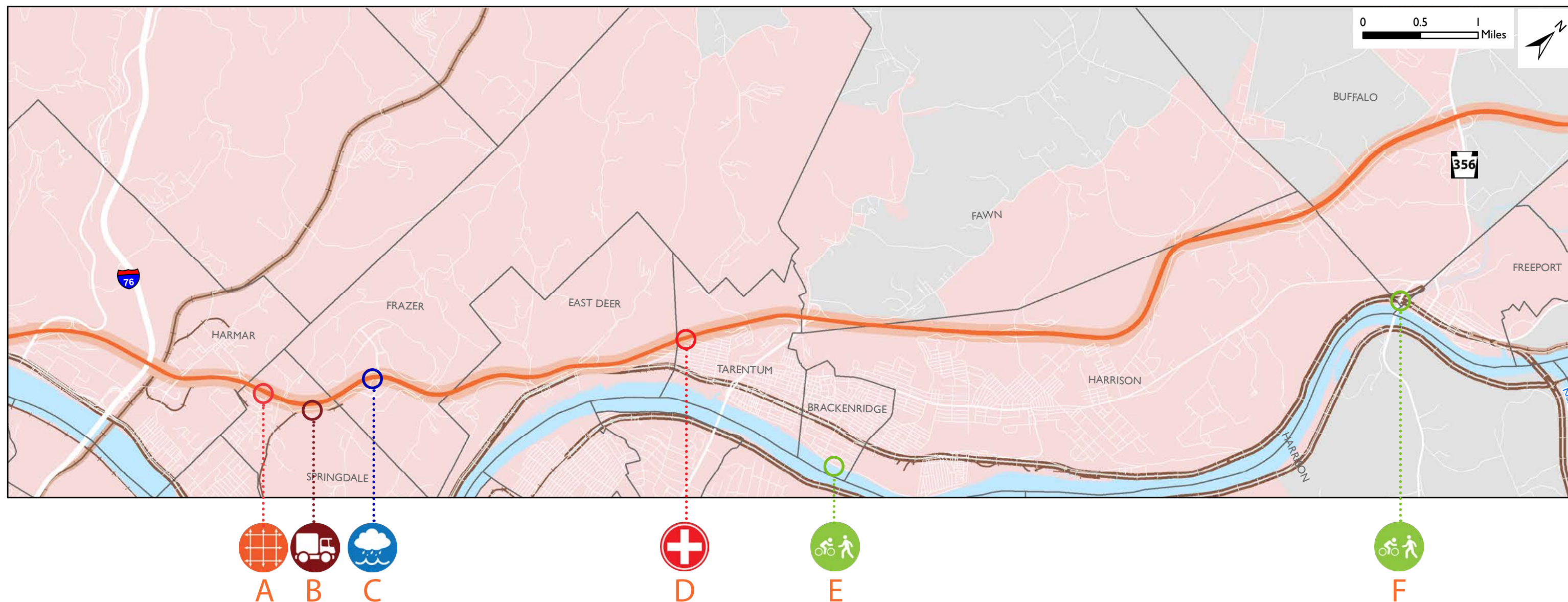
### Overall Crash Trend



### Fatal and Suspected Serious Injury Trend









# SEGMENT C: FOCUS AREAS



## FOCUS AREA CATEGORIES



# SEGMENT C: FOCUS AREAS

A		<p>The preservation and maintenance of the SR 28 bridge over Yutes Run in Springdale Township is essential.</p>
B		<p>There are freight activity centers identified in parts of Springdale Township and intermodal facilities along the Allegheny River.</p>
C		<p>A section of SR 28 through Harmar Township and Tarentum are susceptible to landslides due to steep slopes. This section also faces potential flash flooding.</p>
D		<p>Segment C has seen an overall crash trend that has been trending upward and 2019 saw an increase in fatal and serious injury crashes.</p>
E		<p>There is a TA project in Brackenridge and there is an emphasis on trail development and multi-municipal planning through is occurring through this section.</p>
F		<p>There is an opportunity to create a trail junction to provide a connection to multiple trails near the Freeport Bridge.</p>





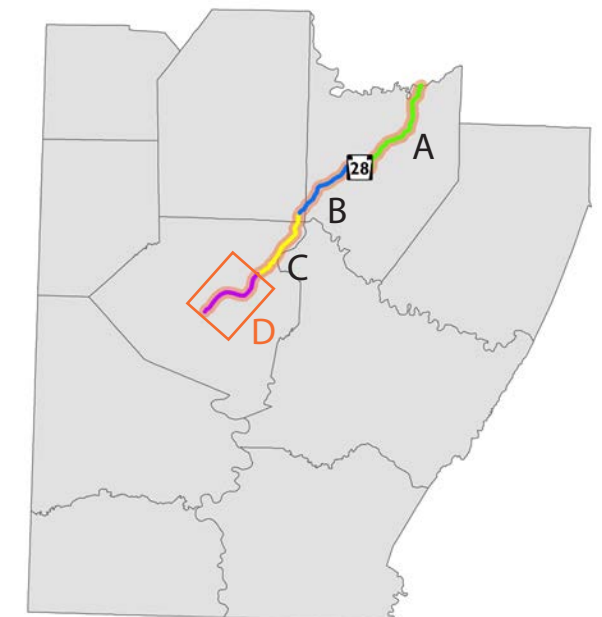


# SECTION III: SEGMENT PROFILES

---

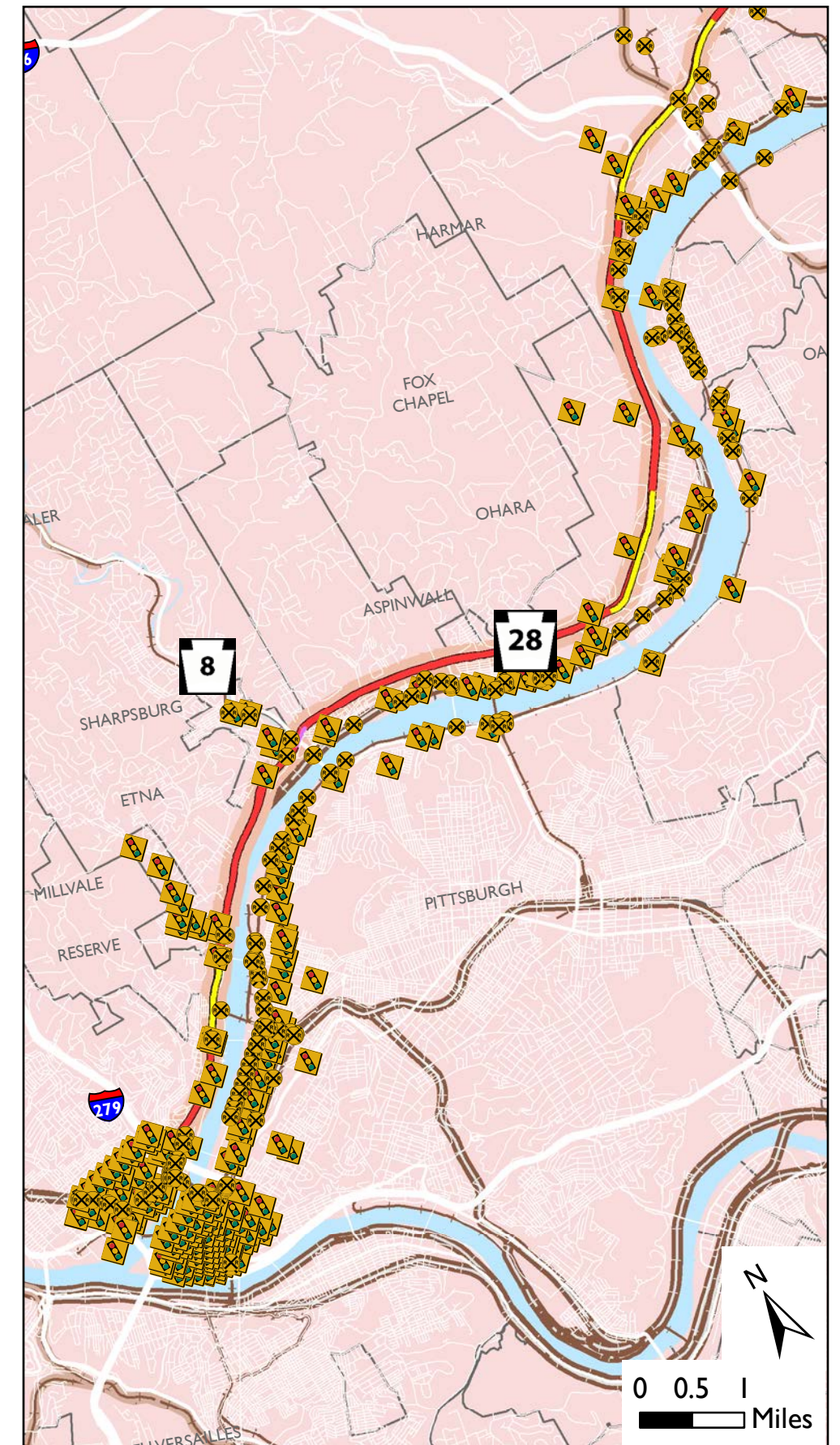
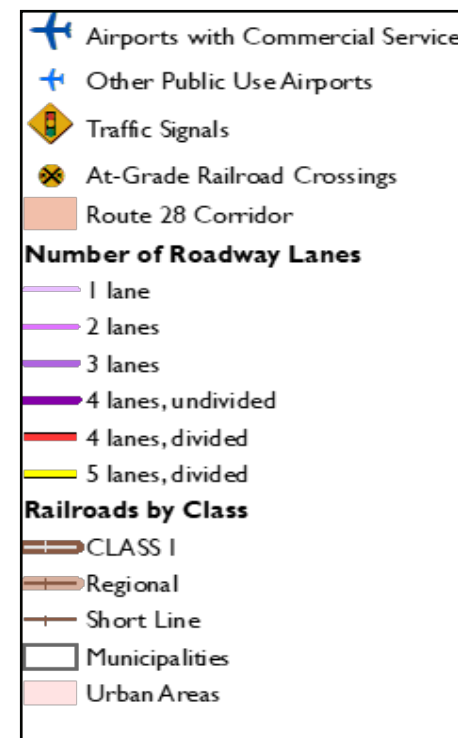
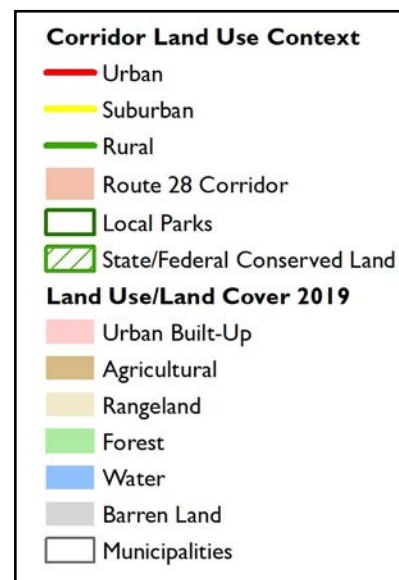
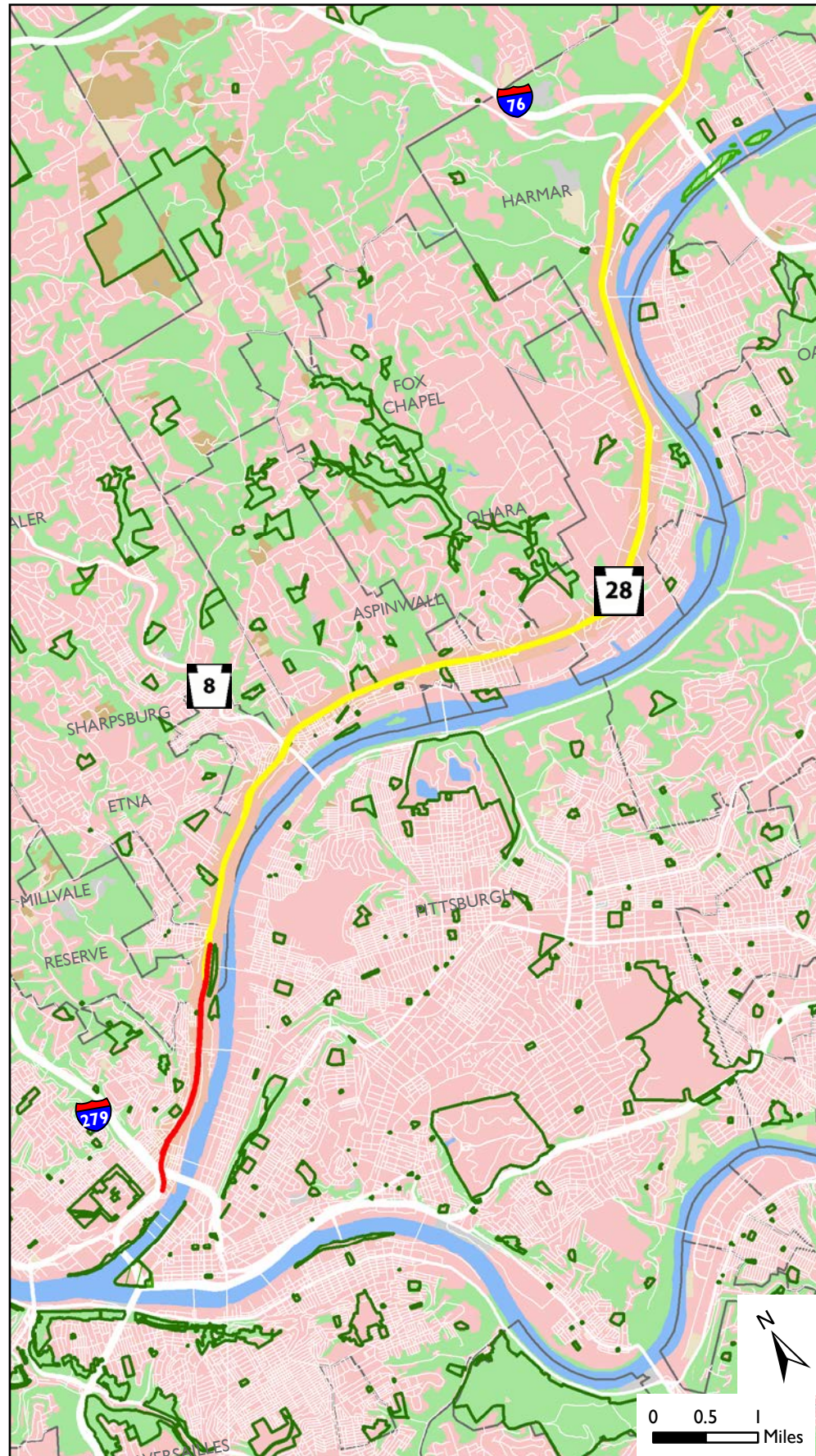
## SEGMENT D

- SEGMENT OVERVIEW
- ACTIVE TRANSPORTATION
- FUTURE HIGHWAY & BRIDGE PROJECTS
- ENVIRONMENTAL FEATURES
- FREIGHT
- REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES
- SEGMENT TRAVEL PATTERNS
- CONDITION OF ASSETS
- TRANSIT
- CONGESTION & RELIABILITY
- SAFETY
- FOCUS AREAS

