2023
CONGESTION MANAGEMENT PROCESS

CMP CONGESTION MANAGEMENT PROCESS

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

The Delaware Valley Regional Planning Commission (DVRPC) is the federally designated Metropolitan Planning Organization for the Greater Philadelphia region, established by an Interstate Compact between the Commonwealth of Pennsylvania and the State of New Jersey. Members include Bucks, Chester, Delaware, Montgomery, and Philadelphia counties, plus the City of Chester, in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties, plus the cities of Camden and Trenton, in New Jersey.

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Executive Summary

The Congestion Management Process (CMP) uses a variety of traffic data to identify the most congested roadways in Greater Philadelphia. It uses this information along with other analyses to recommend multimodal strategies that improve the flow of people and goods, enhance safety, and expand travel options on the region's transportation network. The CMP evaluates the effectiveness of implemented strategies to improve mobility and reliability, and enhance safety across the region and uses the results to inform strategy recommendations. The multimodal strategies help minimize costs, advance Long-Range Plan goals, and make regional transportation projects consistent with the CMP and Long-Range Plan.

The CMP is a requirement of the federal Surface Transportation Act legislation (23 CFR Parts 450.322 and 500.109) for urbanized areas (UZAs) with populations greater than 200,000, known as Transportation Management Areas (TMAs). These federal regulations specify that the CMP be implemented as a continuous part of the metropolitan planning process. Regulations require that alternatives to building new Single-Occupant Vehicle (SOV) road capacity be explored first, and where additional capacity is found to be necessary, multimodal supplemental strategies must be developed to obtain the most long-term value from the investment.

As part of the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST Act), and continuing with the new Infrastructure Investment and Jobs Act (IIJA), national performance management measures have been adopted by the Federal Highway Administration (FHWA) effective May 20, 2017. The intent is to have DOTs, MPO's and other planning partners better align proposed project improvements through performance-based planning and programming. The CMP integrates the national performance management reliability and traffic congestion measures, known as PM3 measures, to assist in identifying and prioritizing congested locations and for developing strategies to improve mobility and reliability.

The Covid-19 pandemic significantly altered traffic patterns in the DVRPC region as well as nationally, resulting in less traffic congestion on the roadways, and reduced passenger rail and bus transit ridership. The CMP helps to understand these and other traffic trends, and to prioritize roadways and other transportation facilities for improvements in managing congestion, despite the changing conditions. While transit ridership and traffic congestion are on the rise, in most cases many of the roadway and transit facilities are operating at below pre-Covid conditions.

A series of CMP Objective Measures are used to tie the CMP analysis to DVRPC Long-Range Plan goals and to where congestion is occurring in the region. The CMP

Objective Measures include, increasing mobility and reliability, integrating modes and providing transit accessibility where it is most needed, modernizing and maintaining the transportation network, achieving Vision Zero, providing for goods movement, maintaining and enhancing the transportation security and emergency preparedness, and supporting other Long-Range Plan goals, such as investing in centers, prioritizing investments in less sensitive environmental areas, and investing in Environmental Justice communities.

New content was added to the CMP. New Limited Access Roadway Bottlenecks were identified to better understand where regional impacts of congestion occurred on freeways and expressways. New bus route reliability analysis was developed to identify the most unreliable routes to evaluate these routes for improvements. The performance of Focus Roadway Corridor Facilities was trended comparing the years 2017, 2021 and 2022 to assess performance, and the effectiveness of past improvements. The Most Congested Focus Roadway Corridor Facilities and Intersection Bottlenecks were identified separately by County, rather than by the Pennsylvania and New Jersey subregions as was done in the 2019 CMP, to identify more congested facilities and bottlenecks in the suburban counties. CMP Corridor and Subcorridor Areas were realigned to census geography to better use socioeconomic data to develop strategies for managing congestion. Finally, new strategies were added to the CMP, such as micromobility to build on multimodal strategies to manage congestion and curbside management to build on goods movement strategies.

The CMP analyzes 336 Focus Roadway Corridor Facilities, and contains a detailed analysis of 41 of the Most Congested Focus Roadway Corridor Facilities. Of the 336 Focus Roadway Corridor Facilities, 236 are comparable between 2017 and 2022, and of those 85 percent experienced less congestion in 2022, but comparing the same ones between 2021 to 2022, 86 percent experienced more congestion. Location matters when analyzing congestion. For example, some locations in 2022 experienced more congestion than in 2017 such as I-76 from US 30 (Girard Avenue) to US 1 (City Avenue) in Philadelphia and NJ 42 from the Atlantic City Expressway to I-295 in Camden County at 35 percent and 55 percent, respectively. Some roadways experienced significantly less congestion in 2022 compared to 2017, such as US 422 from Trooper Road to US 202 in Montgomery County and NJ 73 from the NJ Turnpike to NJ 70 in Burlington County at 71 percent and with 70 percent, respectively.

In addition, the CMP analyzes most SEPTA and NJ Transit bus routes and 400 plus Focus Intersection and Limited Access Roadway Bottlenecks. It uses the Focus Roadway Corridor Facilities, Intersection Bottlenecks, and CMP Objective Measures to identify 37 broader CMP Corridor Areas that experience more congestion or unreliability.

The CMP identifies 125 strategies that can help to mitigate congestion—ranging from operational improvements, to travel demand management, policy approaches, transit improvements, goods movement, and road improvements and new roads. The CMP uses CMP Objective Measures, data, analysis, and DVRPC and planning partners' corridor planning study findings to help align the right strategy recommendations to each congested corridor. Some of the Most Congested Focus Roadway Facilities and Bottlenecks are analyzed in more detail with specific recommended Very Appropriate strategies for managing congestion for the facility or bottleneck. The remainder of the facilities and bottlenecks include strategies to manage congestion by CMP Corridor and Subcorridor Area.

The CMP can be used in different ways. County and other agencies can use the CMP to help identify and prioritize congested locations for project planning to mitigate congestion, or to assist in developing project strategies for managing congestion that minimize costs and to be consistent with the DVRPC CMP and Long-Range Plan goals. The CMP supports the Long-Range Plan and Transportation Improvement Program (TIP) to inform the process of identifying the most congested locations, and advance the most appropriate strategies to mitigate congestion; it provides screening criteria for the *Long-Range Plan and TIP Project Evaluation Criteria* (DVRPC Publication #23128), and supports competitive grant programs, such as the Congestion Mitigation and Air Quality (CMAQ) Program. It also can be used to identify candidate projects for performing more detailed corridor studies as part of the DVRPC work program.

