READING AREA TRANSPORTATION STUDY

CONGESTION MANAGEMENT PROCESS

ADOPTED
NOVEMBER 9, 2023

READING AREA TRANSPORTATION STUDY

C/O BERKS COUNTY PLANNING COMMISSION

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1 INTRODUCTION AND BACKGROUND

a. History and Legislative References

The Congestion Management System (CMS) was first introduced by the federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. This transportation planning legislation required regional planning agencies to enact various 'systems' that were meant to provide input into regional transportation plans and programs and support effective decision making. The Congestion Management System was continued under ISTEA's successor law, the Transportation Equity Act for the 21st Century (TEA-21). When Congress enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, the Congestion Management System was changed to Congestion Management Process, (CMP), reflecting the goal of the law to use a process that is an integral component of metropolitan transportation planning.

Federal regulations provide guidance on how Metropolitan Planning Organizations (MPOs), like the Reading Area Transportation Study (RATS), should address congestion management. As stated previously, the original regulations date back to ISTEA. These regulations were retained and largely unchanged by subsequent federal legislation, including MAP-21, and the current Infrastructure Investment and Jobs Act (IIJA) (P. L. # 117-58, also known as the “Bipartisan Infrastructure Law”) which was signed into law in November 2021. The CMP is a requirement under the regulations (23 CFR Parts 450.322 and 500.109) for urbanized areas (UZAs) with populations greater than 200,000, known as TMAs. These regulations specify that the CMP program be implemented as a continuous part of the metropolitan planning process like the other core federal requirements: Long-Range Plan, Transportation Improvement Program (TIP), and the Unified Planning Work Program (UPWP). According to the regulations, MPOs that serve a TMA (in this case the entirety of Berks County) must maintain a CMP that provides for:

> *safe and effective integrated management and operation of the multimodal transportation system, based on cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities…through the use of travel demand reduction and operational management strategies.*

Congestion mitigation involves travel demand reduction, such as decreasing Single Occupant Vehicles (SOVs), increasing transit ridership, and improving system management and operation. Regulations require that alternatives to building new SOV road capacity should be explored first. Where additional capacity is found to be necessary, multimodal supplemental strategies must be included to obtain the most long-term value from the investment.

Starting with MAP-21 and continuing with the IIJA, the legislation created a performance based surface transportation program with specific requirements for state Departments of Transportation (DOTs), MPOs, and transit agencies.

b. History of Congestion Management Systems and Processes in Berks County

In 1996, the Reading Area Transportation Study (RATS), the federally designated Metropolitan Planning Organization (MPO) for Berks County, adopted its first CMS report. That report identified a number of corridors that experienced congestion and recommended measures to be taken in an effort to mitigate that congestion. From that report, a number of significant corridors in Berks County received treatments that had positive results.

In 2006, the MPO adopted a partial CMP update to the 1996 report. The major portion of that report was a listing of congested roadway segments based on 2007 PM Peak Volume-to-Capacity (V/C) ratios as derived from the Berks County Travel Demand Model. In the ensuing decade, a number of projects have been completed on roadway corridors and segments listed in that report.

The last iteration of the CMP for Berks County was completed in 2016. Since that time changes in available data, land use, and community wants and needs have impacted the transportation network. This updated report aims to expand upon the previous CMP by analyzing corridors using new available data sources such as INRIX and National Performance Management Research Data Set (NPMRDS) for identifying travel time reliability in congested corridors and bottleneck locations. This CMP will update the MPO's priority corridors, further define and quantify locations and causes of congestion, and provide updated mitigation strategies.

As a Transportation Management Agency (TMA) as defined by U.S. Dept. of Transportation regulations, every four years RATS undergoes a Federal Certification Review conducted by FHWA, FTA, and EPA to review and certify that the planning process and programs are consistent with federal laws and guidelines. The latest review conducted in 2020 noted shortcomings in the 2016 CMP, and made recommendations to update and further expand it in conformance with federal guidelines.

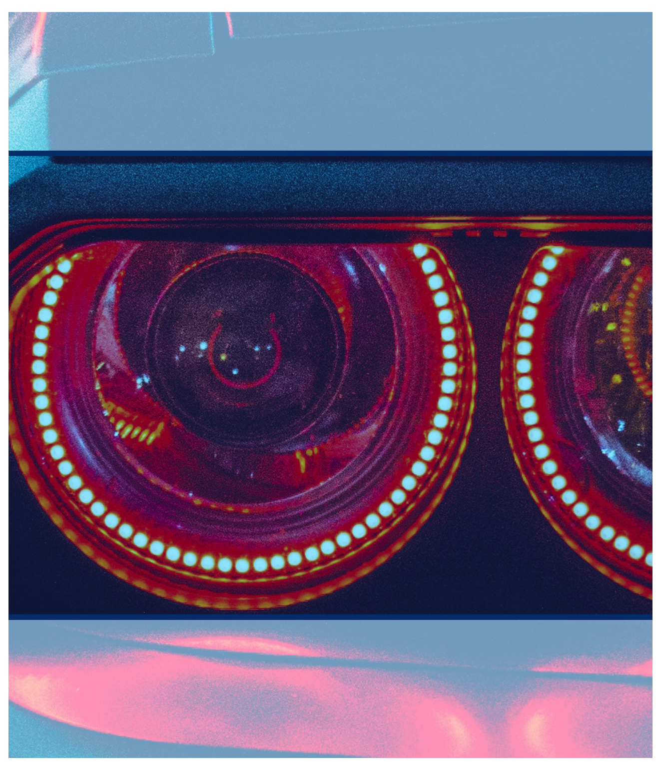
1. RATS should consider establishing a freight and operations subcommittee to cooperatively work on strengthening the linkage and use of performance measures between the CMP and freight and operations sections of the LRTP.

2. The evaluation of corridors and measures should be performed by the committee in an effort to increase interested party participation in the development of the LRTP and CMP.

3. RATS should align and incorporate PM3 data sources, such as INRIX and NPMRDS, in the LRTP and CMP for identifying travel time reliability in congested corridors and freight bottleneck locations.

Since the 2016 plan, RATS became a member of the Eastern Pennsylvania Freight Alliance (EPFA). The EPFA is a consortium of MPOs and RPOs, including Lackawanna/Luzerne Transportation Study (LLTS), Lebanon County Metropolitan Planning Organization (LEBCO), Lehigh Valley Transportation Study (LVPC/LVTS), and the Northeastern Pennsylvania Alliance (NEPA MPO). The 10-County region joined forces to address the opportunities and challenges associated with freight industry growth, focused on impacts to mobility, safety, land uses, and the overall state of the transportation infrastructure within the region.

In early 2023, the EPFA, with the help of a consultant, embarked on the Eastern Pennsylvania Freight Infrastructure Plan to document challenges associated with freight movement, seeking to balance the needs of all users of the region's transportation network. This plan is projected to be complete by the end of 2023 or early 2024. At the culmination of the project it is anticipated that the consortium will continue to evaluate and plan for the future of freight in the region using the recommendations of the plan as a template for their planning activities. It is anticipated that the recommendations of the EPFA Freight Infrastructure Plan and involvement with our partner MPOs and RPOs will help guide a prioritized list of improvements throughout the study area, including target locations (intersections and interchanges), corridor improvements, or policy changes. Continued involvement in the consortium will enable RATS to better address items one and two from the 2020 Federal Certification Review.



c. What is Congestion?

Congestion defined at its most basic level is demand for road space exceeding supply. The U.S. Department of Transportation defines congestion as “the level at which the transportation system performance is no longer acceptable due to traffic interference.” The performance may vary by type of transportation facility, location, and time of day. There are two primary types of congestion: recurring and non-recurring. Recurring congestion tends to be concentrated in shorter time periods, such as rush hour, and is typically associated with excessive traffic volumes resulting in reduced speed, and flow rate on the roadway system. Nonrecurring congestion, on the other hand, is caused by irregularly occurring events that affect travel time reliability. The CMP addresses both type of congestion. The causes of recurring congestion can include: daily peak period commuter traffic; insufficient capacity; excess volume; bottlenecks, such as roadway geometry deficiencies; traffic signal timing and coordination issues; heavy truck volumes; seasonal activities; and long-term construction. The causes of nonrecurring congestion can include crash incidents, disabled vehicles, special events, bad weather, and short-term construction or road maintenance activities.

Certainly, the congestion sources’ percentages will vary by urban and rural location, and by type of facility. For example, arterial roadways with traffic signals may have some congestion related to poor signal timing, but this would not apply on limited-access freeways. Travel time reliability, or the variability of congestion, is an important measure to evaluate as a part of nonrecurring congestion. Traffic incidents, such as disabled vehicles or crashes, can unexpectedly make the typical 20-minute trip a 40-minute one. Also, the interaction between multiple types and sources of congestion may vary from day to day, causing frustration for commuters. Some events can cause other events to occur. For example, high congestion levels can lead to increases in traffic crashes due to closer vehicle spacing, or bad weather can lead to crashes.

The CMP identifies recurring and nonrecurring congestion locations. Recurring congestion is identified using the Travel Time Index (TTI) measure and indicates highly congested locations that occur on a recurring basis. Nonrecurring congestion is identified using the Planning Time Index (PTI) measure that indicates locations that have highly unreliable travel times.

d. Reading MPO Regional Goals and Objectives

Congestion management objectives should define what the RATS region wants to achieve regarding managing congestion in the context of livability, economic vitality, safety, and multimodal access. The objectives should support the goals of the RATS Long-Range Transportation Plan, including performance and operation of the transportation system.

CMP objectives flow from the transportation goals of the *Reading Area Transportation Study's FFY 2023 – 2045 Long Range Transportation Plan* (LRTP), and congested locations that meet more CMP objective criteria will be given stronger support for recommended improvements. The primary goals of the CMP are drawn from the LRTP, goals one through five of the LRTP in some way or another address congestion. Their relationship is outlined below:

GOALS

1

Safety – Keep travelers safe and secure, no matter the mode of transportation.

Non-recurring congestion can be caused by crashes and other types of incidents on the road network. Safety improvements can minimize crashes and increase mobility and traffic flow. Especially in areas prone to crashes.

2

Maintenance – Maintain and improve the transportation system and services we enjoy today where financially feasible.

Maintaining the system is paramount to the health of the transportation network. Proper and timely maintenance ensures that the road network is operating at its maximum efficiency.

3

Economic Development – Invest in projects that strengthen the ability of Berks County commerce to access national and international trade markets, and support regional economic development and tourism opportunities.

Keeping the road network operating at its most efficient functionality has a direct impact on the timely flow of goods and services from manufacturers to distributors and then ultimately to the consumer. An efficient transportation network can make the region more desirable for businesses to locate and/or remain in the region. This can have positive impacts on the tax base as well as create employment opportunities within the region.

4

Improved Connections and Choices – Give travelers a variety of well-designed transportation choices that are in good condition.

Reducing the number of vehicles on the road can alleviate congestion in some scenarios. Giving travelers an option to utilize public transit, a bicycle, walk, or use a ride share service can reduce the number of Single Occupancy Vehicles (SOVs) on the road, thus maintaining corridor efficiency and ultimately reducing congestion.

5

Environmental Sustainability – Enhance the performance of the county transportation system in environmentally sustainable ways that increase resiliency to both climate change and the vulnerability to natural disaster.

Congestion on our roadways is a main contributor to degrading air quality. As vehicles sit in a cue idling, the exhaust gases emitting from the vehicle is concentrated and creates a bigger impact on the air quality than if the vehicle was moving. Management of congestion issues can have a direct effect on air quality and our environment.

This Congestion Management Process furthers the above goals by expanding on them with the following:

1 REDUCE CONGESTION

- Minimize growth of recurring congestion
- Anticipate and prepare for non-recurring congestion
- Alleviate bottlenecks
- Implement cost-effective mitigation strategies where feasible

2 INCREASE ACCESSIBILITY AND MOBILITY

- Provide connectivity between motorized and non-motorized modes
- Use planning and zoning to promote connectivity between adjacent land uses
- Maximize and expand transit opportunities and accessibility
- Increase connectivity opportunities between freight producers and haulers

3 REMOVE BARRIERS TO FREIGHT MOVEMENT

- Alleviate traffic bottlenecks on freight routes
- Use economic development agencies and local/regional planning to promote freight accessibility to rail
- Improve freight access to regional roadway network

4 INCREASE SAFETY

- Make safety improvements in high-crash corridors
- Implement low-cost improvements in corridor-wide applications

5 ENSURE CONGESTION MITIGATION STRATEGIES SUPPORT COMPREHENSIVE PLANNING AND LONG RANGE TRANSPORTATION PLAN PRINCIPLES

- Maximize investments from limited resources
- Promote investments in existing corridors that support Future Growth Areas and areas designated for Economic Development
- Continue investments in connectivity-enhancement projects and programs
- Continue promotion and expansion of transit opportunities
- Promote residential and commercial growth in corridors where transit exists
- Promote industrial and warehouse growth in corridors where Arterial/Interstate access exists

6 INTEGRATION OF PM3 PERFORMANCE MEASURES

- Prioritize transportation investments by integrating national PM3 reliability and traffic congestion performance measures

2 OVERVIEW OF THE CONGESTION MANAGEMENT PROCESS

a. Overall Discussion of the Planning Process

Berks County is the Reading Area Transportation Study (RATS). It was created in 1964 through a legal agreement between the City of Reading, Berks County and the Pennsylvania Department of Highways (now the Pennsylvania Department of Transportation). The Study was founded in response to the Federal-Aid Highway Act of 1962 that stated, in part, that any urban area with a population of more than fifty thousand people must maintain a continuing, comprehensive and cooperative ("3C") transportation planning process consistent with the comprehensively planned development of the urbanized area in order to be eligible to receive Federal funding for transportation projects. RATS satisfies this planning requirement and assures Berks County the continued eligibility to receive state and federal funding for highway and transit system capital improvements and operations. Though originally configured to cover only the Reading Urban Area, RATS planning and programming now covers all of Berks County. The transportation planning staff of the Berks County Planning Commission serves as the technical staff to RATS. Under the various pieces of federal transportation planning legislation that have been enacted over the years, including the current *Fixing America's Surface Transportation (FAST) Act*, states and MPOs are required to develop a comprehensive planning process that coordinates transportation and land use planning more effectively. Since the Long Range Transportation Plan serves as the transportation element of the Berks County Comprehensive Plan 2030 Update (January 2020), staff assures consistency between land use and transportation planning.

b. Role of the CMP in the Planning Process

According to the Federal Highway Administration's 2011 *Congestion Management Process: A Guidebook,* "A congestion management process (CMP) is a systematic and regionally-accepted approach for managing congestion that provides accurate, up-to-date information on transportation system performance and assesses alternative strategies for congestion management that meet state and local needs. The CMP is intended to move these congestion management strategies into the funding and implementation stages."

The CMP is meant to serve as a continual, systematic process that provides for safe and effective integrated management and operation of the multimodal transportation system. The process is a continuous one that fits the needs of Berks County and will evolve as new congestion issues arise, new data sources become available and current data are updated, and goals & strategies change in response to new issues. It recognizes that all modes of transportation can and should work together, along with transportation system improvements, to lessen congestion. The process includes:

- Development of congestion management objectives
- Establishment of measures of multimodal transportation system performance
- Collection of data and system performance monitoring
- Identification of congestion management strategies
- Implementation activities
- Evaluation of the effectiveness of implemented strategies.

The ultimate goal of the CMP is to provide a source of projects that can be used to implement the Long Range Transportation Plan and, therefore, provide input into the Transportation Improvement Program (TIP) for project scheduling and funding.

3 MEASURES OF CONGESTION AND CORRIDOR BUILDING

Although congestion occurs throughout Berks County, funding for system expansion is limited. Simply "building our way out of congestion" no longer works and, with limited funding, preserving and maximizing the existing system are priorities. Using the following factors, the Congestion Management Process Network was derived.

a. National Highway System (NHS) in Berks County

The National Highway System serves as the basis for the CMP Network. These higher-order roadways (interstates, expressways, arterials), shown in Map 3.1, serve to move large volumes of traffic over longer distances, while still providing for local and regional travel. Congestion on the NHS has the potential to disrupt large amounts of regional and long-distance traffic and freight movement. Crashes on limited-access expressways and interstates can result in long delays due to limited exit points and few detour routes. Arterials move regional and local traffic as well, and may have higher volumes, concentrated access points, traffic signals and other factors that contribute to longer delays. Designated Intermodal Connectors serve as vital links connecting modes.

b. High Volume / Capacity (V/C) Segments

The physical characteristics of a roadway determine how many vehicles it can carry over a period of time. Those factors include (but are not limited to) number of lanes, lane width, shoulder width, turn lanes, traffic control devices, and intersection geometry. Volume-to-Capacity (V/C) ratios examine the number of vehicles traversing a roadway in a given period (usually one hour) versus that roadway's physical capacity. Expressed as a decimal, increasing numbers show that the roadway's capacity is approaching (or has approached) the maximum number of vehicles it can carry. When the V/C ratio reaches 1.00, physical capacity has been reached and congestion begins. V/C ratios greater than 1.00 show worsening congestion. Map 3.2 shows roadway segments with high P.M. Peak (3-6 p.m.) V/C ratios as derived from the Berks County Travel Demand Forecasting Model for 2024. Afternoon peak traffic is used as it generally tends to be worse than morning peak traffic.

c. Travel Time Index (TTI)

This measure is derived from the INRIX XD travel time data, and is defined as the ratio of the peak period average travel time to the free-flow travel time (uncongested travel time) for a given roadway segment. Free-flow values were determined for this, and all other INRIX based measures, using reference speeds provided by INRIX for each road segment based on 85th percentile observed speeds for all time periods. The greater the TTI value, the more congestion it indicates. A TTI of 1.00 indicated vehicles are traveling at free-flow speeds, while one at 1.50 indicates a 20-minute free-flow trip takes 30 minutes. Roadways with a TTI between 1.20 and 1.50 are considered moderately congested, and ones greater than 1.50 are considered highly congested. For this plan staff analyzed the data for weekdays during peak hours 7:00AM – 9:00AM and 4:00PM – 6:00PM. These segments are shown on Map 3.3.

d. Planning Time Index (PTI)

This measure is also derived from the INRIX XD travel time data, but is defined as the ratio of the peak period 95th percent travel time to the free-flow travel time for a given road segment. The 95th percentile indicates that 95 percent of the travel times are less, and 5 percent more, and measures the variability or reliability of travel. A PTI of 1.00 means the trip time is consistently the same from day to day, while higher values mean more variation and congestion. A PTI of 3.00 indicates a 20-minute free-flow trip will take 60 minutes in the peak period, which is equivalent to one work day a month, where one might expect to leave 40 minutes earlier to arrive on time. Roadways with a PTI between 2.00 and 3.00 are considered moderately unreliable and ones greater than 3.00 are considered highly unreliable. Staff analyzed the data for weekdays during peak hours 7:00AM – 9:00AM and 4:00PM – 6:00PM. Map 3.4 shows roadway segments with considered moderately and highly unreliable.

e. High Crash Corridors

Using PennDOT's Pennsylvania Crash Information Tool (PCIT) RATS was able to identify corridors that have a high frequency of reportable crashes. Since congestion can cause accidents and accidents can cause congestion, these high crash corridors were included in the network selection process. The segments shown in Map 3.5 are corridors that have a concentration of 20 or more reportable crashes between 2017 and 2021.

f. Freight and Intermodal Corridors

PennDOT examined freight trends as part of the development of their 2045 Freight Movement Plan (PUB 791 (05-23)). Utilizing the Federal Highway Administration's (FHWA) established National Highway Freight Network (NHFN) PennDOT developed the statewide plan to examine trends and issues experienced throughout the Commonwealth. The NHFN includes the following subsystems of roadways:

- **Primary Highway Freight System (PHFS):** This is a network of highways identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data. As of the 2022 Congressional re-designation of the PHFS, this network consists of about 41,799 centerlines miles, including 38,014 centerline miles of Interstate and 3,785 centerline miles of non-Interstate roads.

- **Other Interstate portions not on the PHFS (non-PHFS):** These highways consist of the remaining portion of Interstate roads not included in the PHFS. These routes provide important continuity and access to freight transportation facilities. These portions amount to an estimated 10,265 centerline miles of Interstate nationwide and will fluctuate with additions and deletions to the Interstate Highway System. The mileage for Non-PHFS Interstate is based on the Interstate Mileage reported in the National Highway System (NHS) as of October 17, 2019.

- **Critical Rural Freight Corridors (CRFCs):** These are public roads not in an urbanized area which provide access and connection to the PHFS and the Interstate with other important ports, public transportation facilities, or other intermodal freight facilities. As of January 2023, there are about 5,390 centerline miles designated as CRFCs.

- **Critical Urban Freight Corridors (CUFCs):** These are public roads in urbanized areas which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal transportation facilities. As of January 2023, there are about 2,656 centerline miles designated as CUFCs.

In Berks County the PHFS consists of Interstate 78, Interstate 176, US 222 South and US 422. The County has no non-PHFS designated roadways. PA 61 is designated as a CUFC and U.S. 222 North is considered a CRFC. For purposes of this plan we identify each corridor as critical. Displayed in Map 3.6 are "Critical Freight Corridors" as taken from that *2045 Freight Movement Plan.*

g. Bottlenecks

Traffic bottlenecks are specific physical locations on roadways that routinely and predictably experience congestion because the traffic volumes exceed highway capacity. Surge demand higher than can be accommodated by base capacity brings about bottleneck congestion. Bottlenecks are characterized by queues upstream and freely flowing traffic downstream. Bottlenecks may be compared to a storm pipe that can carry only so much water – during floods the excess water just backs up behind it, much the same as traffic at bottleneck locations. However, the situation is even worse for traffic. Once the traffic flow breaks down to stop-and-go conditions, capacity is actually reduced – fewer cars can get through the bottle neck because of the extra turbulence.

Using the INRIX Roadway Analytics software RATS was able to identify the top bottleneck areas in Berks County for 2022 based on the Total Delay encountered at that particular site. The Total Delay is the speed differential factor, weighted by the volume estimate, considers raw speed drop, weighted by queue lengths for each time interval and queue length. The locations of the top bottleneck areas in Berks County are shown on Map 3.7. It should be noted that the bottleneck locations listed for Berks County are based on bottlenecks that have occurred during the 2022 calendar year. Because of this, in some instances the bottleneck rankings may include non-recuring congestion such as winter weather, work zones, or incidents. An example of which can be seen on the map along the Interstate 78 corridor. The bottleneck locations shown are a result of ongoing construction projects.

h. Transit Routes

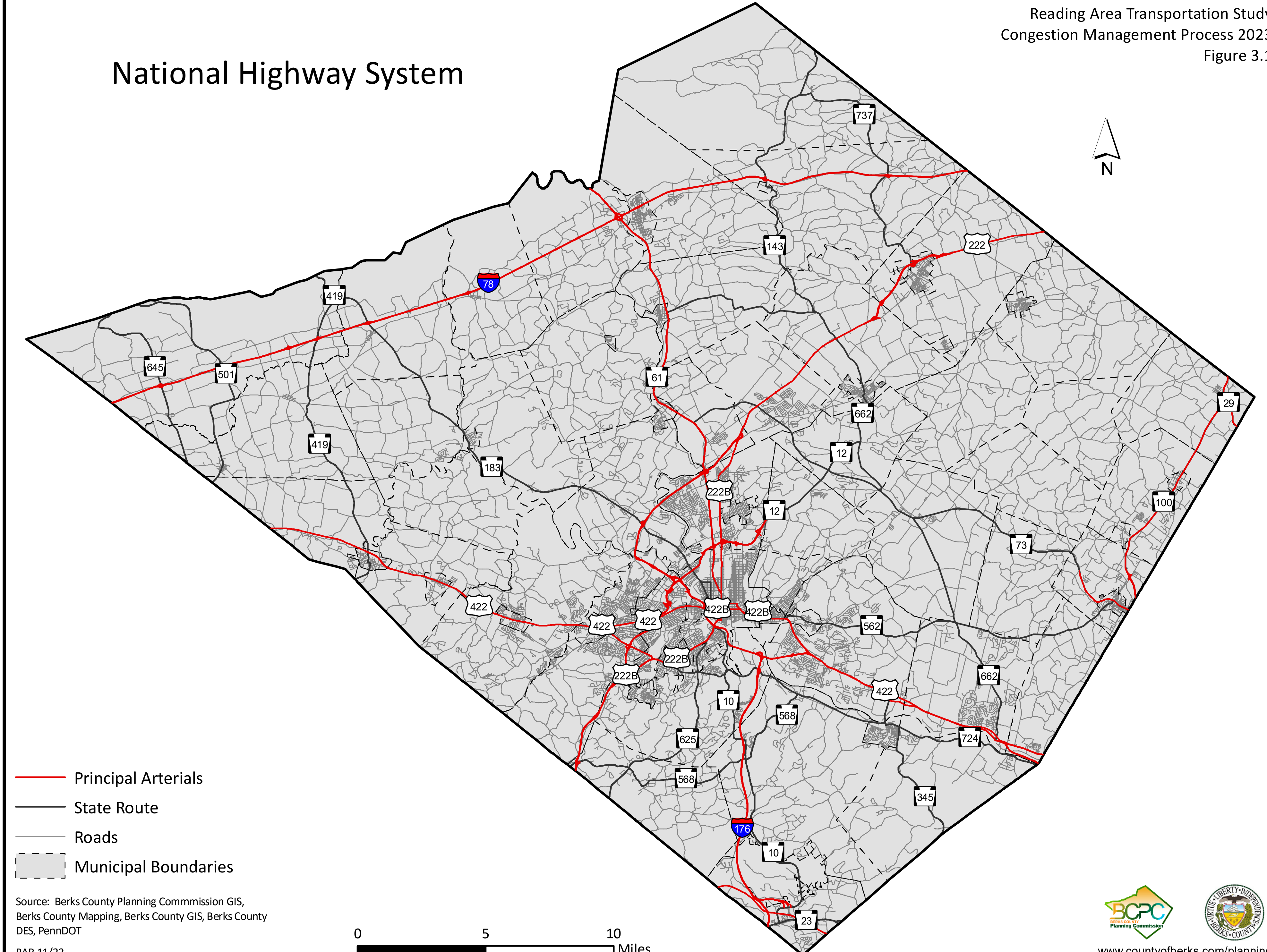
A truly intermodal process includes transit wherever feasible. The Berks Area Regional Transportation Authority (BARTA) provides fixed-route, scheduled bus transit services in Berks county. Current BARTA fixed-route transit service was examined as part of the network building process. In FFY 2021-2022, BARTA provided 2,972,896 trips on its system of 19 fixed routes. Of those trips, approximately 42 percent were for work purposes, 22 percent were for shopping, and the remaining 36 percent were for personal business, school, medical, social and other purposes. Map 3.8 shows the BARTA's fixed-route system and the roadways that are served as of August 2023.

i. Congestion Management Process Network

After assessing the factors discussed above, the overall CMP Network was derived (Map 3.9). The assessment included using the Expanded National Highway System as the base, then adding roadway segments where multiple categories of factors overlapped. The Network is divided into a series of 33 individual corridors that are assessed and have congestion mitigation strategies recommended. Though congestion mitigation strategies will be focused on these particular corridors, that is not to say that only these corridors are eligible for congestion planning. Individual corridors are assessed in Chapter 5.

Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.1

National Highway System



Source: Berks County Planning Commmission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT

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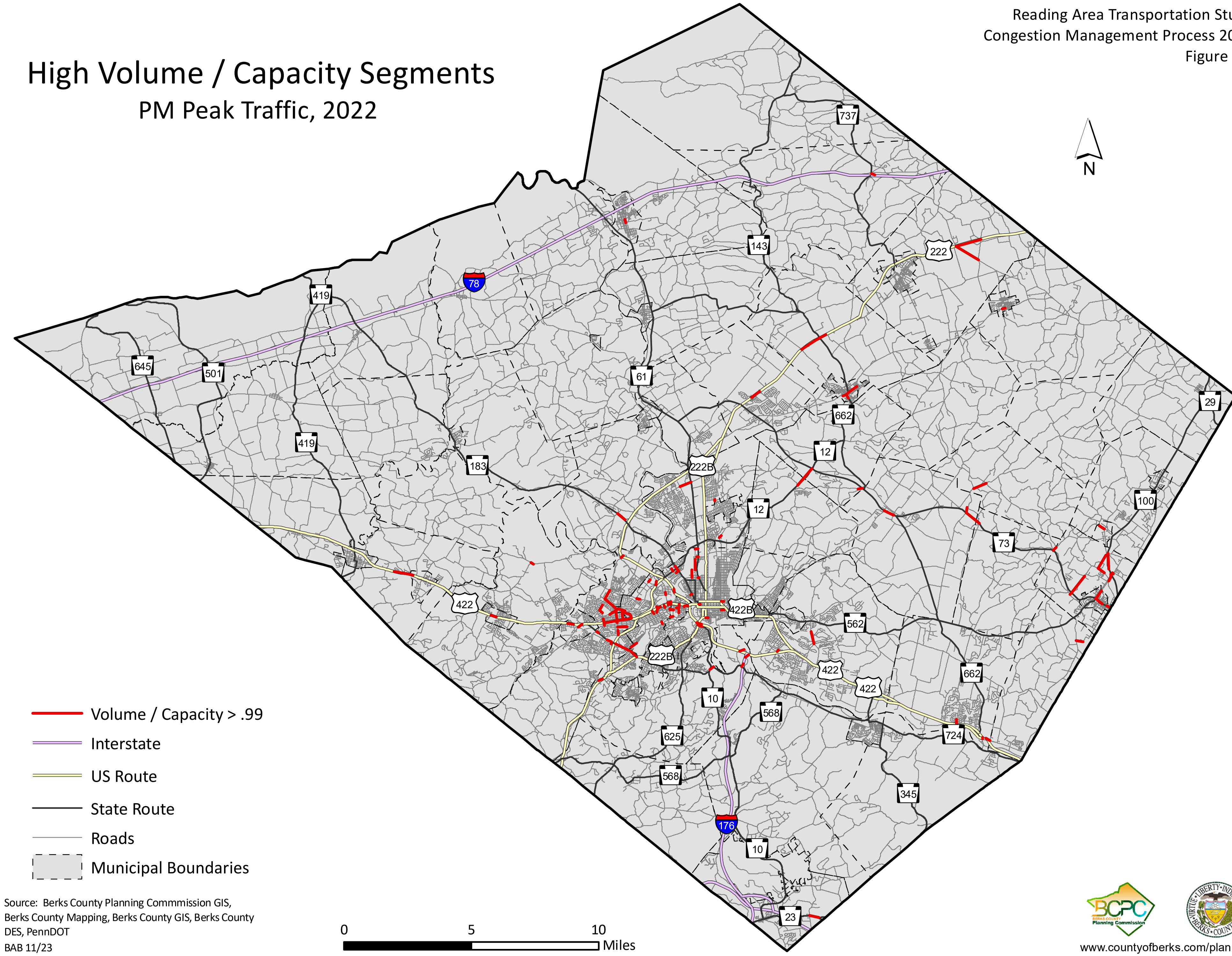
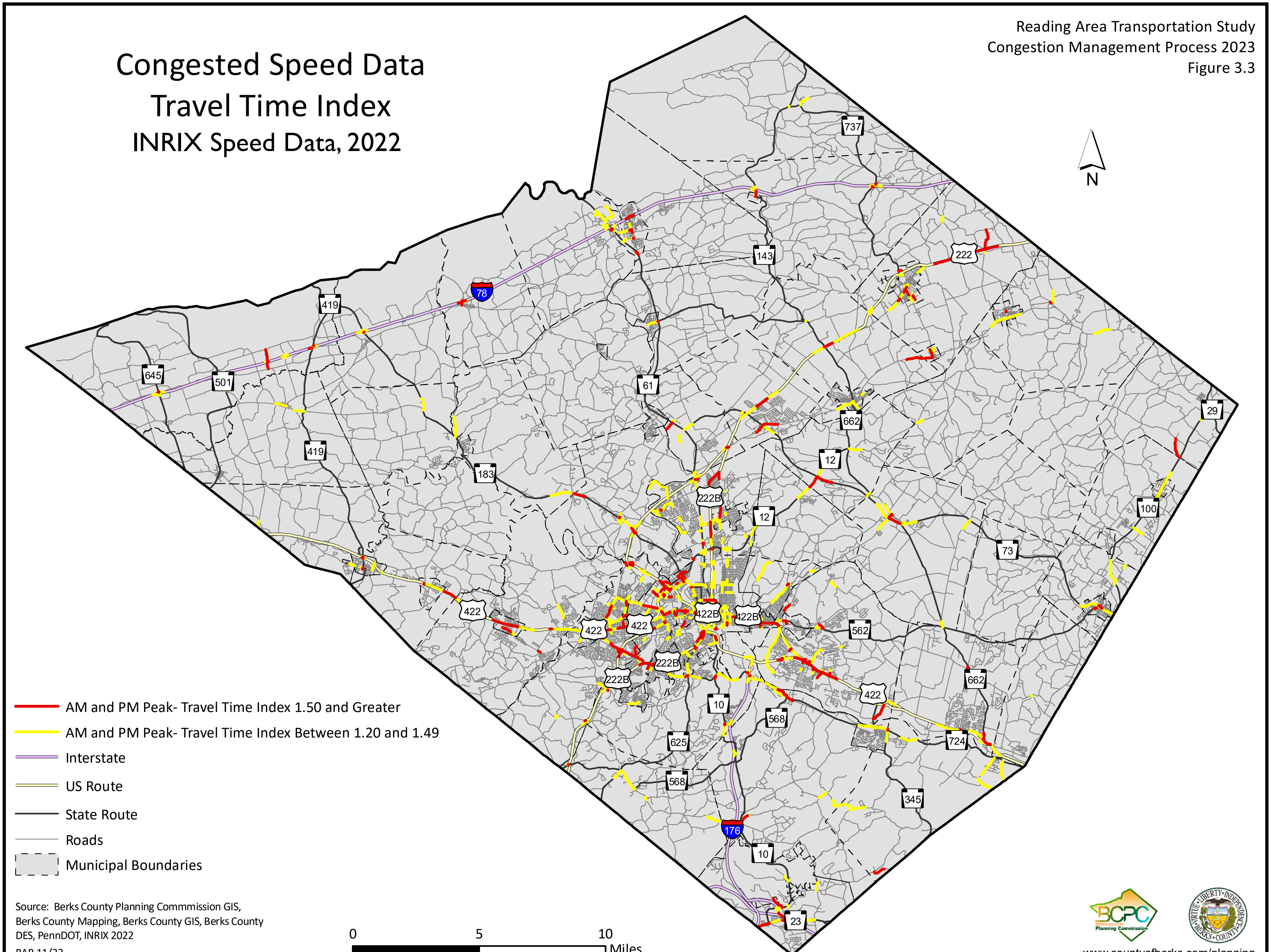
Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.2

High Volume / Capacity Segments
PM Peak Traffic, 2022



Congested Speed Data
Travel Time Index
INRIX Speed Data, 2022



Source: Berks County Planning Commmission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT, INRIX 2022

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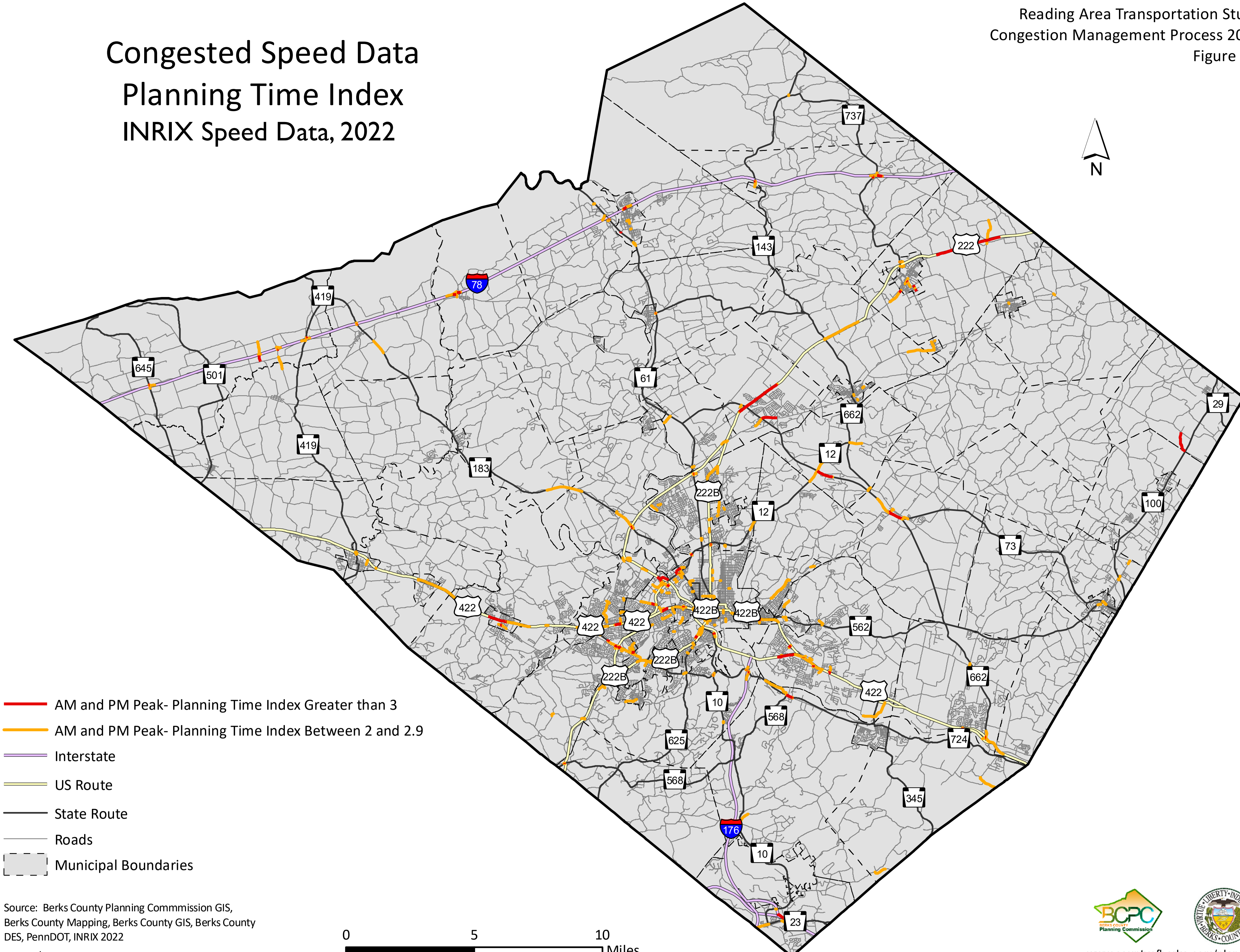
Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.4

Congested Speed Data
Planning Time Index
INRIX Speed Data, 2022



AM and PM Peak- Planning Time Index Greater than 3
AM and PM Peak- Planning Time Index Between 2 and 2.9
Interstate
US Route
State Route
Roads
Municipal Boundaries

Source: Berks County Planning Commmission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT, INRIX 2022

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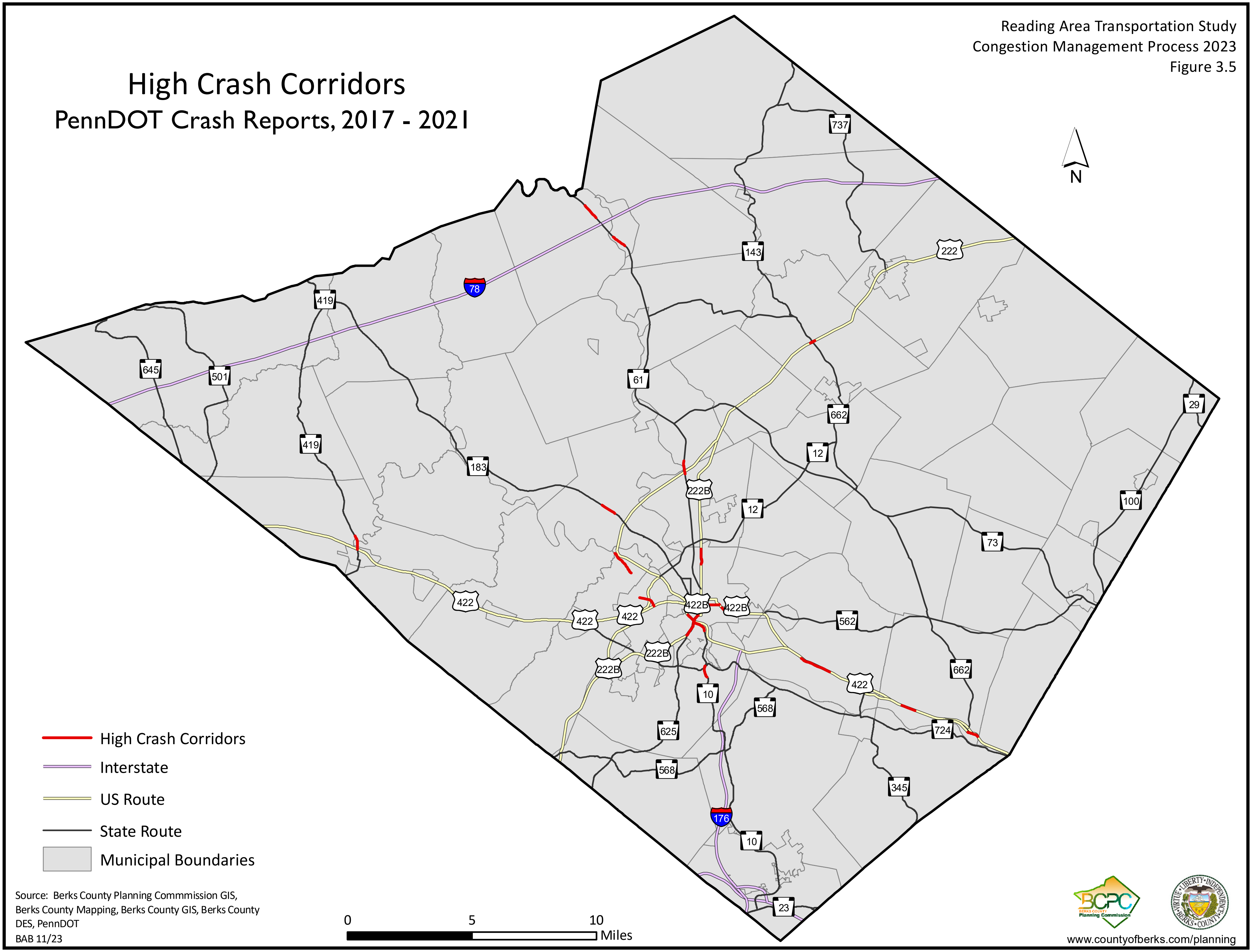
Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.5
High Crash Corridors
PennDOT Crash Reports, 2017 - 2021
N
High Crash Corridors
Interstate
US Route
State Route
Municipal Boundaries
Source: Berks County Planning Commmission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT
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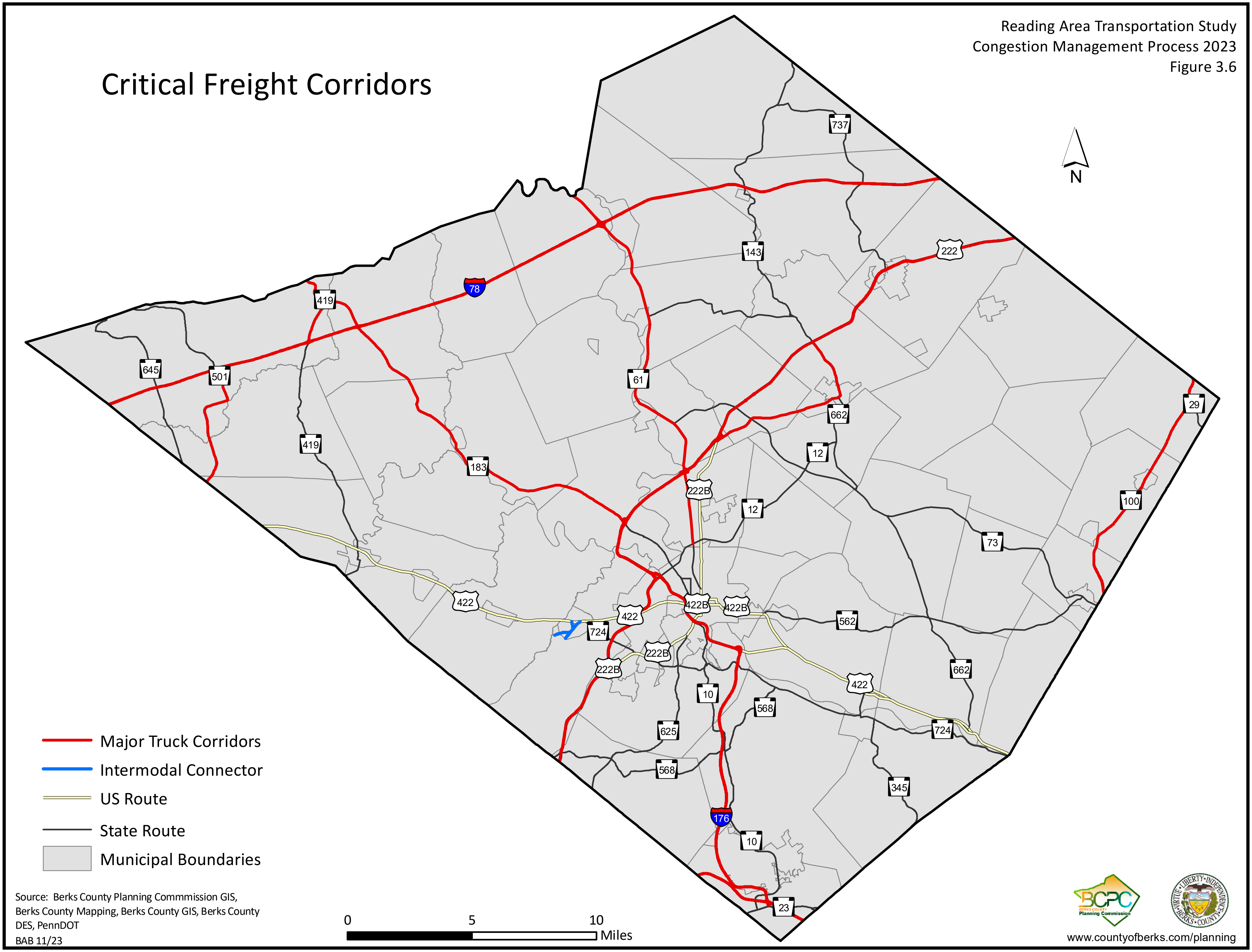

Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.6
Critical Freight Corridors
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23
Major Truck Corridors
Intermodal Connector
US Route
State Route
Municipal Boundaries
Source: Berks County Planning Commmission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT
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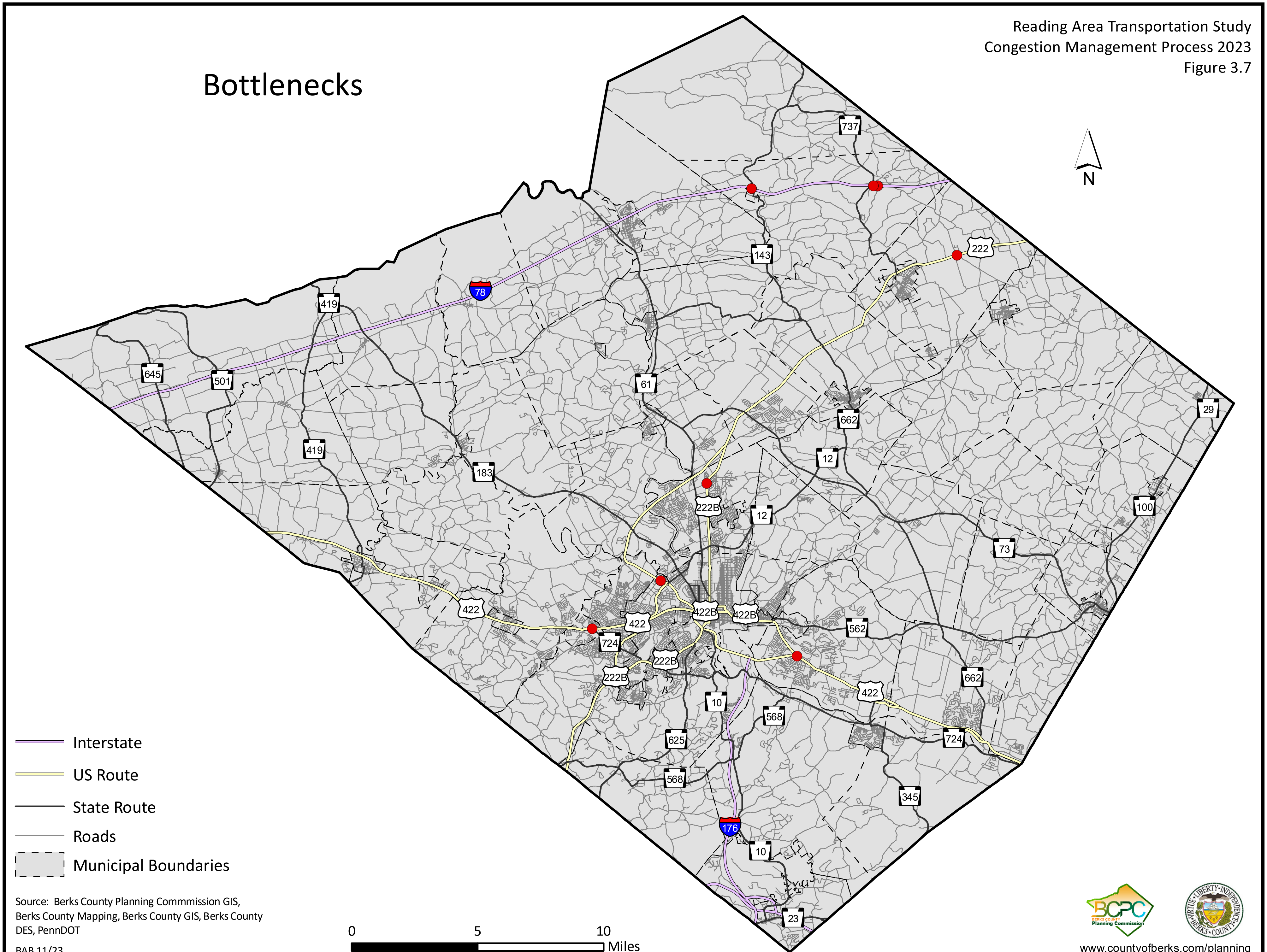
Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.7

Bottlenecks



Source: Berks County Planning Commmission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT

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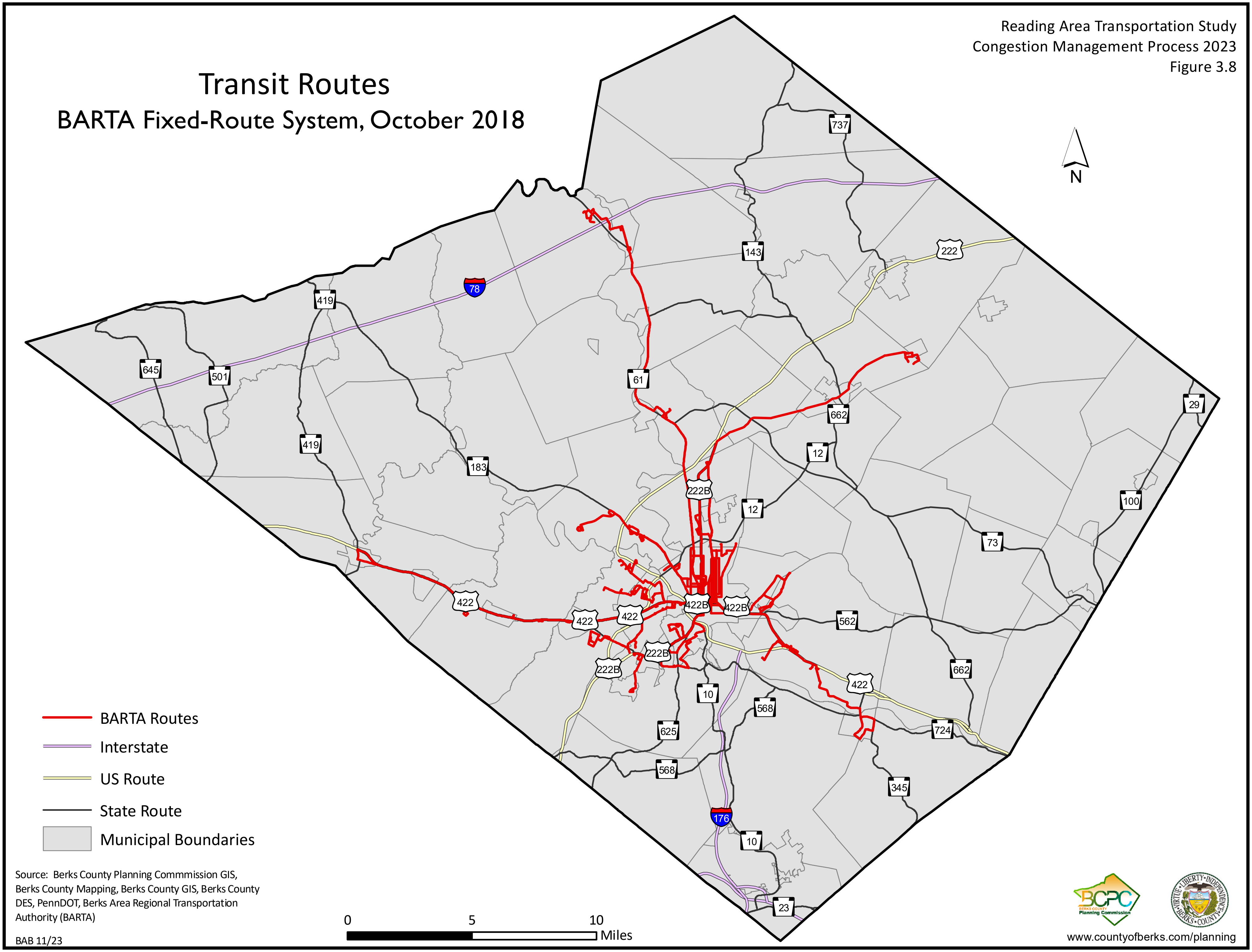
Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.8
Transit Routes
BARTA Fixed-Route System, October 2018
N
BARTA Routes
Interstate
US Route
State Route
Municipal Boundaries
Source: Berks County Planning Commmission GIS, Berks County Mapping, Berks County GIS, Berks County DES, PennDOT, Berks Area Regional Transportation Authority (BARTA)
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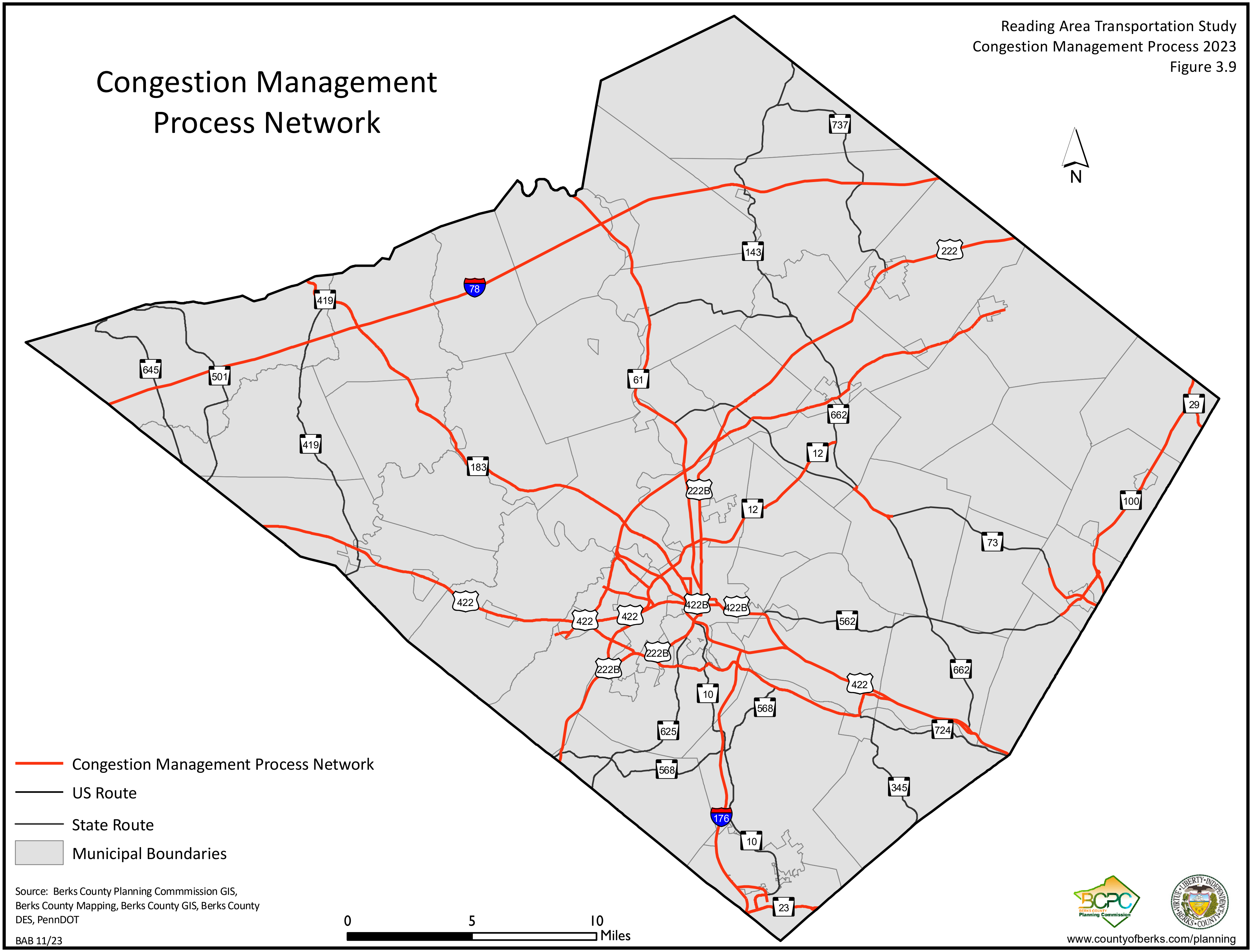
Reading Area Transportation Study
Congestion Management Process 2023
Figure 3.9
Congestion Management
Process Network
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23
Congestion Management Process Network
US Route
State Route
Municipal Boundaries
Source: Berks County Planning Commmission GIS,
Berks County Mapping, Berks County GIS, Berks County
DES, PennDOT
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Miles
www.countyofberks.com/planning

4 CONGESTION MITIGATION STRATEGIES

Mitigation strategies are designed to address both recurring and non-recurring congestion. Recurring congestion is that which happens most days during predictable times at the same locations. The typical example is commuter congestion on roads during daily A.M. and P.M. peak 'rush hour'. Non-recurring congestion is the opposite; it occurs at seemingly random times with varied reasons. Weather events, crashes, construction, major events at entertainment venues, and other issues can cause congestion at times and places that it usually does not occur. This collection of strategies includes measures that can be applied either countywide or to specific corridors. These strategies cover all modes of transportation as well as ways to encourage more efficient patterns of land use and development. In most situations, more than one mitigation strategy can and should be applied in an effort to reduce or eliminate congestion. Strategy numbers are included, where appropriate, with individual corridors in Chapter 5.