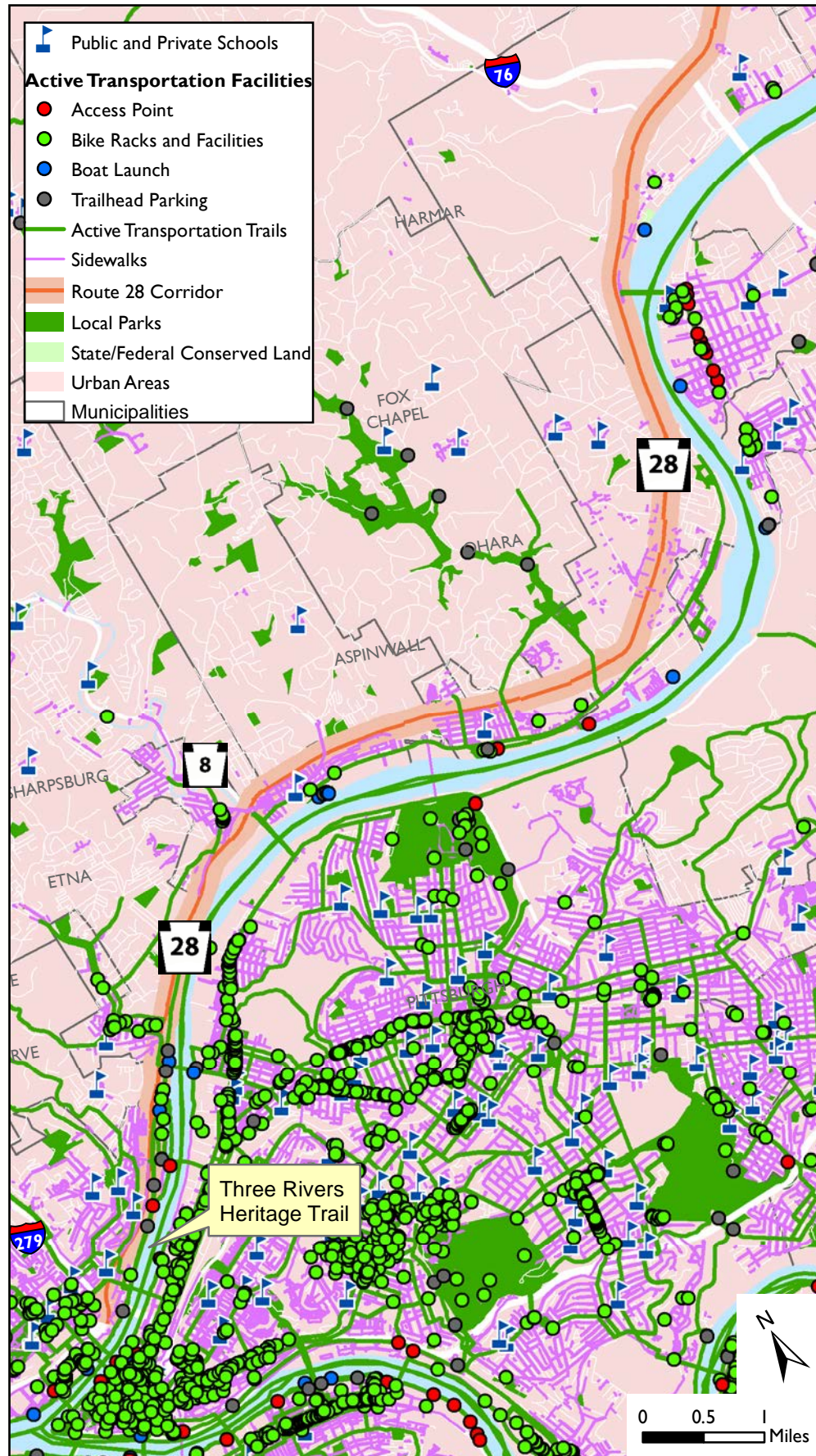


# SEGMENT D: OVERVIEW

Segment D, SR 28 from I-76 (Pennsylvania Turnpike) in Harmar Township to the I-279/Veterans Bridge Interchange in the City of Pittsburgh, remains a four-lane limited access divided highway as it passes through the northeastern suburbs and into the City of Pittsburgh. From the PA Turnpike interchange, SR 28 continues to travel through O'Hara Township, Fox Chapel, Aspinwall, Sharpsburg, Etna, and Shaler Township as a suburban highway. As SR 28 enters Millvale, it goes from a suburban highway to an urban highway as it continues into parts of Reserve Township and the City of Pittsburgh. SR 28 terminates at the I-279/Veterans Bridge Interchange.



# ACTIVE TRANSPORTATION

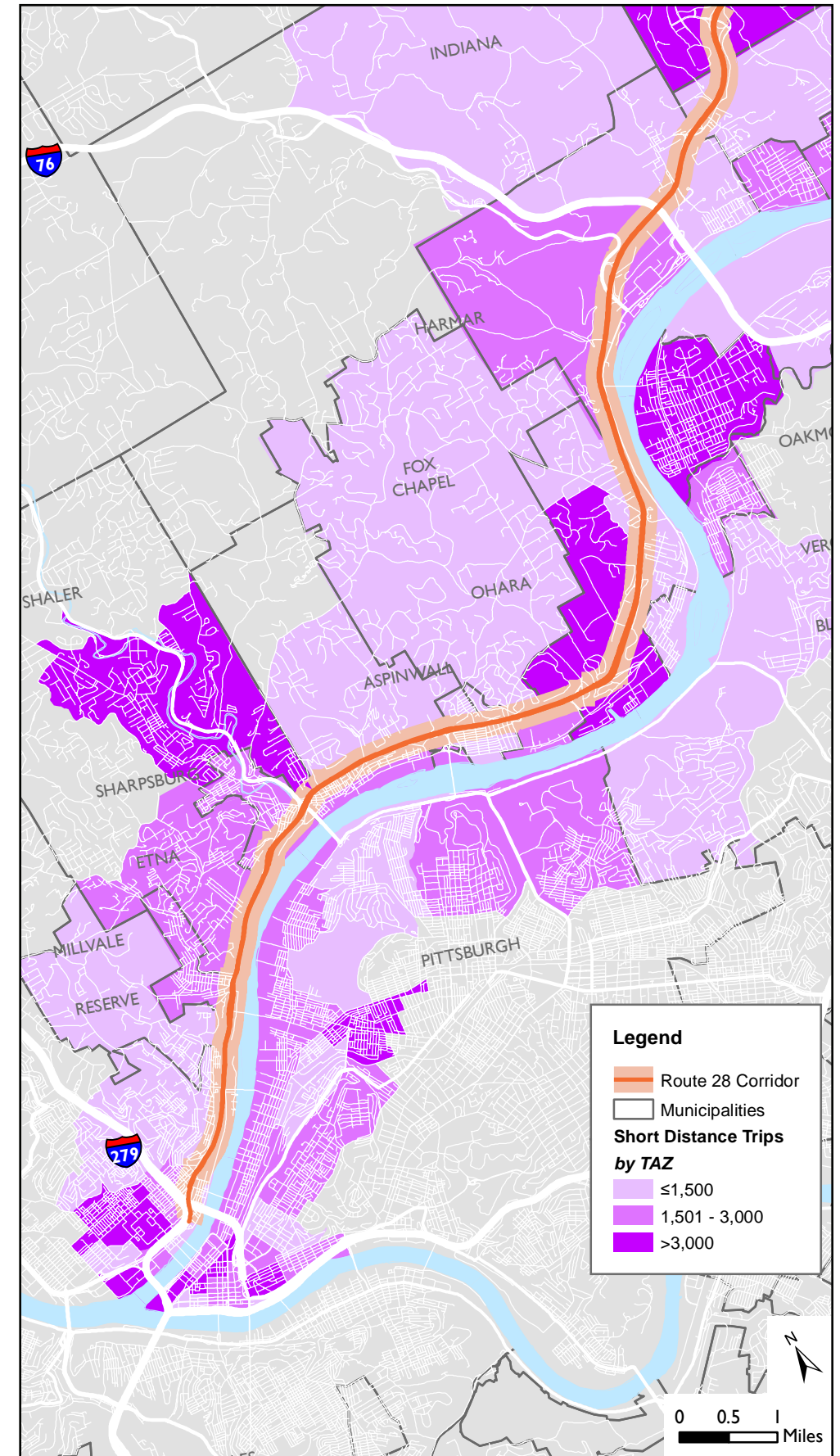


There are no bicycle or pedestrian facilities or crossings on SR 28. Nearby land trails include the existing Three Rivers Heritage Trail (community arterial), which is a 33-mile nonlinear trail that has segments on both banks of Pittsburgh's three rivers. The existing trail segment along the north side of the Allegheny River is near, and in some cases in very close proximity to, the corridor. Plans to extend the trail to Aspinwall will include sections that will also be in very close proximity to the corridor in Millvale and Etna.

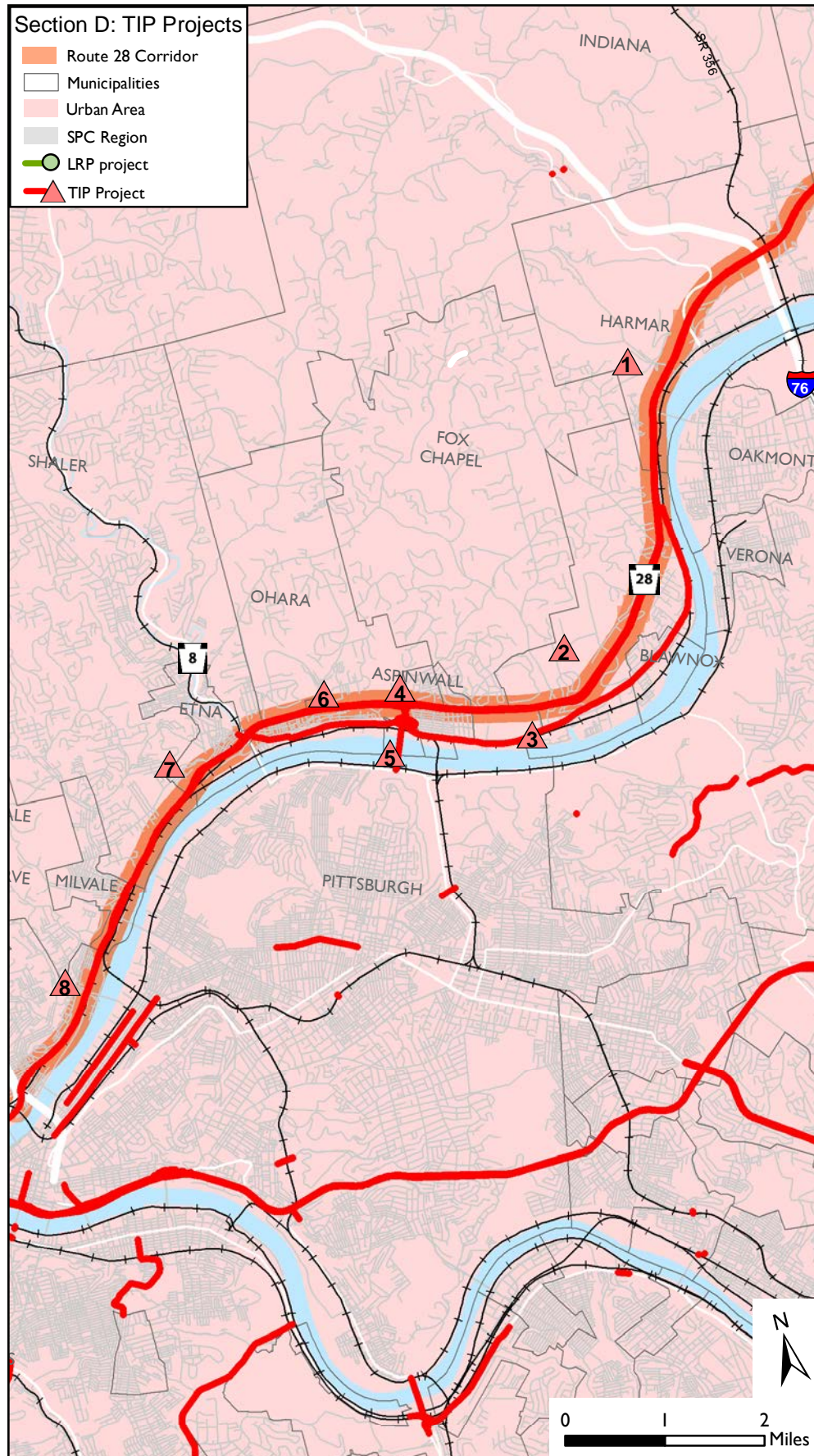
- Water trails near the corridor include the Allegheny River, which is part of the Three Rivers Water Trail- a system of 23 access points for non-motorized recreational boats on the Allegheny, Monongahela, Ohio, and Youghiogheny Rivers. The Three Rivers Water Trail is a designated PA Water Trail and was awarded National Recreation Trail status by the US Department of the Interior.
- In addition to trails, there are several designated on-street bicycle routes on roads that are adjacent to or provide access to the interchanges along corridor. These include Freeport Road, Fox Chapel Road, Delafield Road, 62nd Street Bridge, Evergreen Avenue, Grant Street, E. Ohio St (Millvale), 40th Street Bridge, 31 Street Bridge, River Avenue, Troy Hill Road/Pineas Street, Chestnut Street, E Ohio Street (North Side).
- Visually separated bicycle lanes have been installed on a section of E. Ohio Street to the 40th Street Bridge. The southbound bicycle lane includes a bicycle turn box. These bicycle facilities are adjacent to the corridor and separation is provided via a concrete barrier. A visually separated bicycle lane is also in place on sections of Troy Hill Road, which is adjacent to the corridor.
- Nearby pedestrian facilities include the Charles J. Lieberth Pedestrian Walkway, which is located adjacent to the southbound lanes of the corridor in Reserve Township, from Rialto Street to Vinial Street.

Opportunities for improving active transportation include expanding local and regional active transportation facilities along SR 28 and considering active transportation whenever roads or bridges along or near the corridor are being developed.

This corridor segment includes high density areas of the City of Pittsburgh as well as Oakmont, Blawnox, and parts of Shaler Township. There are moderate to high numbers of short trips in most of this corridor segment. The areas with lower numbers of short trips include the lower density suburbs north of the City of Pittsburgh. This corridor segment has a fairly robust active transportation network.



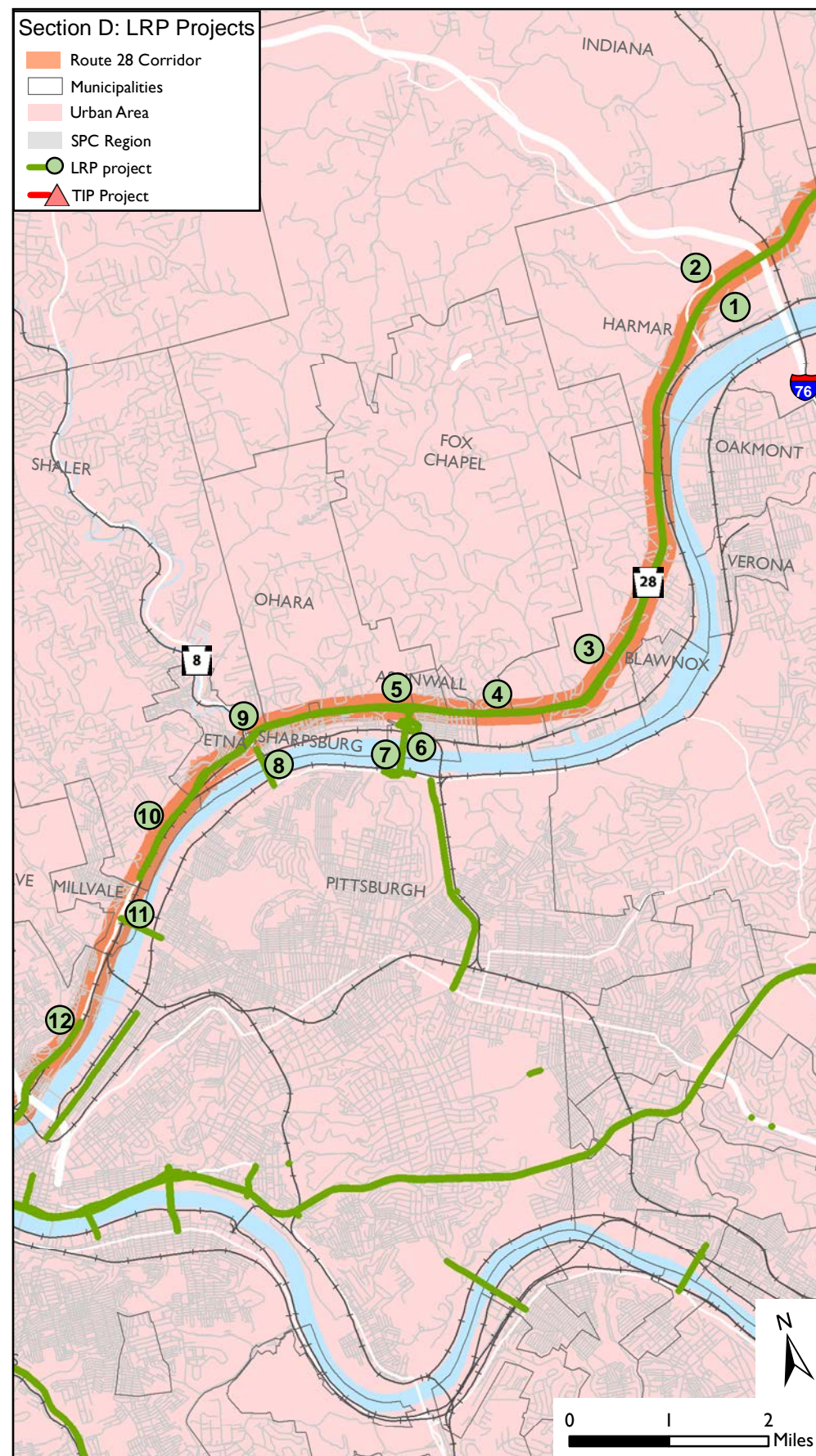
# FUTURE HIGHWAY & BRIDGE PROJECTS



<b>1</b>	Road Preservation   MPMS 92276 2021-2024 TIP   SR 28 Harmarville to Russellton Mill and overlay, guiderail and minor bridge work on SR 28 - Harmarville to Russellton in East Deer, Frazer, Harmar and Springdale Townships, Allegheny County.
<b>2</b>	Road Preservation   MPMS 92274 2021-2024 TIP   Highland Park to RIDC Mill and overlay on Highland Park to RIDC Park in O'Hara Township, Aspinwall and Pittsburgh, Allegheny County.
<b>3</b>	Operations and Efficiency   MPMS 110372 2021-2024 TIP   SR 1001 Freeport Road Adaptive Signal System Design and construction of a Traffic Adaptive Signal System along SR 1001 - Freeport Road from 8th Street in Sharpsburg to Powers Run Road in O'Hara Township, Allegheny County.
<b>4</b>	New Capacity   MPMS 91845 2021-2024 TIP   SR 28 Highland Park Interchange Interchange improvement to address the existing congestion and bottleneck conditions by reestablishing and accommodating two continuous through lanes through reconstruction and lane restriping within the existing roadway footprint with minor widening on SR 28 in O'Hara Township and Aspinwall, Allegheny County.
<b>5</b>	Bridge Preservation   Project ID 109549 2021-2024 TIP   Highland Park Bridge Bridge preservation on SR 1005 (Highland Park) over Allegheny River, Norfolk Southern Railway and AVR Railroad in Sharpsburg Borough, Allegheny County.
<b>6</b>	Slides Correction   MPMS 110617 2021-2024 TIP   Noble Street Slide Slide remediation on SR 28 above Noble Street in Sharpsburg Borough and O'Hara Township, Allegheny County.
<b>7</b>	Road Preservation   MPMS 92273 2021 - 2024 TIP   SR 28, Etna to Highland Park Bridge Mill and overlay and bridge preservation on SR 28 Southbound, from Etna Bypass to Highland Park Bridge in O'Hara Township and Sharpsburg Borough, Allegheny County.
<b>8</b>	Efficiency and Operations   MPMS 113508 2021 - 2024 TIP   SR 28 Freeway Service Patrol and Traffic Control Traffic system management on SR 28 from the junction of PA 28/I-579/I-279 near the Heinz Plant to the PA 910 Harmar Exit in City of Pittsburgh, Millvale, Shaler Township, Etna, Sharpsburg, Aspinwall, O'Hara Township, Blawnox and Harmar Township Allegheny County.