See the CMP website at www.dvrpc.org/webmaps/cmp for mapping of the CMP Corridor and Subcorridor Areas and the associated multimodal strategies for managing congestion, CMP Objective Measures, Focus Roadway Corridor Facilities and Bottlenecks, and other CMP analysis.

1. Introduction

Congestion can be an indicator of prosperity, but if left unmanaged, it can limit access to jobs, housing, educational opportunities, health services, and other amenities. The Congestion Management Process (CMP) uses a variety of traffic data to identify the most congested roadways in Greater Philadelphia. It uses this information along with other analyses to recommend multimodal strategies that improve the flow of people and goods, enhance safety, and expand travel options on the region's transportation network. The CMP uses performance measures to identify and prioritize congested locations, analyzes potential causes of congestion, establishes multimodal transportation strategies to mitigate congestion, and evaluates the effectiveness of implemented strategies. The CMP is also a requirement of the federal surface transportation legislation and needs to be regularly updated. The purpose of the CMP is to meet the federal requirements while advancing the goals in the DVRPC Long-Range Plan, including reducing congestion, and improving mobility, reliability, multimodal accessibility, safety, and economic vitality. The CMP provides valuable input into corridor planning, project development, project evaluation, and long-range plan policy by providing data, system-level analysis, and strategy recommendations. The CMP also supports competitive grant programs such as the Congestion Mitigation and Air Quality (CMAQ) program and the setting and achievement of federal Transportation Performance Management (TPM) targets. The federally mandated supplemental strategy requirements are a key tool to help achieve DVRPC's Long-Range Plan goals to expand travel options by building out a multimodal transportation network. The CMP is developed with significant input and guidance from the CMP Advisory Committee to meet needs across the region.

The Covid-19 pandemic significantly altered traffic patterns in the DVRPC region as well as nationally as more workers shifted to working from home, resulting in less overall commuter traffic on the region's roadways and less passenger rail and bus ridership. In 2022, INRIX released its annual "INRIX Global Traffic Scorecard" using 2022 data to help understand how traffic patterns have changed across the nation.[1] INRIX ranked the Philadelphia area fourth nationally in hours lost for a typical driver in 2022 at 114 hours, a 27 percent increase in delay compared to 2021.To provide some perspective, Chicago, Boston, and New York City ranked one, two, and three respectively, and Miami, Los Angeles, and San Francisco ranked five, six, and seven, respectively. INRIX analyzed the change in downtown travel between 2021 and 2022 to help determine the impact from telecommuting and hybrid work. Out of the top 20 downtowns identified, Philadelphia ranked 18th with a one percent increase in trips downtown. Washington, DC had a 23 percent increase and both Charlotte and Chicago had a 19 percent increase. Only Los Angeles and Baltimore were lower than Philadelphia with a one percent and two percent decrease, respectively.

This chapter reviews what congestion is, federal CMP requirements, the regional perspective on the CMP, how the CMP is integrated into the transportation planning process, causes of congestion, identification of the portions of the transportation network included in the analysis, and current regional congestion trends. Chapter 2 establishes regional objectives for congestion management. Chapter 3 defines the CMP Objective Measure criteria, which assesses the extent, variability, and duration of congestion on the region's roads and are drawn from the vision and goals of the region's Long-Range Plan. Chapter 4 analyzes congestion on the transportation network to identify and prioritize Congested Focus Roadway Corridor Facilities, Focus Intersection and Limited Access Roadway Bottlenecks, bus transit routes, and

[1] *INRIX 2022 Global Traffic Scoreboard, www.inrix.com/scorecard/. INRIX is an international big data firm that provides location-based data and analytics for real-time and historical analysis, and specializes in transportation needs.*

helps determine Congested Corridor, Subcorridor, and Emerging Growth Corridor Areas. Chapter 5 identifies congestion mitigation strategies, which have been applied to the Corridor and Subcorridor Areas and the Most Congested Focus Roadway Corridor Facilities and Intersection Bottlenecks. Further strategy recommendations for each CMP subcorridor can be found at www.dvrpc.org/webmaps/cmp. Chapter 6 evaluates performance trends and the effectiveness of implemented strategies. Lastly, chapter 7 summarizes the conclusions and next steps for the 2023 update for the Greater Philadelphia CMP.

1.1 What is Congestion?

Congestion occurs when demand for road space exceeds 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 the type of transportation facility, location, or time of day.

The effect of traffic congestion includes lost time, extra fuel costs, and deterioration of air quality. Left unmanaged, congestion leads to a negative overall impact on the health, competitiveness, and sustainability of a region. However, it is unrealistic to conclude that all congestion can be completely eliminated; some degree of congestion may be acceptable, or even desirable, as a sign of a healthy and growing economy. The CMP helps to manage congestion in order to minimize and mitigate its negative impacts.

1.2 Federal CMP Requirements

Federal regulations provide guidance on how Metropolitan Planning Organizations (MPOs), like DVRPC, should address congestion management. The original CMP regulations date back to the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005, which built upon the previous federal Congestion Management System (CMS) requirements that were first implemented under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. These CMP regulations were retained and largely unchanged by subsequent federal legislation, including Moving Ahead for Progress in the 21st Century (MAP-21), Fixing America’s Surface Transportation (FAST) Act and the current Infrastructure Investment and Jobs Act (IIJA) Pub. L. No. 117-58, 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 Transportation Management Areas (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, TIP, and Unified Planning Work Program (UPWP). According to the regulations, MPOs that serve a TMA 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 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. As part of the FAST Act, there were new federal requirements (23 CFR Part 490 National Performance Management Measures) regarding measuring system performance and setting targets to achieve quantifiable goals to improve mobility and reliability on the National Highway System (NHS), known as PM3 measures. These measures are established statewide and by UZA, and are integrated into the CMP as applicable. As part of the IIJA, federal legislation also requires state DOTs and MPOs to establish Safety (PM1) and Pavement and Bridge Condition (PM2) measures and set targets.

The statewide PM3 measures used in the CMP are recognized as “Reliability” measures and the metrics include Level of Travel Time Reliability (LOTTR) and Truck Travel Time Reliability (TTTR). LOTTR assesses the performance of the NHS, while TTTR addresses the freight movement on the interstate system, which is part of the NHS. The LOTTR and TTTR measures are established by the state DOTs in coordination with MPOs, such as DVRPC, and other planning partners.