STRATEGIES

LAND USE BASED

OPTIONS

1A. Early coordination between BARTA and local municipal officials should happen when development is to occur on/near bus routes

1B. Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C. Municipalities should require new development to maintain and enhance street and sidewalk connectivity

1D. Municipalities should require bicycle and pedestrian accommodations throughout residential and commercial developments that promote accessibility and connectivity within and at the edges

1E. Use the Local Technical Assistance Program (LTAP) to provide training to municipal officials on how their Highway Occupancy Permit (HOP) process operates and how to effectively incorporate it into the local development process

1F. Municipalities should use the Official Map process, where applicable, to promote network connectivity

ALTERNATIVE MODE OPTIONS

OPTIONS

2A. PennDOT, MPO and BARTA staff should continue working withorganizations like Commuter Services of Pennsylvania that promote alternative modes of transportation

2B. Commuter Services staff should continue working with employers to promote and provide incentives for commuters to use alternative modes

2C. MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

2D. BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E. BARTA should examine where existing transit stops need improvements

2F. Municipalities should identify bicycle and pedestrian related weaknesses in local land development plans and ordinances and correct them

2G. Municipalities should ensure that bicycle, pedestrian, and transit-friendly improvements are integrated into all new development proposals

2H. Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

STRATEGIES

EDUCATE THE MOTORING PUBLIC ABOUT CONGESTION REDUCTION

OPTIONS

3A. PennDOT should coordinate with the Berks County Intermediate Unit, school districts and private driver education professionals to provide proper education about merges, accident reduction, aggressive and distracted driving

3B. Local government officials, business leaders and Commuter Services staff should coordinate with local print and television media in education campaigns, particularly regarding high-impact construction projects and highly congested corridors

3C. PennDOT should work with local officials to establish readily identifiable detour routes around frequently-congested high crash locations

MAKE FULL USE OF EXISTING ROADWAY CAPACITY

OPTIONS

4A. Expand and enhance current Intelligent Transportation System (ITS) network throughout the Urban Area and in areas where congestion occurs

4B. Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C. Review signalized intersections for signal coordination and optimization

4D. Expand the use of new technologies such as video detection at congested intersections and corridors

4E. Use the Local Technical Assistance Program (LTAP) to educate municipal governments on their responsibilities with signal maintenance and operations

4F. Explore non-traditional intersection treatments such as roundabouts to gain additional throughput

4G. Reconstruct all freeway interchanges to meet current design standards

MAKE SAFETY IMPROVEMENTS IN HIGH-ACCIDENT AREAS WHERE CONGESTION IS ALSO AN ISSUE

OPTIONS

5A. MPO staff should coordinate with PennDOT District staff and review the District Safety Plan to identify areas where accidents exacerbate existing congestion issues

5B. Implement Freeway Safety Patrols in congested corridors to efficiently clear minor incidents

5C. PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

STRATEGIES

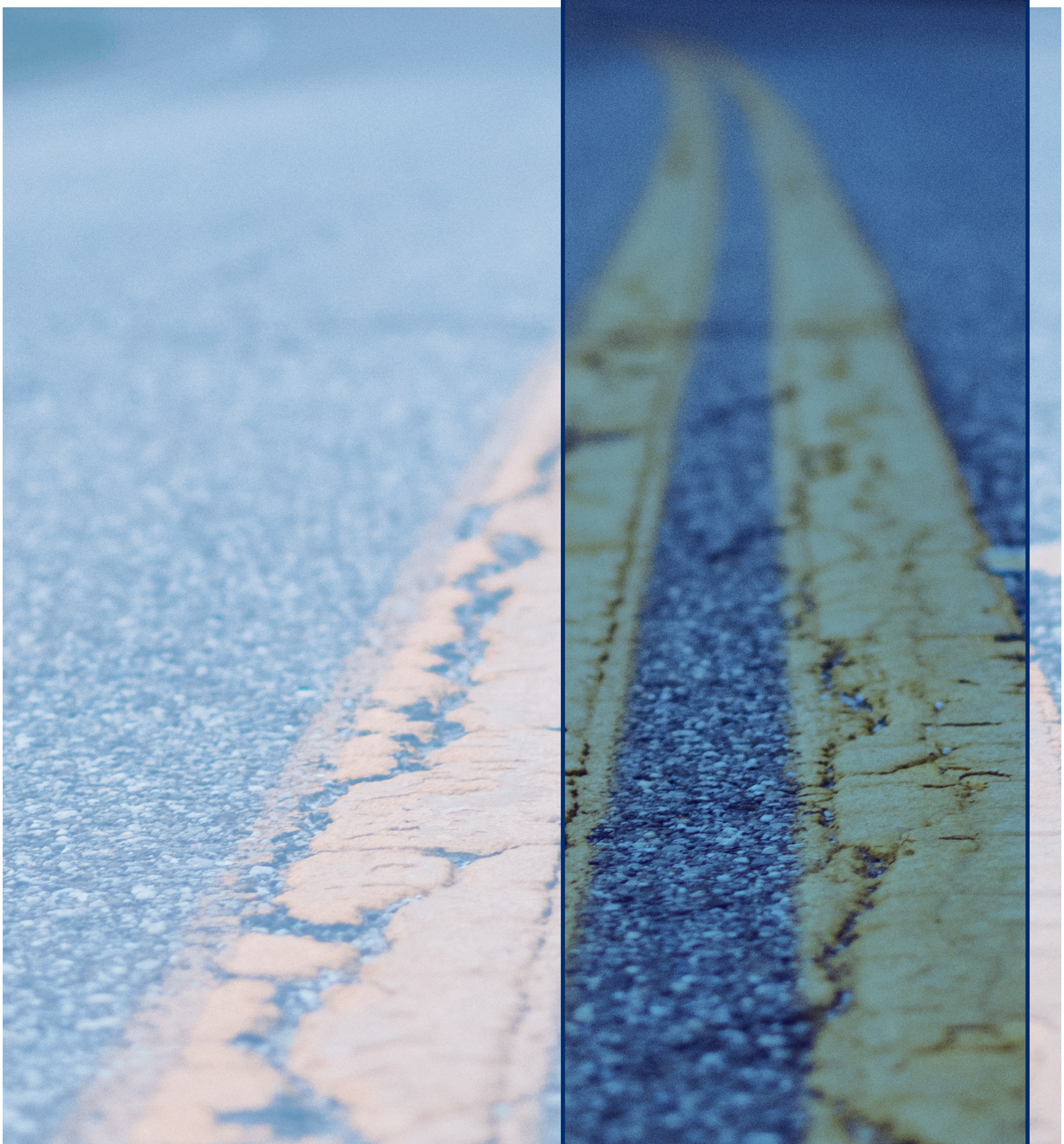
USE NEW CONSTRUCTION AS A LAST RESORT

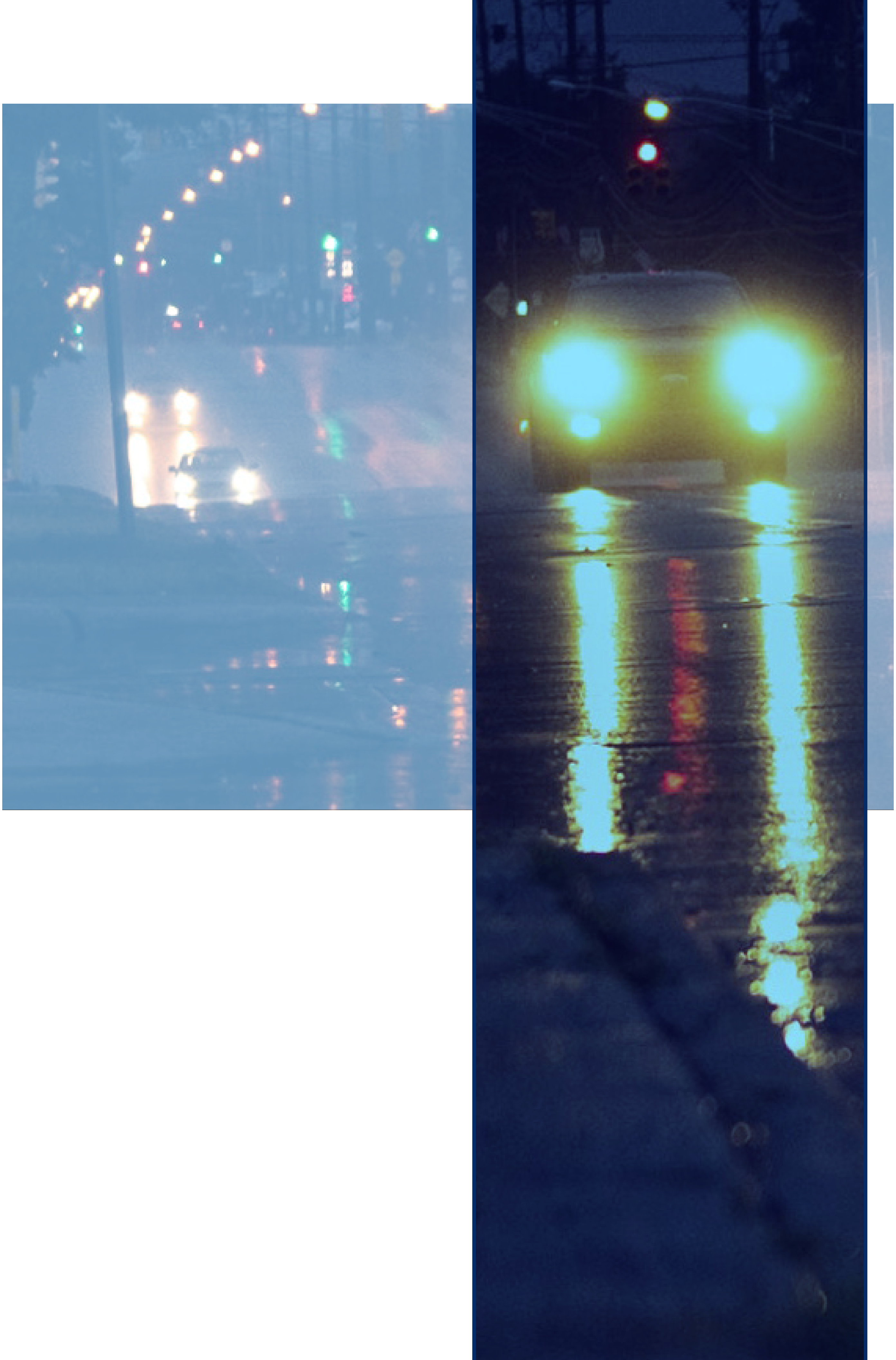
OPTIONS

6A. Explore additional through lanes where traffic volumes exceed capacity beyond typical peak periods where none of the above provide adequate relief

6B. Explore the use of ‘hardened shoulders’ to add temporary capacity where feasible

6C. Work with municipalities to use land use tools to preserve future rights-of-way





5 CMP NETWORK

As the transportation planning and programming process moves forward, changes also occur on the roadway network. Development occurs, roadway projects are completed, and traffic reflects those changes. The CMP is meant to follow those changes and recommend appropriate strategies for implementation.

The following pages detail the 33 individual corridors that comprise the entire CMP Network. Each corridor is mapped and contains: a Summary description; a list of Planned Improvements (those on the current Transportation Improvement Program); a list of Planned Off-Corridor Improvements (where these improvements could have an impact on identified corridor); a list of Recommended Strategies; and a synopsis of Roadway Measures. Those measures include:

a. Corridor Length (Miles): End-to-end length of the corridor;
b. Traffic (AADT): Annual Average Daily Traffic (AADT) range of two-way traffic as obtained from PennDOT's online One Map system;
c. Truck %: Trucks traffic as a percentage of total traffic as obtained from PennDOT's online One Map system;
d. Average AM Peak Speed (MPH): Morning peak period (7-9 a.m.) average speeds in Miles per Hour (MPH) throughout the entire corridor as derived from INRIX data for 2022;
e. Average PM Peak Speed (MPH): Afternoon peak period (4-6 p.m.) average speeds in Miles per Hour (MPH) throughout the entire corridor as derived from INRIX data for 2022;
f. Travel Time Index (TTI): The average TTI for a 24-hour period during weekdays (Monday through Friday) for roadway segments within the identified corridor as derived from INRIX data for 2022. Travel Time Index is a measure of congested speeds as a function of free-flow (non congested) speeds;
g. Planning Time Index (PTI): The average PTI for a 24-hour period during weekdays (Monday through Friday) for roadway segments within the identified corridor as derived from INRIX data for 2022. Planning Time Index is a measure of congested speeds as a function of free-flow (non congested) speeds, it can be another indicator of how reliable your travel times are in a given corridor;

Each Roadway Measures box is colored based on the Peak TTI measure for that corridor. While not meant to provide a formal ranking of corridors for this CMP, this particular measure best reflects levels of congestion:

a. No Color, Peak TTI <1.20
b. Yellow, Peak TTI ≥1.20 and ≤1.49
c. Red, Peak TTI ≥1.50

Corridors are listed in numerical order. Where a roadway has multiple corridors, they are listed from west-to-east or south-to-north. Where two numbered roads run concurrently, the corridor is listed based on the lower roadway number.

PA 10

Summary

The southernmost segment of PA 10 in Berks County provides direct access to the PA Turnpike from the Morgantown area and also northern Chester and Lancaster counties. The roadway consists of one lane in each direction. Informal 'park and ride' parking occurs along the shoulders near the Turnpike interchange. This corridor also provides access to the newly constructed Hollywood Casino Morgantown, Conestoga Landfill, and surrounding industrial properties in Caernarvon Township and New Morgan Borough. There are currently proposals to construct multiple warehouses along PA 10 just north of this corridor in New Morgan Borough.

Planned Improvements

None

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2C - MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

2G - Municipalities should ensure that bicycle, pedestrian, and transit-friendly improvements are integrated into all new development proposals

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

Roadway Measures

Corridor Length (Miles): **1.06**

Traffic (AADT): **5,404 – 8,701**

Truck %: **8 – 12**

Avg. AM Peak Speed (MPH): **33.90**

Avg. PM Peak Speed (MPH): **33.80**

TTI: **1.16** | PTI: **1.43**

Additional Factors

NHS: **No**

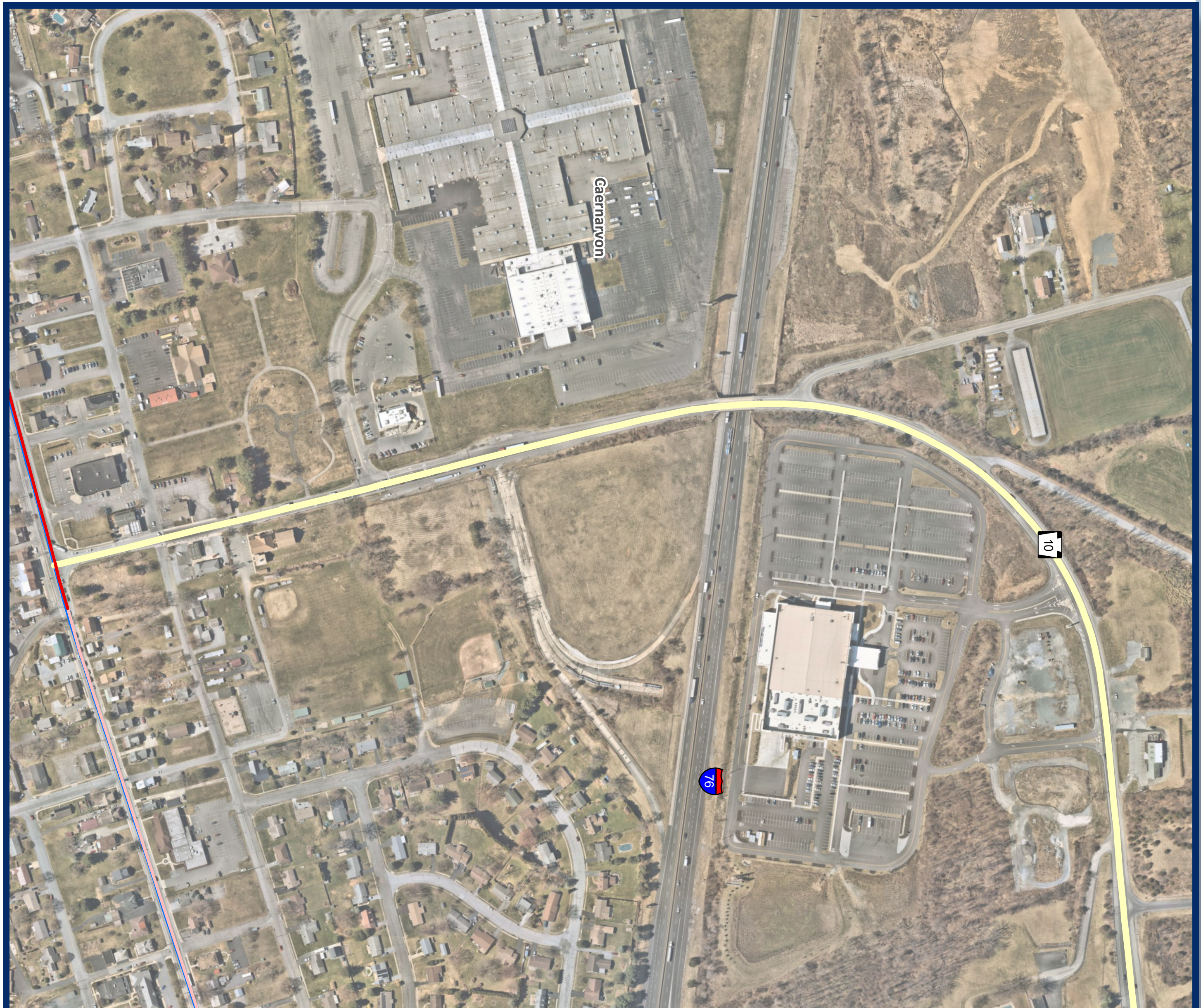
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **No**


Caernarvon
10
76
23
176
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 12 (Warren Street Bypass)

Summary

As part of the urban expressway system, PA 12 connects U.S. 222/422 in the western suburbs with the suburbs north of Reading, and to rural northeastern Berks as well. The portion of expressway between the U.S. 222/422 interchange and PA 183 interchange is actually not limited but controlled access, as numerous private driveways and city streets connect directly. PA 12 also provides direct connections to busy PA 61 and U.S. 222 Business north of Reading. The PA 61 interchange does not allow all movements, and--along with River Road and PA 183--of a substandard design.

Planned Improvements

- **MPMS #94900** – PA 12 Intelligent Transportation System – implementing freeway service patrol on SR 422, US 222 and PA 12 in the City of Reading, West Reading Borough, Wyomissing Borough, and the townships of Muhlenberg, Cumru, Exeter, Bern, Maiden Creek, Ontelaunee, and Spring (this project is currently being implemented.)

Strategies to Preserve Corridor Capacity

4G - Reconstruct all freeway interchanges to meet current design standards

5C - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

6B - Explore the use of 'hardened shoulders' to add temporary capacity where feasible

OTHER - Implement access control in the non-Limited-Access portion of the expressway

Roadway Measures

Corridor Length (Miles): **1.06**

Traffic (AADT): **8,572 – 37,977**

Truck %: **4 – 7**

Avg. AM Peak Speed (MPH): **58.40**

Avg. PM Peak Speed (MPH): **58.50**

TTI: **0.93** | PTI: **1.07**

Additional Factors

NHS: **Yes**

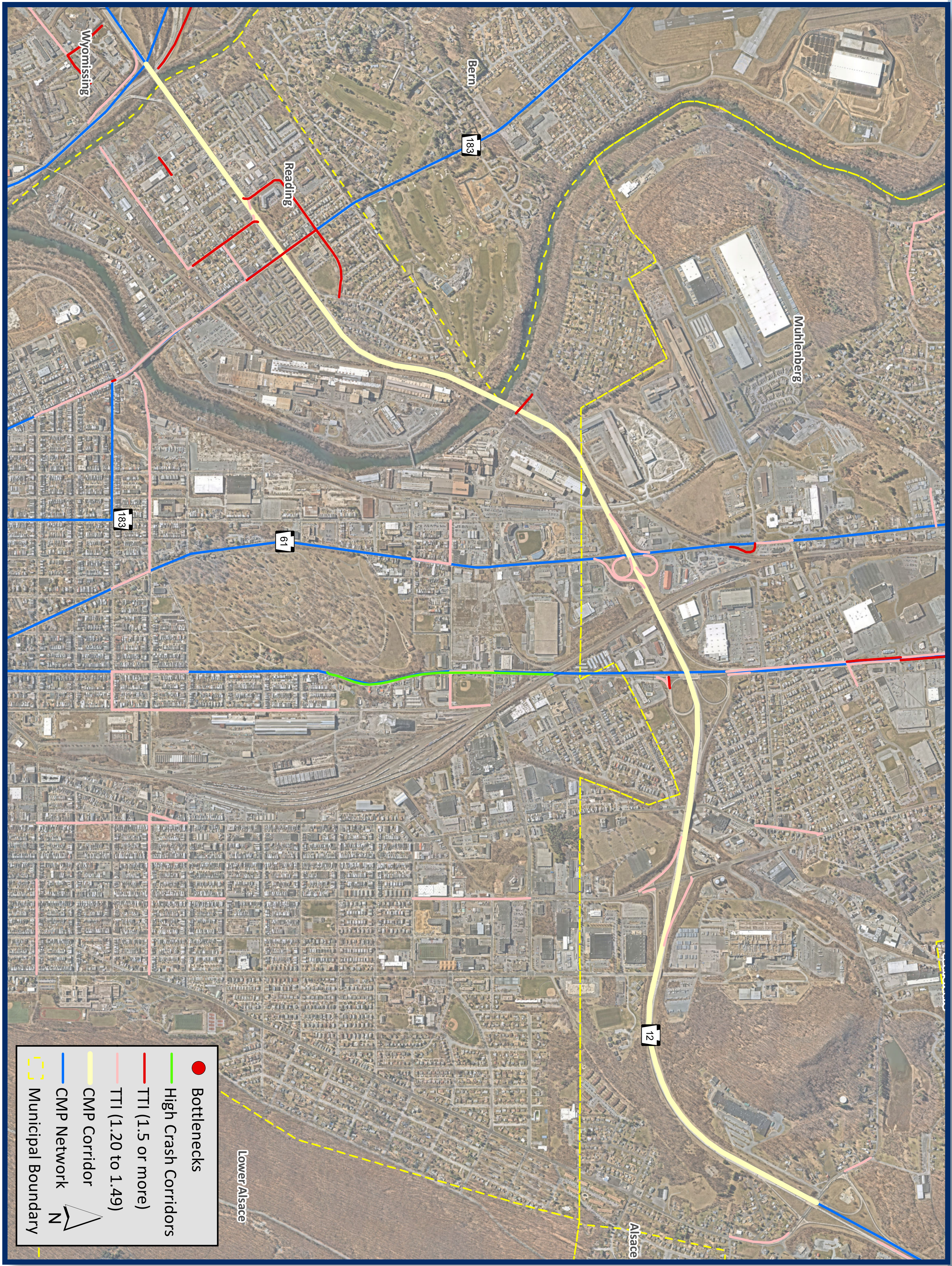
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **No**



Wyomissing
Bern
183
Reading
Muhlenberg
183
61
12
Lower Alsace
Alsace
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 12 (Pricetown Road)

Summary

This segment begins as the Warren Street Bypass narrows from an expressway to a rural two-lane arterial, and continues as such for its length. There are no turn lanes and driveways are scattered throughout. The southern portion includes the intersection with Elizabeth Avenue (SR 2016) which has a high crash history. Topography places limitations on expansion in the southern section as the roadway traverses steep slopes and watercourses. Most congestion occurs near Elizabeth Avenue, Woodside Drive, PA 73 and PA 662.

Planned Improvements

- **MPMS #79467** – Safety improvements along the PA 12 Corridor from Hill View Road/ Elizabeth Avenue to Skyline Drive with potential roundabouts.
- **MPMS #110318** – Intersection improvements and addition of two-way center left turn lane along PA 12 (Pricetown Road) from Antietam Road to Mount Laurel Avenue in Alsace Township.
- **MPMS #88781** – PA 12 and PA 73 intersection improvements.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

Roadway Measures

Corridor Length (Miles): **4.86**

Traffic (AADT): **8,572 – 18,292**

Truck %: **3 – 5**

Avg. AM Peak Speed (MPH): **39.50**

Avg. PM Peak Speed (MPH): **39.40**

TTI: 1.00 | PTI: **1.21**

Additional Factors

NHS: **No**

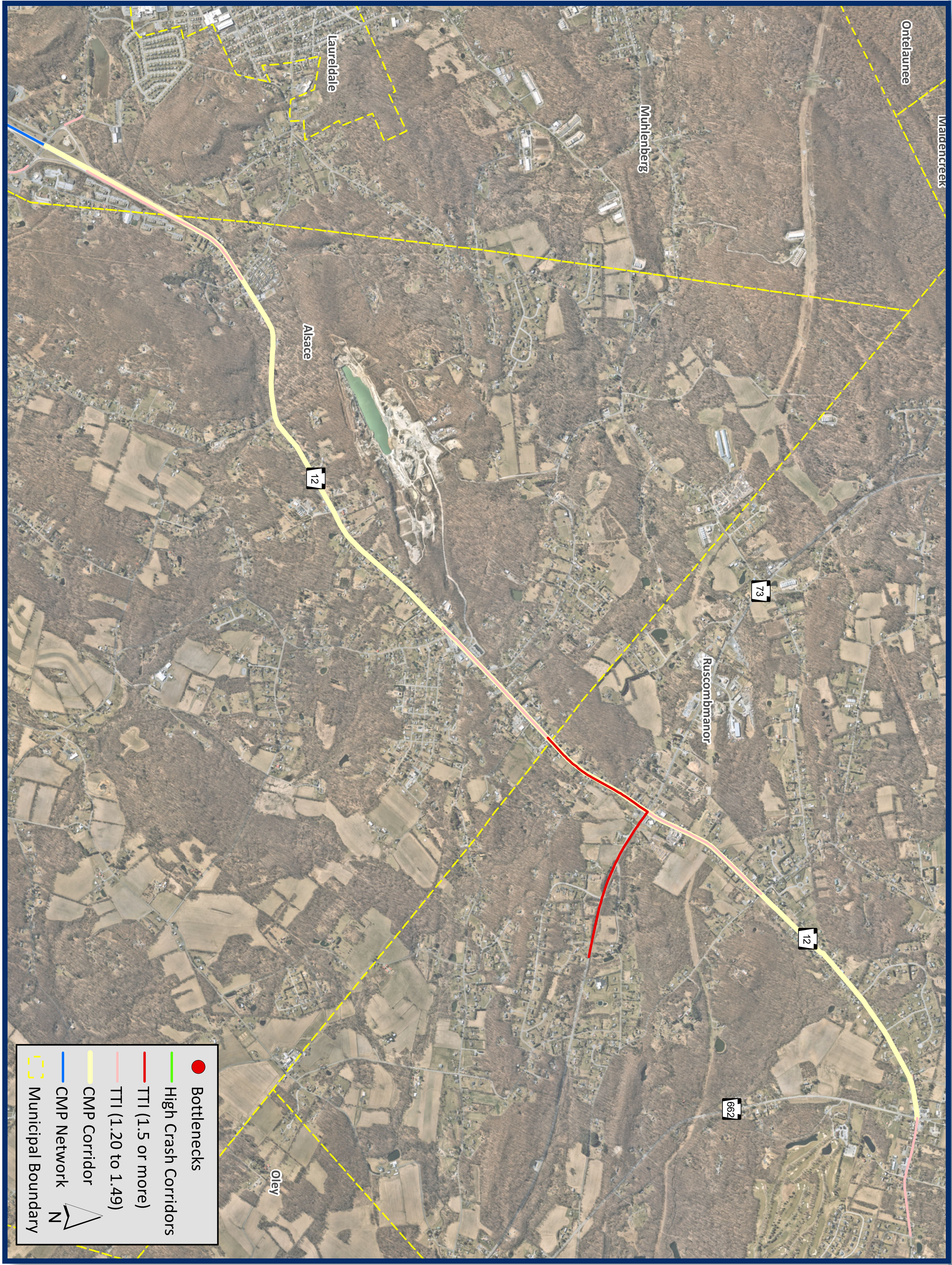
High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **No**


Laureldale
Muhlenberg
Ontelaunee
Maidencreek
Alsace
Ruscombmanor
Oley
12
73
662
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 23 and PA 401

Summary

PA 23 is a two-lane roadway traversing Caernarvon Township in southern Berks in an east-west direction and bisects the village of Morgantown. PA 23 provides indirect access (via SR 2083 and PA 10, respectively) to Interstate 176 and the PA Turnpike. Since it traverses an older developed village, the potential for roadway expansion is limited within the village. PA 23 also serves as a link to Twin Valley School District facilities with bus stops scattered along its length. Bicycle PA Route S also runs along the length of PA 23 in this area. PA 401 enters Berks at the eastern end of PA 23 at an unsignalized intersection, and serves as a link to/from Chester County.