- Project 1 is road preservation activities on SR 28 from Harmarville to Russellton. The project has a total of \$22.3 million for construction programmed in 2021-2024.
- Project 2 is road preservation activities on SR 28 from Highland Park to RIDC Park. The project has a total of \$10.08 million for construction programmed in 2021-2024.
- Project 3 is an operations and efficiency Improvement on SR 1001 Freeport Road for the design and construction of an adaptive signal system. The project has a total of \$1.76 million programmed in 2022 for construction. The project will result in better traffic flow on Freeport Road, which is a parallel route to SR 28 and used as a detour route for incidents on SR 28 between Sharpsburg and Harmarville.
- Project 4 is a capacity adding project to alleviate congestion and existing bottleneck at the Highland Park Bridge interchange. The project has a total of \$41.5 million for construction programmed in 2021-2024.
- Project 5 is a bridge preservation project on the Highland Park Bridge. A total of \$700,000 is programmed for design phases in 2023.
- Project 6 is a slide remediation project for the Noble Street area above SR 28. A total of \$2 million is programmed for construction in 2021.
- Project 7 is a road preservation project on SR 28 from Etna to the Highland Park Bridge. The project has a total of \$8.7 million for construction programmed in 2021-2024.
- Project 8 is an operations and efficiency project to provide traffic management and highway safety patrol tow trucks to the SR 28 corridor between I-579 and the PA Turnpike (I-76). The project has a total of \$250,000 programmed in 2021. This traffic system management will help to reduce the response times to accidents and disabled vehicles in this highly congested corridor.
- For up to date information on TIP projects, please visit <https://www.spcregion.org/programs-services/transportation/smartmoves-long-range-plan-transportation-improvement-program/>.





- 1** Road Preservation | MPMS 92276  
Fiscally Constrained List | SR 28 Harmarville to Russellton Mill and overlay, guiderail and minor bridge work on SR 28 - Harmarville to Russellton in East Deer, Frazer, Harmar and Springdale Townships, Allegheny County.

---

- 2** Road Reconstruction MPMS 100774  
Fiscally Constrained List | SR 28 Allegheny Valley Reconstruction Reconstruction of SR 28 from Regional Industrial Development Corporation (RIDC) to Yutes Run in Springdale, O'Hara, and Harmar Townships, Allegheny County.

---

- 3** Road Reconstruction | MPMS 92274 & 100776  
Fiscally Constrained List | SR 28 Highland Park to RIDC Reconstruction of SR 28 from Highland Park to Regional Industrial Development Corporation (RIDC) Park in O'Hara Township, Fox Chapel, Aspinwall, Sharpsburg, and the City of Pittsburgh.

---

- 4** New Capacity | MPMS YTD  
Fiscally Constrained List | SR 28 Fox Chapel Bottleneck Widening Widen to accommodate 2nd southbound thru lane from RIDC to Fox Chapel on SR 28 in Fox Chapel, Allegheny County.

---

- 5** New Capacity | MPMS 91845  
Fiscally Constrained List | SR 28 Highland Park Interchange Interchange improvement to address the existing congestion and bottleneck conditions by reestablishing and accommodating two continuous through lanes through reconstruction and lane restriping within the existing roadway footprint with minor widening on SR 28 in O'hara Township and Aspinwall, Allegheny County.

---

- 6** Bridge Preservation | MPMS 109549  
Fiscally Constrained List | Highland Park Bridge Bridge preservation on SR 1005 (Highland Park) over the Allegheny River, Norfolk Southern Railway and AVR Railroad in Sharpsburg Borough, Allegheny County.

- 7** Road Reconstruction | MPMS TBD  
Fiscally Constrained List | Highland Park Bridge Ramps Recon Bridge and ramp restoration on SR 1005 over the Allegheny River Includes Ramps F and G (SR 8082) in the City of Pittsburgh, O'Hara Township, Sharpsburg, and Indiana Township Allegheny County.

---

- 8** Bridge Preservation | MPMS 100958  
Fiscally Constrained List | 62nd Street Bridge Bridge preservation on the 62nd Street Bridge in the City of Pittsburgh and Etna Borough, Allegheny County.

---

- 9** Road Preservation | MPMS 92273  
Fiscally Constrained List | SR 28 Etna Bypass- Highland Pk Bridge Mill and overlay and bridge preservation on SR 28 Southbound, from Etna Bypass to Highland Park Bridge in O'Hara Township and Sharpsburg Borough, Allegheny County.

---

- 10** Road Preservation | MPMS 92271  
Fiscally Constrained List | SR 28 Millvale to Etna Mill and overlay - Millvale to Etna Interchange in Allegheny County.

---

- 11** Bridge Preservation | MPMS 69071  
Fiscally Constrained List | 40th Street Bridge Preservation activities and painting of the 40th Street Bridge over the Allegheny River in the City of Pittsburgh, Allegheny County.

---

- 12** Road Preservation | MPMS 100773  
Fiscally Constrained List | SR 28: East Ohio Street Concrete rehabilitation of SR 28 from General Robinson Street to Heinz Wall in the City of Pittsburgh, Allegheny County.

# ENVIRONMENTAL FEATURES

SR 28 has numerous crossings of surface water resources in Segment D. Heading South, SR 28 traverses the Deer Creek Watershed, direct drainage to the Allegheny River, the Powers Run Watershed, Squaw Run Watershed, the Guyasuta Run Watershed, the Pine Creek Watershed, the Girty's Run Watershed, and direct Allegheny River drainage. The most notable water resource in this segment is the Allegheny River, which parallels SR 28 to the south. Both the Squaw Run and Guyasuta Run watersheds are designated as high quality watersheds based on overall water quality of the two streams. Impaired streams crossed by SR 28 include: Deer Creek, Pine Creek, Squaw Run, and Girty's Run. These streams are largely nonattaining due to upstream urban run-off.

### Areas on this segment with Stormwater 167 plans:

- Deer Creek – (Harmar Township, Allegheny County)
- Squaw Run – (Fox Chapel Township, Allegheny County)
- Pine Creek – (Etna Borough, Allegheny County)
- Girty's Run – (Millvale Borough, Reserve Township and Shaler Township, Allegheny County)

### Areas on this segment with MS4 Permits:

- Harmar Township, Allegheny County (PA136354)
- O'Hara Township, Allegheny County (PAI136128)
- Fox Chapel Township, Allegheny County (PAI136102)
- Aspinwall Borough, Allegheny County (PAG136259)
- Sharpsburg Borough, Allegheny County (NA)
- Etna Borough, Allegheny County (PAG136269)
- Shaler Township, Allegheny County (PAG136146)
- Millvale Borough, Allegheny County (PAG136150)
- Reserve Township, Allegheny County (PAG136149)
- City of Pittsburgh, Allegheny County (PAI136133)

### Water Quality Standards

All commonwealth waters are protected for a designated aquatic life use as well as a number of water supply and recreational uses. The **use designation** shown in the water quality standards is the aquatic life use. These uses are Warm Water Fishes (WWF), Trout Stocking (TSF), Cold Water Fishes (CWF) and Migratory Fishes (MF). A body of water is considered **"impaired"** if it fails to meet one or more water quality standards.

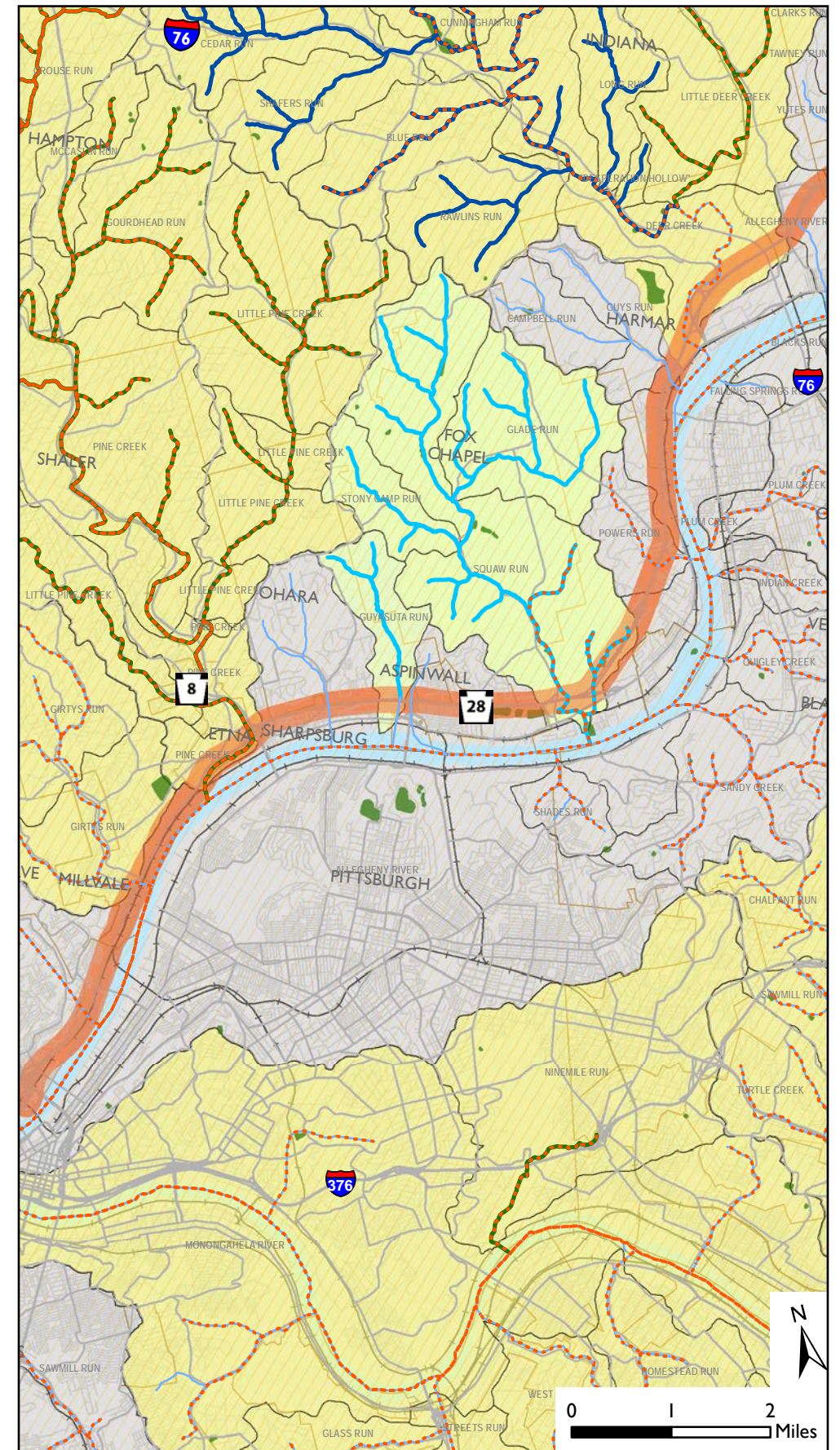
The water quality in a High Quality stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all existing uses of the stream are protected. Exceptional Value waters are to be protected at their existing quality; water quality shall not be lowered.

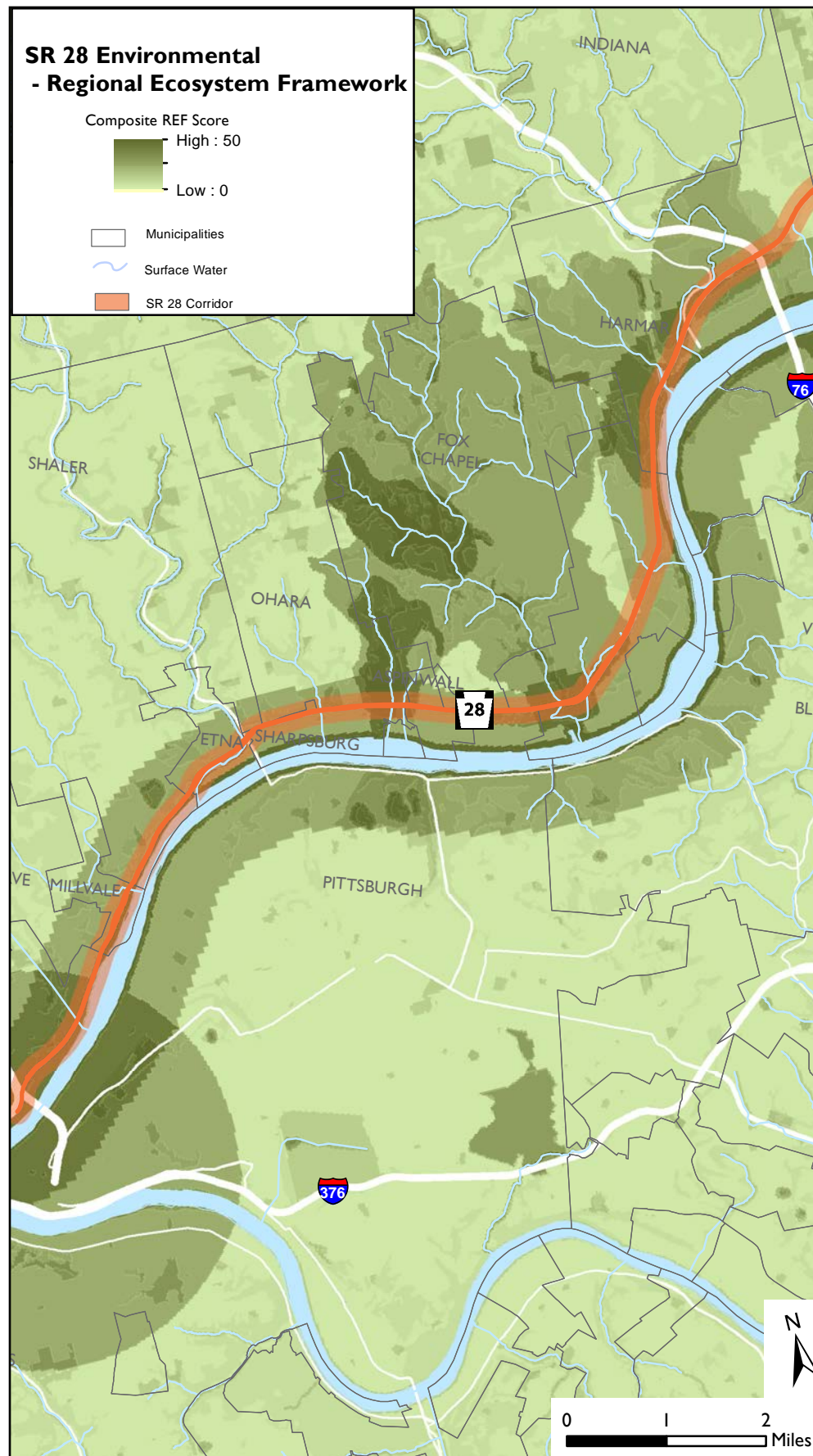
Some water resources are also part of the **Total Maximum Daily Load (TMDL)** program, which identifies sources of pollution and allocates pollutant loads in places where water quality goals are not being achieved.

### Stormwater Management

The **Storm Water Management Act (No. 167)** authorized a program of comprehensive watershed stormwater management that retains local implementation and enforcement of stormwater ordinances similar to local responsibility of administration of subdivision and land development regulations. Act 167 plans are required on a county-wide basis; however, the practice to this point has been to only develop plans for specific sensitive waters/watersheds.

A **Municipal Separate Storm Sewer System (MS4)** is owned or operated by a public agency, such as a city, town, county, flood control district, state, or federal agency that does not connect to the sanitary sewer system and does not lead to a wastewater treatment plant.