The UZA PM3 measures are recognized as Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita and Percent Non-Single-Occupant Vehicle (non-SOV) travel, and each assesses traffic congestion as part of the CMAQ Program. Both PHED and percent non-SOV travel are required to be established in UZA populations over 200,000 starting in the second performance period (2022–2025) that are in all or part of, a designated nonattainment or maintenance area for air quality conformity purposes under the Clean Air Act. DVRPC, as the largest MPO in the Philadelphia, PA-NJ-DE-MD UZA, is responsible for establishing baseline and two- and four-year targets for PHED and percent non-SOV travel measures in coordination with state DOT and MPO planning partners that share a portion of the UZA. The partners include: Pennsylvania Department of Transportation (PennDOT), New Jersey Department of Transportation (NJDOT), Delaware Department of Transportation (DelDOT), Maryland Department of Transportation (MDOT), North Jersey Transportation Planning Authority (NJTPA), South Jersey Transportation Planning Organization (SJTPO), Wilmington Area Planning Council (WILMAPCO), and the Lancaster Area Transportation Study (LATS). The Trenton, NJ UZA in Mercer County, NJ, which is in the DVRPC region also meets the over 200,000 population criteria. DVRPC, as the largest MPO in the Trenton, NJ UZA, is responsible for establishing baseline and two- and four-year targets for PHED and percent non-SOV travel measures in coordination with state DOT and MPO planning partners that share a portion of the UZA. The partners include NJDOT.

The UZA boundaries have changed due to the new 2020 decennial Census and revisions to the methodology of how the UZAs are calculated. This impacts partnering agencies to coordinate target setting. DVRPC is still the largest MPO in the Philadelphia, PA-NJ-DE-MD UZA, and remains responsible for taking the lead in establishing baseline and two- and four-year targets for PHED and percent non-SOV travel measures. The partnering agencies in the Pennsylvania portion of the DVRPC region remain the same with two exceptions. The Pottstown UZA boundary is now part of the Philadelphia UZA which now extends into Berks County, so the Reading Area Transportation Study (RATS) will become a partner in establishing targets. The Lancaster MPO no longer contains a portion of the Philadelphia UZA, so they will not be required to partner in establishing targets.

In the New Jersey portion of the DVRPC region, the Philadelphia UZA no longer extends into the NJTPA region, so NJTPA will not be required to partner with in establishing targets. DVRPC is still the largest MPO in the Trenton, NJ UZA and remains responsible for taking the lead in establishing baseline and two-and four-year targets, and the UZA now extends into the NJTPA region, so they will be required to partner in establishing targets.

Although a CMP is required to be established in TMAs and meet certain compliance requirements, federal regulations are not prescriptive on the methods and approaches to implement.

1.3 Regional Perspective on the CMP

DVRPCs Transportation Planning Approach

CMP analysis and strategy recommendations inform transportation investments that support the goals and policies of the Greater Philadelphia Long-Range Plan. The CMP is a critical part of a regional transportation planning process that:

- Follows the federally required “3C” process to be Comprehensive, Cooperative, and Continuing.
- The CMP prioritizes transportation investments to: (1) maintain and modernize the existing transportation network, by bringing roads, bridges, and transit facilities up to current design standards; making substantive safety improvements; and improving convenience for transferring between modes; (2) optimize the operational efficiency of existing transportation facilities and manage transportation demand by fostering efficient land use patterns, encouraging non-SOV options, and pursuing strategies that reduce the need for and length of trips; and (3) add new road capacity at the highest priority locations, only as a last resort to mitigate congestion.
    - Where additional SOV road capacity is deemed necessary, the CMP includes supplemental strategies to reduce travel demand, improve operations, and get the most long-term value from the investment.
- Investment benefits and costs should be strategically distributed across the region, with careful consideration given to safety, land use, environmental, economic, and social impacts. Projects should be affordable, incorporate context-sensitive design and other smart transportation techniques, and align with Transportation Performance Management targets.
    - Environmental Justice analysis will evaluate distribution of benefits and burdens from transportation projects throughout the region, considering impacts across racial, ethnic, and socioeconomic groups to inform equitable investment, and identify and address potential disproportionate adverse impacts.
- Incorporates innovative policy approaches, ITS applications, and emerging technologies, and projects that continue to transform the region into a better place to live, visit, work, learn, and play.

CMP Principles

The CMP is a medium-term planning effort that advances the goals of DVRPC’s Long-Range Plan and strengthens the connection between the Long-Range Plan and the TIP. The CMP is a systematic process that analyzes the regional transportation network and provides information on the transportation network performance. This effort uses regional transportation system performance and other CMP Objective Measures, recommendations from corridor studies, and guidance from the CMP Advisory Committee. It is used to identify and prioritize Congested Corridor and Subcorridor Areas based on performance and other CMP Objective Measures. The CMP recommends multimodal strategies to mitigate congestion and improve mobility and reliability for people and goods. The CMP is also used to identify emerging regionally significant growth areas that are not currently congested but may likely become so in the future. Proactive, low-cost region wide strategies are recommended for these areas to help prevent them from becoming congested.

The general strategies identified in the CMP include: (1) Operational Improvements; (2) Transportation Demand Management (TDM), including growth management and smart transportation policies that promote alternative modes of transportation besides the automobile, such as walking and bicycling; (3) transit improvements and new investments in transit; (4) goods movement improvements; and (5) road improvements and new roads. The CMP evaluates the effectiveness of implemented strategies in order to better inform strategy recommendations.

Federal regulations require projects that add SOV capacity to be consistent with the CMP in order to be eligible for federal funding. If they are not consistent, further analysis is required and will be reviewed by DVRPC staff for further eligibility. The CMP defines procedures to follow for federally funded major single-occupant vehicle (SOV) capacity-adding road projects if they are not in CMP Congested Corridor and Subcorridor Areas, or in subcorridors where major SOV capacity-adding is not listed as a CMP strategy, see the *CMP Procedures* (DVRPC Publication #21010). Such projects may be appropriate, but they must meet a higher burden of proof, given limited funding. The project must include analysis of multimodal strategies, including ones listed in the CMP. Capacity-adding projects outside CMP corridors must demonstrate consistency with the Long-Range Plan, follow CMP procedures, and compare well in terms of Long-Range Plan and TIP project evaluation criteria for projects in the region.