Planned Improvements

None on TIP, though the PA Turnpike Commission has announced Turnpike expansion plans that would necessitate the replacement and enlargement of the existing PA 23 bridge over the Turnpike.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

Roadway Measures (PA 23)

Corridor Length (Miles): **3.0**

Traffic (AADT): **7,347 – 14,904**

Truck %: **5 – 8**

Avg. AM Peak Speed (MPH): **32.50**

Avg. PM Peak Speed (MPH): **29.50**

TTI: **1.22** | PTI: **1.53**

Roadway Measures

Corridor Length (Miles): **0.20**

Traffic (AADT): **6,023**

Truck %: **6**

Avg. AM Peak Speed (MPH): **34.40**

Avg. PM Peak Speed (MPH): **30.60**

TTI: **1.29** | PTI: **1.65**

Additional Factors

NHS: **No**

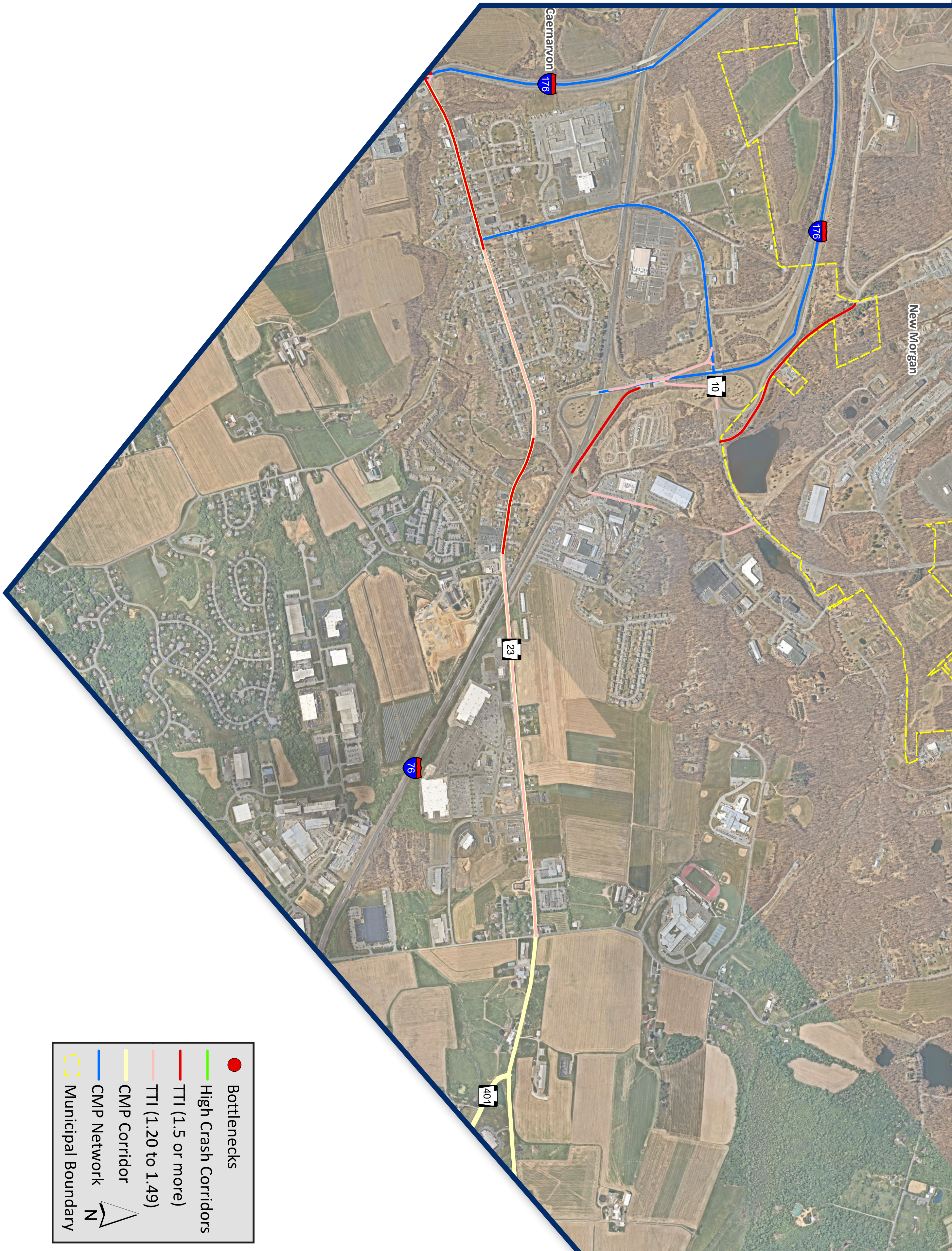
High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **No**


Caernarvon
New Morgan
176
10
23
76
401
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 61 (U.S. 222 Business to PA 12)

Summary

Beginning just north of the City's commercial core, PA 61 travels through the Centre Park Historic District containing mostly residential and professional office businesses. The roadway varies from one-to-two lanes in each direction. The northern part of this corridor gets more commercialized, and also provides truck access to a steel mill, smaller industries, and fan access to FirstEnergy Stadium, home of the Reading Fightin' Phils minor league baseball team. The corridor is signalized and lane configurations vary by location. Congestion usually occurs during peak hours at the intersections with Spring and Bern Streets as they intersect with PA 61.

Planned Improvements

- **MPMS #102162** – Spring Street Corridor Safety Improvements – installation of traffic responsive signal system.
- **MPMS #119419** – Implementation of pedestrian safety improvements for Vulnerable Road Users (VRUs) at the intersection of PA 61 and Exeter Street in the City of Reading.
- **MPMS #116746** – Signal upgrades at the intersection of PA 61 and Bern Street for improvement safety and reduction of crashes.

Strategies to Preserve Corridor Capacity

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4C - Review signalized intersections for signal coordination and optimization

4G - Reconstruct all freeway interchanges to meet current design standards

OTHER - Work with local law enforcement to expedite traffic flow during events at FirstEnergy Stadium

Roadway Measures

Corridor Length (Miles): **1.92**

Traffic (AADT): **2,160 – 14,366**

Truck %: **2 – 10**

Avg. AM Peak Speed (MPH): **25.70**

Avg. PM Peak Speed (MPH): **25.80**

TTI: **1.26** | PTI: **1.60**

Additional Factors

NHS: **Yes**

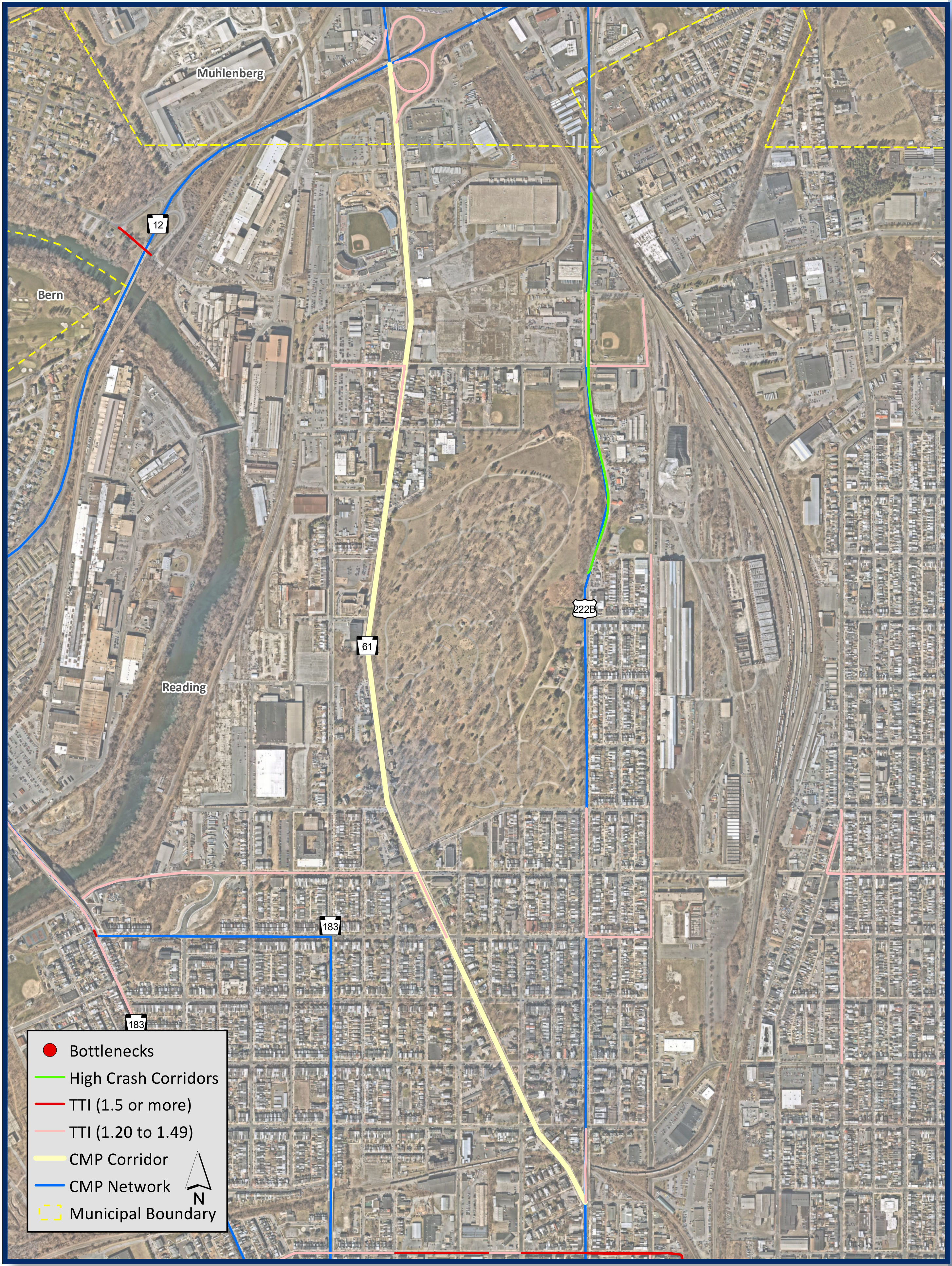
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**


Muhlenberg
Bern
Reading
12
61
222B
183
183
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 61 (PA 12 to U.S. 222)

Summary

Starting at the substandard PA 12 interchange on the southern end of the corridor, PA 61 runs through Muhlenberg Township north to the recently reconstructed interchange at U.S. 222. The PA 12 interchange does not allow for all movements, which promotes a number of illegal and dangerous maneuvers and additional traffic on surrounding roads. This segment varies from one to two lanes in each direction with uneven protected left-turn capabilities and few shoulders. The most congested areas are around George Street and Tuckerton Rd. Intersection improvements at Tuckerton Road are currently under construction and should help alleviate congestion in that area.

Planned Improvements

None

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

4G - Reconstruct all freeway interchanges to meet current design standards

Roadway Measures

Corridor Length (Miles): **2.93**

Traffic (AADT): **9,376 – 18,752**

Truck %: **4 – 7**

Avg. AM Peak Speed (MPH): **32.70**

Avg. PM Peak Speed (MPH): **31.10**

TTI: **1.30** | PTI: **1.62**

Additional Factors

NHS: **Yes**

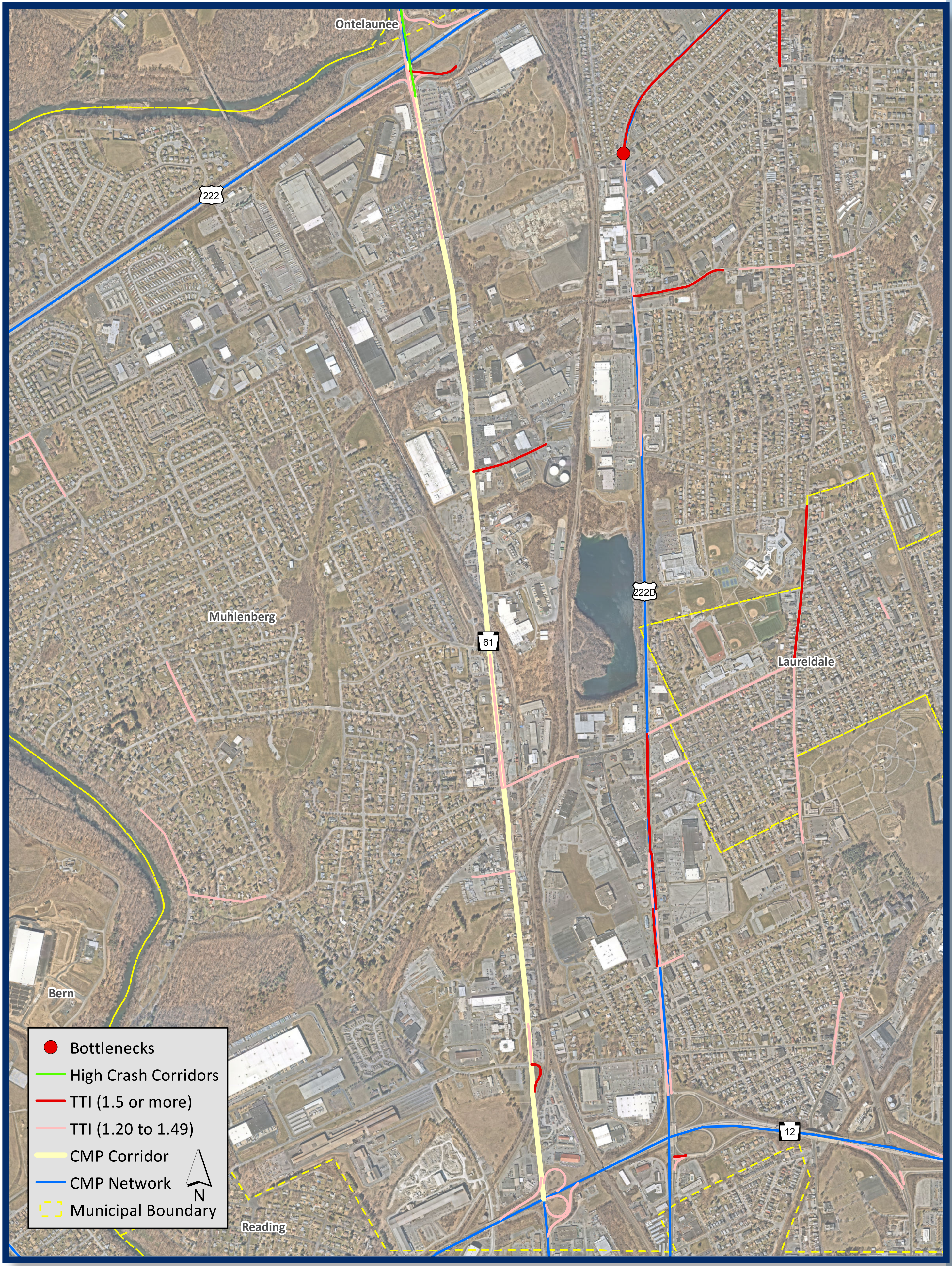
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**


Ontelaunee
222
Muhlenberg
61
222B
Laureldale
Bern
12
Reading
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 61 (U.S. 222 to Schuylkill County)

Summary

PA 61 provides regional vehicle and freight access between north Reading suburbs and northern Berks, Interstate 78, and Schuylkill County. A four lane highway for its length, major intersections are signalized and protected left-turn lanes are provided throughout. Congestion occurs where signals are grouped, particularly in the far southern portion, and at PA 662 in Shoemakersville Borough. North of the I-78 interchange, major retail development has occurred within the last fifteen years. Today, this corridor has been impacted by the proliferation of warehousing in Shoemakersville Borough and Perry Townships. An extensive roadway reconstruction between U.S. 222 and PA 73 was completed in 2015, as was a new signalized intersection with Grand Street in Hamburg Borough. There are incidents of high crash areas recorded at various points along the corridor. One location at the southern end of the corridor at the U.S. 222 interchange, one in Hamburg Borough and the other location just north of the Interstate 78 interchange.

Planned Improvements

- **MPMS #116746** – Signal upgrade and improvement at the intersection of PA 61 and Cross Keys Road (SR 4030.)
- **MPMS #10328** – Highway restoration on PA.
- **MPMS #97258** – Safety improvements on PA 61 in Perry and Windsor Township and Hamburg Borough. Improvements include median barrier work and pavement markings.
- **MPMS #10867** – Highway restoration on PA 61 and median barrier installation from Zions Church Road to the PA61/4th Street intersection.
- **MPMS #96373** – PA 61 resurface project from approximately 1700’ south of Cabela’s Drive to the south end of the bridge over the Reading Blue Mountain and Northern and Schuylkill River in Tilden Township.
- **MPMS #93494** – I-78/PA 61 bridge replacement on PA 61 over the interstate, and bridge replacement on I-78 over the Schuylkill River, including roadway reconstruction and interchange redesign. Currently under construction.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

4C - Review signalized intersections for signal coordination and optimization

Roadway Measures

Corridor Length (Miles): **13.07**

Traffic (AADT): **10,912 – 16,970**

Truck %: **4 – 12**

Avg. AM Peak Speed (MPH): **45.40**

Avg. PM Peak Speed (MPH): **44.10**

TTI: **1.10** | PTI: **1.33**

Additional Factors

NHS: **Yes**

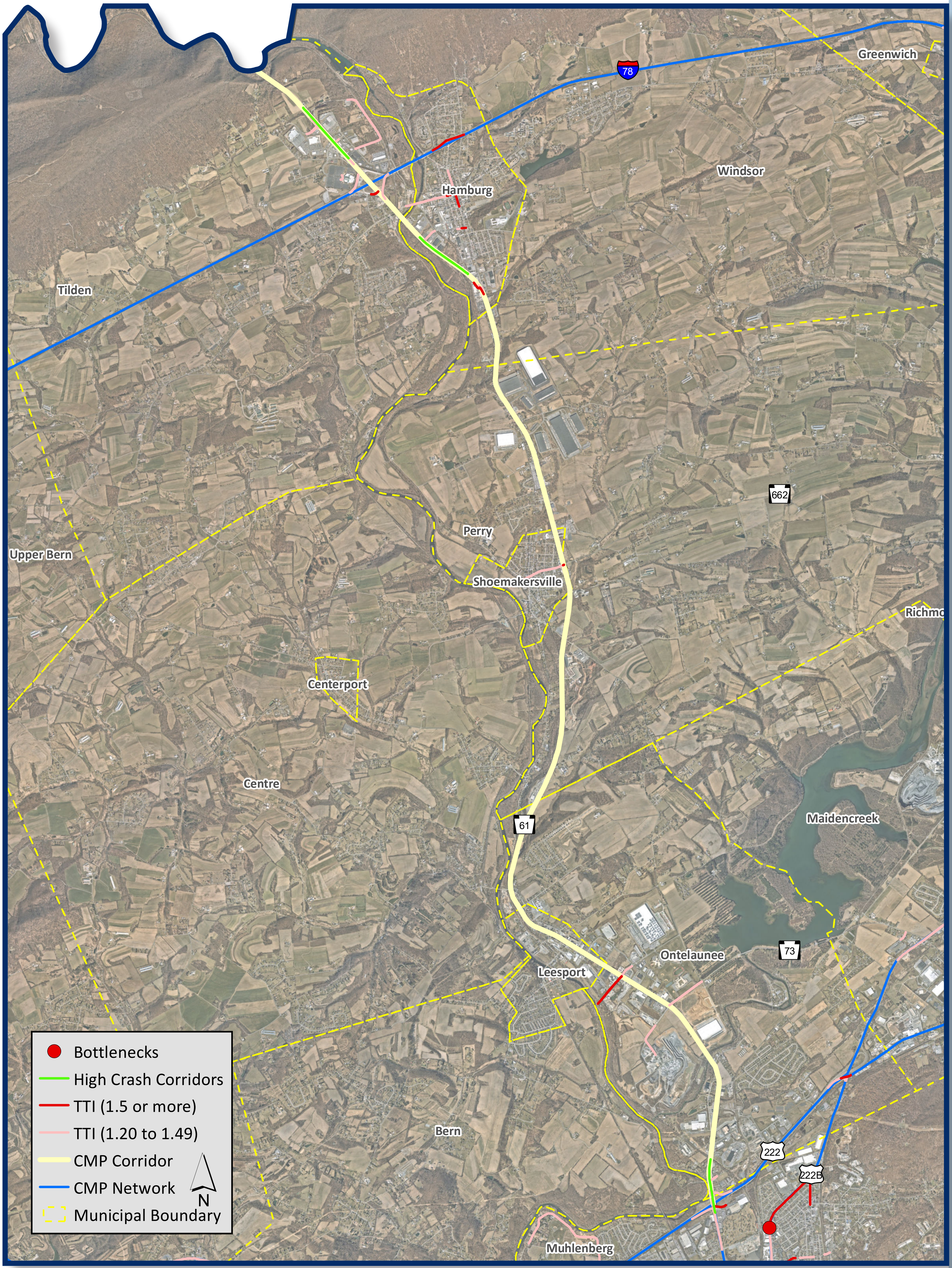
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **Yes**

Critical Freight Corridor: **Yes**

Bottleneck Location: **No**

Transit Route: **Yes**


Greenwich
78
Windsor
Hamburg
Tilden
662
Perry
Upper Bern
Shoemakersville
Richmo
Centerport
Centre
Maidencreek
61
Ontelaunee
73
Leesport
Bern
222
222B
Muhlenberg
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 73 (Oley Area)

Summary

This segment of PA 73 runs concurrent with PA 662 just south of Oley Village, and includes both northern and southern intersections with PA 662. PA 73 serves as a two lane link between eastern Berks and the Reading urban area as well as local residential traffic. Additionally, PA 73 and PA 662 serve to connect U.S. 222 and U.S. 422. PA 73 also serves to link the community to the Oley Valley School District campus and Berks Career and Technology Center-East via Oley Road. Two recent projects installing roundabouts at both the eastern and western PA 73/PA 662 intersections were completed. These projects are having a positive effect on traffic circulation and safety throughout the corridor. It is foreseen that this improvement in safety and circulation will be reflected in future iterations of the CMP.

Planned Improvements

- **MPMS #117668** – Guide rail upgrades at the western PA73/PA662 roundabout.
- **MPMS #117668** – Guide rail upgrades at the western PA73/PA662 roundabout.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C - Municipalities should require new development to maintain and enhance street and sidewalk connectivity

2G - Municipalities should ensure that bicycle, pedestrian, and transit-friendly improvements are integrated into all new development proposals

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

Roadway Measures (PA 662 western side)

Corridor Length (Miles): **0.27**
Traffic (AADT): **4,191**
Truck %: **7**
Avg. AM Peak Speed (MPH): **20.30**
Avg. PM Peak Speed (MPH): **20.40**
TTI: **2.43** | PTI: **3.34**

Roadway Measures (PA 73)

Corridor Length (Miles): **1.99**
Traffic (AADT): **6,730 – 13,517**
Truck %: **8 – 12**
Avg. AM Peak Speed (MPH): **35.30**
Avg. PM Peak Speed (MPH): **34.60**
TTI: **1.42** | PTI: **1.73**

Roadway Measures (PA 662 eastern side)

Corridor Length (Miles): **0.10**
Traffic (AADT): **5,098**
Truck %: **10**
Avg. AM Peak Speed (MPH): **47.90**
Avg. PM Peak Speed (MPH): **47.20**
TTI: **1.13** | PTI: **1.29**

Additional Factors

NHS: **No**
High V/C Corridor (PM Peak): **Yes**
High Crash Corridor: **No**
Critical Freight Corridor: **No**
Bottleneck Location: **No**
Transit Route: **No**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Oley
Ruscombmanor
73
662
662

PA 73 (Boyertown Area)

Summary

This segment of PA 73 covers central Colebrookdale Township east through Boyertown Borough to Montgomery County, just west of PA 100. This two-lane road has no turn lanes (except at PA 562/ Reading Ave. in the borough), uncontrolled driveway access, and on-street parking along most of its length. PA 73 serves local residential and commercial traffic along with regional access to PA 100 north to the Lehigh Valley and south to Pottstown and the greater Philadelphia area. Most congestion on this corridor occurs within the Borough of Boyertown, specifically at the intersection with PA 562 (North Reading Avenue.)

Planned Improvements

None

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

Roadway Measures

Corridor Length (Miles): **2.84**

Traffic (AADT): **8,308 – 10,198**

Truck %: **7 – 13**

Avg. AM Peak Speed (MPH): **32.50**

Avg. PM Peak Speed (MPH): **31.60**

TTI: **1.27** | PTI: **1.56**

Additional Factors

NHS: **Yes**

High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **No**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Colebrookdale
73
Boyertown
562
100

INTERSTATE 78

Summary

Crossing the northern part of Berks County, Interstate 78 provides a regional connection between freight ports and destinations in the New Jersey/New York area and Baltimore, Washington DC and beyond. New warehousing development has occurred in the Lehigh Valley just east of this corridor, and at PA 501. Additional warehousing development is planned for PA 61, which will be accessing I-78 in the Hamburg area. Congestion becomes an issue during crashes which cause roadway closures. The only true detour in the area – Old 22/Hex Highway – is a two-lane road, partly state maintained and partly local. Though crash causes differ, high speed, truck volumes and weather all play varying roles. Bottleneck locations along the corridor are the direct result of the current highway widening project from the Lenhartsville interchange to the Lehigh County line.

Planned Improvements

- **MPMS #91658** – ITS, project involves funding for an operator working in the Traffic Operations Center in PennDOT District 5-0 who oversees/ monitors cameras, variable message signs and radio systems along I-78 in Berks County.
- **MPMS #97274** – Bridge rehabilitation, widening and rehab of the structure carrying I-78 over PA 143 and the Maiden Creek in Lenhartsville.
- **MPMS #93494** - I-78/PA 61 Bridge Replacement, Bridge replacement on PA 61 over the interstate, and bridge replacement on I-78 over the Schuylkill River, including roadway reconstruction and interchange redesign, currently under construction.
- **MPMS #72807** – Highway resurfacing, I-78 Shartlesville to Hamburg mill and overlay, concrete patching and joint rehabilitation.
- **MPMS #85903** – Highway restoration and resurfacing, mill and overlay of existing mainline and shoulders from Midway Exit 16 to Shartlesville Exit 23.