The **Regional Ecosystem Framework (REF)** integrates environmental inventory data, conservation priorities, maps, and plans, with input from and adoption by conservation and natural resource stakeholders identified that addresses species, habitats, and relevant environmental issues and regulatory requirements agreed upon by the stakeholders. SPC has identified available GIS data layers that when analyzed will spatially model ecological significance on a regional scale. The datasets that make up the prototype REF are included in Appendix B.

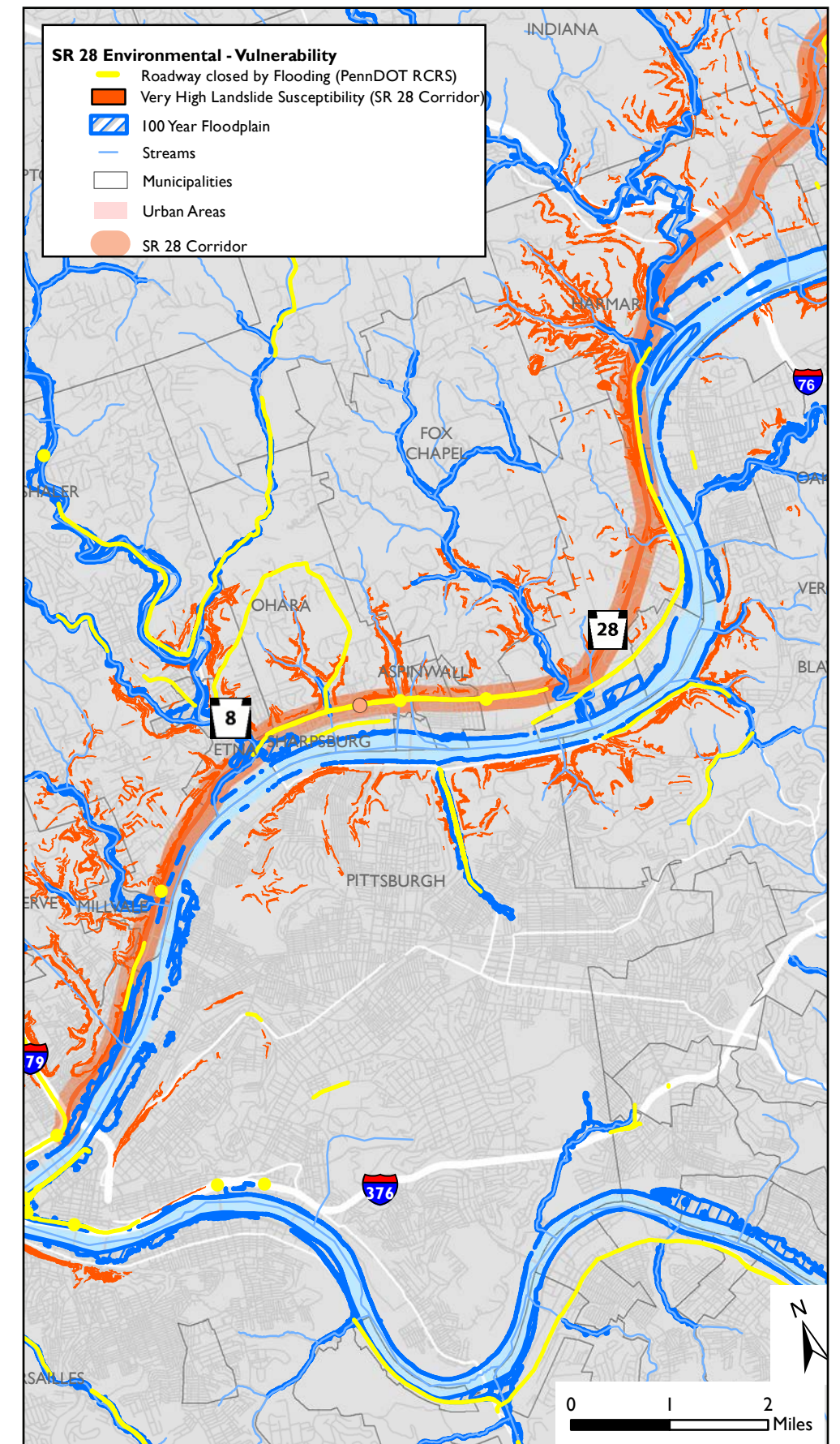
SPC staff assigned a score to the relevant attribute of each environmental data layer; the score reflects the relative importance of the occurrence of any certain resource found in a dataset relative to other resources used in the analysis. Greater values in the REF indicate greater environmental significance.

The REF in Segment D reflects the high quality watersheds of Squaw Run and Guyasuta Run and the buffer around the Allegheny River, which is a key resource in the natural heritage inventory. The buffer influencing the Downtown Pittsburgh high rating is the presence of the special species of concern Peregrine Falcon.

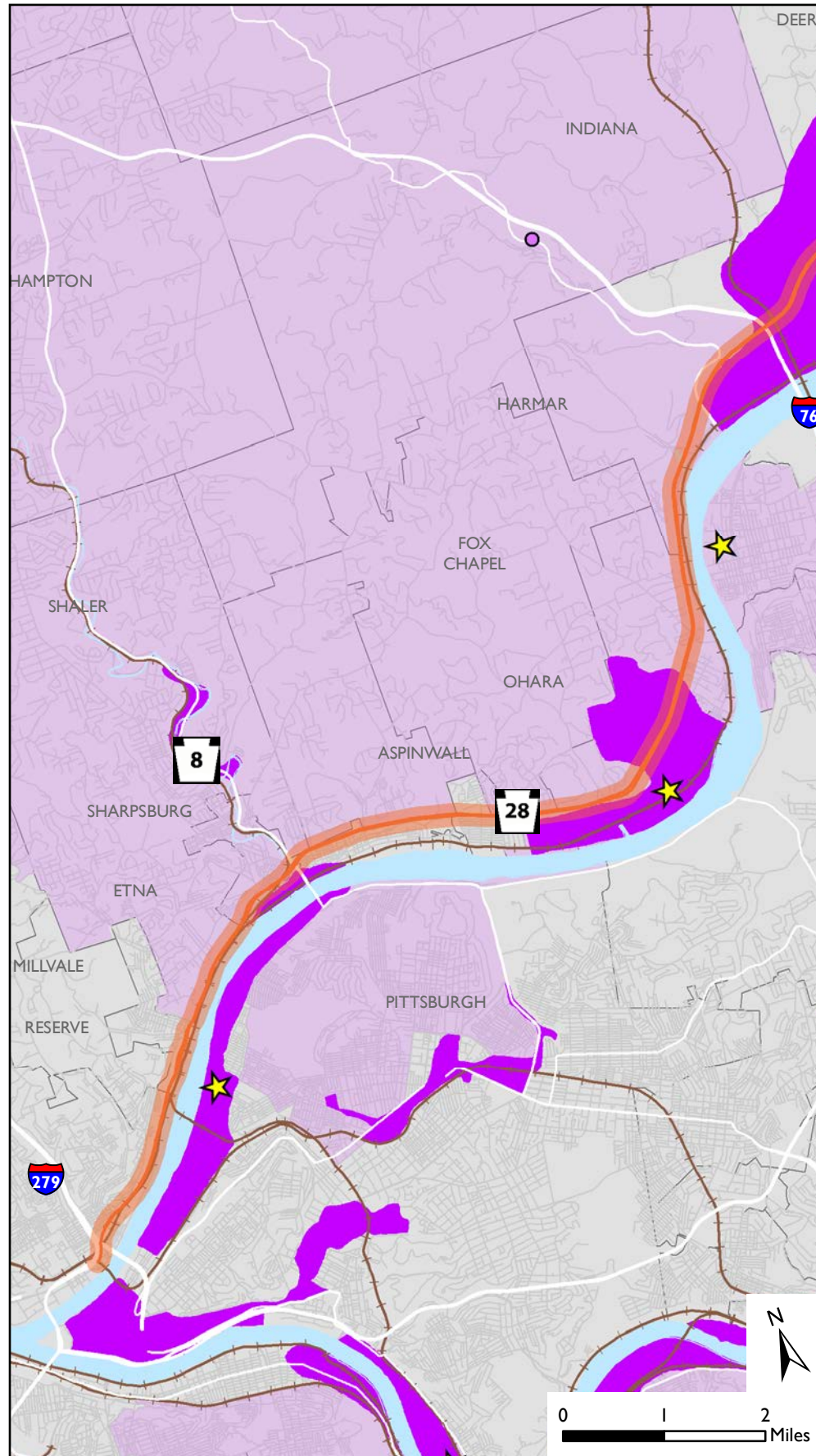
SR 28 within Segment D remains vulnerable to flooding and landslides. Several projects and maintenance improvements over the last few years have reduced vulnerability in this segment. PennDOT Road Closure data includes several incidents of SR 28 being closed as a result of flooding. Steep slopes with high landslide susceptibility exist on the north side of SR 28 for much of this segment. The current TIP includes landslide remediation projects along SR 28. Projects being planned, designed and constructed on SR 28 will need to continue to consider resiliency elements within the projects. Secondary routes that serve as detour routes within the corridor also need to be planned and operated as potential short term alternatives to SR 28.



Southbound SR 28 between Highland Park Bridge and Etna.



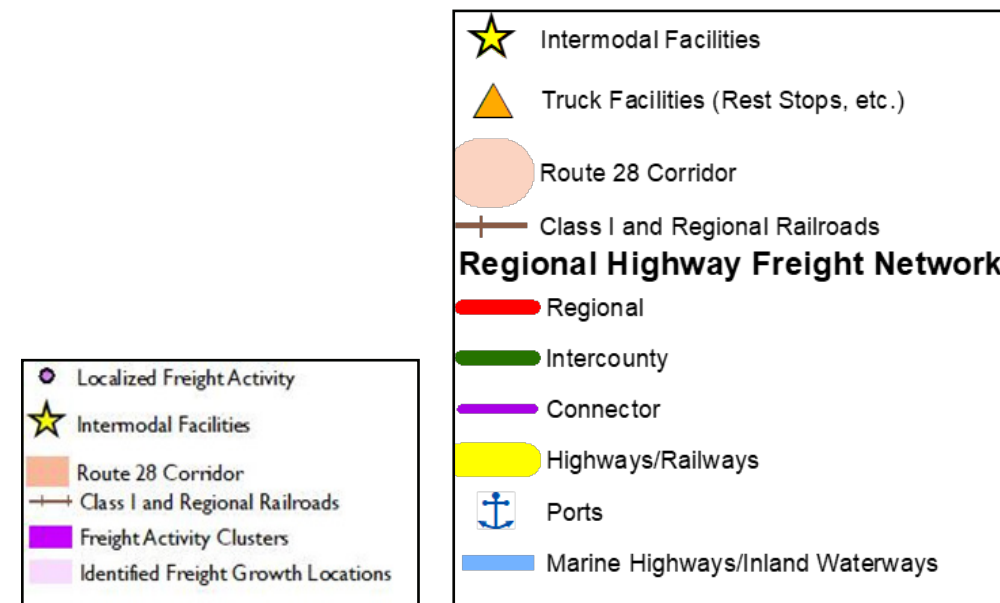
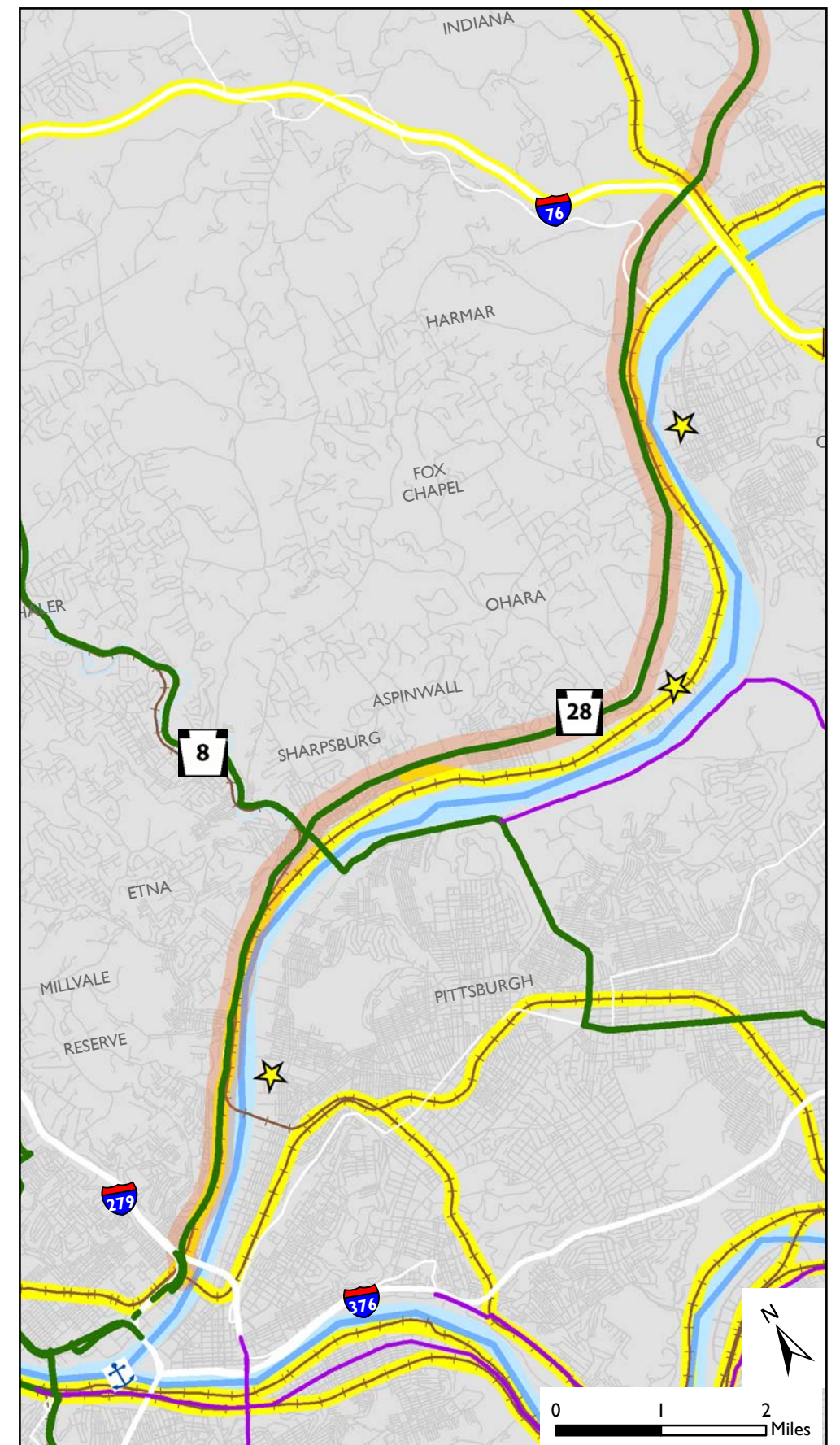
# FREIGHT



South of the PA Turnpike, SR 28 functions as a typical urban highway, carrying a wide mix of passenger vehicles and trucks. It must be noted that there is no actual interchange between SR 28 and the PA Turnpike, requiring all vehicles to use SR 910 and Freeport Road to move between the two highways. Based on the frequency of trucks known to make this connection, the “Harmar Connection” has been designated as a Critical Urban Freight Corridor.

As with Segment C to the north, SR 28 is a key freight corridor for legacy industry in the riverfront communities of Blawnox, Fox Chapel, Sharpsburg, Millvale and Etna. In the Regional Freight Plan for Southwestern PA, freight activity nodes were found all through this corridor, most notably in the Fox Chapel/Blawnox area. New manufacturing has since sprung up on SR 910 to the west of SR 28, and a major regional trucking company has relocated its center of operations to the same area.

Measures of truck utilization of SR 28 south of Fox Chapel are overwhelmed by the volume of passenger vehicles on this corridor segment. However, the Highland Park Bridge, and I-579 provide important truck connections to SR 28.





# REGIONAL, COUNTY, & LOCAL PLANS AND USER PERSPECTIVES

Segment D from the PA Turnpike to the I-279/Veterans Bridge Interchange, enters more suburban communities and eventually the City of Pittsburgh. This suburban and urban character of communities are reflected in their local plans and may be relevant to project development of SR 28.

O'Hara Township Comprehensive Plan:

- The O'Hara Township Comprehensive Plan states that commercial and industrial development occurs to the south of SR 28 while residential development occurs north of the SR 28 corridor.
- Portions of RIDC Park are transitioning to smaller and more traffic intensive establishments including personal services and medical facilities.
- The area near the SR 28 interchange, now zoned residential, may require utilization of mixed use zoning or some performance based zoning that offers options other than single family residential detached homes, the demand for which has decreased.

River Bend Comprehensive Plan (Etna, Millvale, Sharpsburg)

- Connection to the Three Heritage Trail is limited by the SR 28 Interchange.
- Cycling connection to Pittsburgh is limited due to the SR 28 interchange and the bicycle unfriendliness of the 40th Street Bridge.