New major SOV capacity-adding projects may be appropriate where there is a need and no other strategies can reasonably reduce congestion. These projects must include multimodal supplemental strategy improvements to get the most long-term value from the investment. This begins with the strategies that are listed in the CMP Corridor and Subcorridor Area for the project location, which are then refined through meetings with stakeholders, ideally in the project's preliminary design stage. The supplemental strategy improvements should be funded at the same time as the main project and included in a CMP supplemental strategies document, TIP project description, and the implementation be monitored by DVRPC staff and reported to state and federal agencies. Final engineering for major SOV capacity-adding projects should not be funded in the TIP without a table of supplemental strategies that has been approved by the DVRPC Board. The DVRPC Long-Range Plan is used to help determine which congested facilities will receive major additional SOV capacity, and this must balance CMP findings with transportation priorities, land use and smart growth policies, and financial constraints.

Both statewide and UZA PM3 measures are used to help identify and prioritize congested locations, and to develop strategies to mitigate congestion. Specifically, this includes the LOTTR and TTTR roadway reliability measures, and the PHED traffic congestion measure. CMP congestion analysis will be used in future PM3 measure reporting periods to inform the process of setting two- and four-year targets for both PHED and Percent non-SOV Travel measures.

1.4 Integrating the CMP into the Transportation Planning Process

Figure 1 identifies CMP process flows (outlined in gray) and how the CMP is integrated into the transportation planning process, which was developed in part based on FHWA's *Congestion Management Process: A Guidebook*.

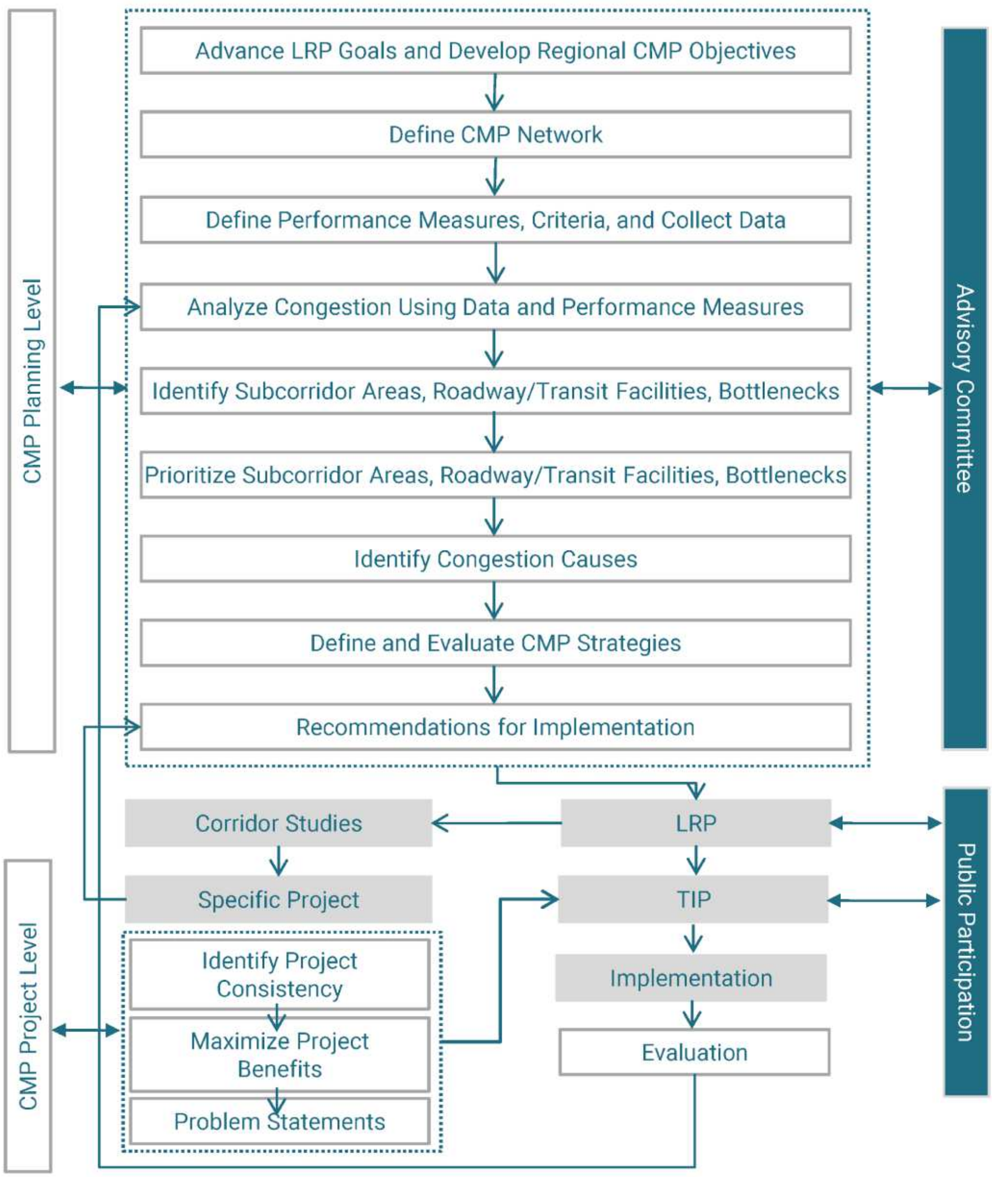
The first two process flows, "Advance LRP Goals and Develop Regional CMP Objectives" and "Define CMP Network", are expanded on in Chapter 2 and lay the groundwork for what transportation networks will be analyzed in the CMP and what data and performance measures will be used based on the goals and objectives defined by the CMP Advisory Committee. While the CMP focuses on the roadway network, the transit, freight, bicycle, and pedestrian networks are included and used to develop strategies for managing congestion. The third process flow, "Define Performance Measures, Criteria and Collect Data", is developed in Chapter 3 and provides detailed information on the performance measures used in the analysis. The fourth process flow, "Analyze Congestion Using Data and Performance Measures", is expanded on in Chapter 4 to indicate how the Focus Roadway Corridor Facilities, Bottlenecks, transit facilities, and Corridor and Subcorridor Areas are developed and analyzed to identify and prioritize congestion locations. Identifying and prioritizing these locations are part of the fifth and sixth process flows, which are also elaborated on in Chapter 4. The seventh process flow, "Identify Congestion Causes", is covered in Chapter 1 and describes the general causes of congestion (recurring and nonrecurring) and provides a further breakdown of the causes by state. The eighth process flow, "Define and Evaluate CMP Strategies", is expanded on in Chapters 5 and 6, respectively. The ninth and tenth process flows, "Identify Project Consistency" and "Maximize Project Benefits", are expanded on in Chapter 6. The remaining process flows indicate how the CMP integrates with the other transportation planning processes.