Strategies to Preserve Corridor Capacity

2A - PennDOT, MPO and BARTA staff and should continue working with organizations like Commuter Services of Pennsylvania that promote alternative modes of transportation

2C - MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

4A - Expand and enhance current Intelligent Transportation System (ITS) network throughout the Urban Area and in areas where congestion occurs

5B - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

5C - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

OTHER - Add moveable median barriers to allow motorist clearance between interchanges during closures

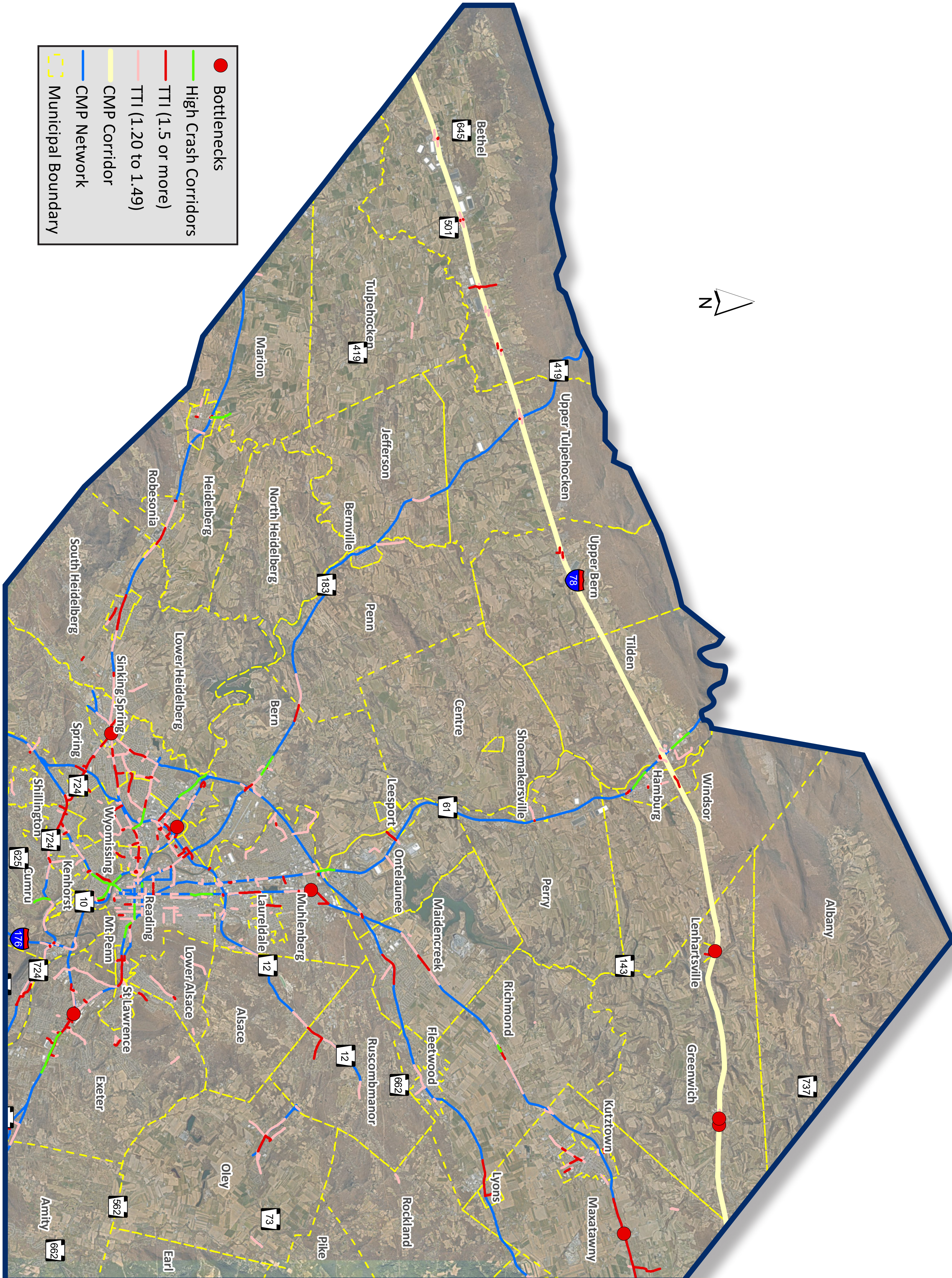
OTHER - Explore improvements to routes used for detours

Roadway Measures

Corridor Length (Miles): **35.22**
Traffic (AADT): **16,170 – 28,597** (eastbound)
Traffic (AADT): **16,029 – 27,335** (westbound)
Truck %: 30 – 45 (eastbound)
Truck %: 28 – 45 (westbound)
Avg. AM Peak Speed (MPH): **63.20**
Avg. PM Peak Speed (MPH): **63.10**
TTI: **0.99** | PTI: **1.07**

Additional Factors

NHS: **Yes**
High V/C Corridor (PM Peak): **No**
High Crash Corridor: **No**
Critical Freight Corridor: **Yes**
Bottleneck Location: **Yes**
Transit Route: **No**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Bethel
Tulpehocken
Marion
Jefferson
Upper Tulpehocken
Heidelberg
Robesonia
North Heidelberg
Bernville
Upper Bern
South Heidelberg
Lower Heidelberg
Penn
Tilden
Sinking Spring
Bern
Centre
Spring
Shoemakersville
Hamburg
Windsor
Shillington
Wyomissing
Leesport
Ontelaunee
Perry
Albany
Kenhorst
Cumru
Reading
Laureldale
Muhlenberg
Maidencreek
Lenhartsville
Mt. Penn
Lower Alsace
St. Lawrence
Alsace
Richmond
Greenwich
Exeter
Ruscombmanor
Fleetwood
Kutztown
Oley
Lyons
Rockland
Maxatawny
Amity
Earl
Pike

PA 100 and PA 29

Summary

PA 100 enters Berks County just east of Boyertown from Montgomery County as a 4-lane arterial, then quickly transitions to a 2-lane arterial. PA 100 serves both regional traffic flowing between Pottstown and the Lehigh Valley along with local residential and highway commercial traffic. PA 29 enters Berks County from the east in Hereford Township and intersects PA 100 at SR 1010, where it turns north and runs concurrent with PA 100.

Planned Improvements

- **MPMS #110032** – Bridge preservation and repair.
- **MPMS #92009** – Bridge replacement with box culvert on Main Street (PA 100) over a tributary to Perkiomen Creek in Bally Borough.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C - Municipalities should require new development to maintain and enhance street and sidewalk connectivity

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

Roadway Measures (PA 29)

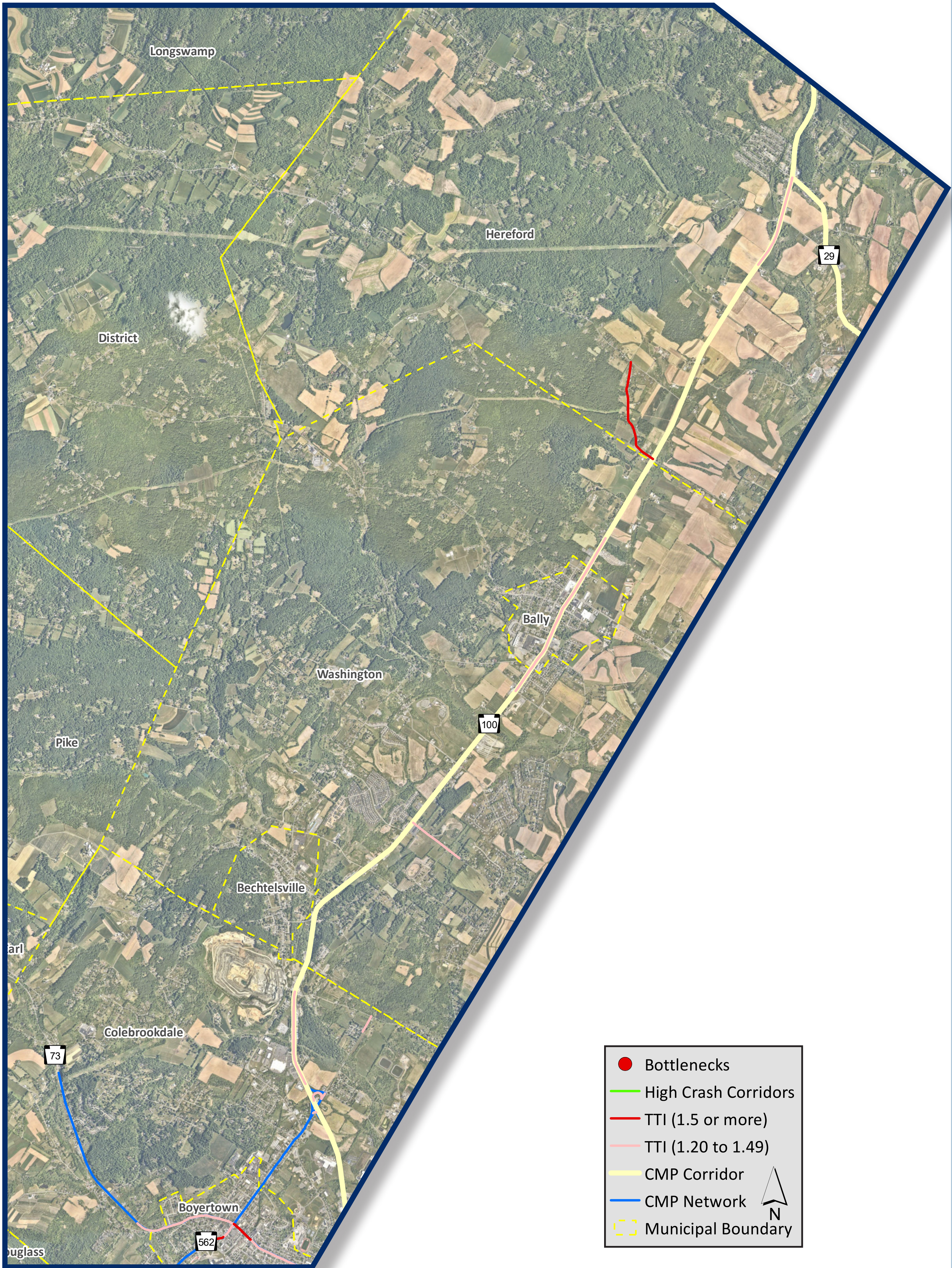
Corridor Length (Miles): **1.42**
Traffic (AADT): **7,102 – 9,729**
Truck %: **10**
Avg. AM Peak Speed (MPH): **38.40**
Avg. PM Peak Speed (MPH): **38.50**
TTI: **1.02** | PTI: **1.18**

Roadway Measures (PA 100)

Corridor Length (Miles): **11.08**
Traffic (AADT): **9,482 – 19,364**
Truck %: **8 – 16**
Avg. AM Peak Speed (MPH): **43.40**
Avg. PM Peak Speed (MPH): **42.60**
TTI: **1.05** | PTI: **1.21**

Additional Factors

NHS: **Yes**
High V/C Corridor (PM Peak): **Yes**
(PA 100 in Colebrookdale Township)
High Crash Corridor: **No**
Critical Freight Corridor: **Yes**
Bottleneck Location: **No**
Transit Route: **No**


Longswamp
Hereford
District
Bally
Washington
Pike
Bechtelsville
Colebrookdale
Boyertown
29
100
73
562
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

INTERSTATE 176/SR 2089

Summary

The Morgantown Expressway (I-176) provides a direct expressway connection between the Reading urban area and the Pennsylvania Turnpike (Interstate-76). Refuse trucks use this roadway to access an active landfill in New Morgan Borough. Prior to the early 1990's when I-176 was connected directly to the PA Turnpike, SR 2089 was part of I-176. Now, SR 2089 provides a connection to PA 10/23 to northern Lancaster and Chester counties.

Planned Improvements

- **MPMS #91658** – ITS, project involves funding for an operator working in the Traffic Operations Center in PennDOT District 5-0 who oversees/monitors cameras, variable message signs and radio systems along the I-176 corridor.
- **MPMS #114439** – highway reconstruction and ramp reconfiguration along the West Shore Bypass at the I 176 interchange.

Strategies to Preserve Corridor Capacity

2A - PennDOT, MPO and BARTA staff and should continue working with organizations like Commuter Services of Pennsylvania that promote alternative modes of transportation

2C - MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

4A - Expand and enhance current Intelligent Transportation System (ITS) network throughout the Urban Area and in areas where congestion occurs

5B - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

5C - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

OTHER - Explore improvements to routes used for detours

Roadway Measures (SR 2089)

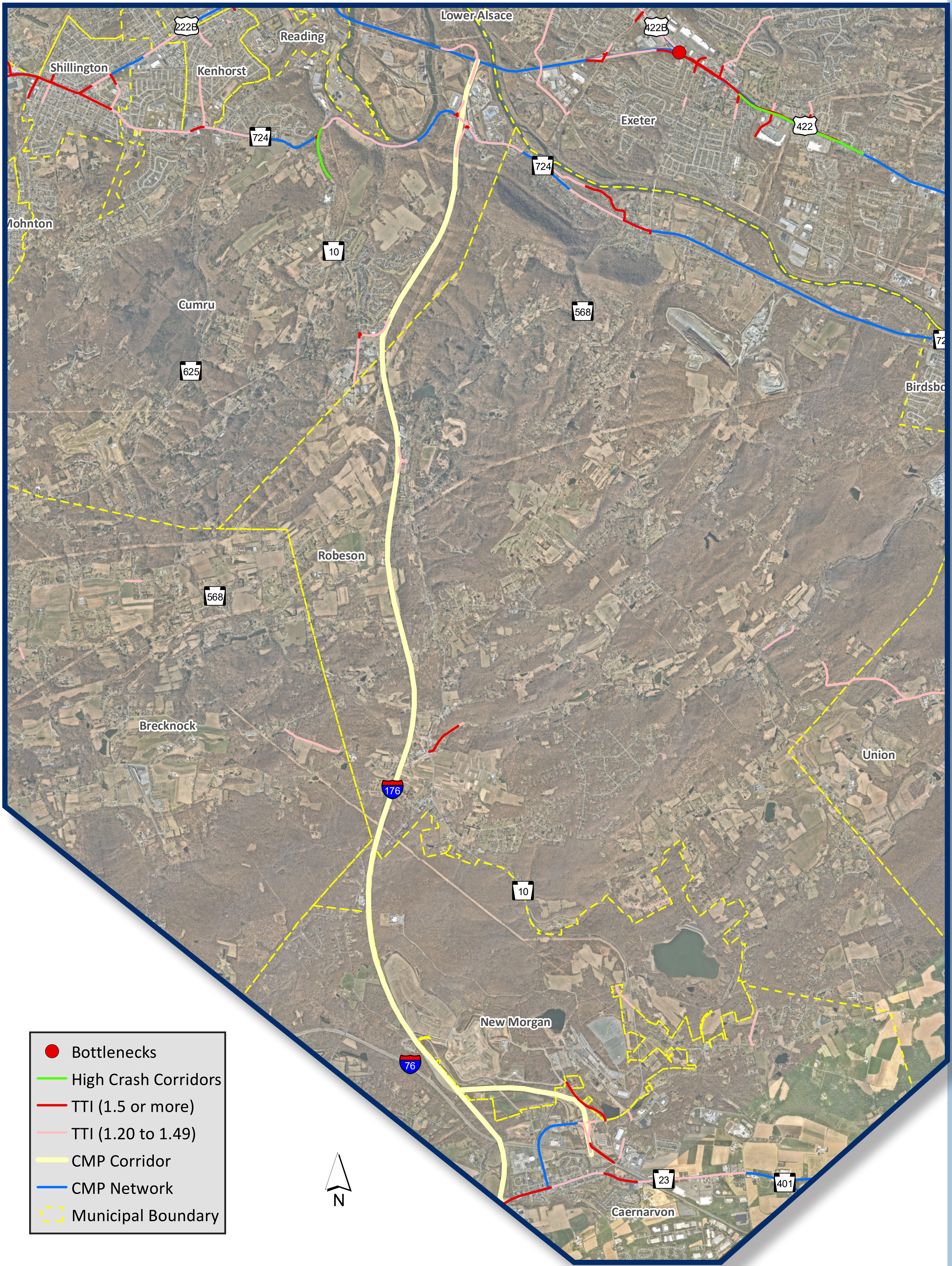
Corridor Length (Miles): **1.14**
Traffic (AADT): **4,296** (northbound)
Traffic (AADT): **4,378** (southbound)
Truck %: **14** (northbound)
Truck %: **13** (southbound)
Avg. AM Peak Speed (MPH): **55.30**
Avg. PM Peak Speed (MPH): **56.60**
TTI: **1.02** | PTI: **1.20**

Roadway Measures (Interstate 176)

Corridor Length (Miles): **11.36**
Traffic (AADT): **7,920 – 10,202** (eastbound)
Traffic (AADT): **8,167 – 9,483** (westbound)
Truck %: **14 – 15** (eastbound)
Truck %: **13 – 14** (westbound)
Avg. AM Peak Speed (MPH): **65.70**
Avg. PM Peak Speed (MPH): **66.80**
TTI: **0.97** | PTI: **1.11**

Additional Factors

NHS: **Yes**
High V/C Corridor (PM Peak): **No**
High Crash Corridor: **No**
Critical Freight Corridor: **Yes**
Bottleneck Location: **No**
Transit Route: **No**


Lower Alsace
Reading
Shillington
Kenhorst
Exeter
Mohnton
Cumru
Birdsboro
Robeson
Brecknock
Union
New Morgan
Caernarvon
222B
422B
422
724
10
568
625
176
76
23
401
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 183 (Washington Street to U.S. 222)

Summary

PA Starting in the downtown core, PA 183 travels through Reading's dense northwest residential area, provides access to the Warren Street Bypass (PA 12), north to the Reading Regional Airport and U.S. 222. PA 183 provides direct access to a large steel mill, one of Berks' two hospitals, and industrial development adjacent to the airport. The bridge over the Schuylkill River underwent a major rehabilitation in 2015, and the interchange at U.S. 222 was reconfigured and expanded. Much of the congestion along the corridor happens at peak times in the Glenside area of the City of Reading.

Planned Improvements

- **MPMS #91091** – Schuylkill Ave. Bridge (SB), Bridge replacement over Norfolk Southern railroad, currently in construction
- **MPMS #70274** – River Road Extension, New roadway extension to support redevelopment including intersection improvements at Windsor, Eberhart and Bridge streets.
- **MPMS #119419** – Intersection safety improvement for vulnerable road users (VRUs) at the intersection of Lackawanna Street (SR 3032) and PA 183.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

4G - Reconstruct all freeway interchanges to meet current design standards

Roadway Measures

Corridor Length (Miles): **5.70**

Traffic (AADT): **2,325 – 17,515**

Truck %: **2 – 10**

Avg. AM Peak Speed (MPH): **24.30**

Avg. PM Peak Speed (MPH): **23.10**

TTI: **1.35** | PTI: **1.73**

Additional Factors

NHS: **No**

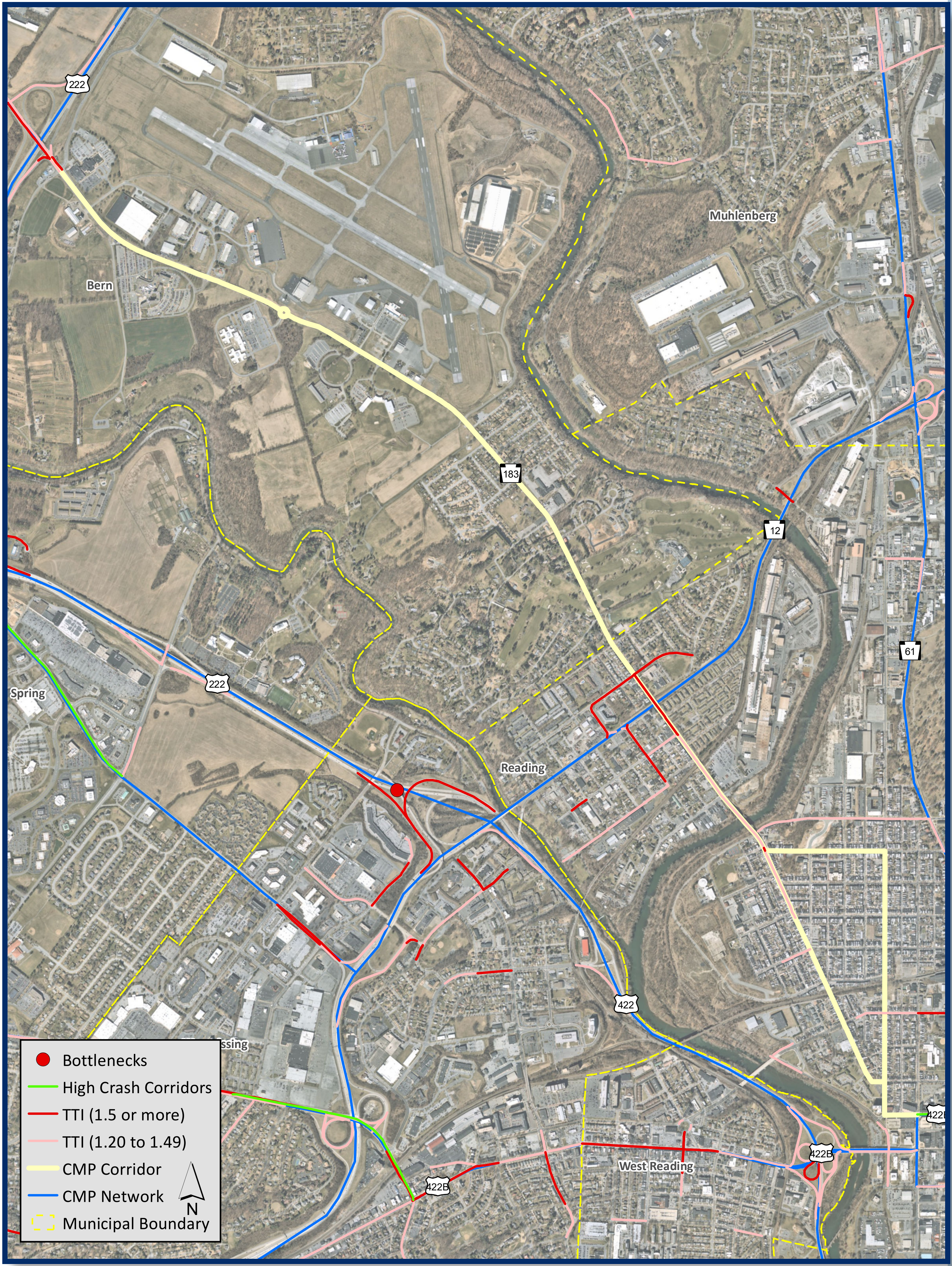
High V/C Corridor (PM Peak): **Yes**
(Glenside area in City of Reading)

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**



222
Muhlenberg
Bern
183
12
61
Spring
222
Reading
422
West Reading
422B
422B
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 183 (U.S. 222 to Schuylkill County)

Summary

Once north of U.S. 222, PA 183 travels through increasingly rural Berks County north to I-78 and Schuylkill County. Left turn lanes are not provided except at the few signalized intersections, shoulder widths vary, and detours are difficult. Congestion occurs in the southern end of the corridor between West Leesport Ave. and U.S. 222.

Planned Improvements

- **MPMS #117637** – Bridge preservation projects involving concrete overlays on various bridges along the corridor.
- **MPMS #117719** – Access control and safety improvements study along Bernville Road (PA 183) from New Shaefferstown Road (SR 4016) north to I-78.
- **MPMS #114378** – Bridge Preventive maintenance projects at various bridges along corridor.
- **MPMS #91976** – Bridge replacement of the bridge carrying PA 183 over the Little Northkill Creek.
- **MPMS #117721** – Widening project to eliminate the narrow section between U.S. 222 and West Leesport Road.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2C - MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4F - Explore non-traditional intersection treatments such as roundabouts to gain additional throughput

Roadway Measures

Corridor Length (Miles): **16.55**

Traffic (AADT): **10,551 – 26,053**

Truck %: **6 – 11**

Avg. AM Peak Speed (MPH): **45.20**

Avg. PM Peak Speed (MPH): **45.40**

TTI: **1.07** | PTI: **1.26**

Additional Factors

NHS: **No**

High V/C Corridor (PM Peak): **Yes**
(between U.S. 222 interchange and County Welfare Road)

High Crash Corridor: **Yes**

Critical Freight Corridor: **Yes**

Bottleneck Location: **No**

Transit Route: **Yes**

Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Bethel
Upper Tulpehocken
Tulpehocken
Jefferson
Heidelberg
North Heidelberg
Lower Heidelberg
Bernville
Penn
Upper Bern
Tilden
Perry
Shoemakersville
Centerport
Centre
Ontelaunee
Leesport
Bern
Muhlenberg
419
78
183
61

U.S. 222 (Lancaster County to U.S. 422 Merge)

Summary

The southern portion of U.S. 222 is the newest addition to Berks County's expressway system. Overall, U.S. 222 connects Interstate 78 in the Lehigh Valley with U.S. 30 in Lancaster, which helps it serve as an alternative route between New Jersey/New York to the north and Baltimore/Washington to the south. Local traffic is also carried. Non-recurring congestion causes include accidents and inclement weather events.

Planned Improvements

- **MPMS #94900** – PA 12 ITS – implementing freeway service patrol on SR 422, US 222 and PA 12 in the City of Reading, West Reading Borough, Wyomissing Borough, and the townships of Muhlenberg, Cumru, Exeter, Bern, Maiden Creek, Ontelaunee, and Spring.

Strategies to Preserve Corridor Capacity

4A - Expand and enhance current Intelligent Transportation System (ITS) network throughout the Urban Area and in areas where congestion occurs

5B - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

OTHER - Increase promotion of existing Park and Ride lot at PA 568

Roadway Measures

Corridor Length (Miles): **7.98**

Traffic (AADT): **40,136 – 75,254**

Truck %: **7 – 16**

Avg. AM Peak Speed (MPH): **65.10**

Avg. PM Peak Speed (MPH): **65.00**

TTI: **0.87** | PTI: **0.97**

Additional Factors

NHS: **Yes**

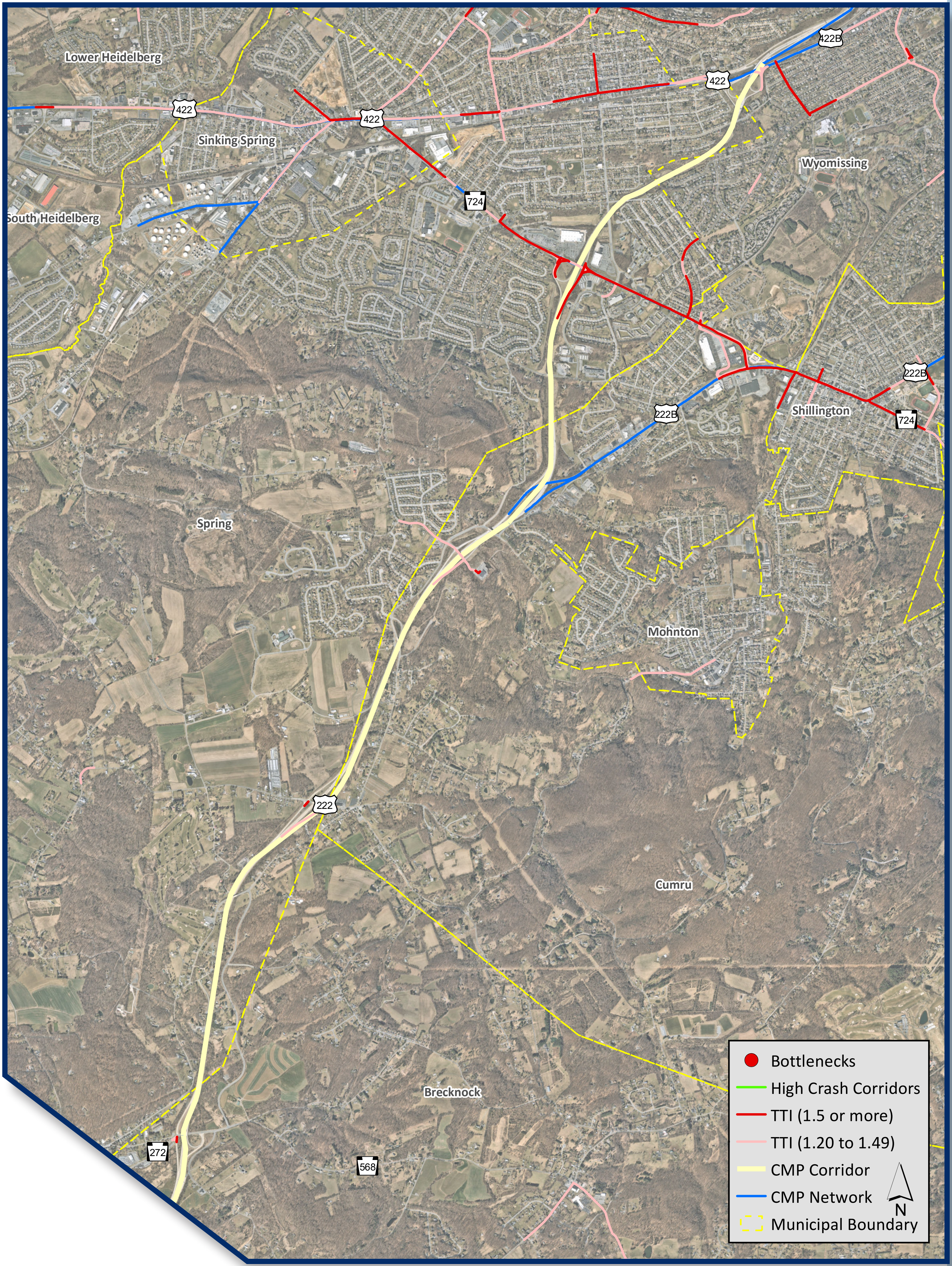
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **Yes**

Bottleneck Location: **No**

Transit Route: **No**


Lower Heidelberg
422
Sinking Spring
422
422
422B
South Heidelberg
724
Wyomissing
222B
222B
Shillington
724
Spring
Mohnton
222
Cumru
Brecknock
272
568
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

U.S. 222 (U.S. 422 Merge to U.S. 222 Business Merge)

Summary

This section of the expressway system serves both local traffic accessing the commercial and residential portion of western Berks County, as well as through traffic on U.S. 222. Parts of this section also run concurrent with U.S. 422 which serves east-west traffic. Interchange reconfiguration projects have been completed at PA 183 and PA 61. The U.S. 222 northbound and southbound ramps at U.S. 422 narrow the roadway capacity into one lane each direction around sharp bends which creates a significant bottleneck.

Planned Improvements

- **MPMS #110007** – Concrete patching and resurfacing of U.S. 222 portions and adjoining ramps from Wyomissing Borough line to the U.S. 222/U.S. 422 interchange.
- **MPMS #94900** – Intelligent Transportation Systems – implementing freeway service patrol on SR 422, US 222 and PA 12 in the City of Reading, West Reading Borough, Wyomissing Borough, and the townships of Muhlenberg, Cumru, Exeter, Bern, Maiden Creek, Ontelaunee, and Spring.
- **MPMS #114484** – Safety improvements - Installation of all-weather pavement markings along corridor.
- **MPMS #11008** – Addition of an auxiliary lane along U.S. 222 southbound between Paper Mill Road and Routes 222/422 interchanges in Wyomissing Borough.
- **MPMS # 116752** – Dynamic Curve Warning Signs installation at various points along the corridor.