Segment D, from the PATurnpike (I-76) to I-279/Veterans Bridge enters more populated areas; therefore, there are more community features that can affect project development. Located on the west side of SR 28 is the Research Industrial Development Corporation (RIDC) Park. Located in O'Hara Township, RIDC Park is a 700-acre industrial park that houses approximately 130 companies. Continuing south into Aspinwall, the Sauer Buildings Historic District is located off of Center Avenue near the southbound lanes of SR 28. Also near this area but on the opposite side of SR 28 near the Highland Park Bridge is the Aspinwall Recreational Area. Another park located near the southbound lanes of SR 28 is Meadow Park. Heading south into Shaler Township, the Shaler Water Works borders the southbound lanes of SR 28. Also located through Segment D is the Western Pennsylvania Railroad that runs in between SR 28 and the Allegheny River.

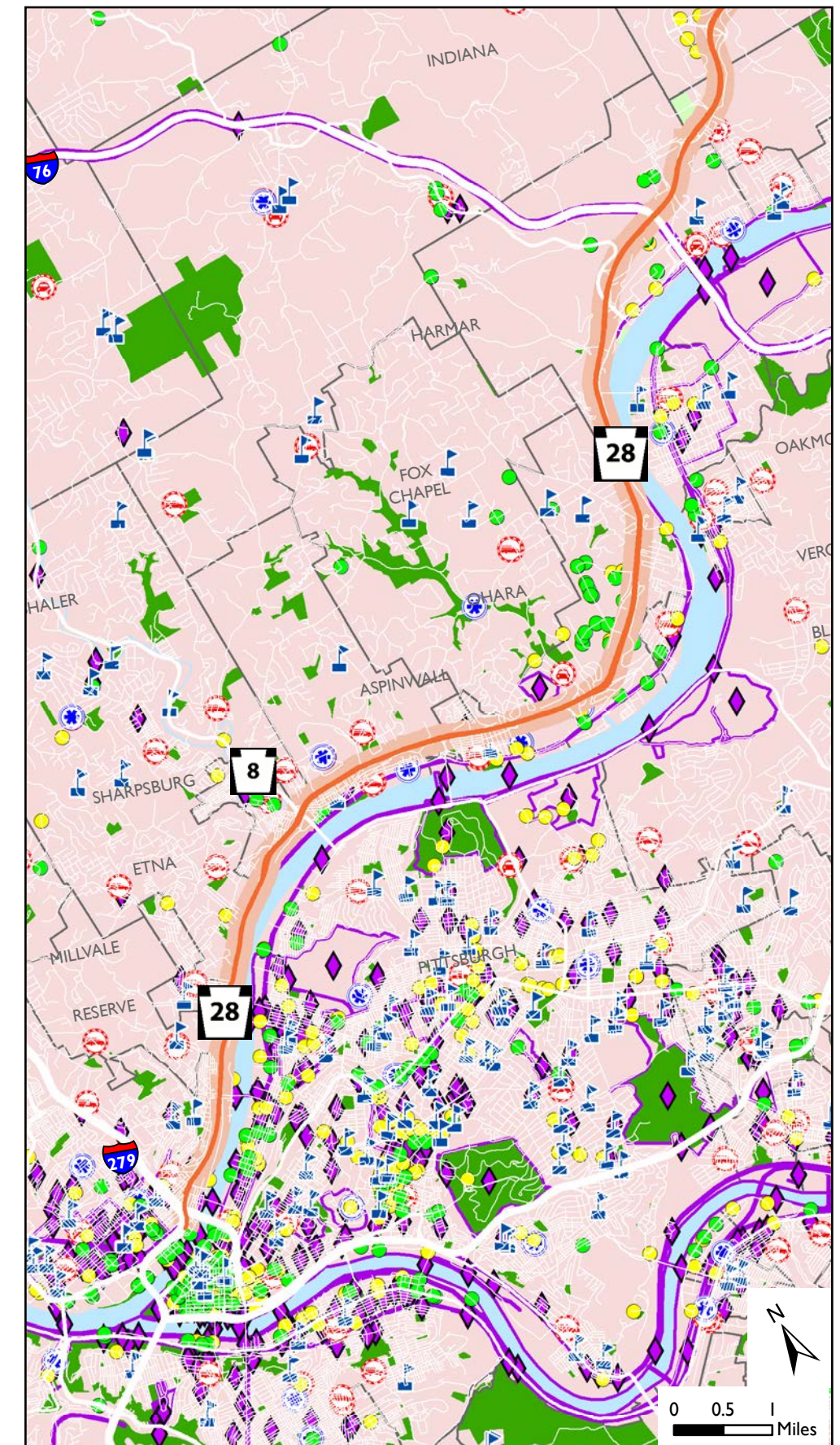
## Relevant Local, County and Regional Plans

[Allegheny County Comprehensive Plan](#)

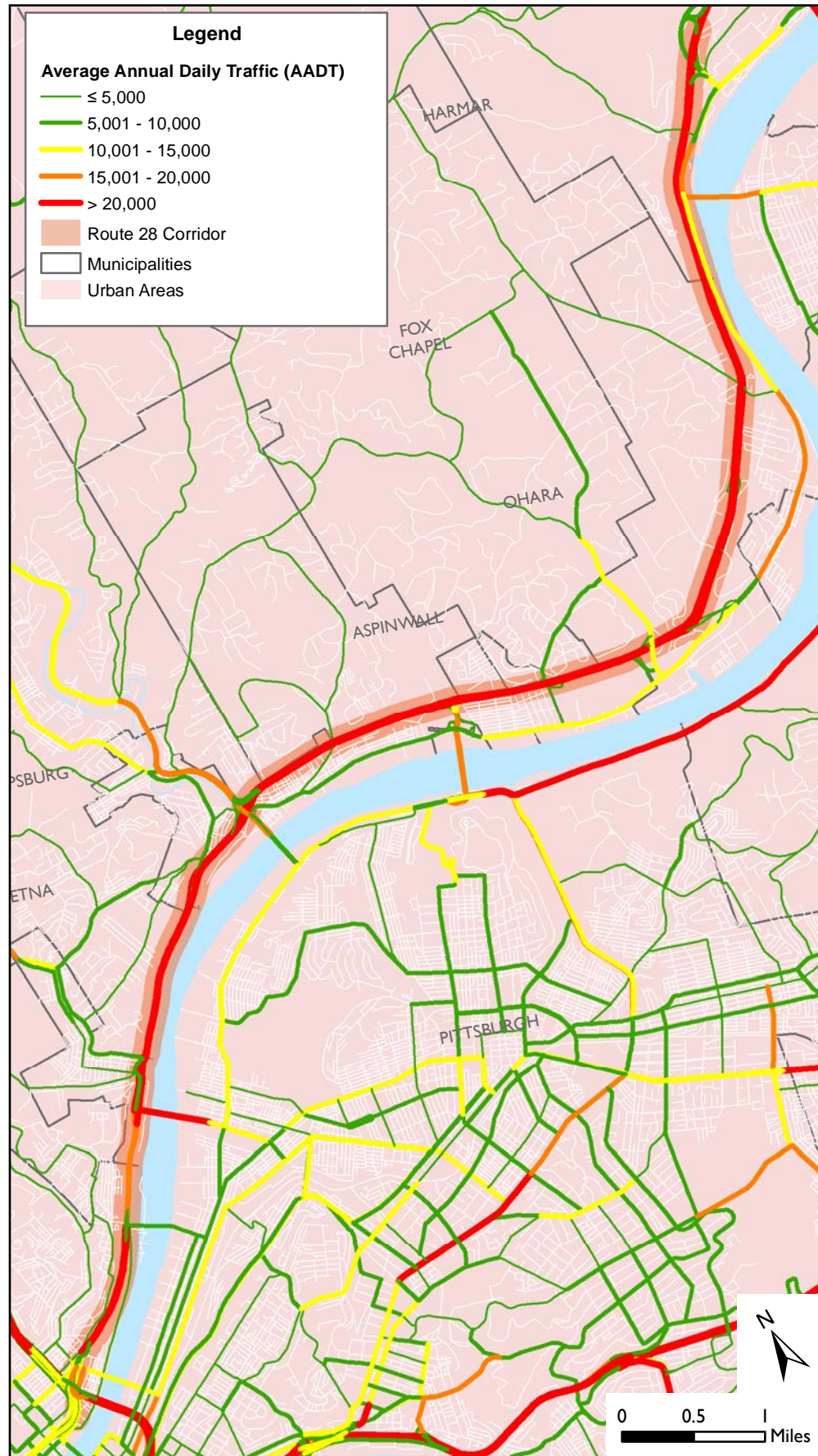
[O'Hara Township Comprehensive Plan](#)

[Aspinwall Zoning Ordinance](#)

[River Bend Comprehensive Plan \(Sharpsburg, Millvale, Etna\)](#)



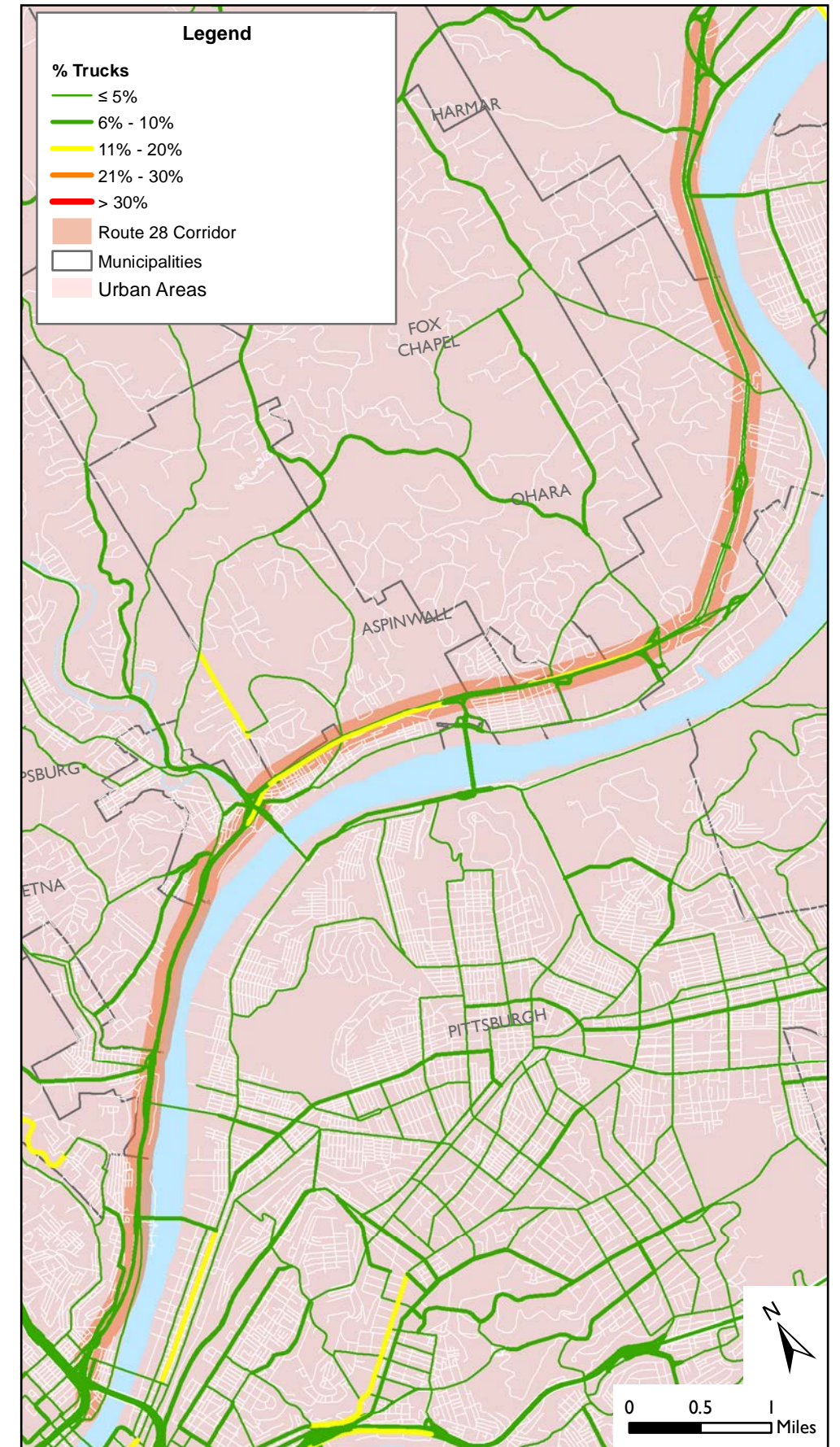
# SEGMENT TRAVEL PATTERNS



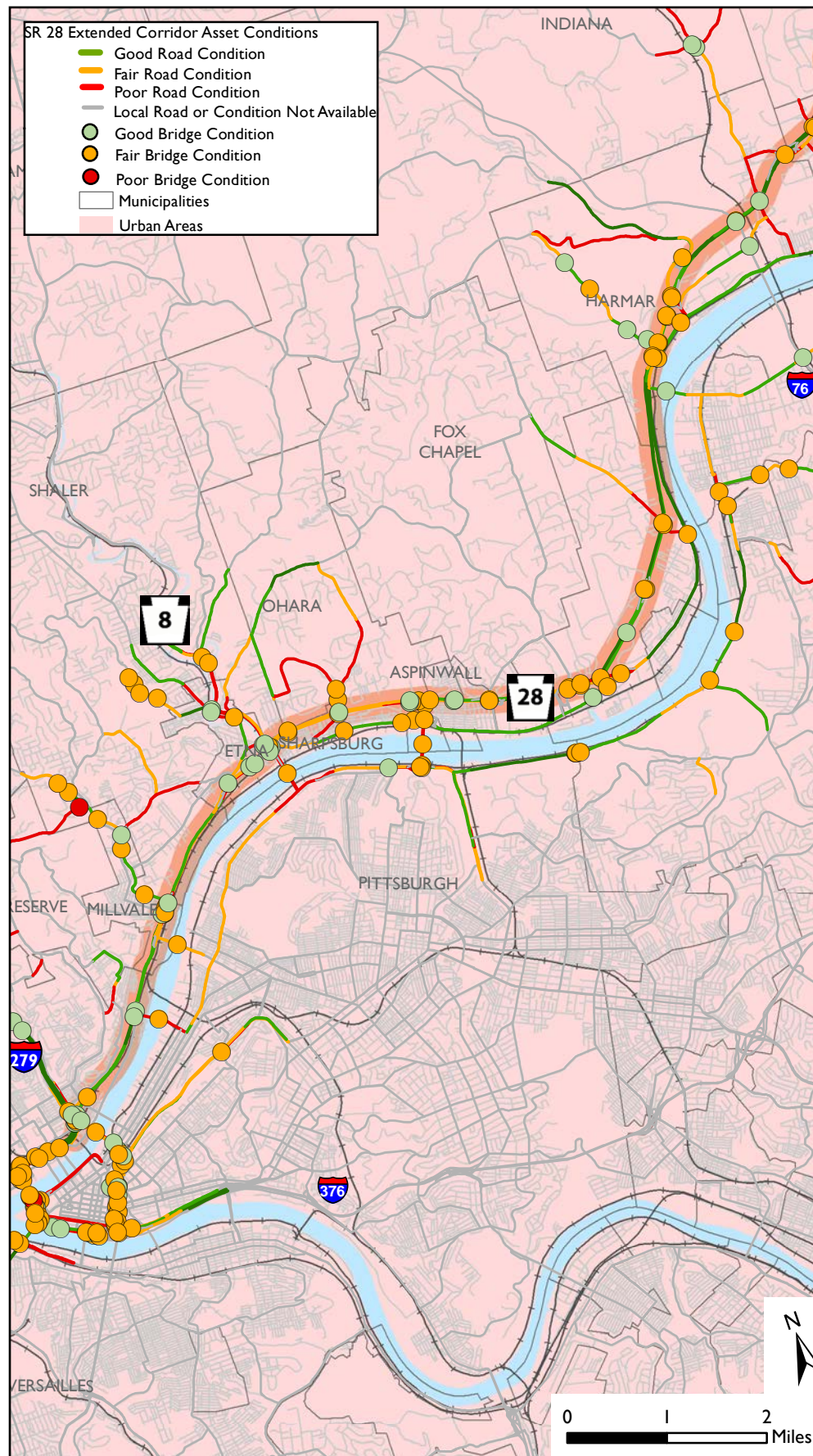
Annual Average Daily Traffic (AADT) is the typical daily traffic on a roadway segment for all the days in a week over a one-year period. Truck percent is the percent of the AADT that is comprised of truck traffic, excluding pickups, panels, and light trucks. The current AADT and truck percent figures included in this section were derived from the Pennsylvania Department of Transportation (PennDOT) Roadway Management System (RMS). Traffic volumes are considerably higher on this section of the SR 28 corridor due to the proximity to Downtown Pittsburgh and surrounding areas. The AADT is highest in the area between the 31st Street Bridge and the Veterans Bridge. The AADT for individual roadway segments on this portion of the corridor is between 35,000 and 40,000 in each travel direction. The AADT for the portion of SR 28 between the Etna exit and the 40th Street Bridge is greater than 30,000 in each travel direction, and the AADT near the Highland Park Bridge is around 30,000 in each travel direction. The AADT for the remainder of segments on this section of SR 28 is greater than 19,000 in each travel direction.