CMP Objectives flow from the transportation goals of the Long-Range Plan, and congested locations that meet more CMP Objective Measure criteria will be given stronger support for recommended improvements. The Long-Range Plan principles and goals that serve as guidance for the CMP include:

1) Increase mobility and reliability, and reduce VMT and congestion;
2) Integrate existing and emerging transportation modes into an accessible, multimodal, mobility-as-a-service network, which collects real-time data, and uses it to plan and pay for travel using the best options available. Transit, walking, and biking—including the Circuit Trail system—are integral components of this network;
3) Rebuild and modernize the region's transportation assets to achieve and maintain a state of good repair, including full ADA accessibility;
4) Achieve Vision Zero—no fatalities or serious injuries from traffic crashes—by 2050;
5) Improve global connections—facilitate goods movement and aviation, support the Federal Railroad Administration's Northeast Corridor Future plan, and expand broadband, wi-fi, and 5G cellular infrastructure;
6) Strengthen transportation network security and cybersecurity; and
7) Support the Plan's equity, sustainability, and resiliency principles.

Congestion and other CMP Objective Measures are used to identify priority congested locations, and then a list of strategies are recommended to mitigate congestion based on identifying any known causes, and from guidance from the CMP Advisory Committee. These congested locations are mapped by Focus Roadway Corridor Facility and Transit Facility, Intersection and Limited Access Roadway Bottleneck, and Congested Corridor and Subcorridor Area. (See Chapter 4 for more information on the congested locations and the performance measures used.) Projects that exist at these locations may be given higher-priority, but they need to be weighed against Long-Range Plan regional priorities. The CMP is also intended to be used at the project level to help get the most long-term value from an investment by providing travel options or ways to more efficiently use existing roadway space. The CMP analysis results are utilized by DVRPC staff and other stakeholders as part of the problem statement process and the *PennDOT Connects* development process with NJDOT and PennDOT, respectively. Planning partners can use the analysis in assisting them in project planning and developing local projects.

Figure 1: Integrating the CMP into the Transportation Planning Process



Source: DVRPC, 2023

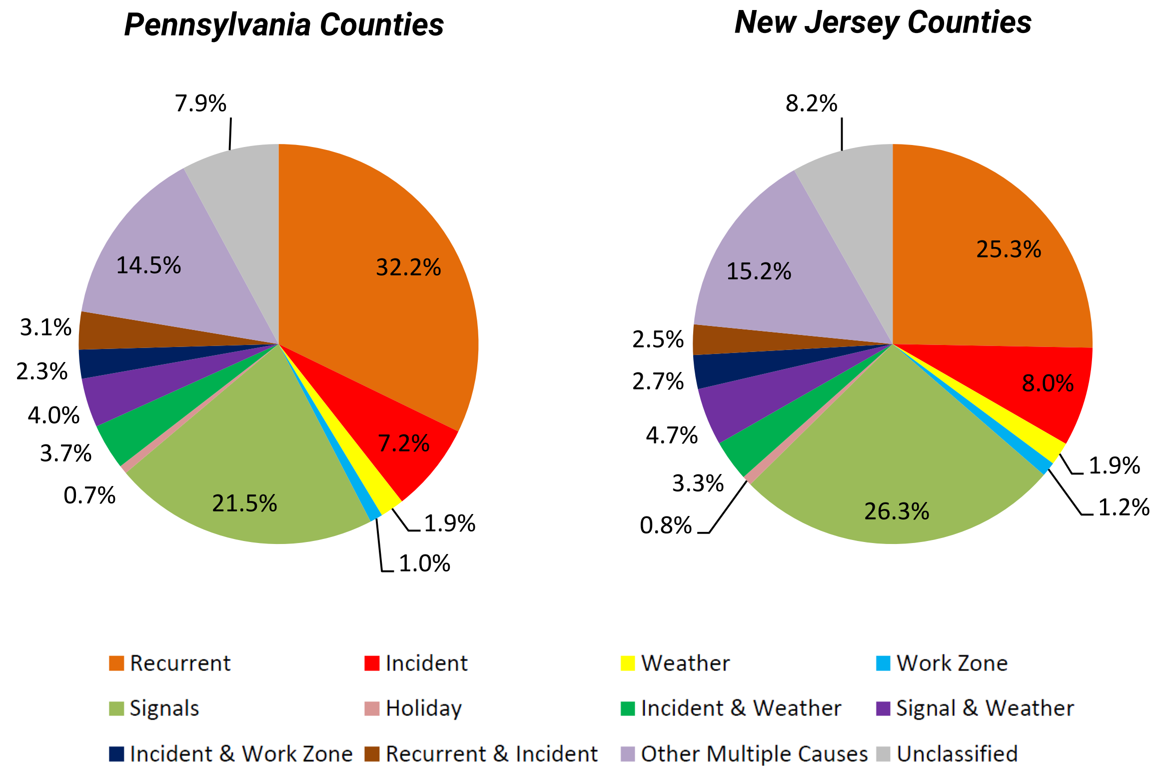
The CMP furthers the growth management goals identified in the Long-Range Plan by recommending congestion management strategies at locations that align with current and future land uses in coordination with the CMP Advisory Committee. For example, where congested locations exist in moderate- to high-density mixed-use areas without space available for roadway widening, bus transit improvement studies may be recommended. In congested locations with many access points and smaller lots with mixed uses, access management strategies and increased bicycle and pedestrian infrastructure investments may be proposed as future transportation alternatives to supplement the existing roadway network.

1.5 Causes of Congestion

There are two primary types of congestion: recurring and nonrecurring. Recurring congestion tends to be predictable and observed on a regular basis and is 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 the travel time reliability. The CMP addresses both types 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 crashes, disabled vehicles, special events, bad weather, and short-term emergency construction.

PennDOT and NJDOT capture traffic event information using highway cameras, Waze, and other traffic operational technologies to keep the roads clear for travel. These sources are combined with INRIX travel time data to estimate causes of congestion and provide a guide for emphasizing various congestion mitigation strategies (see Figure 2). Just over half of the congestion in 2019 in the DVRPC Pennsylvania and New Jersey counties (54.7 percent and 52.8 percent, respectively) is due to different types of recurring congestion, which includes traffic signals and work zones. Work zones are considered planned construction or maintenance activity and are generally classified as recurring congestion. Nonrecurring types of congestion are caused by weather and a range of traffic incidents such as: disabled vehicles, crashes, emergency roadwork, and road obstructions. These nonrecurring causes of congestion total 12.8 percent and 13.2 and percent of congestion, respectively. The remaining causes of congestion are mainly due to a combination of different known types, such as “Signal and Weather.” The “Other Multiple Causes” type of congestion is due to more than one factor, such as a traffic incident occurring on a holiday. The “Unclassified” congestion type is due to an interruption in traffic flow, but with an unknown cause.