Strategies to Preserve Corridor Capacity

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

4A - Expand and enhance current Intelligent Transportation System (ITS) network throughout the Urban Area and in areas where congestion occurs

4G - Reconstruct all freeway interchanges to meet current design standards

5B - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

5C - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

6A - Explore additional through lanes where traffic volumes exceed capacity beyond typical peak periods where none of the above provide adequate relief, particularly southbound between Broadcasting Road and U.S. 422 West

Roadway Measures

Corridor Length (Miles): **10.60**

Traffic (AADT): **31,848 – 106,484**

Truck %: **6 – 13**

Avg. AM Peak Speed (MPH): **59.20**

Avg. PM Peak Speed (MPH): **56.70**

TTI: **0.81** | PTI: **0.96**

Additional Factors

NHS: **Yes**

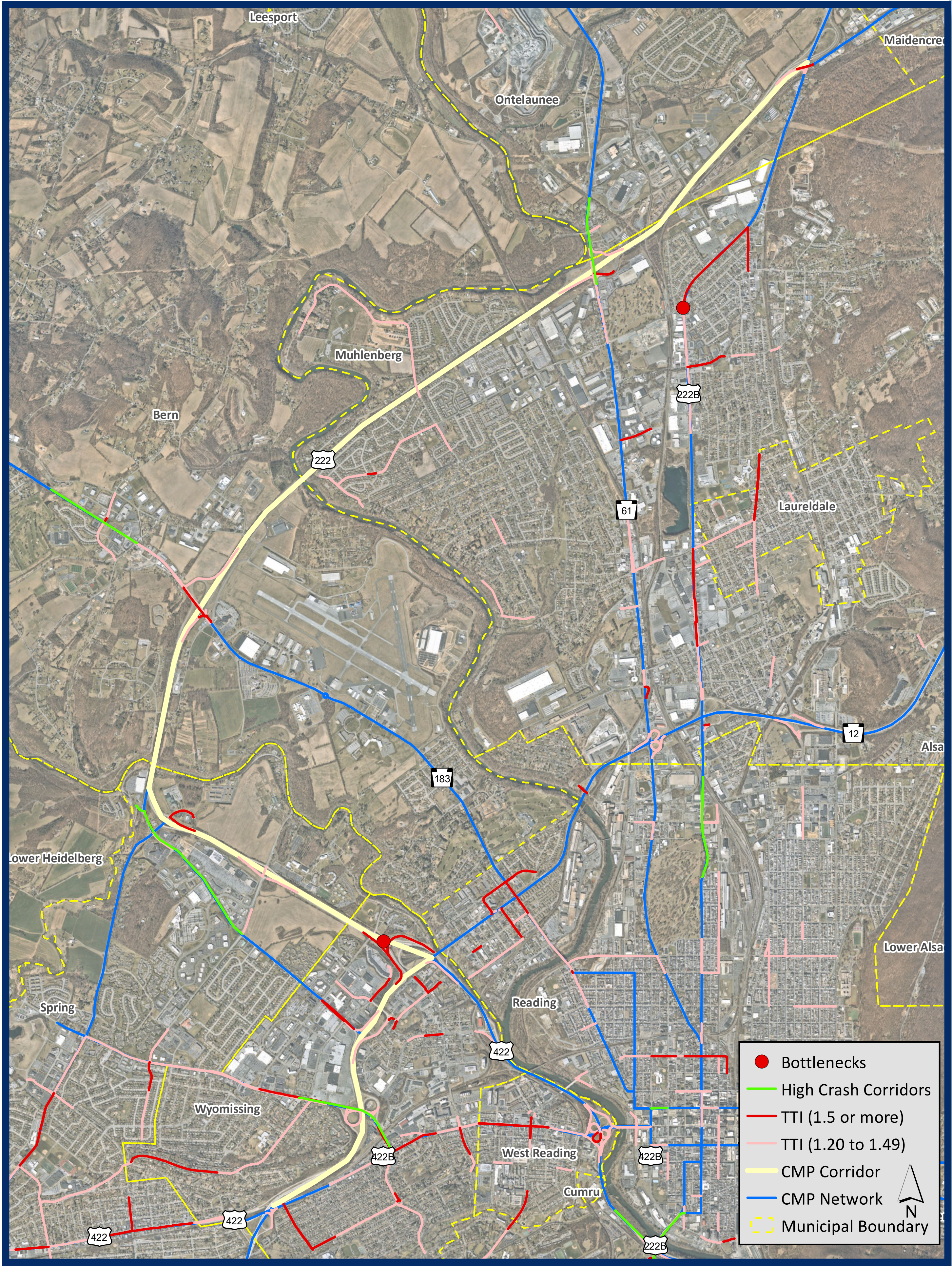
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **Yes**

Bottleneck Location: **Yes**
(southbound 222 at PA12/222/422 interchange)

Transit Route: **No**


Leesport
Ontelaunee
Maidencre
Muhlenberg
Bern
Laureldale
Alsa
Lower Heidelberg
Lower Alsa
Spring
Reading
Wyomissing
West Reading
Cumru
222
222B
61
12
183
422
422B
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

U.S. 222 (U.S. 222 Business Merge to Lehigh County)

Summary

Known locally as Route 222 North, this corridor has historically been one of the most congested in the County. The majority of this corridor carries regional and local traffic on a two-lane rural arterial through signalized intersections. High truck truck and their associated slower speeds have added to congestion. Recently, a number of projects have been completed and some are under way to improve safety and circulation through the corridor. Roundabout installation at various intersections along the corridor have greatly improved traffic flow. Construction is still occurring along the corridor, it is anticipated that once complete travel times will continue to improve along the corridor.

Planned Improvements

- **MPMS #92414** – U.S. 222/PA73 and Genesis Drive, intersection improvements, Intersection improvements at PA 73 and roundabout construction at Genesis Drive and Schaeffer Rd.
- **MPMS #61972** – U.S. 222 Widening, roadway widening from PA 73 north to Kutztown Bypass.
- **MPMS #90569** – U.S. 222 and Long Lane, Intersection improvements to include a roundabout.
- **MPMS #97234** – U.S. 222 Kutztown to Lehigh County, Widening of U.S. 222 from Kutztown Bypass north to Lehigh County line, Preliminary Engineering scheduled after 2021.
- **MPMS #114484** – Safety improvements - Installation of all-weather pavement markings along corridor.

Strategies to Preserve Corridor Capacity

2A - PennDOT, MPO and BARTA staff and should continue working with organizations like Commuter Services of Pennsylvania that promote alternative modes of transportation

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4F - Explore non-traditional intersection treatments such as roundabouts to gain additional throughput

4G - Reconstruct all freeway interchanges to meet current design standards

6A - Explore additional through lanes where traffic volumes exceed capacity beyond typical peak periods where none of the above provide adequate relief, particularly southbound between Broadcasting Road and U.S. 422 West

6C - Work with municipalities to use land use tools to preserve future rights-of-way

OTHER - Berks County officials should coordinate with Lehigh County officials on roadway expansion/ improvements north of the corridor

Roadway Measures

Corridor Length (Miles): **15**

Traffic (AADT): **15,048 – 29,138**

Truck %: **11 – 22**

Avg. AM Peak Speed (MPH): **44.40**

Avg. PM Peak Speed (MPH): **41.70**

TTI: **1.23** | PTI: **1.61**

Additional Factors

NHS: **Yes**

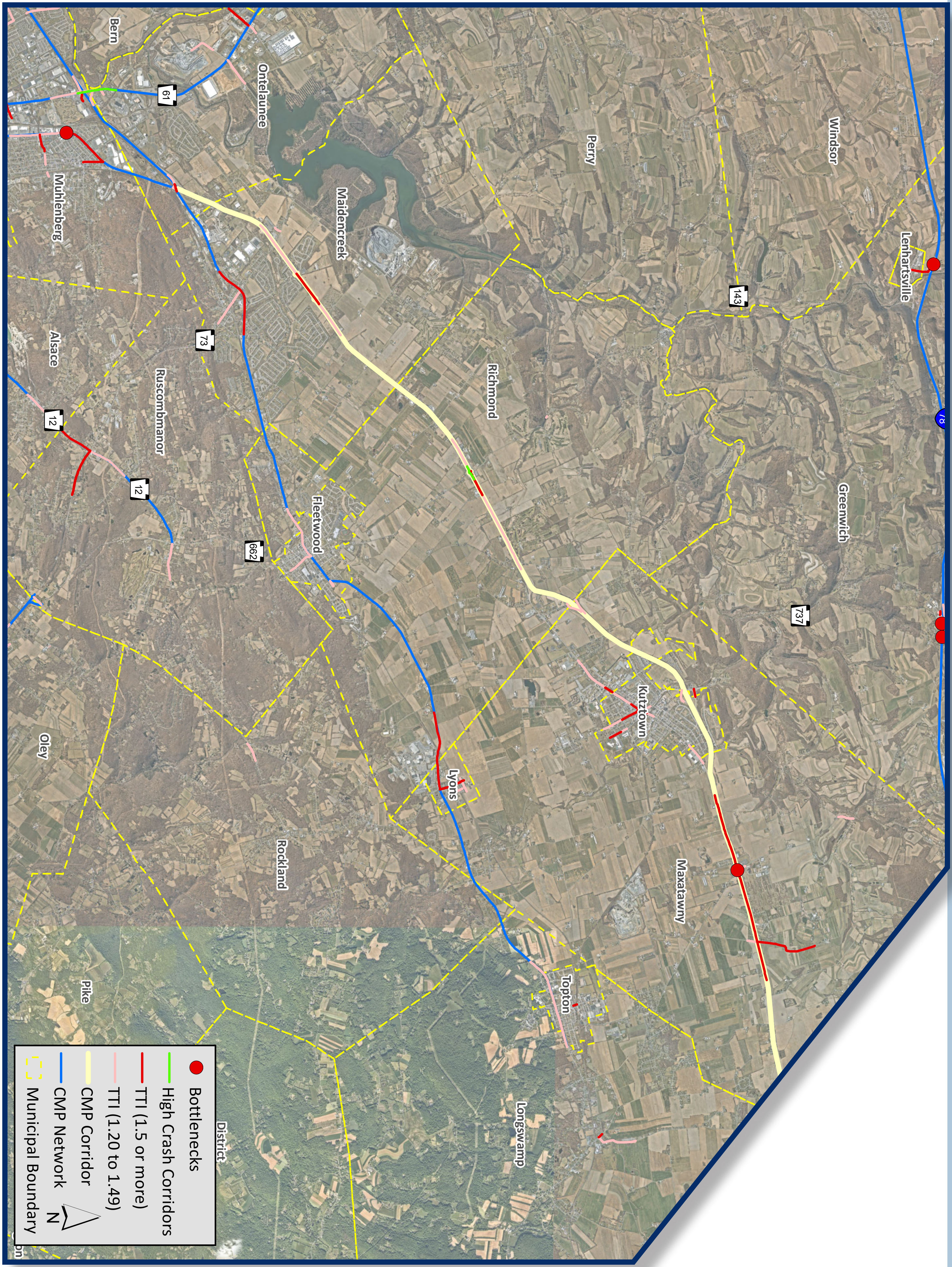
High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **Yes**
(U.S. 222/662 intersection)

Critical Freight Corridor: **Yes**

Bottleneck Location: **Yes**
(Long Lane/222 - construction related)

Transit Route: **No**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Bern
Ontelaunee
Maidencreek
Perry
Windsor
Lenhartsville
Muhlenberg
Alsace
Ruscombmanor
Richmond
Fleetwood
Greenwich
Kutztown
Lyons
Oley
Rockland
Maxatawny
Pike
Topton
Longswamp
District
61
73
12
662
143
737

U.S. 222 BUSINESS
(U.S. 222 Merge to U.S. 422 West Shore Bypass)

Summary
Lancaster Avenue (U.S. 222 Business) traverses older, dense residential and commercial development in southwest Reading, neighboring boroughs and a small portion of Cumru Township. Peak hour congestion occurs regularly throughout the corridor, particularly at the PA 724 and PA 10/U.S. 422 intersections. The roadway consists of two lanes each direction in Reading with no turn lanes, then turns into a single lane with center turn lanes or protected left lanes in Cumru and Shillington. After Museum Road, Lancaster Pike reverts back to two lanes each direction. The highly congested intersection at PA 10/U.S. 422 will be reconfigured during the West Shore Bypass reconstruction.

Planned Improvements
- **MPMS #116746** – Low cost signal upgrade safety improvement at Summit Avenue and Business 222, Morgantown Road (PA 10) and Business 222.
- **MPMS #102161** – U.S. 222 Business corridor safety improvements from Kenhorst Borough line to PA 10 (Schuylkill River Trail Bridge).
- **MPMS #119419** – Vulnerable Road Users (VRUs) pedestrian safety improvement at Kenhorst Boulevard and Business 222, Noble Street and Business 222, Grace Street and Business 222, and Morgantown Road (PA 10) and Business 222.
- **MPMS #114439** – West Shore Bypass reconstruction project. Project involves highway reconstruction with ramp reconfiguration (222/WSB), bridge replacement and preventative maintenance activities.

Strategies to Preserve Corridor Capacity
2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

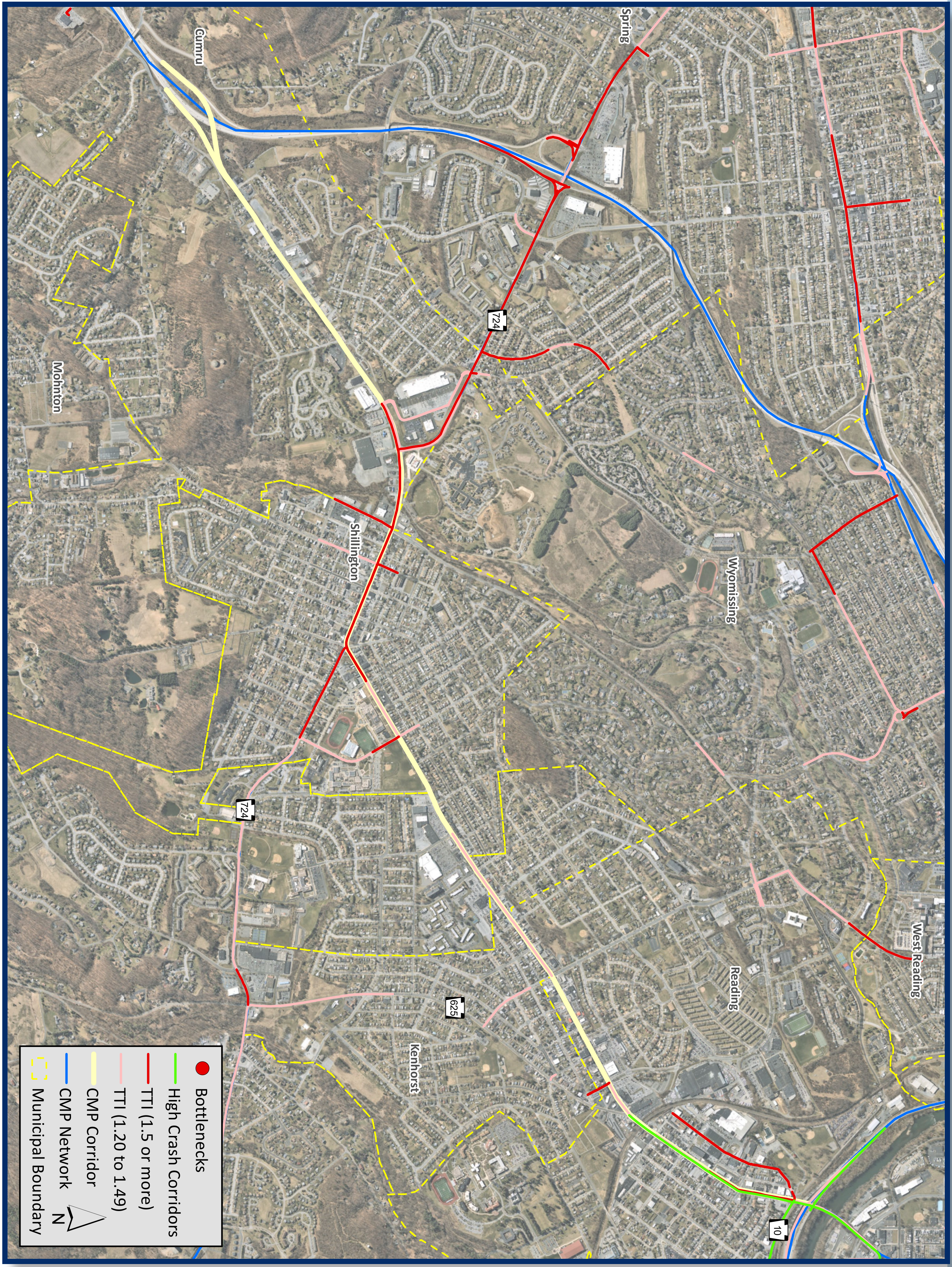
4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

OTHER - On-street parking elimination where turn lanes are needed

Roadway Measures
Corridor Length (Miles): **4.58**
Traffic (AADT): **9,407 – 20,433**
Truck %: **2 – 8**
Avg. AM Peak Speed (MPH): **28.10**
Avg. PM Peak Speed (MPH): **24.80**
TTI: **1.34** | PTI: **1.81**

Additional Factors
NHS: **Yes**
High V/C Corridor (PM Peak): **No**
High Crash Corridor: **Yes**
Critical Freight Corridor: **No**
Bottleneck Location: **No**
Transit Route: **Yes**


Cumru
Spring
Mohnton
Shillington
Wyomissing
West Reading
Reading
Kenhorst
724
625
10
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

U.S. 222 BUSINESS (U.S. 422 West Shore Bypass to PA 12)

Summary

This central portion of U.S. 222 Business traverses the residential and commercial heart of the City of Reading. Congestion occurs throughout the corridor as a result of signals, lack of left-turn lanes, on-street parking, daily commuter traffic to/from downtown businesses. This segment also serves to connect suburban visitors with downtown attractions.

Planned Improvements

- **MPMS #114439** – Highway reconstruction/ widening with ramp reconstruction, bridge replacement, and bridge preventive maintenance activities. West shore bypass from Buttonwood Street overpass in West Reading to Schuylkill River Bridge east of I-176 in Exeter Township.
- **MPMS #116746** – Low cost signal upgrade safety improvements.
- **MPMS #119419** – Vulnerable Road Users (VRUs) pedestrian safety improvement at South 4th and Chestnut Streets, Business 222 and Bern Street, and Business 222 and Crescent Avenue intersections.
- **MPMS #10613** – Bridge replacement of the Fifth Street Bridge over the Norfolk Southern railroad tracks in the City of Reading.
- **MPMS #102162** – Spring Street Corridor Safety Improvements – installation of traffic responsive signal system.

Strategies to Preserve Corridor Capacity

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

OTHER - Wayfinding signage in downtown area

Roadway Measures

Corridor Length (Miles): **4.20**

Traffic (AADT): **8,147 – 13,378**

Truck %: **2 – 10**

Avg. AM Peak Speed (MPH): **20.10**

Avg. PM Peak Speed (MPH): **18.90**

TTI: **1.54** | PTI: **2.08**

Additional Factors

NHS: **Yes**

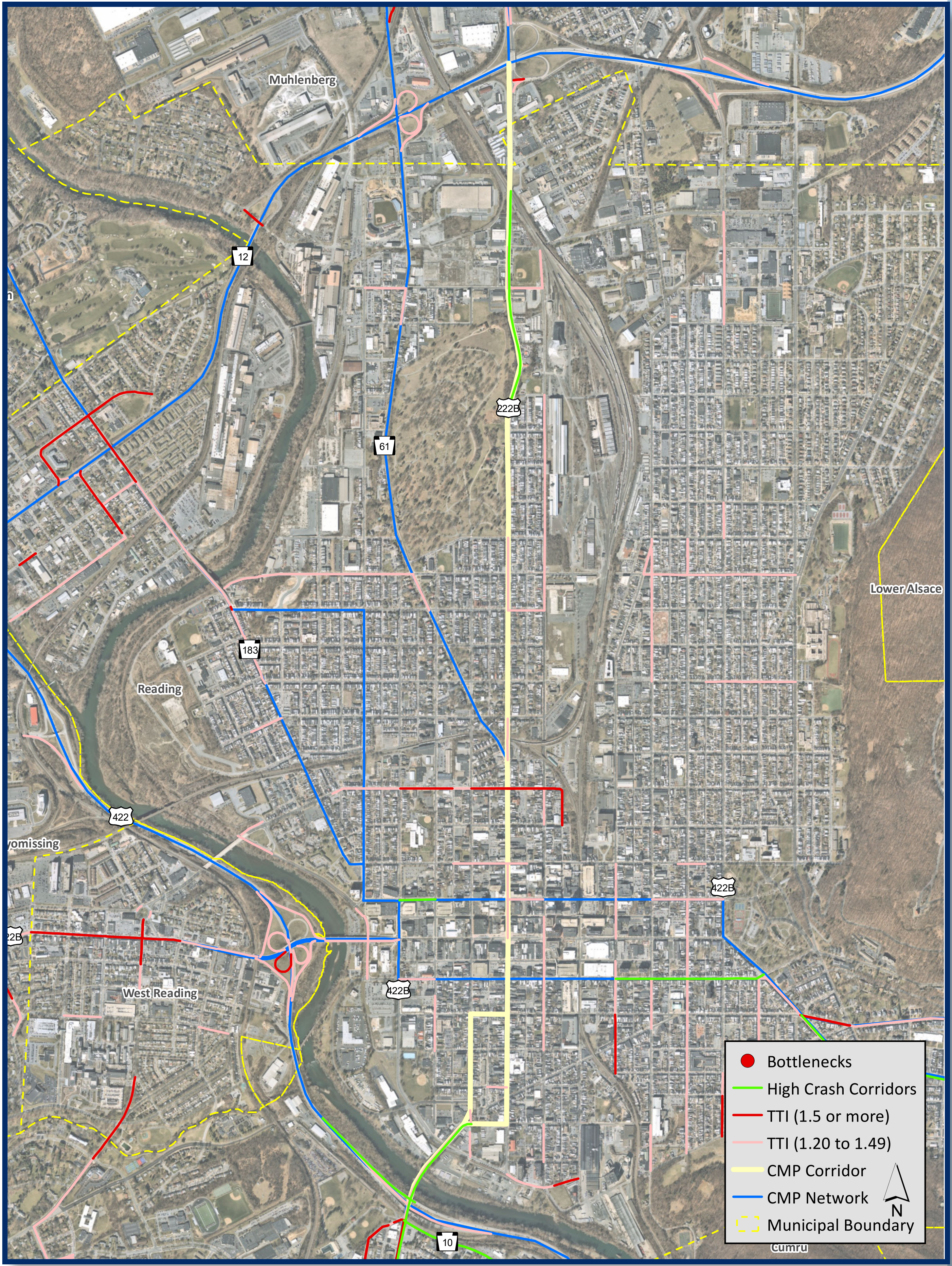
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **Yes**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**


Muhlenberg
Lower Alsace
Reading
yomissing
West Reading
Cumru
12
61
222B
183
422
422B
422B
22B
10
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

U.S. 222 BUSINESS (PA 12 to U.S. 222 Merge)

Summary

North of Reading, U.S. 222 Business traverses the heart of Muhlenberg Township's business district. The southern half of the corridor contains multiple strip shopping centers, the Fairground Square Mall, and several big box retailers with individual businesses scattered throughout. A number of neighborhood streets intersect at skewed angles. The northern portion also contains strip and big box retail, but also more residential development as well.

Planned Improvements

- **MPMS #114378** – Bridge preventive maintenance on the bridge carrying Business U.S. 222 over Laurel Run.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C - Municipalities should require new development to maintain and enhance street and sidewalk connectivity

1D - Municipalities should require bicycle and pedestrian accommodations throughout residential and commercial developments that promote accessibility and connectivity within and at the edges.

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

OTHER - Coordinate between PennDOT, RATS and township officials to begin implementing roadway improvements called for in the Muhlenberg Township Corridor Revitalization Study

Roadway Measures

Corridor Length (Miles): **4.20**

Traffic (AADT): **8,880 – 28,676**

Truck %: **3 – 10**

Avg. AM Peak Speed (MPH): **31.20**

Avg. PM Peak Speed (MPH): **27.40**

TTI: **1.48** | PTI: **1.96**

Additional Factors

NHS: **Yes**

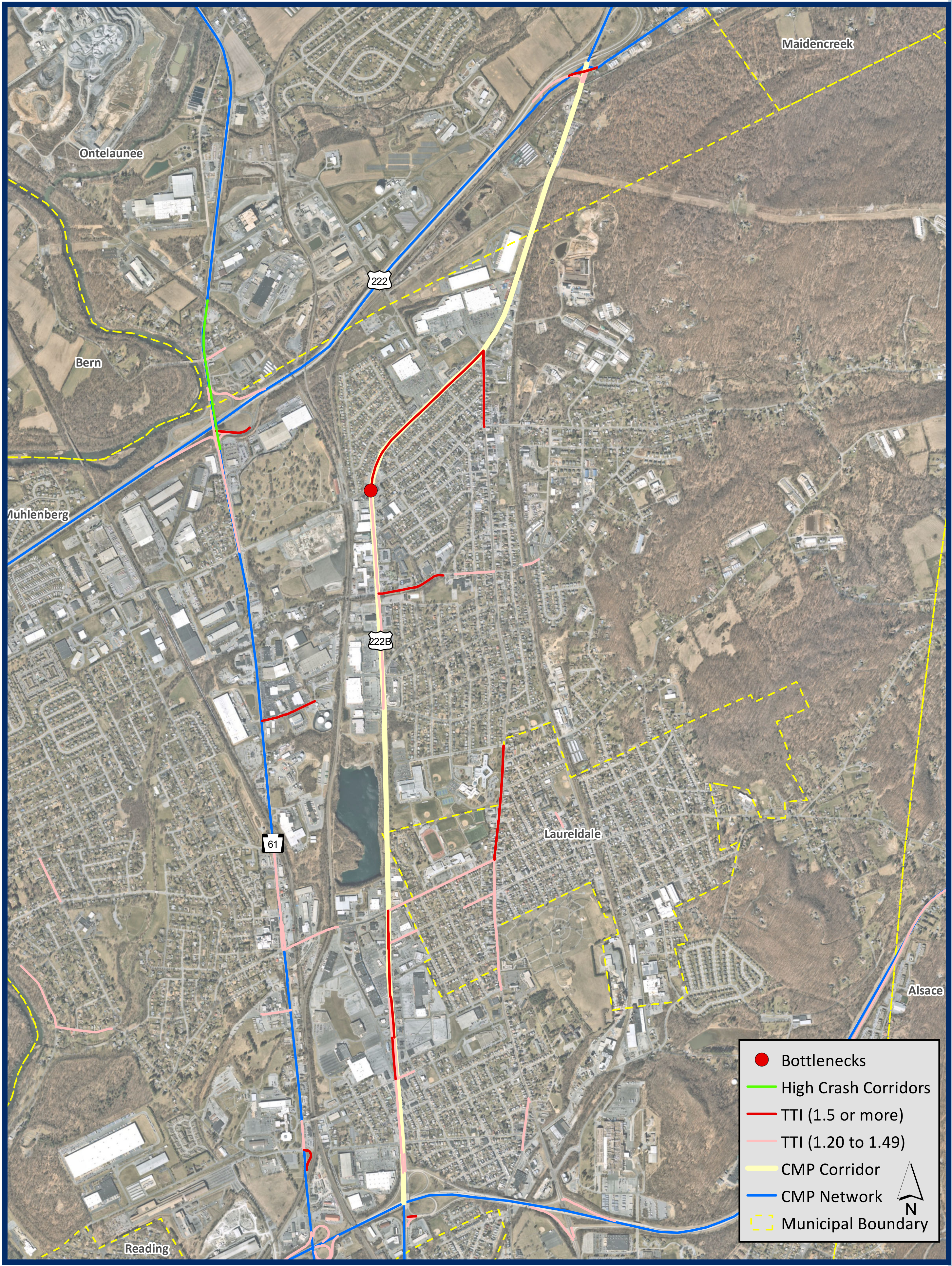
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **Yes** (at Tuckerton Road intersection)

Transit Route: **Yes**



Maidencreek
Ontelaunee
Bern
Muhlenberg
222
222B
61
Laureldale
Alsace
Reading
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

U.S. 422 (Lebanon County to U.S. 222 Merge)

Summary

From the point where U.S. 222/422 merges with Penn Ave. (U.S. 422 Business), the roadway narrows to a mostly two-lane cross section with either protected left-turn lanes or center turn lanes throughout most of the corridor. This portion of U.S. 422 serves both regional traffic to/from Lebanon and Harrisburg, and the densely developed western suburbs of Berks County. Highway commercial development lines the roadway, particularly in the eastern section and in the boroughs. Signalized intersections occur throughout the corridor, particularly in the eastern section and within Wernersville and Robesonia boroughs. Peak hour congestion occurs regularly in West Lawn/ Spring Township/Sinking Spring Borough, and in Wernersville and Robesonia boroughs. South of U.S. 422, Columbia Ave. and Mountain Home Road form a National Highway System Intermodal Connector, linking petroleum pipelines in the area to the roadway network. Historically, bottleneck conditions occur at the intersection of U.S. 422 (Penn Ave) and PA 724 (Shillington Rd). Because of this, the Borough of Sinking Spring has been working with PennDOT on plans to reconfigure this intersection to improve efficiency. Parallel to this project is an ongoing plan for the Borough to create a new road by adding a connection between Shillington Road and Columbia Avenue.

Planned Improvements

- **MPMS #110007** – Concrete patching and resurfacing of U.S. 222 portions and adjoining ramps from Wyomissing Borough line to the U.S. 222/U.S. 422 interchange.
- **MPMS #87688** – U.S. 422 (Penn Avenue) at Shillington Road and Mull Avenue intersection realignments in Sinking Spring Borough.
- **MPMS #92070** – Bridge rehabilitation of the U.S. 422 (Penn Avenue) over the Cacoosing Creek in Sinking Spring Borough.
- **MPMS #105334** – Realignment of U.S. 422 (Penn Avenue), SR 3016 (Columbia Avenue), and Cacoosing Avenue intersection.