This section of SR 28 transforms from a suburban highway in Allegheny County to an urban highway in the City of Pittsburgh, serving as a major corridor to accessing highly dense employment areas in Downtown Pittsburgh, the North Shore, the Strip District, Lawrenceville, and beyond. Population densities are also high along this section of the corridor.

Traffic volumes are comparatively high on all segments of this portion of the SR 28 corridor. The highest truck percent is located in the vicinity of the Highland Park Bridge, which also has high traffic volumes. Truck percents are highest on the northbound segment between SR 8 and the Highland Park Bridge (15%). Truck percents for the remainder of segments on this section of SR 28 fall between 6% to 10%.



# CONDITION OF ASSETS

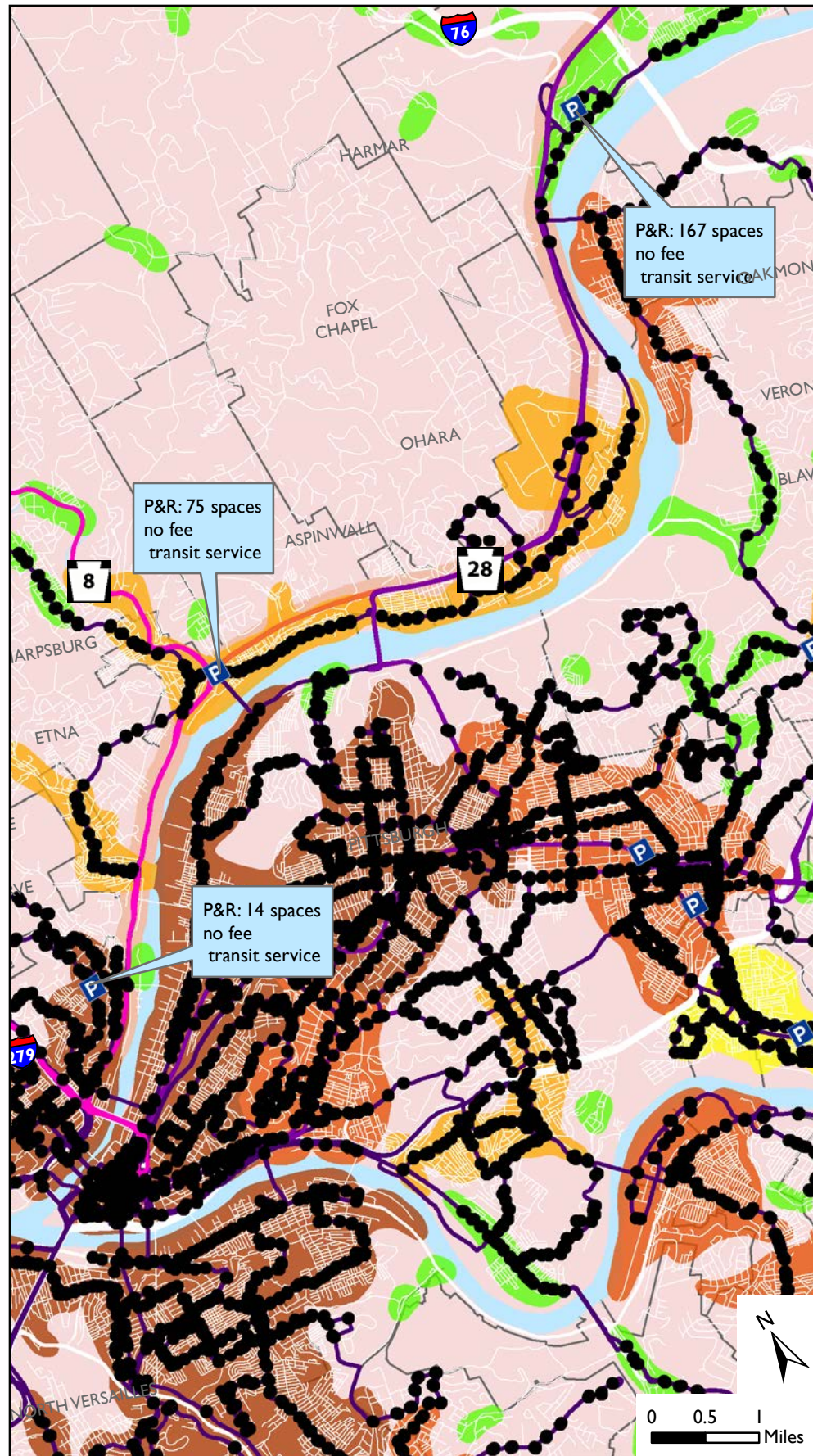


In Segment D, 69.6% of the bridges on SR 28 have a fair condition rating. Within Segment D there are no bridges rated as poor. Within Segment D, 94% of the SR 28 roadway surface is rated as fair or better. Approximately 1.5 miles of this section are rated as in poor condition based on IRI. These areas include a small segment near the Millvale exit, a small stretch near the Etna exit (0.7 miles) and a small stretch near the Highland Park Bridge Interchange (0.5 miles).

Segment D Bridge Conditions			
Bridge Condition	Count	Deck Area (SQ Ft)	By %
Good	11	125830	30.4%
Fair	26	288072	69.6%
Poor	0	0	0%

Segment D Pavement Conditions			
Road Condition	Count (RMS Segments)	Miles	By %
Good/Excellent	31	15.33	61.7%
Fair	18	8.05	32.4%
Poor	4	1.45	5.8%

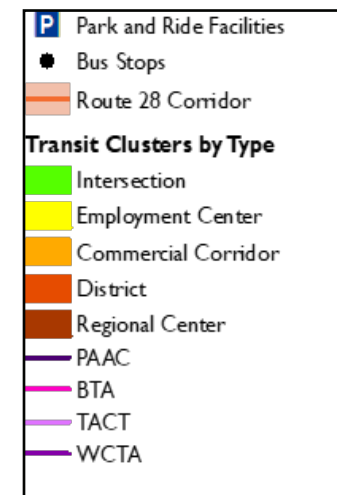
# TRANSIT



In Segment D, there are transit routes that utilize sections of SR 28. Port Authority of Allegheny County bus routes that are located on or near SR 28 include the Allegheny Valley Flyer (P10), Freeport Road (#1), Ellsworth (#75), Troy Hill (#4) North Side-Oakland-South Side (#54), and Spring Hill (#6). Other transit agencies also utilize SR 28 for the transit routes. Westmoreland County Transit Authority’s (WCTA) Pittsburgh to New Kensington Flyer utilize SR 28 from Tarentum to the Highland Park Bridge. Butler Transit Authority (BTA) uses SR 28 as well. BTA’s Butler and Pittsburgh Commuter uses SR 28 in between SR 8 and the Veterans Bridge.

There are three park and ride facilities that are located within the SR 28 corridor: The Landings Shopping Center at Alpha Drive, 62nd Street. under the SR 28 and SR 8 Interchange and Spring Garden Avenue between Wicklines Lane and Haug Street. These park and ride facilities are free to use and transit service is available.

*SmartMoves Connections* has identified transit clusters along Segment D. As stated in the Segment C section, there is an intersection cluster around Freeport Rd in Harmar Township. There is also an intersection cluster at the SR 28 and the 31st St. Bridge. Commercial corridors are located along SR 28 starting near the RIDC Park Interchange in O’Hara Township and continuing through Fox Chapel, Blawnox, Aspinwall, and Sharpsburg and ending in Etna. Another commercial corridor is identified near Millvale. Continuing south on SR 28, a regional center transit cluster is located in Reserve Township and the City of Pittsburgh.



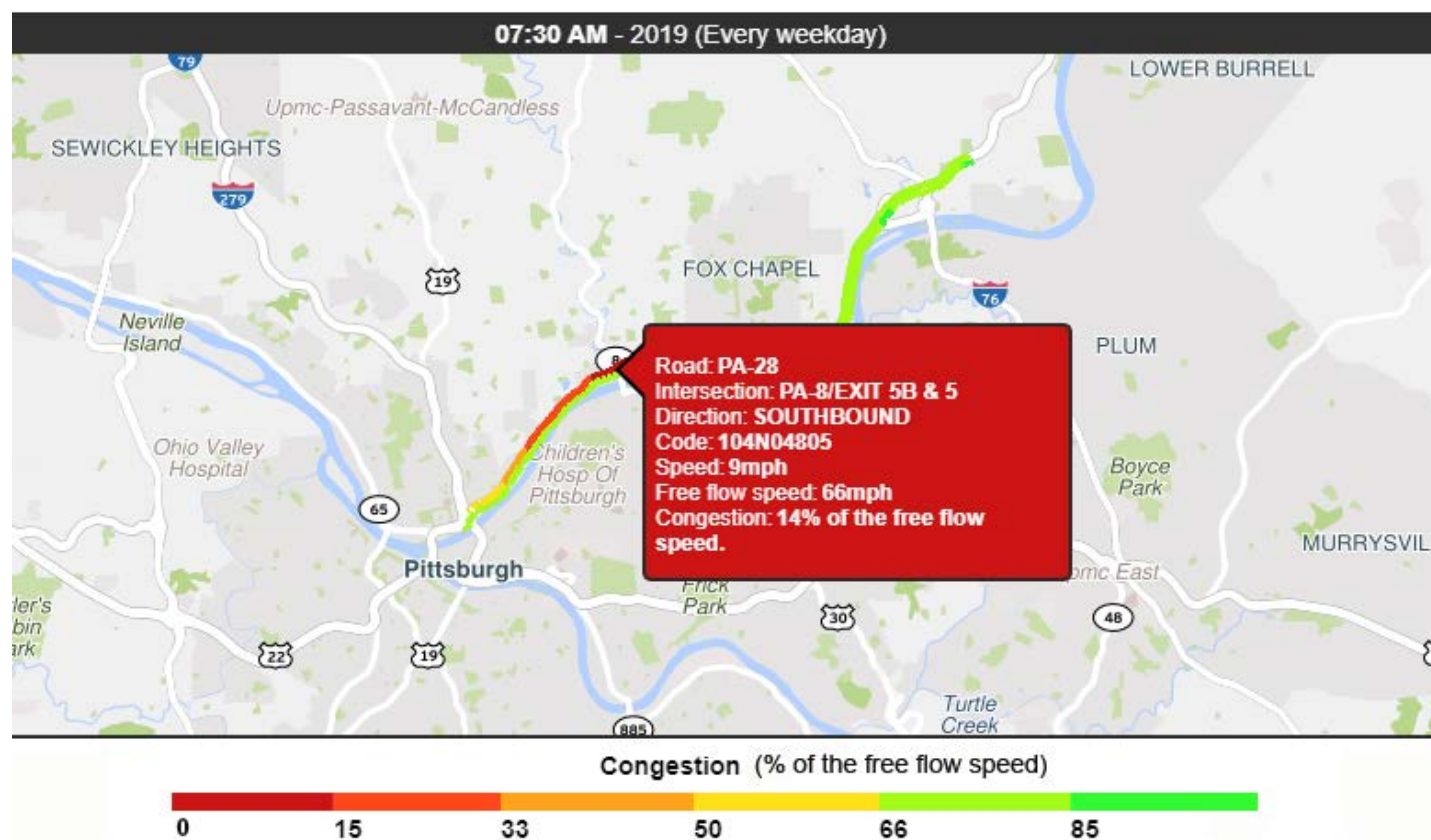
# CONGESTION & RELIABILITY

- Segment D is monitored as part of SPC’s Congestion Management Process network. It is CMP corridor number 16.
- AM and PM peak period congestion trend mapping is shown for Segment D. Congestion percentage is shown as the percent of free flow speed achieved on the segment. Higher percentages indicate less congestion (greener colors), lower percentages indicate more congestion (redder colors).
- In the AM peak period, travelers on Segment D approximately achieve 14% to 86% of free flow speed.
- In the PM peak period, travelers on Segment D approximately achieve 22% to 89% of free flow speed.
- Travelers on Segment D experience moderate-heavy congestion in the peak periods.
- The section of Segment D that experiences heavy congestion in the AM peak period is the southbound direction between Route 8 and the Veterans Bridge.
- The section of Segment D that experiences heavy congestion in the PM peak period is the northbound direction between the 62nd Street Bridge and the Highland Park Bridge and the northbound direction in the area near the Veterans Bridge.

**Planning Time Index (PTI)** is the extra time required to arrive at a destination on time, 95% of the time. It is calculated as the ratio of the 95th-percentile highest vehicle hours traveled divided by the vehicle hours traveled if the same trips could have been completed at free flow speed. For example, a PTI of 1.5 means that a traveler should plan on 50% more time for their trip compared to light traffic conditions for a 95% probability of arriving on time (meaning that 15 minutes should be planned for what would be a 10-minute trip in light traffic conditions). SPC reports PTI for arterial CMP corridors in the region by direction for peak and off-peak times.

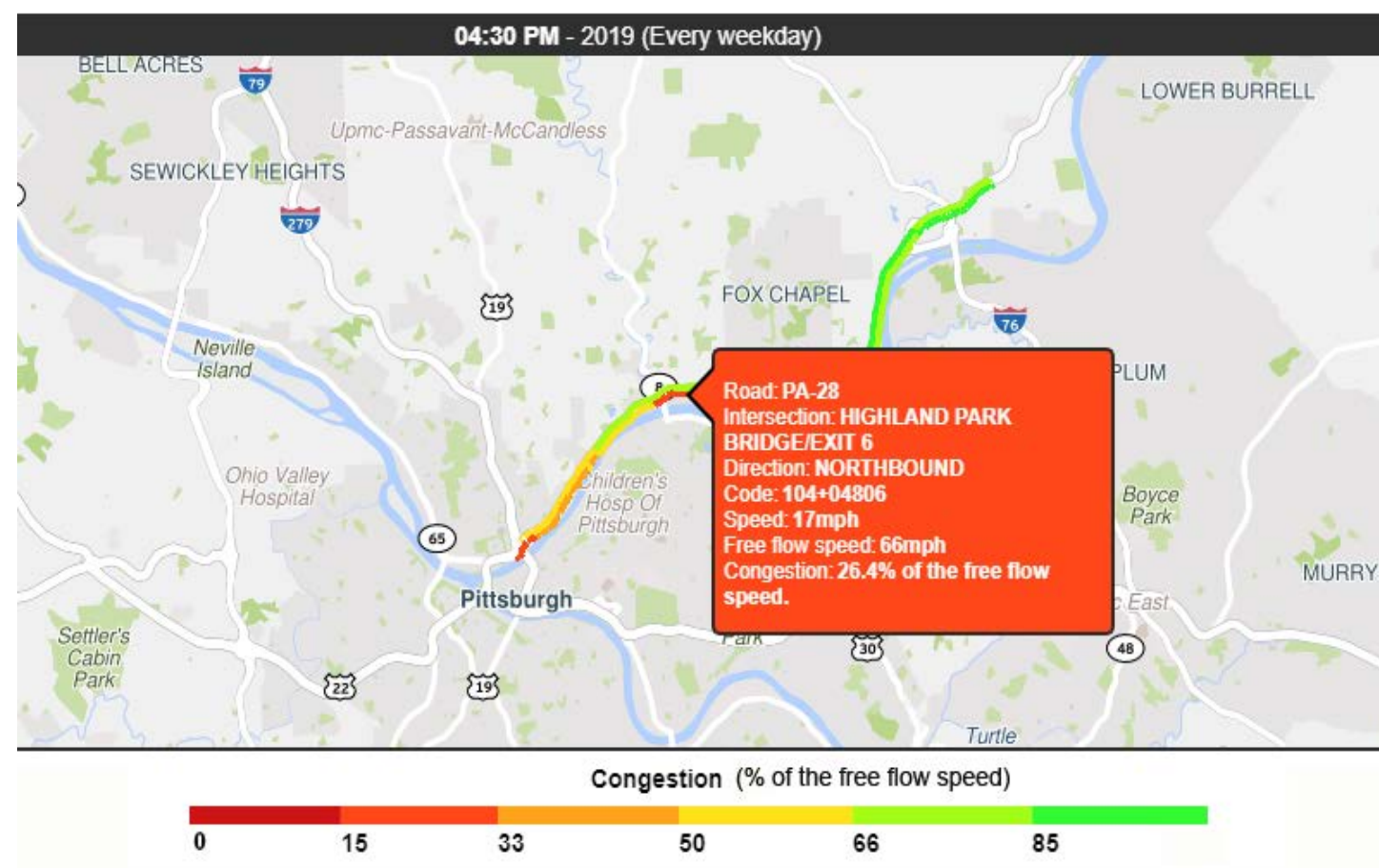
## AM CONGESTION

PA-28 between Hite Rd/Exit 12 and I-279/I-579 Congestion Trend Map for 2019 (Every weekday)



## PM CONGESTION

PA-28 between Hite Rd/Exit 12 and I-279/I-579 Congestion Trend Map for 2019 (Every weekday)



The above information was gathered from the Regional Integrated Transportation Information System (RITIS) available from the University of Maryland’s Center for Advanced Transportation Technology (CATT) lab.