Figure 2: Causes of Congestion Summary in the DVRPC Region in 2019



Sources: RITIS PDA Suite; Causes of Congestion Transportation Disruption and Disaster Statistics 2019

The causes of congestion 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 others to occur. For example, high congestion levels can lead to increases in crashes due to closer vehicle spacing, or bad weather can lead to crashes. TSMO and ITS improvements for addressing reliability issues can typically be performed at lower costs with less impact on the environment, compared to capacity-adding improvements. DVRPC's *Connections 2040 Technical Analysis* (DVRPC Publication #13043) compared the cost of reducing an hour of delay using average costs for ITS projects from Texas Transportation Institute's *Urban Mobility Report* and roadway system expansion costs based on Travel Demand Model results, and determined that system expansion traffic delay reduction capital costs were 36 percent higher than for ITS improvements.

The CMP also analyzes the causes of congestion by Focus Roadway Corridor Facility with the help of TRANSCOM's Regional Integrated Multi-Modal Information Share (RIMIS) system, which is a software platform that provides for storage and retrieval of PennDOT and NJDOT traffic event data, including work zones, weather-related, and a range of traffic incidents. The analysis helps to determine the type, intensity, and duration of congestion by facility and provides a guide for emphasizing various congestion mitigation strategies. While the analysis is helpful, it over-represents traffic events that occur on facilities where traffic cameras exist, which are used in large part to collect the event data. As a result, the other facilities do not get counted which needs to be considered when analyzing nonrecurring congestion and prioritizing congestion mitigation strategies by facility.

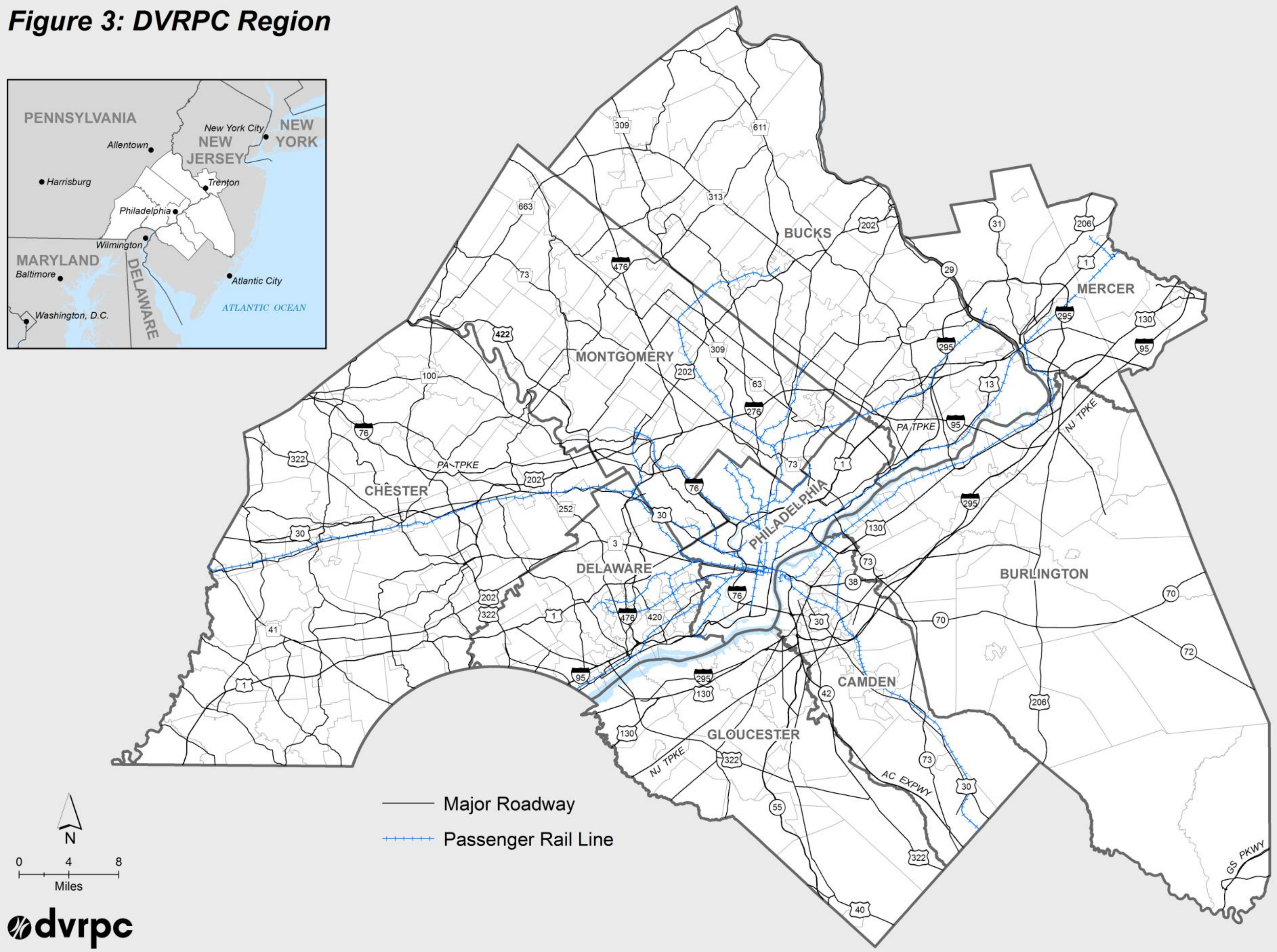
1.6 CMP Study Area and Transportation Networks