Strategies to Preserve Corridor Capacity

2A - PennDOT, MPO and BARTA staff and should continue working with organizations like Commuter Services of Pennsylvania that promote alternative modes of transportation

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

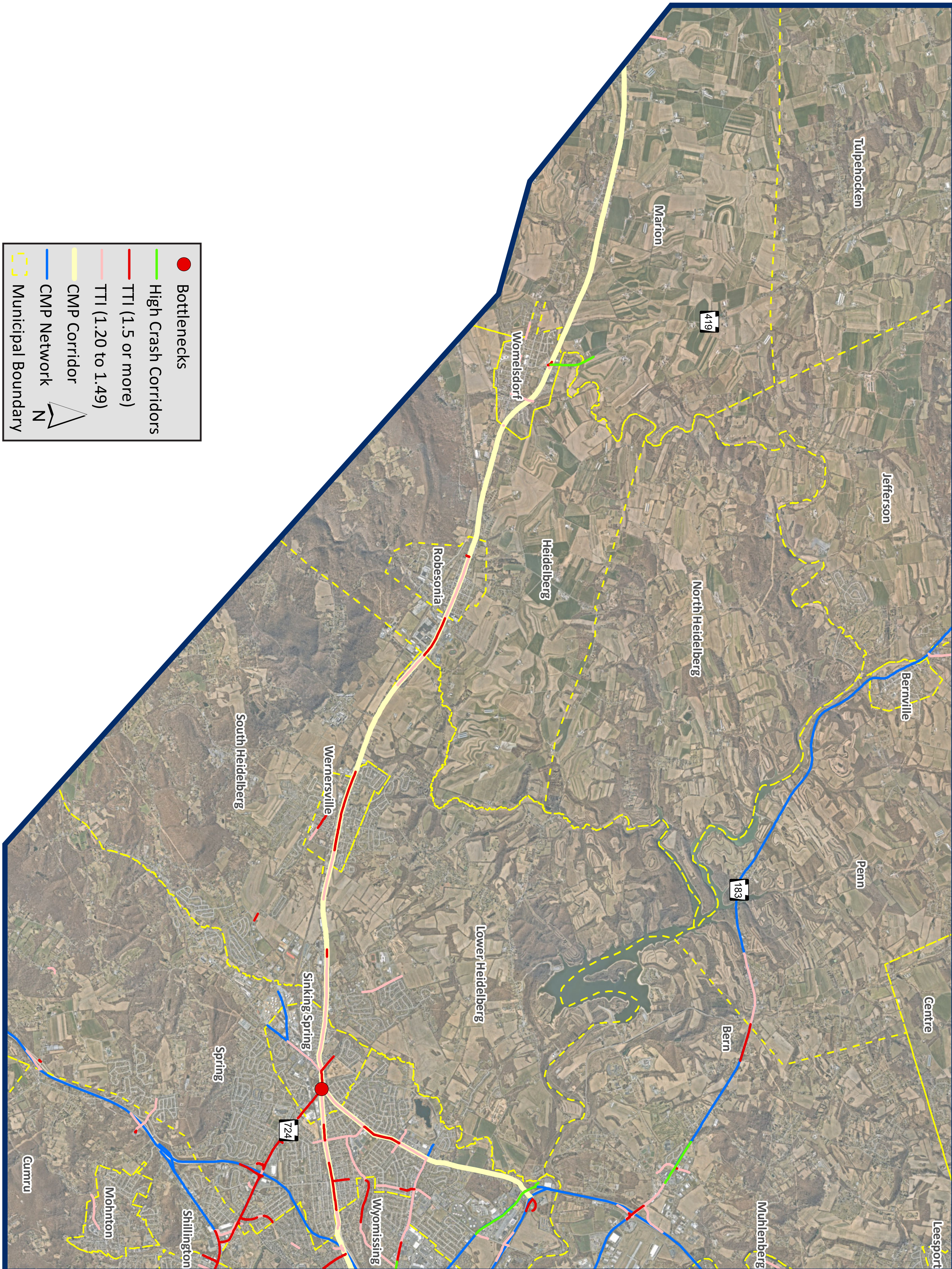
4C - Review signalized intersections for signal coordination and optimization

Roadway Measures

Corridor Length (Miles): **15.54**
Traffic (AADT): **6,121 – 28,404**
Truck %: **3 – 10**
Avg. AM Peak Speed (MPH): **36.40**
Avg. PM Peak Speed (MPH): **34.60**
TTI: **1.15** | PTI: **1.43**

Additional Factors

NHS: **Yes**
High V/C Corridor (PM Peak): **Yes**
High Crash Corridor: **No**
Critical Freight Corridor: **No**
Bottleneck Location: **Yes**
(U.S. 422 @ U.S. 724)
Transit Route: **No**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Tulpehocken
Marion
Womelsdorf
Jefferson
Heidelberg
Robesonia
North Heidelberg
Bernville
South Heidelberg
Wernersville
Penn
Lower Heidelberg
Centre
Sinking Spring
Spring
Bern
Cumru
Mohnton
Shillington
Wyomissing
Muhlenberg
Leesport
419
183
724

U.S. 422 (West Shore Bypass)

Summary

Containing the most heavily-traveled expressway corridor in Berks County, the West Shore Bypass carries local and regional traffic on U.S. 422. Built in the 1960's, the roadway has difficulty carrying the volume of traffic using it today. Interchanges are obsolete, and traffic stacking on ramps occurs regularly during peak periods. Detour routes are limited and involve traveling on local streets through the urban area.

Planned Improvements

- **MPMS #114439** – West Shore Bypass from Buttonwood Street overpass in West Reading to Schuylkill River Bridge east of I-176 in Exeter Township. Project includes highway reconstruction with ramp reconfiguration, bridge replacement and preventive maintenance activities.
- **MPMS #94900** – Intelligent Transportation Systems – implementing freeway service patrol on SR 422, US 222 and PA 12 in the City of Reading, West Reading Borough, Wyomissing Borough, and the townships of Muhlenberg, Cumru, Exeter, Bern, Maiden Creek, Ontelaunee, and Spring.
- **MPMS #17622** – Safety improvement – installation of all-weather reflective pavement markings.
- **MPMS #72814** – Reconstructing and widening approximately 5 miles of U.S. 422 (West Shore Bypass) from PA 12 in Wyomissing Borough to the Schuylkill River Bridge east of Iinterstate 176 into Exeter Township including the interchanges at N. Wyomissing Boulevard, Penn Street/Penn Avenue, Lancaster Avenue, and Interstate 176.

Strategies to Preserve Corridor Capacity

2A - PennDOT, MPO and BARTA staff and should continue working with organizations like Commuter Services of Pennsylvania that promote alternative modes of transportation

5A - MPO staff should coordinate with PennDOT District staff and review the District Safety Plan to identify areas where accidents exacerbate existing congestion issues

5C - PennDOT safety staff should engage law enforcement in discussions regarding increased enforcement efforts in high crash corridors

6A - Explore additional through lanes where traffic volumes exceed capacity beyond typical peak periods where none of the above provide adequate relief, particularly southbound between Broadcasting Road and U.S. 422 West

6B - Explore the use of 'hardened shoulders' to add temporary capacity where feasible

Roadway Measures

Corridor Length (Miles): **7.00**

Traffic (AADT): **32,549 – 97,491**

Truck %: **5 – 13**

Avg. AM Peak Speed (MPH): **57.80**

Avg. PM Peak Speed (MPH): **55.10**

TTI: **0.94 |** PTI: **1.06**

Additional Factors

NHS: **Yes**

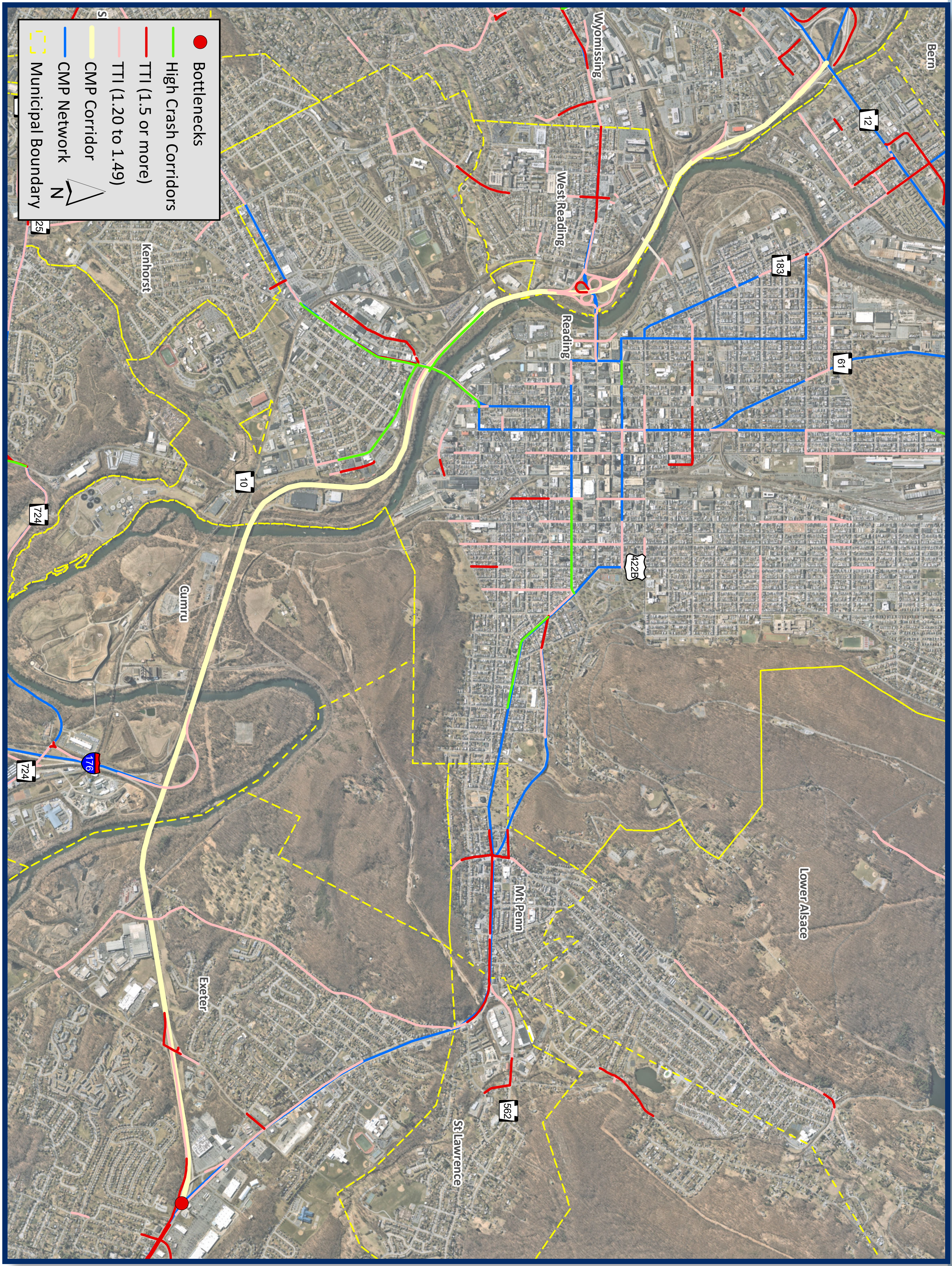
High V/C Corridor (PM Peak): **Yes**
(Multiple ramps along corridor)

High Crash Corridor: **Yes**

Critical Freight Corridor: **Yes**

Bottleneck Location: **Yes**
(@ U.S. 422/422Business)

Transit Route: **No**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Bern
Wyomissing
West Reading
Reading
Kenhorst
Cumru
Exeter
Mt Penn
St Lawrence
Lower Alsace
12
183
61
10
724
176
422B
562
25

U.S. 422 (West Shore Bypass to Montgomery County)

Summary

U.S. 422 becomes a four-lane divided arterial through this entire corridor. This corridor grew residentially and commercially after the 1980's as the Pottstown Bypass increased access to the Philadelphia suburbs. Left turns are permitted mostly at signalized intersections, with exceptions where the roadway physically splits. Congestion occurs at signalized intersections throughout the corridor.

Planned Improvements

- **MPMS #114391** – Bridge preservation project involving various bridges throughout the county. Project includes bridge deck latex modified concrete overlays.
- **MPMS #110075** – Traffic signal upgrades of 13 signalized intersections to be more traffic responsive between Pineland Road and River Bridge Road on U.S. 422 in Amity and Exeter Townships.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C - Municipalities should require new development to maintain and enhance street and sidewalk connectivity

2C - MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4A - Expand and enhance current Intelligent Transportation System (ITS) network throughout the Urban Area and in areas where congestion occurs

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C Review signalized intersections for signal coordination and optimization

4F - Explore non-traditional intersection treatments such as roundabouts to gain additional throughput

Roadway Measures

Corridor Length (Miles): **10.08**

Traffic (AADT): **32,159 – 40,912**

Truck %: **5 – 13**

Avg. AM Peak Speed (MPH): **43.70**

Avg. PM Peak Speed (MPH): **40.60**

TTI: **1.14** | PTI: **1.41**

Additional Factors

NHS: **Yes**

High V/C Corridor (PM Peak): **No**

High Crash Corridor: **Yes**

Critical Freight Corridor: **No**

Bottleneck Location: **Yes**
(@ U.S. 422/422Business)

Transit Route: **Yes**
(western portion of corridor contains transit route)

Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Exeter
St.Lawrence
Robeson
Birdsboro
Union
Amity
Oley
Earl
Douglass
724
345
562
662

U.S. 422 BUSINESS (U.S. 222 Merge to U.S. 422 Interchange)

Summary

Penn Avenue serves as West Reading Borough's 'Main Street', along with providing commuter access between Reading and Wyomissing and western Berks County. Penn Avenue through both boroughs contains a single lane in each direction with either protected left- or center left-turn lanes at most intersections. The corridor is lined with commercial and professional businesses, has on-street parking, and traffic signals throughout. A majority of the congested segments occur from State Hill Road east to U.S. 422.

Planned Improvements

- **MPMS #117620** – Congestion reduction project at the Business 422 and State Hill Road (SR 3023) intersection by conversion into a roundabout.
- **MPMS #114439** – Penn Avenue/West Shore Bypass interchange reconfiguration and widening.

Strategies to Preserve Corridor Capacity

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4C - Review signalized intersections for signal coordination and optimization

OTHER - Explore improvements to parallel routes to accommodate local traffic

OTHER - Create additional off-street parking in commercial areas

Roadway Measures

Corridor Length (Miles): **2.32**

Traffic (AADT): **10,342 – 23,812**

Truck %: **3 – 6**

Avg. AM Peak Speed (MPH): **22.60**

Avg. PM Peak Speed (MPH): **20.30**

TTI: **1.40** | PTI: **1.91**

Additional Factors

NHS: **Yes**

High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Spring
Wyomissing
Cumru
Reading
West Reading
625
10
183

U.S. 422 BUSINESS (Penn Street Bridge to U.S 422 Merge)

Summary

Reading, U.S. 422 Business splits between one-way urban streets through the city core, then traverses residential and commercial areas of Mount Penn Borough and Exeter Township. Lane configurations vary from one to three lanes on either one way or two way streets depending on location and signals are present throughout. On-street parking on sections in Reading and Mount Penn Borough also create friction to through traffic, and proximity to local businesses and residences create pedestrian and bicycle traffic. Congested segments are not clustered; rather, they are spread throughout the corridor. The eastern section of the corridor links to a number of strip commercial centers and to U.S. 422.

Planned Improvements

- **MPMS #116746** – Low cost signal upgrades at the intersections of Third and Franklin Streets, Fourth and Franklin Streets, Ninth and Franklin Streets, Ninth (SR 2007) and Washington Streets, and Tenth and Franklin Streets in the City of Reading.

- **MPMS #119419** – Vulnerable Road User (VRU) safety improvements at the intersections of Sixth and Washington Streets, Eighth and Washington Streets, Ninth (SR 2007) and Washington Streets, 10th and Washington Streets, and Eleventh (SR 2085) and Franklin Streets within the city of Reading.

- **MPMS #106140** – Rail Crossing upgrade at the Norfolk Southern crossings located on Franklin Street and Cherry Street in the City of Reading. Upgrades include upgrade of antiquated signal equipment to improve safety and performance.

- **OTHER** – City of Reading ARLE project involving the optimization/modification of 60 signals throughout the downtown area.

Strategies to Preserve Corridor Capacity

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4C - Review signalized intersections for signal coordination and optimization

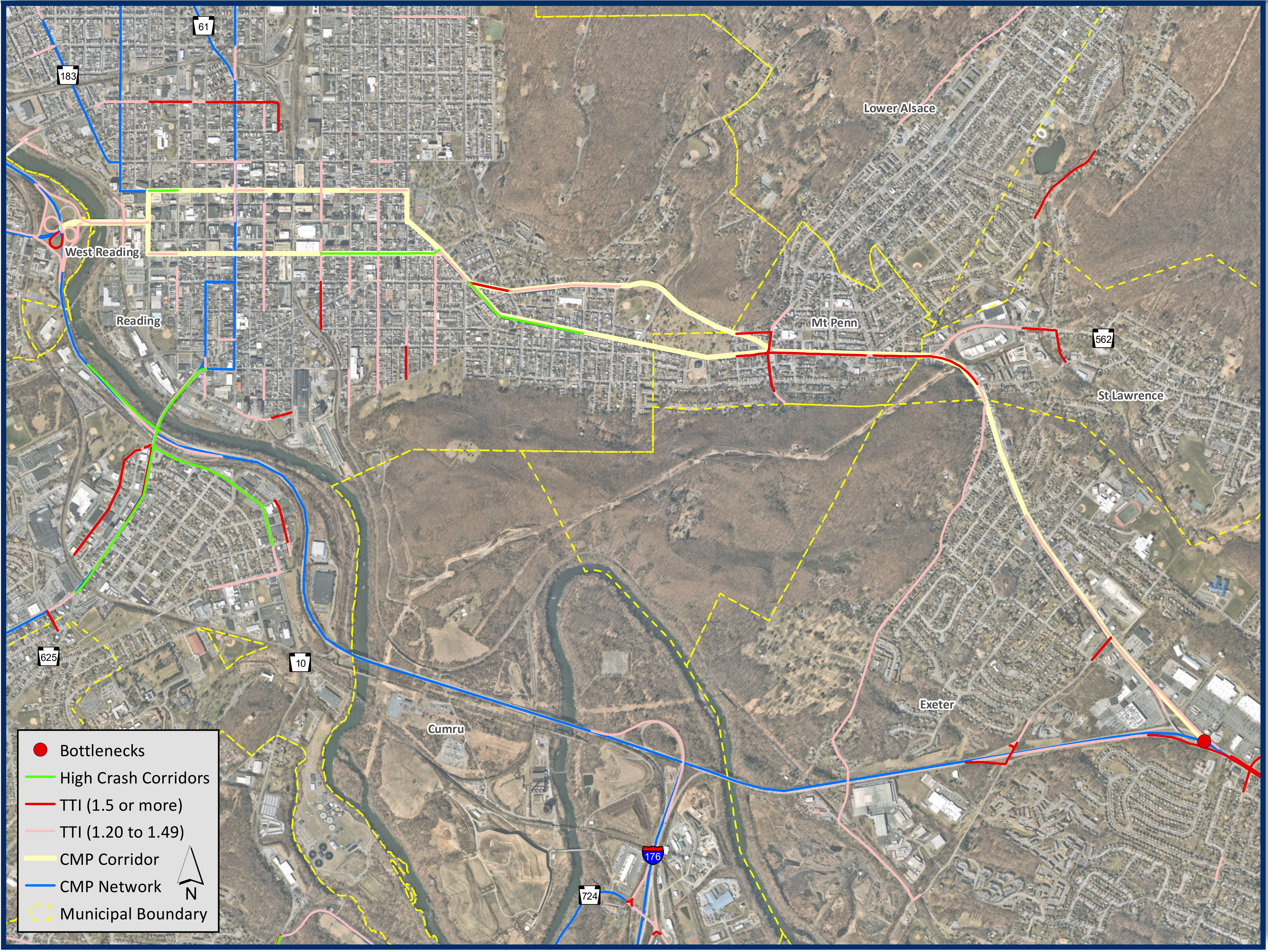
OTHER Wayfinding signage in downtown area

Roadway Measures

Corridor Length (Miles): **4.84**
Traffic (AADT): **4,739 – 24,563**
Truck %: **1 – 7**
Avg. AM Peak Speed (MPH): **23.00**
Avg. PM Peak Speed (MPH): **21.40**
TTI: **1.41** | PTI: **1.84**

Additional Factors

NHS: **Yes**
High V/C Corridor (PM Peak): **No**
High Crash Corridor: **Yes**
Critical Freight Corridor: **No**
Bottleneck Location: **Yes**
(@ U.S. 422/422Business)
Transit Route: **Yes**



61
183
Lower Alsace
West Reading
Reading
Mt Penn
562
St Lawrence
625
10
Cumru
Exeter
176
724
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

PA 562 and SR 2067

Summary

562 enters Boyertown Borough from the southwest, then terminates at PA 73 and becomes SR 2067 (Reading Avenue North). PA 562 is one of two state routes that connect Boyertown with the Reading Urban Area (PA 73 being the other). These roadways also connect with PA 100 serving the Lehigh Valley and Pottstown areas. Locally, the roadway is bordered by residential uses and the Boyertown Downtown District, and is close to Boyertown Area School District facilities. Pedestrian improvements have taken place in the downtown Boyertown area over the last number of years to improve the main street increase pedestrian safety and circulation.

Planned Improvements

- **MPMS #117637** – Bridge preservation project on PA 562 over the Ironstone Creek.
- **MPMS #10596** – Signal improvements at Philadelphia Avenue, Madison Street, and Reading Avenue within Boyertown Borough
- **OTHER** – DCED Multi-Modal Project in the vicinity of the intersection of N. Reading Avenue (SR 2067)/Montgomery Avenue (SR 2069)/Henry Avenue. Project to include the installation of a traffic signal at N. Reading Ave./ Montgomery Ave./Henry Ave. and roadway widening with dedicated left turn lanes along N. Reading Ave. A five foot sidewalk and ADA ramps will be constructed at the intersections.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C - Municipalities should require new development to maintain and enhance street and sidewalk connectivity

2C - MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

2G - Municipalities should ensure that bicycle, pedestrian, and transit-friendly improvements are integrated into all new development proposals

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

Roadway Measures (PA 562 and SR 2067)

Corridor Length (Miles): **2.99**

Traffic (AADT): **7,421 – 9,347**

Truck %: **6 – 10**

Avg. AM Peak Speed (MPH): **29.50**

Avg. PM Peak Speed (MPH): **28.30**

TTI: **1.28** | PTI: **1.52**

Additional Factors

NHS: **No**

High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **No**


Colebrookdale
Boyertown
Douglass
100
73
562
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

U.S. 724 (Sinking Spring to U.S. 222 Business)

Summary

Beginning at Penn Avenue (U.S. 422) in Sinking Spring, PA 724 traverses mixed suburban residential and commercial development, and provides direct access to U.S. 222. The corridor is signalized, and lane configurations vary. Sinking Spring Borough officials are spearheading efforts to reconfigure portions of the corridor containing four offset intersections in the borough including U.S. 422/PA 724. Congestion occurs regularly throughout the corridor. The heaviest congestion occurs at peak times at the signalized intersections with U.S. 422, Spohn Road, Jefferson and Harvard Boulevards and U.S. 222 Business.

Planned Improvements

- **MPMS #87688 - MPMS #87688** – U.S. 422 (Penn Avenue) at Shillington Road and Mull Avenue intersection realignments in Sinking Spring Borough.
- **MPMS #116746** – Signal upgrade project at the intersection of PA 724 (Revere Boulevard) and Jefferson Boulevard.)

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4C - Review signalized intersections for signal coordination and optimization

6A - Explore additional through lanes where traffic volumes exceed capacity beyond typical peak periods where none of the above provide adequate relief, particularly southbound between Broadcasting Road and U.S. 422 West

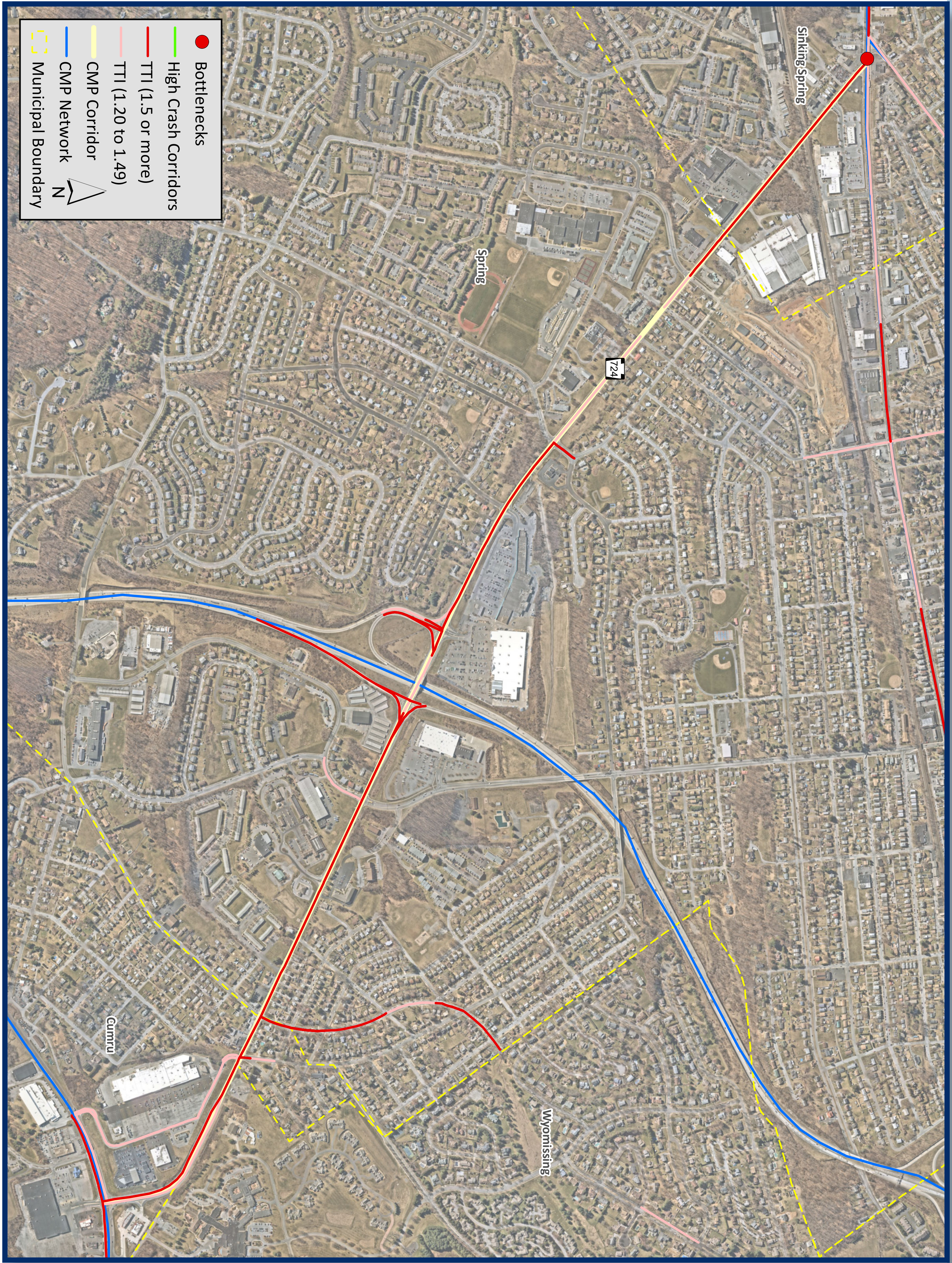
6C - Work with municipalities to use land use tools to preserve future rights-of-way

Roadway Measures

Corridor Length (Miles): **2.48**
Traffic (AADT): **12,069 – 14,616**
Truck %: **5 – 6**
Avg. AM Peak Speed (MPH): **25.10**
Avg. PM Peak Speed (MPH): **21.60**
TTI: **1.55** | PTI: **2.13**

Additional Factors

NHS: **Yes**
High V/C Corridor (PM Peak): **Yes**
High Crash Corridor: **No**
Critical Freight Corridor: **No**
Bottleneck Location: **Yes**
(Western end at U.S. 422 (Penn Ave.) intersection)
Transit Route: **Yes**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Sinking Spring
Spring
724
Cumru
Wyomissing

U.S. 724 (U.S. 222 Business to Interstate 176)

Summary

This corridor is diverse with older, dense suburban development on the western side of the PA 10 intersection, and rural low density development east of PA 10. Most of the congested segments occur on the western side, particularly at U.S. 222 Business and PA 625. The double-signal intersection with PA 10 was improved within the last 10 years but still exhibits some peak hour congestion.