SR 28 CORS Segment D- Northbound CMP 16- 2019	
Corridor Length (miles)	11.8
Avg. Posted Speed Limit (mph)	49.9
Travel Time @ Posted Speed Limit (min)	14.2

Travel Time in Minutes Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				12.46
Monday	14.26	13.23	18.01	
Tuesday	14.43	13.28	19.12	
Wednesday	14.49	13.7	18.7	
Thursday	14.51	13.57	18.78	
Friday	14.73	13.6	19.41	
Saturday				12.55

Planning Time Index Northbound				
Northbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				1.43
Monday	2.04	1.51	2.73	
Tuesday	2.14	1.54	3.08	
Wednesday	2.17	1.71	2.95	
Thursday	2.24	1.58	3	
Friday	2.27	1.58	3.12	
Saturday				1.41

SR 28 CORS Segment D- Southbound CMP 16- 2019	
Corridor Length (miles)	11.8
Avg. Posted Speed Limit (mph)	49.9
Travel Time @ Posted Speed Limit (min)	14.2

Travel Time in Minutes Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				12.46
Monday	14.44	18.66	13.77	
Tuesday	14.99	20.81	14.08	
Wednesday	15.21	20.82	14.3	
Thursday	15.36	20.3	15.33	
Friday	14.58	16.83	15.56	
Saturday				12.65

Planning Time Index Southbound				
Southbound				
NPMRDS from INRIX (Trucks and passenger vehicles)				
	Weekdays	Weekdays	Weekdays	Weekends
	all day	6 am-10 am	3 pm-7pm	all day
Sunday				1.42
Monday	2.23	3.22	1.68	
Tuesday	2.61	3.7	1.88	
Wednesday	2.56	3.87	1.95	
Thursday	2.61	3.71	2.28	
Friday	2.02	2.6	2.54	
Saturday				1.44

- PTI for Segment D in the northbound direction ranges from 1.41 to 3.12
- PTI for Segment D in the southbound direction ranges from 1.42 to 3.87

# CONGESTION MANAGEMENT PROCESS

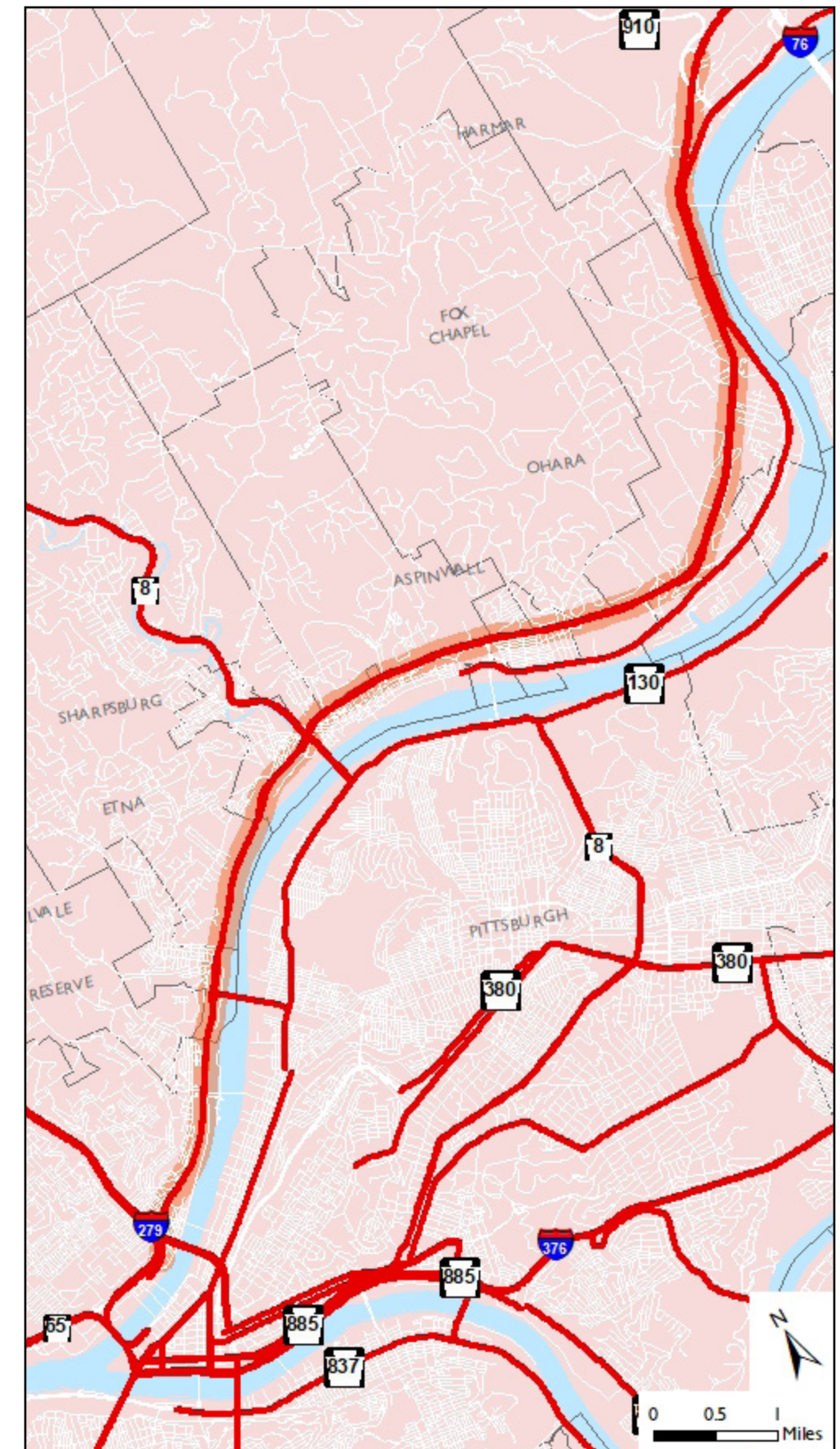
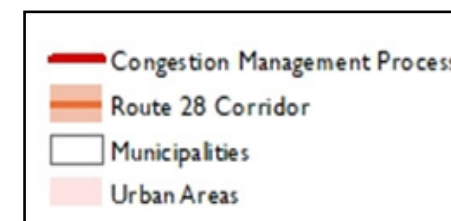
- Segment D- Situated between a sheer rock wall, railroad tracks, and the Allegheny River, this southern section of SR 28 relies heavily on bridges to get traffic onto the posted emergency detour routes. Disabled vehicles in the roadway can cause a significant delay if crews aren't able to keep a lane open to allow traffic to reach these routes. Clearing the roadway safely is a priority, therefore DMS message boards that alert drivers early enough to find alternate routes are essential to aid the duties of the roadway crews.
- Detour routes for northbound and southbound traffic include: 16th Street Bridge, Liberty Avenue, 31st Street Bridge, Penn Avenue, Butler Street, 40th Street Bridge, 62nd Street Bridge, Bridge Street, SR 8, Highland Park Bridge, Freeport Road, Fox Chapel Road, Alpha Drive, RIDC Drive, Beta Drive, SR 910, Pillow Avenue, and Hite Road.

## CONGESTION MANAGEMENT STRATEGIES:

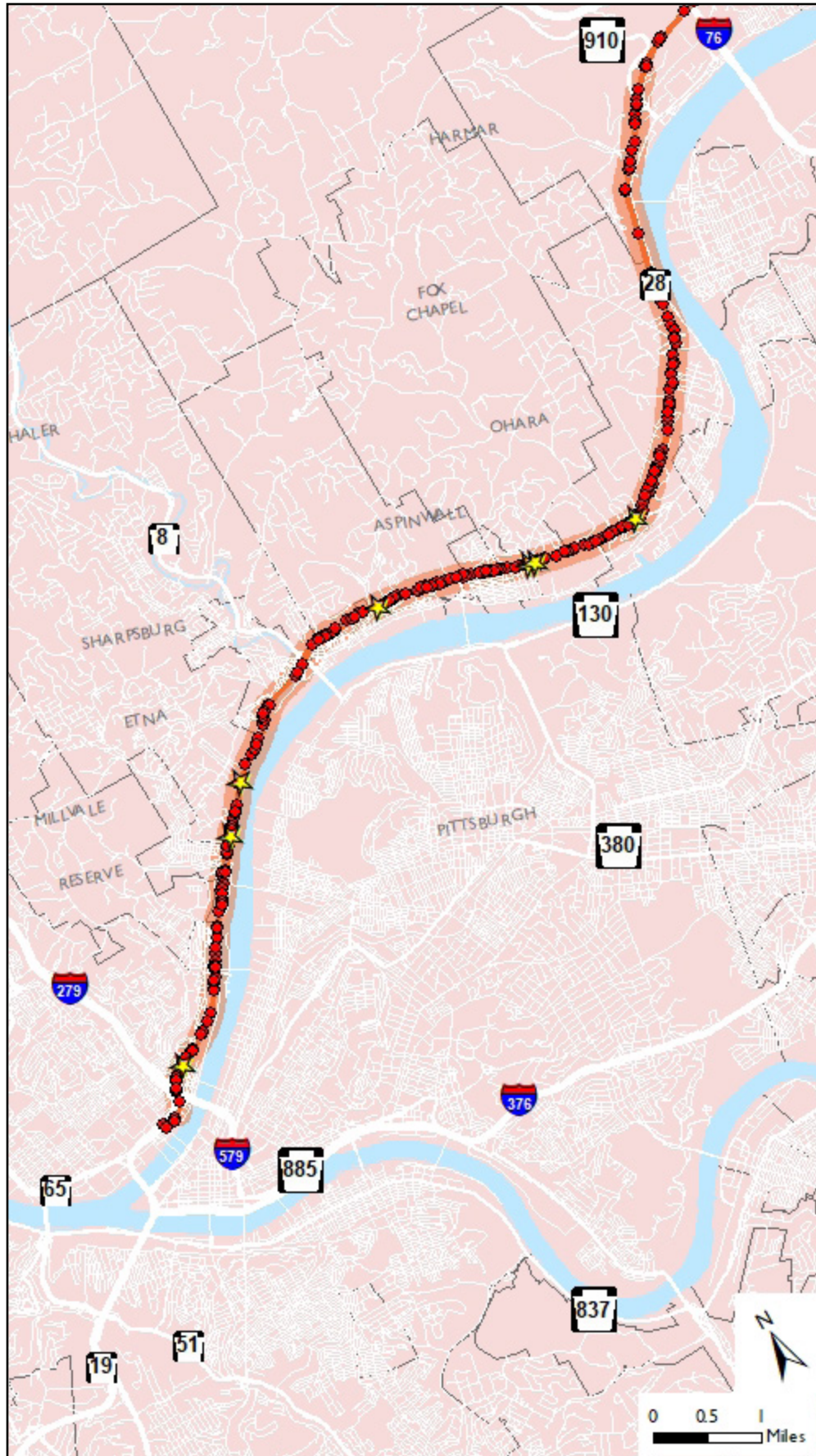
### Corridor 16

Category	Strategy	Baseline Prioritization*
DM	P.R. & Education for TDM	High
MOD	Rideshare Programs	
OPS	Incident Management Systems	
OPS	Intersection / Geometric Improvements	Medium
MOD	Park-n-ride & Other Intermodal Facilities	
OPS	Traffic Signal Improvements	
MOD	Improved Transit Service	
DM	Employer-Based Programs	
OPS	Intelligent Transportation Systems	Low
CAP	Lane Additions	
DM	Transit-Oriented Development Policies	
OPS	Elimination of Bottlenecks	
DM	Growth Management	
DM	P.R. & Education for TSD	
MOD	Bicycle Facilities & Information	
DM	Congestion Pricing	
CAP	New SOV Facilities	
MOD	Pedestrian Facilities & Information	
MOD	Transit Capital Improvements	Not Applicable
MOD	HOV & HOT lanes	
DM	Parking Management	
OPS	Ramp Metering	
OPS	Access Management	
OPS	One-way Streets	
OPS	Reversible Lanes	

\*Strategies are simply listed alphabetically within the High, Medium, Low, and N/A groupings. They are not individually prioritized within those groupings.



# SAFETY



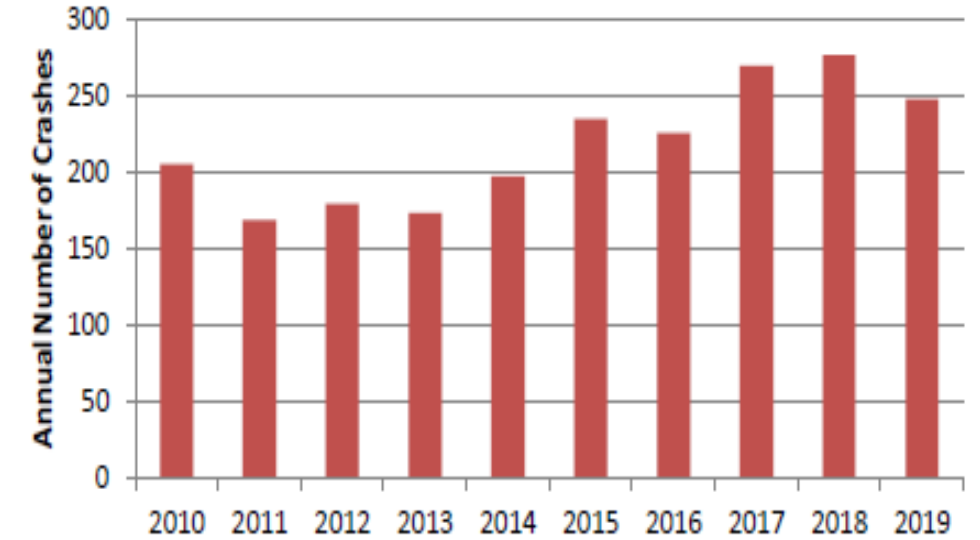
- For Segment D, the overall crash trend has an upward trend. The fatal and suspected serious injury crashes have a downward trend as there were no fatal and suspected serious injury crashes in 2019.
- When comparing Segment D to the SPC region total crash trend, Segment D is trending upward while the region has a flat trend.
- Segment D's 2019 crash rate (1.07 crashes/MVMT) is higher than the average crash rate for similar roadways in Allegheny County (0.86 crashes/MVMT) and higher than the average 2019 crash rate for similar roadways in the SPC region (0.5 crashes/MVMT).
- There are no Safety Action Plan Safety Focus Areas present in this segment.

SR 28 Segment D Crash Statistics	
Timeframe	2010-2019
All Crashes	2173 (~4 crash per week)
Fatal and Serious Injury Crashes	61 (~3% of all crashes)
Non-Motorized Crashes	0
Noteworthy: Rear End Crashes	1104 (~51% of all crashes)
Noteworthy: Fatal Crashes	20 (~1% of all crashes)
Crashes Involving Heavy Trucks	124 (~3% of all crashes). Trucks represent 7% of traffic on this segment