DVRPC is the federally designated MPO for 350 municipalities in the nine-county Greater Philadelphia region. DVRPC serves Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties in New Jersey. The area is home to 5.76 million people and employs approximately 3.06 million people (by place of residence) according to 2020 population and employment estimates, respectively, as identified in the Long-Range Plan *(Connections 2050)*. The region has one of the most comprehensive transportation networks in the nation. Major roadways that pass through the area include interstates I-95, I-76, I-676, I-476, I-276, I-295, I-195, and the New Jersey Turnpike. Major U.S. routes include US 1, US 13, US 30, US 130, US 202, US 206, US 322, and US 422 (see Figure 3). Extensive bus and fixed-rail transit networks exist in the region as well, including light, commuter, and heavy passenger rail. Light rail includes the River LINE in New Jersey. Commuter rail includes regional lines, such as Lansdale-Doylestown and Paoli-Thorndale in Pennsylvania, and the New Jersey Transit Northeast Corridor service in New Jersey. Heavy rail lines (or subways) in Philadelphia include the Broad Street and Market-Frankford lines. Intercity rail service includes the Amtrak Northeast Corridor serving Philadelphia's 30th Street Station and points south, such as Washington, DC, and points north to Boston; and the Keystone Corridor that serves 30th Street Station and points west to Harrisburg and beyond. Major freight lines that provide for goods movement in the region include CSX and Norfolk Southern. Some locations in the region are experiencing significant growth, while others remain unchanged. Some are high-density urban areas, while others are more rural. Given this variation, it is important that the CMP congestion mitigation strategies reflect the challenges and opportunities that are unique to each location.

1.7 What is New in the CMP

New Limited Access Roadway Bottlenecks were added to the CMP to better understand where regional impacts of congestion and reliability occurred on freeways and expressways. The analysis focused on lane drops and at key interchange on- and off-ramps. New bus route reliability analysis was conducted to determine which routes were more reliable than others using both INRIX travel times and ridership data. Identifying routes with both high ridership and unreliability was a focus of this analysis. The performance of Focus Roadway Corridor Facilities was trended comparing years 2017, 2021 and 2022 to evaluate which facilities improved, stayed the same, or worsened in performance. This analysis helped to identify the effectiveness of strategies to mitigate congestion and to identify which corridors need further improvements to manage congestion. The Most Congested Focus Roadway Corridor Facilities and Intersection Bottlenecks were identified separately by County, rather than by Pennsylvania and New Jersey subregions as was done in the 2019 CMP, to identify more congested facilities and bottlenecks in some of the suburban counties. CMP Corridor and Subcorridor Areas were realigned to census block group geography to better use socioeconomic data to develop strategies for managing congestion. Finally new strategies to manage congestion were added to the CMP, such as micromobility to build on multimodal strategies and curbside management to build on goods movement strategies.

Figure 3: DVRPC Region

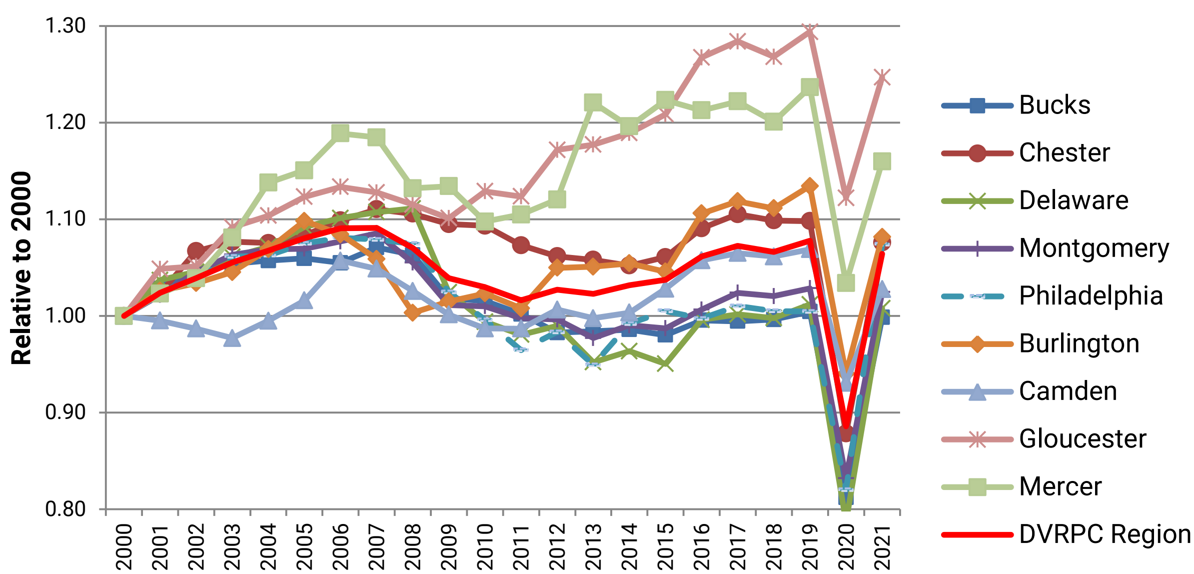


1.8 Regional Trends

Vehicle miles of travel (VMT) is the FHWA's primary measure of travel activity on the nation's roadways. More travel tends to increase the amount of congestion on the roadways, which makes this an important measure to track. It is measured as daily VMT for all vehicles. From 2000 to 2021, VMT increased by about 6.5 percent for the DVRPC region relative to a 2000 base (see Figure 4), but there were variations during this period. From 2000 to 2007, VMT increased by about 9 percent; then declined 7 percent from 2007 to 2011. This decrease coincided with rising gasoline prices and the Great Recession; and a similar trend occurred statewide and nationally. However, between 2011 and 2019, travel trends increased again by 6 percent. Gloucester County experienced greater gains during this time period than any other county in the region at 15 percent, while Bucks County experienced the least with an increase of just one-quarter of a percent. The Covid-19 pandemic resulted in dramatic decreases in VMT in 2020 and impacted travel trends substantially throughout the region as well as nationally. VMT declined by 18 percent from 2019 to 2020. Since 2020, VMT has rebounded and increased by 20 percent but it is still not quite at 2019 levels. From 2000 to 2021, the region's population increased by about 9 percent, which is about 2.5 percent more than VMT. This indicates that other modes such as transit, walking and biking are increasingly being used to provide mobility.

Population and employment are projected to modestly increase according to DVRPC forecasts. Population is projected to increase by 500,437 (8.8 percent) from 2015 to 2050, and employment by 466,795 (15.4 percent) over the same time period.[2] Given these trends, increased levels of traffic congestion will likely occur, unless mitigation strategies, programs, and policies are developed.