Planned Improvements

- **MPMS #110012** – Upgrade of the existing concrete barrier and fence system on PA 724 (Philadelphia Avenue) from Valley Stream Road to Kennel Road to better withstand the debris and rocks that fall down the slope towards PA 724.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C - Municipalities should require new development to maintain and enhance street and sidewalk connectivity

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4C - Review signalized intersections for signal coordination and optimization

4G - Reconstruct all freeway interchanges to meet current design standards

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Roadway Measures

Corridor Length (Miles): **4.07**

Traffic (AADT): **8,274 – 13,679**

Truck %: **3**

Avg. AM Peak Speed (MPH): **30.40**

Avg. PM Peak Speed (MPH): **29.60**

TTI: **1.19** | PTI: **1.50**

Additional Factors

NHS: **No**

High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**
(only part of corridor is serviced)


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Shillington
Cumru
Wyomissing
Kenhorst
Reading
Robeson
Exeter
Lower Alsace
724
625
10
176

PA 724 (Interstate 176 to Birdsboro) and PA 345 (PA 724 to U.S. 422)

Summary

This corridor provides an eastbound commuter alternative to U.S. 422, as it continues from Berks to the Pottstown urban area and beyond. Though a mostly rural roadway, older village development occurs in the western segment, and two active quarries are served as well. Birdsboro Borough anchors the eastern end, where PA 724 and PA 345 intersect. The new PA 345 bridge over the Schuylkill River was completed in 2015, which provides direct access to an active landfill and U.S. 422.

Planned Improvements

- **MPMS #10700** – Bridge replacement/rehabilitation on PA 724 (Gibralter Road) bridge over the Allegheny Creek in Robeson Township.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2E - BARTA should examine where existing transit stops need improvements

2G - Municipalities should ensure that bicycle, pedestrian, and transit-friendly improvements are integrated into all new development proposals

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4C - Review signalized intersections for signal coordination and optimization

4F - Explore non-traditional intersection treatments such as roundabouts to gain additional throughput

4G - Reconstruct all freeway interchanges to meet current design standards

Roadway Measures (PA 724)

Corridor Length (Miles): **5.44**

Traffic (AADT): **9,114 – 10,265**

Truck %: **10 – 11**

Avg. AM Peak Speed (MPH): **43.10**

Avg. PM Peak Speed (MPH): **4320**

TTI: **1.18** | PTI: **1.37**

Roadway Measures (PA 345)

Corridor Length (Miles): **1.17**

Traffic (AADT): **3,679 – 7,503**

Truck %: **13 – 14**

Avg. AM Peak Speed (MPH): **31.10**

Avg. PM Peak Speed (MPH): **32.00**

TTI: **1.32** | PTI: **1.67**

Additional Factors

NHS: **No**

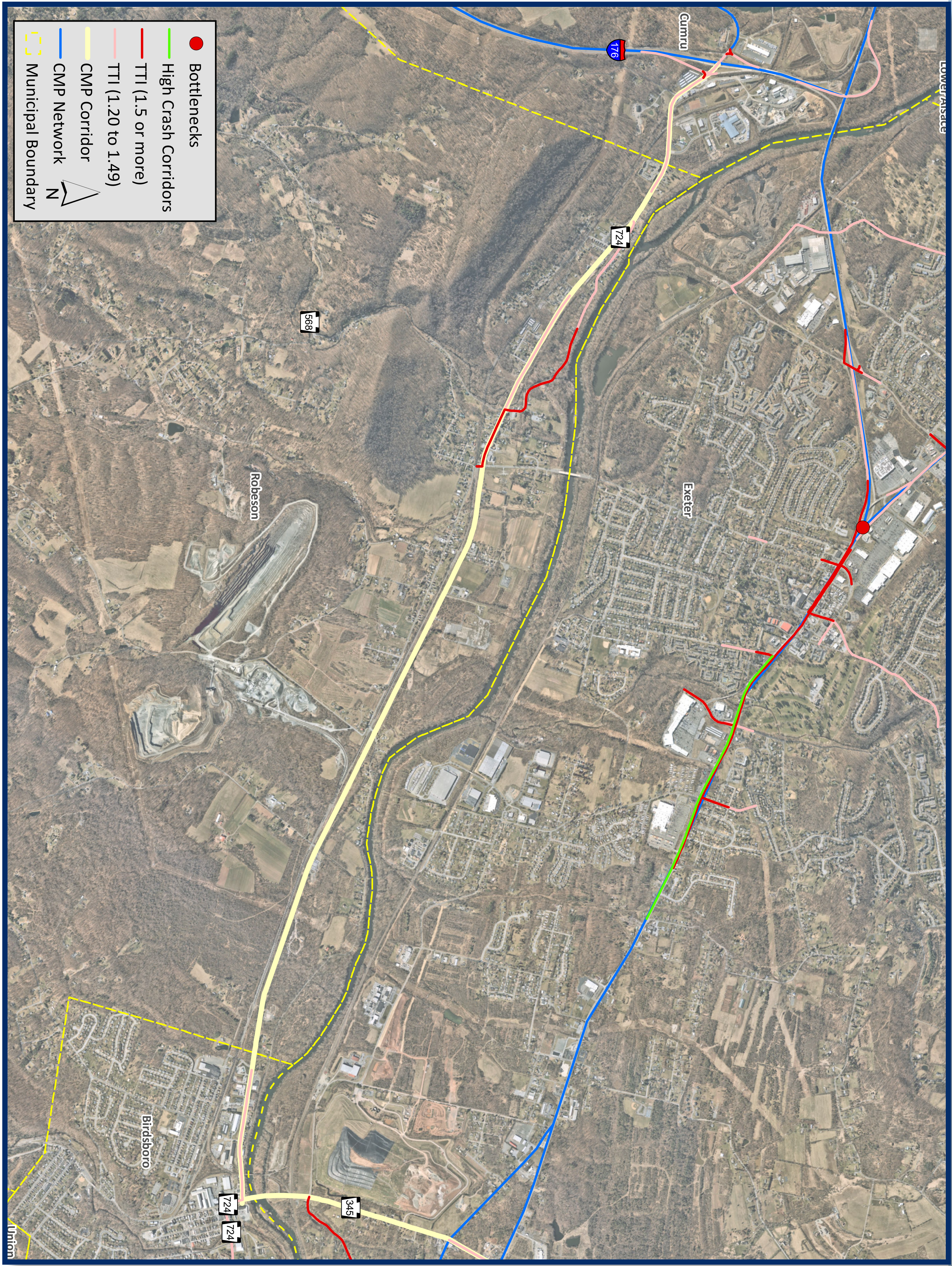
High V/C Corridor (PM Peak): **No**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**
(along PA 345 into Birdsboro Borough)


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Cumru
Lower Alsace
Exeter
Robeson
Birdsboro
Union
176
724
568
345

SR 1010

Summary

The longest non-Interstate corridor in the CMP, this portion of SR 1010 serves eight municipalities of varying densities and land uses with one lane in each direction, few turn lanes and scattered signals. More importantly, this roadway serves as an alternative to U.S. 222 and, at times, a detour route during crashes on U.S. 222. PA 73 crosses SR 1010 in the Village of Blandon, where congestion occurs regularly. SR 1010 serves East Penn Manufacturing, Berks County's largest manufacturing employer. SR 1010 continues east of this CMP corridor and connects with PA 29/PA 100, linking traffic to the Lehigh Valley and Pottstown.

Planned Improvements

- **MPMS #111504** – Transportation Enhancement Project, creation of a pedestrian path through Topton Borough Community Park and sidewalk, crosswalks, and ADA ramps along W. Weis Street (SR 1010) and Callowhill Street.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

1C - Municipalities should require new development to maintain and enhance street and sidewalk connectivity

1D - Municipalities should require bicycle and pedestrian accommodations throughout residential and commercial developments that promote accessibility and connectivity within and at the edges.

2B - Commuter Services staff should continue working with employers to promote and provide incentives for commuters to use alternative modes

2C - MPO and PennDOT staffs should identify locations where formalized Park and Ride lots should be located

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

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Roadway Measures

Corridor Length (Miles): **13.42**

Traffic (AADT): **6,048 – 17,200**

Truck %: **4 – 10**

Avg. AM Peak Speed (MPH): **36.70**

Avg. PM Peak Speed (MPH): **37.60**

TTI: **1.26** | PTI: **1.55**

Additional Factors

NHS: **No**

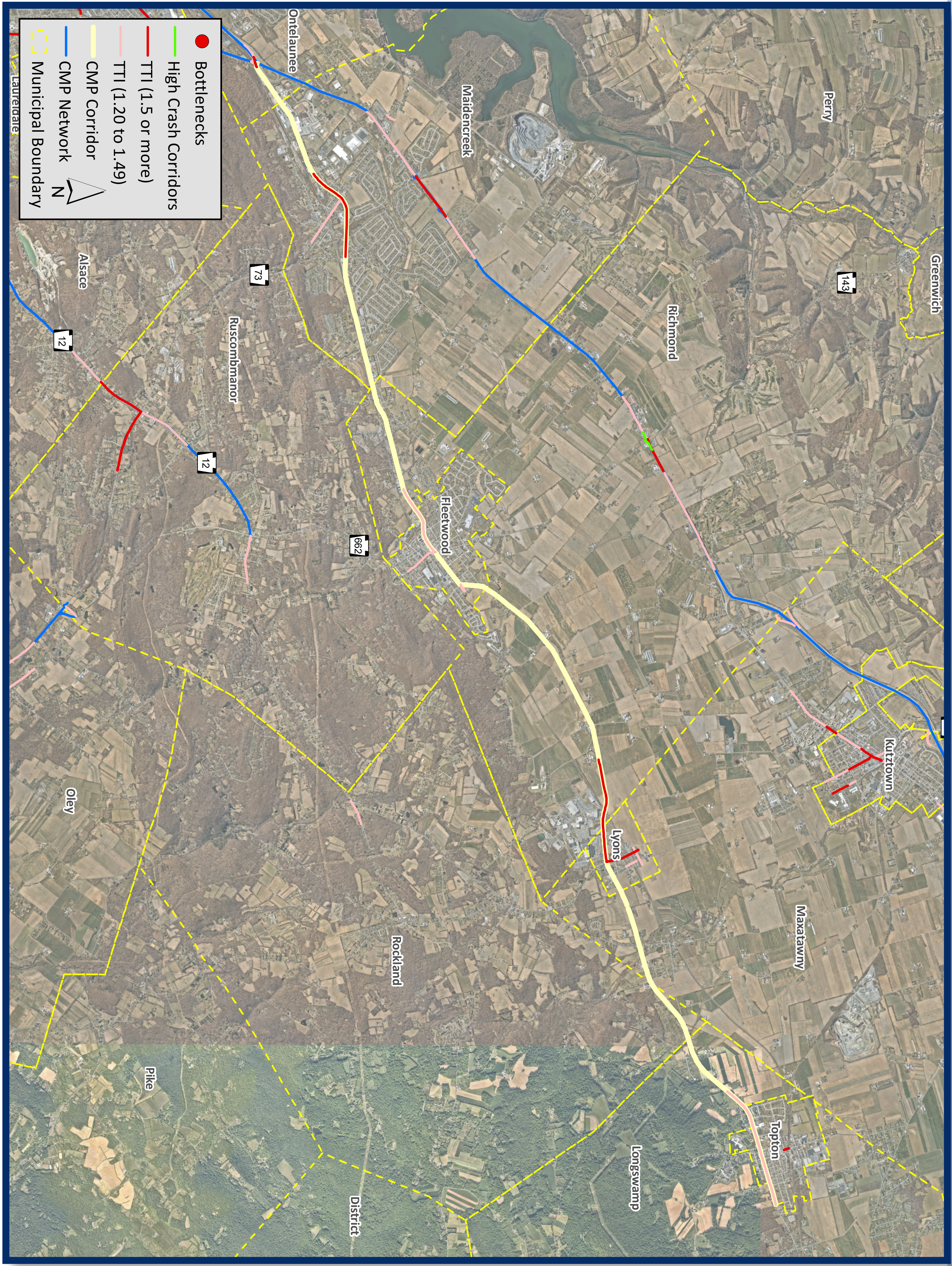
High V/C Corridor (PM Peak): **Yes** (within Borough of Fleetwood)

High Crash Corridor: **No**

Critical Freight Corridor: **Yes** (U.S. 222 to PA 662)

Bottleneck Location: **No**

Transit Route: **Yes**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Ontelaunee
Maidencreek
Perry
Greenwich
143
Richmond
Laureldale
Alsace
73
Ruscombmanor
12
12
662
Fleetwood
Oley
Rockland
Lyons
Kutztown
Maxatawny
Topton
Longswamp
Pike
District

SR 3021 (Paper Mill Road)

Summary

Paper Mill Road serves a highly developed commercial and residential area in Wyomissing Borough and Spring Township. SR 3021 provides direct access to U.S. 222 at two separate points, thus making it a vital connection. Much of the development in this corridor has occurred since the 1970's, and improvements to the roadway have been sporadic in nature. The roadway has a mostly 4-lane and 5-lane cross section, though lane function varies along the corridor. There are multiple signals and driveway access throughout. One large agricultural parcel remains undeveloped with the potential to add significant traffic in the future. As of this update there is currently a sketch proposal for a mixed-use development on this site. The applicant has also filed a Transportation Impact Study (TIS) Determination and Scoping Meeting application for the proposed project on 3-2-2023.

Planned Improvements

- **MPMS #119419** – Vulnerable Road User (VRU) safety improvements to an intersection along Paper Mill Road between Century Boulevard and Spring Ridge Drive.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2G - Municipalities should ensure that bicycle, pedestrian, and transit-friendly improvements are integrated into all new development proposals

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

6A - Explore additional through lanes where traffic volumes exceed capacity beyond typical peak periods where none of the above provide adequate relief, particularly southbound between Broadcasting Road and U.S. 422 West

6C - Work with municipalities to use land use tools to preserve future rights-of-way

Roadway Measures

Corridor Length (Miles): **1.08**

Traffic (AADT): **9,895 – 15,576**

Truck %: **2 – 7**

Avg. AM Peak Speed (MPH): **30.10**

Avg. PM Peak Speed (MPH): **25.70**

TTI: **1.27** | PTI: **1.64**

Additional Factors

NHS: **No**

High V/C Corridor (PM Peak): **No**

High Crash Corridor: **Yes**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**

Bern
Spring
Wyomissing
222
222
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

SR 3023 (State Hill Road)

Summary

State Hill Road serves a highly developed commercial and residential area in Wyomissing Borough and Spring Township. Much of the development in this corridor has occurred since the 1970's, and improvements to the roadway have been sporadic in nature. The roadway varies from a 2-lane to a 5-lane cross section with multiple signals and uncontrolled driveway access.

Planned Improvements

- **MPMS #105954** – Corridor safety improvements along SR 3023 (State Hill Road) in Wyomissing Borough. Improvements to include widening, access management, and intersection upgrades.
- **MPMS #116746** – Signal upgrades at the intersection of SR 3023 (State Hill Road and Greenwood Mall Road.)
- **MPMS #117620** – Congestion reduction project at the intersection of SR 3023 (State Hill Road) and Business 422 (Penn Avenue). Project includes conversion of intersection into a roundabout.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2G - Municipalities should ensure that bicycle, pedestrian, and transit-friendly improvements are integrated into all new development proposals

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

6A - Explore additional through lanes where traffic volumes exceed capacity beyond typical peak periods where none of the above provide adequate relief, particularly southbound between Broadcasting Road and U.S. 422 West

6C - Work with municipalities to use land use tools to preserve future rights-of-way

Roadway Measures

Corridor Length (Miles): **2.99**

Traffic (AADT): **16,519 – 19,018**

Truck %: **1 – 3**

Avg. AM Peak Speed (MPH): **26.70**

Avg. PM Peak Speed (MPH): **22.50**

TTI: **1.58** | PTI: **2.13**

Additional Factors

NHS: **No**

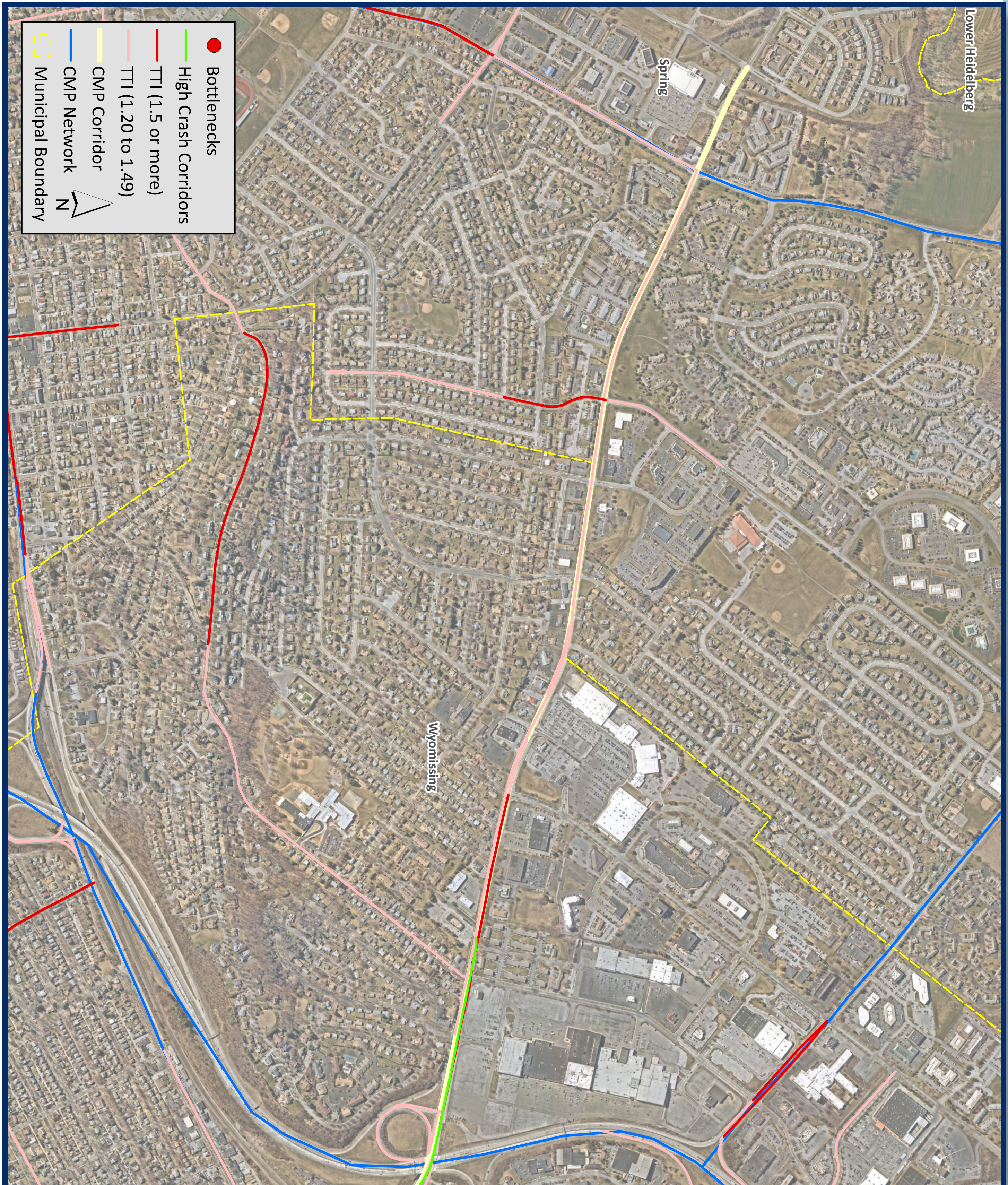
High V/C Corridor (PM Peak): **Yes**
(vicinity of Berkshire Boulevard)

High Crash Corridor: **Yes**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **Yes**


Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N
Spring
Lower Heidelberg
Wyomissing

SR 3055 (Van Reed Road)

Summary

SR 3055 is a highly-developed suburban corridor with mostly dense residential development interspersed with scattered commercial. Additionally, the Wilson School District has their large campus serving all grade levels, along with sports facilities along this corridor. Van Reed Road serves as a direct link between U.S. 222 to the north and U.S. 422 to the south. Sinking Spring Borough officials are spearheading efforts to reconfigure portions of the corridor containing four offset intersections in the borough including Van Reed Rd/U.S. 422.

Planned Improvements

- **MPMS #87688** – Intersection re-alignment at SR 422 (Penn Avenue) at Shillington Road and Mull Avenue.
- **MPMS #119419** – Vulnerable Road User (VRU) safety improvements to the intersection a SR 3055 (Van Reed Road) and Dwight Street.

Strategies to Preserve Corridor Capacity

1B - Municipalities should include Access Management strategies such as rear access, shared driveways, alleyways, defined driveways and limited curb cuts in new development and redevelopment projects and along existing roadways

2D - BARTA should examine where expanded transit service can be provided where significant benefits can be realized

2E - BARTA should examine where existing transit stops need improvements

2H - Local officials and non-profit organizations should become familiar with grant, loan and reimbursement programs available through governmental and non-profit sources that can be used for bicycle and pedestrian facilities

4B - Review corridors for simple, low-cost improvements that make use of existing cartway such as narrower lanes, restriping, left-turn lanes, channelization, and inclusion of physical separation techniques

4C - Review signalized intersections for signal coordination and optimization

6C - Work with municipalities to use land use tools to preserve future rights-of-way

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Roadway Measures

Corridor Length (Miles): **3.15**

Traffic (AADT): **12,266 – 12,908**

Truck %: **3 – 5**

Avg. AM Peak Speed (MPH): **27.30**

Avg. PM Peak Speed (MPH): **28.20**

TTI: 1.17 | PTI: **1.48**

Additional Factors

NHS: **No**

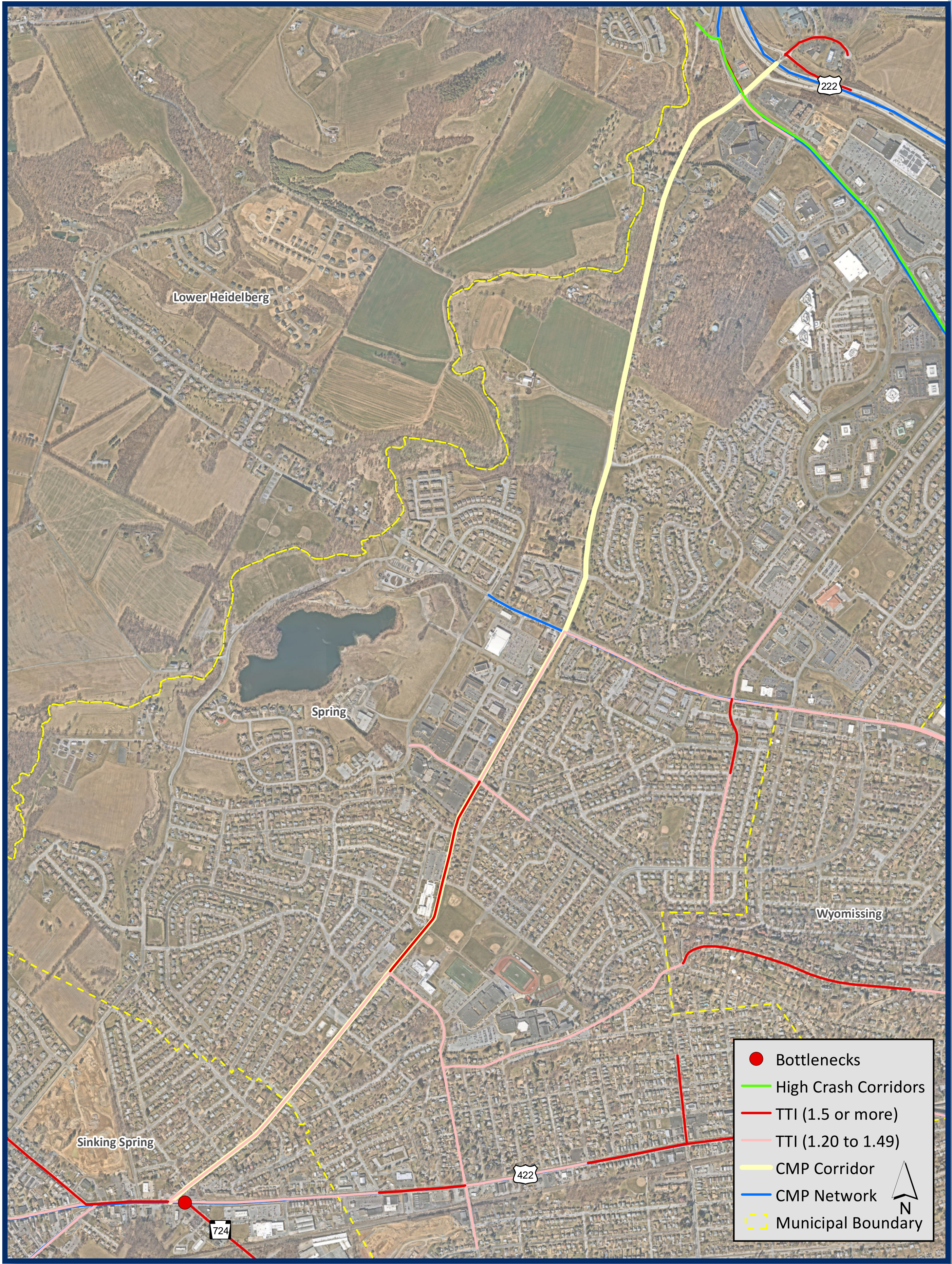
High V/C Corridor (PM Peak): **Yes**

High Crash Corridor: **No**

Critical Freight Corridor: **No**

Bottleneck Location: **No**

Transit Route: **No**


222
Lower Heidelberg
Spring
Wyomissing
Sinking Spring
422
724
Bottlenecks
High Crash Corridors
TTI (1.5 or more)
TTI (1.20 to 1.49)
CMP Corridor
CMP Network
Municipal Boundary
N

6 IMPLEMENTATION AND FUTURE ACTIONS

As the transportation planning and programming process moves forward, changes also occur on the roadway network. Development occurs, roadway projects are completed, and traffic reflects those changes. The CMP is meant to continuously follow those changes and recommend appropriate strategies for implementation.

a. Network Monitoring

The factors listed in Chapter 4 provide the performance measures that will be used to monitor the network and provide timely, regular updates to this CMP. As projects are implemented and measures change, the CMP network will evolve. Additionally, staff will evaluate other measures of congestion and determine if they warrant inclusion in future CMP updates.

b. Project Tracking

As time progresses, updates of active projects listed on the current TIP are given at MPO meetings. CMP corridors with projects on the TIP will be monitored specifically, and—as new projects on those corridors are added to the TIP—those CMP corridors will be updated.

c. Project Evaluation

As projects progress through their major stages (Preliminary Engineering, Final Design, Right-of-Way, Utility, Construction), corridor-specific updates will be made in Chapter 5. As projects are completed on the CMP network traffic conditions will be monitored and the CMP updated.

d. Update Schedule

In an effort to provide input into the biennial update of the region's Transportation Improvement Program (TIP), this CMP will be updated every other year in years between TIP updates. Through monitoring of the measures outlined in Chapter 3 and listed on individual CMP corridors, project completion and overall system changes, updates to the overall CMP network and individual corridors will take place. Mitigation strategies can be advanced that will ultimately lead to meaningful projects being introduced into the region's LRTP/TIP. The advancement from measures and strategies to meaningful project placement on the LRTP/TIP and delivery can only occur through meaningful, regular, open dialogue between federal, state, local, MPO partners and the public.

READING AREA TRANSPORTATION STUDY
CONGESTION MANAGEMENT PROCESS 2023

Reading Area Transportation Study Coordinating Committee

PennDOT District 5-0	Mr. Chris Kufro, Acting District Executive (Chairman)
	Ms. Jennifer Ruth, Planning & Program Manager*
PennDOT Central Office	Mr. Mark Tobin, Division Chief, Center for Program Development and Management
	Mr. James Mosca, Transportation Planning Manager*
Berks County Commissioners	Mr. Michael Rivera, Commissioner
Berks County Planning Commission	Mr. Thomas McKeon, Board Member (Vice Chair)
	Mr. Alan Piper, Transportation Planner III (MPO Secretary)*
City of Reading	Ms. Donna Reed, Council Member
	Mr. O. Chris Miller, Council Member*
Berks County Boroughs	Mr. Brian Hoffa, Borough Council Member (Sinking Spring Borough)
Berks County 1st Class Townships	Mr. Samuel Kalbach, Township Commissioner (Cumru Township)
Berks County 2nd Class Townships	Mr. Michael Kocher, Township Supervisor (Spring Township)
South Central Transit Authority / Berks Area Regional Transportation Authority	Mr. Greg Downing, Executive Director
	Mr. Keith Boatman, Assoc. Director of Capital Projects/Planning
Reading Regional Airport Authority	Mr. Kevin Barnhardt, Board Member

*Denotes Board Alternate

Reading Area Transportation Study Technical Committee

PennDOT District 5-0	Mr. Scott Vottero, District Executive for Design (Chairman)
	Mr. Michael Donchez, Transportation Planning Specialist*
PennDOT Central Office	Mr. David Alas, Trans. Planning Specialist Supervisor (Vice-Chair)
	Ms. Nyomi Evans, Transportation Planning Specialist Trainee*
Berks County Planning Commission	Mr. Alan Piper, Transportation Planner III (MPO Secretary)
	Ms. Amanda Timochenko, Transportation Planner II*
Berks County Planning Commission	Mr. Michael Golembiewski, Transportation Modeler
	Ms. Amanda Timochenko, Transportation Planner II*
City of Reading	Mr. Timothy Krall, Department of Public Works
City of Reading	Mr. Kyle Zeiber, Department of Public Works
South Central Transit Authority / Berks Area Regional Transportation Authority	Mr. Keith Boatman, Assoc. Director of Capital Projects/Planning
	Ms. Lauri Ahlskog, Manager of Transit Planning & Compliance*
Reading Regional Airport Authority	Mr. Zackary Tempesco, Airport Manager

*Denotes Board Alternate

Berks County Planning Commission Staff for this Report

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READING AREA TRANSPORTATION STUDY

CONGESTION MANAGEMENT PROCESS