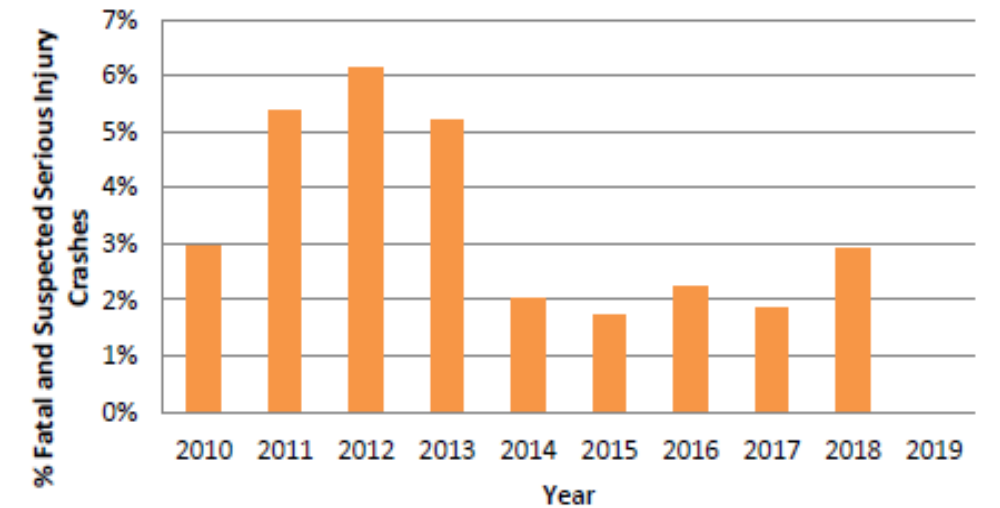


## SR 28 SEGMENT D CRASH TRENDS

### Overall Crash Trend

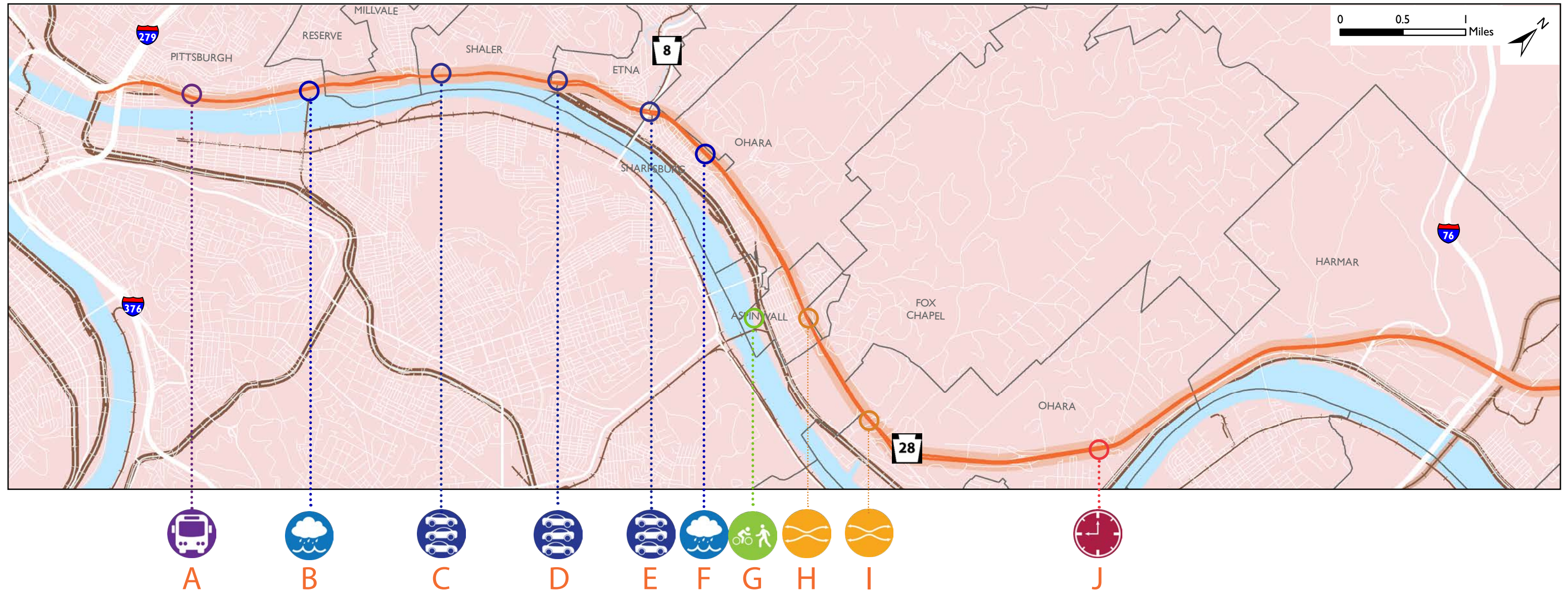


### Fatal and Suspected Serious Injury Trend















# SEGMENT D: FOCUS AREAS



## FOCUS AREA CATEGORIES



# SEGMENT D: FOCUS AREAS

A		<p>Port Authority of Allegheny County (PAAC) utilizes SR 28 between the Millvale Interchange and the Veterans Bridge.</p>
B		<p>There have been several incidents of SR 28 being closed as a result of flooding. There is high landslide susceptibility along the northern side of SR 28.</p>
C		<p>PennDOT Service Patrols are located along SR 28 to respond to incidents and assist in clearing roadways in order to minimize traffic impacts and to reduce congestion.</p>
D		<p>Congestion is experienced during the AM peak period in the southbound direction of SR 28 between SR 8 and the Veterans Bridge. Congestion is also experienced during the PM peak period in the northbound direction of SR 28 near the Veterans Bridge.</p>
E		<p>Congestion is experienced during the PM peak period in the northbound direction between the 62nd Street Bridge and the Highland Park Bridge.</p>
F		<p>There have been several incidents of SR 28 being closed as a result of flooding. There is high landslide susceptibility along the northern side of SR 28.</p>
G		<p>There are plans to extend the Three Rivers Heritage Trail to Aspinwall and will include sections that will be in very close proximity to the corridor in Millvale and Etna.</p>
H		<p>There is a bottleneck located on SR 28 at the Highland Park Bridge Interchange. There is a project (MPMS #91845) to eliminate the bottleneck at this interchange.</p>
I		<p>There is a bottleneck located on SR 28 at the Fox Chapel Interchange.</p>
J		<p>The pavement preservation along SR 28 is essential in maintaining a sufficient transportation network.</p>



# APPENDICES

---

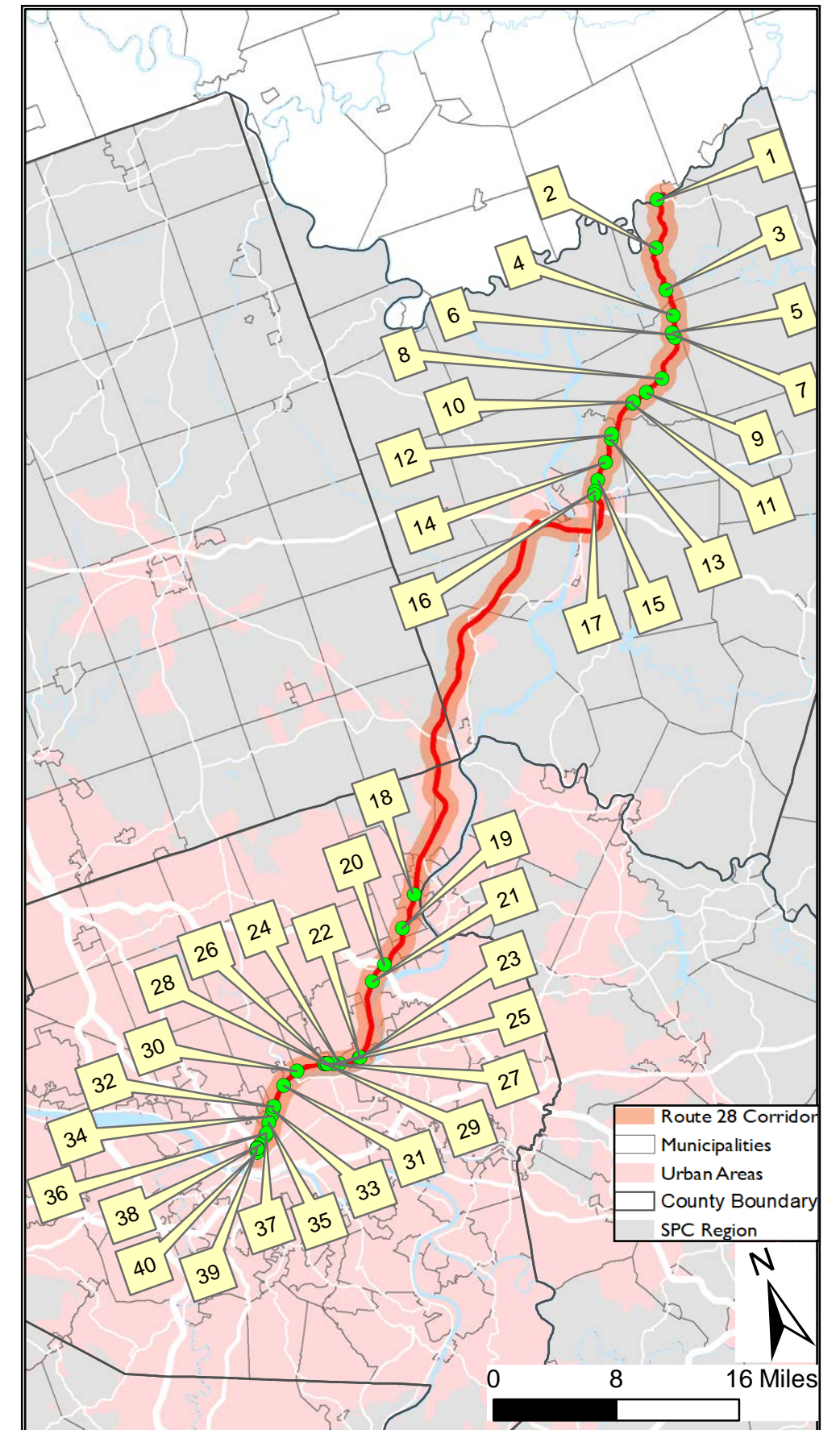
Appendix A: Stakeholder Outreach  
Appendix B: Data Sources & Definitions

# APPENDIX A: STAKEHOLDER OUTREACH

Stakeholder outreach is an integral part in further understanding the conditions along SR 28. Listed in the map and table are comments that SPC received regarding SR 28. These comments were received through the development of the 2021-2024 TIP, SR 28 Corridor Study and a survey for this CORS Framework.

Comment Number	Comment
1	The curve at North Street/Broad Street is sharp and there are truck access issues.
2	The sight distance at Putneyville Road is poor.
3	SR 28 near Deanville Road has poor sight distance and speeding is observed.
4	The intersection at Calhoun School Road has poor sight distance.
5	There are sharp curves and no shoulder at West Caldwell Road.
6	The intersection at Gas Well Road has poor sight distance.
7	Speeding is observed along SR 28 near Goheenville Road. There are also sharp curves near this area.
8	There are steep grades and many curves near SR1018.
9	SR 28 at Oscar Road has poor sight distance. There are no passing lanes near this area.
10	There is no passing lane near Ridge Road.
11	The intersection at Ridge Road has poor sight distance.
12	There is no passing lane near Hankey Lane.
13	There is poor sight distance at Sloan Hill Road.
14	The intersection near Anderson Creek Road has poor sight distance and no passing lane.
15	There are sharp turns on SR 28 near Poverty Hill Road.
16	There are issues with the traffic signal at SR 28 at Clearfield Pike.
17	A four-lane expressway connecting Kittanning to I-80 would benefit the economy of Armstrong County. Commercial and residential vehicles from I-80 east would be more inclined to travel SR 28/66 (than I-79) if 4 lanes connected Pittsburgh to I-80.
18	In the New Kensington area, there may be opportunity for a freight/multimodal terminal.
19	Empty parcels of land in the Cheswick/Springdale/Tarentum area may be suitable for park and ride locations or transit centers.
20	Improved connectivity and traffic flow from the PA Turnpike (I-76) and SR 28 would likely generate more economic activity along the SR 28 corridor. SR 28 is the only remaining corridor north of the City of Pittsburgh to realize significant economic growth.
21	Sidewalks and ADA-compliant ramps are needed at the exit ramps at the Freeport Road Interchange.
22	The right lane becomes exit only, giving SR 28 south only one through lane. This needs two lanes to avoid merging and congestion.

Comment Number	Comment
23	Lane reduction from 2 lanes to 1 lane creates a bottleneck and accidents.
24	Mobility issue at the Deerfield Avenue Interchange.
25	Mobility issue at the Virginia Ave Extension to SR 28 Southbound
26	Numerous accidents occur here every week because of 2-lane to 1-lane reduction
27	Numerous accidents weekly because of 2-lane to 1-lane reduction and traffic merging.
28	There is a bottleneck at at the Highland Park Interchange.
29	Additional lanes are needed to address the bottleneck at the Highland Park Interchange.
30	Mobility issue from going from SR 8 to SR 28 northbound.
31	Old freight lines along SR 28 should be considered for potential commuter rail.
32	The current interchange design at Exit 3 (Millvale) does not work well for transit service to this area.
33	Exit 3 is a confusing milieu of ramps that when compromised due to maintenance, construction or accidents leave little or no access to and from the Millvale and Etna communities.
34	The merge point at the 40th St. Bridge to southbound SR 28 is an issue. Need lighting and flashing traffic control device. Multiple accidents a month at that point.
35	SR 28 between the 31st St Bridge and Etna acts as a barrier in preventing bicycle/pedestrian facilities.
36	The amount of queuing is staggering, especially around 3-7 p.m. everyday.
37	There are few pull-off areas for law enforcement to enforce speeding along the southern section of SR 28.
38	Can roadway be striped such that SR 279 and SR 376 are on dedicated single lanes and SR 28 is an off ramp from the SR 279? This would significantly reduce congestion and unsafe merges at the last minute during rush hour.
39	Signs make it seem that SR 28 has only one through lane, when it now has two.
40	Speeding is observed from the I-279/Veterans Bridge Interchange to Tarentum.



## APPENDIX B

### DATA SOURCES & DEFINITIONS

The source for all data and GIS layers is the Southwestern Pennsylvania Commission, unless otherwise noted.

#### Demographic and Employment Trends:

- Trends are taken from SPC's Cycle 11 Forecast (June 2019). Employment statistics are from the Mergent Intellect Database (January 2020)

#### Environmental Justice:

- SPC DRAFT 2021-2024 TRANSPORTATION IMPROVEMENT PROGRAM: REPORT ON ENVIRONMENTAL JUSTICE

#### Land Use Context:

- National Academies of Sciences, Engineering, and Medicine 2018. An Expanded Functional Classification System for Highways and Streets. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24775>

#### Multimodal Systems:

- Explore PA Trails (2018), PADCNr via PASDA
- Transit Clusters (2020), *SPC SmartMoves Connections*
- SPC Park-N-Ride Facility Inventory

#### Freight:

- Southwestern Pennsylvania Regional Freight Plan (2016), Southwestern Pennsylvania Commission. [https://www.spcregion.org/wp-content/uploads/2019/09/SWPA-FinalPlan\\_2016.pdf](https://www.spcregion.org/wp-content/uploads/2019/09/SWPA-FinalPlan_2016.pdf)
- FAF4 Network Database and Flow Assignment: 2012 and 2045, Federal Highway Administration [https://ops.fhwa.dot.gov/freight/freight\\_analysis/faf/faf4/netwkdbflow/index.htm](https://ops.fhwa.dot.gov/freight/freight_analysis/faf/faf4/netwkdbflow/index.htm)
- National Highway Freight Network (2019), Federal Highway Administration <https://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm>
- Interim National Multimodal Freight Network (2016), Federal Highway Administration <http://nmfn-usdot.opendata.arcgis.com/>
- Pennsylvania Traffic Counts (2020\_01), PennDOT via PASDA

#### Corridor Travel Patterns:

- StreetLight Data (2019) <https://www.streetlightdata.com/>
- Percent Non-SOV travel: U.S. Census Bureau, American Community Survey 5-year Estimates (2015-2019), by census tract

#### Segment Overview:

- Federal and State Conserved Lands (2020), PA Land Trust Association via PASDA. These files cover land owned by the state or federal government and managed by state or federal government agencies (including state parks, state forests, game lands, Historic & Museum Commission properties, Fish & Boat Commission properties, US Forest Service, US Fish & Wildlife Service, National Park Service, Department of Defense, and Army Corps of Engineers).

#### Environmental Features:

- Streams Chapter 93 Designated Use (2019), Non-Attaining Streams and Lakes (2020), TMDL Streams and Lakes (2020), Stormwater 167 Plans (2020), MS4 Permits (2012): PA Department of Environmental Protection via PASDA
- Special Flood Hazard Areas (2020), FEMA
- HUC boundaries (2019), USDA
- Regional Ecosystem Framework (2020), Southwestern Pennsylvania Commission. The REF integrates environmental inventory data, conservation priorities, maps, and plans, with input from and adoption by conservation and natural resource stakeholders identified that addresses species, habitats, and relevant environmental issues and regulatory requirements agreed upon by the stakeholders. SPC staff assigned a score to the relevant attribute of each environmental data layer; the score reflects the relative importance of the occurrence of any certain resource found in a dataset relative to other resources used in the analysis. Greater values in the REF indicate greater environmental significance. The layers included in the REF are as follows:
  - NHI Natural Heritage Core Areas
  - NHI Habitat Supporting Landscape
  - Important Bird Areas
  - USFWS NWI
  - Small Watersheds Chapter 93 designation (Exceptional Value, High Quality, etc.)
  - Surface Waters
  - Streams CWF & TSF
  - Mussel Management Streams
  - Streams trout natural reproduction
  - Conservation Easements (existing)
  - Priority Conservation Watersheds

- Conservation Opportunity Areas
- DCNR Forest Wild Natural Areas
- Federal Wildlife Refuge
- Protected land (SPC parks, state gamelands, state forests merged)
- Forested Land Use
- Agricultural Security areas
- Additional resources for understanding stormwater regulations:
  - <https://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Pages/Act-167.aspx>
  - <http://files.dep.state.pa.us/EnvironmentalEd/Environmental%20Education/EnvEdPortalFiles/MS4%20Resource%20Guide.pdf>

#### Segment Travel Patterns:

- PennDOT Roadway Management System (November 2020), PennDOT via PASDA

#### Transit:

- Transit Clusters (2020), *SPC SmartMoves Connections*

#### Congestion & Reliability:

- INRIX Data Compilations from REGIONAL INTEGRATED TRANSPORTATION INFORMATION SYSTEM (RITIS), Probe Data Analytics Suite (2019) <https://ritis.org/>

#### Safety:

- Pennsylvania Crash Information Tool (PCIT), 2014-2018
- Safety Focus Areas: Regional Transportation Safety Action Plan (<https://www.spcregion.org/programs-services/transportation/operations-safety/>). The Safety Action Plan identifies innovative strategies and programs to improve safety throughout the region. Efforts include the assessment of federally-required safety performance measures in terms of the numbers and rates of fatalities and serious injuries, as well as support for establishing regional safety targets and tracking safety performance. Crash data assessments are used to identify safety focus areas – both categorically and by location – and ongoing updates are exploring Highway Safety Manual (HSM) screening data generated by PennDOT to highlight locations that may yield the greatest potential benefit with future safety improvements.

# SmartMoves Corridors

Corridors of Regional Significance