Figure 4: Regional VMT



Sources: PennDOT, NJDOT

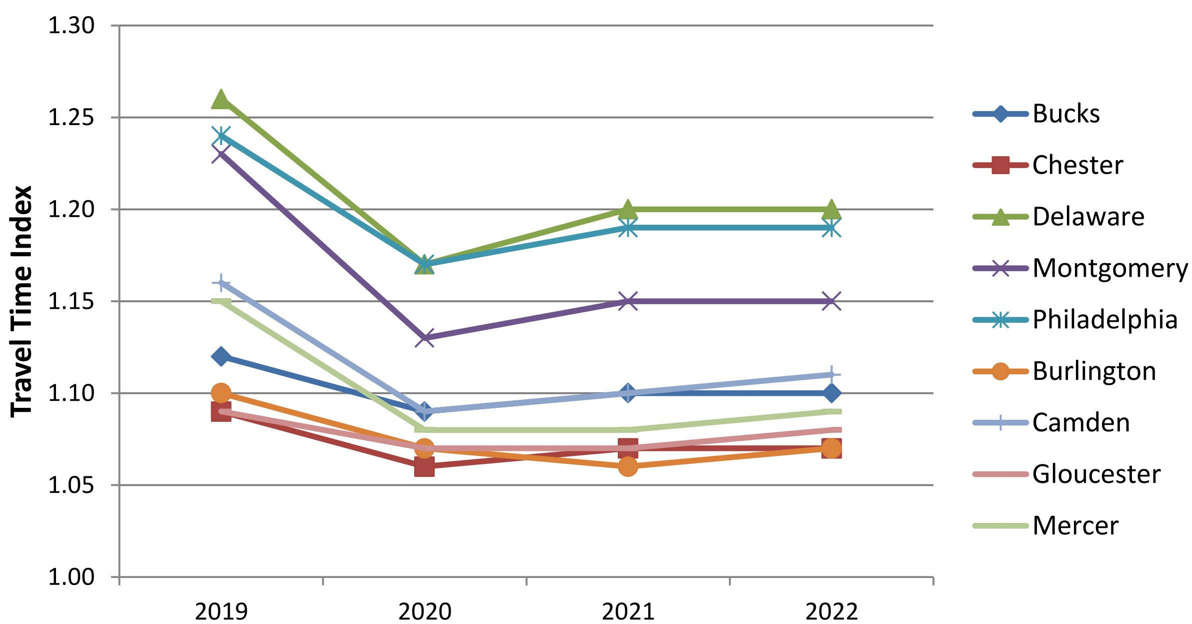
The TTI congestion measure was used to trend traffic congestion and identify which DVRPC counties experienced higher congestion than others analyzed for weekdays during the highest peak hour: AM peak hours 7:00–8:00 and 8:00–9:00, and PM peak hours 4:00–5:00 and 5:00–6:00 (see Figure 5). Delaware

[2] *About half of the Connections 2050 employment forecast accounts for a return of jobs lost during the Covid-19 pandemic.*

and Philadelphia counties indicate the most congestion with Delaware County slightly higher for all time periods (except 2020). Burlington, Gloucester, and Chester counties indicate the least congestion. All counties experienced a significant decline in congestion from 2019 to 2020 due to the pandemic as more workers shifted to working from home, resulting in less traffic congestion. All the counties experienced the same or more congestion from 2021 to 2022, but have not reached pre-pandemic levels.

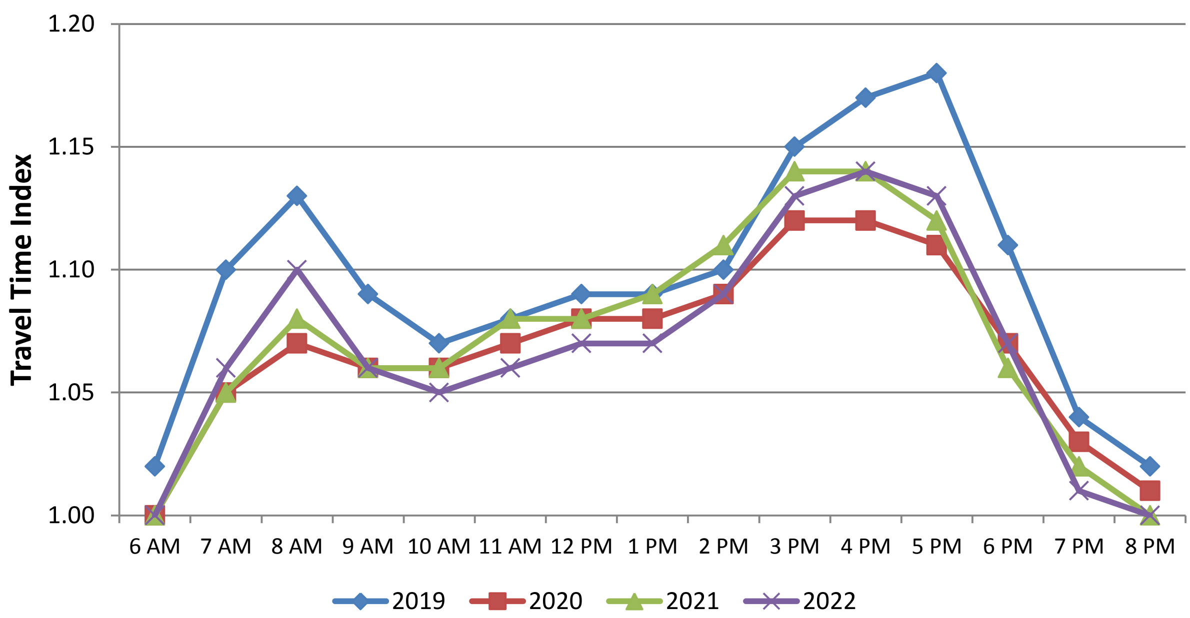
The TTI congestion measure was also used to analyze congestion by time of day on weekdays separately for the Pennsylvania and New Jersey DVRPC counties (see Figures 6 and 7). For the Pennsylvania Counties, the 2019 TTI AM peak hours 7:00–8:00 and 8:00–9:00 and PM peak hours 4:00–5:00 and 5:00–6:00 are clearly higher compared to the other time periods in 2019, but not as much for the same time periods in 2021 and 2022, where the peak periods seem to be more spread out, particularly during the PM peak. Some of the hourly 2021 TTI values during the non-peak period periods were the same or more than 2019 values, indicating more travel and congestion during the non-peak periods likely due to more people working from home, and more staggered work schedules. The New Jersey counties indicate the same traffic congestion patterns by time of day as the Pennsylvania counties, except the TTI values are lower across all time periods indicating less overall congestion.

Figure 5: Travel Time Index by DVRPC Counties



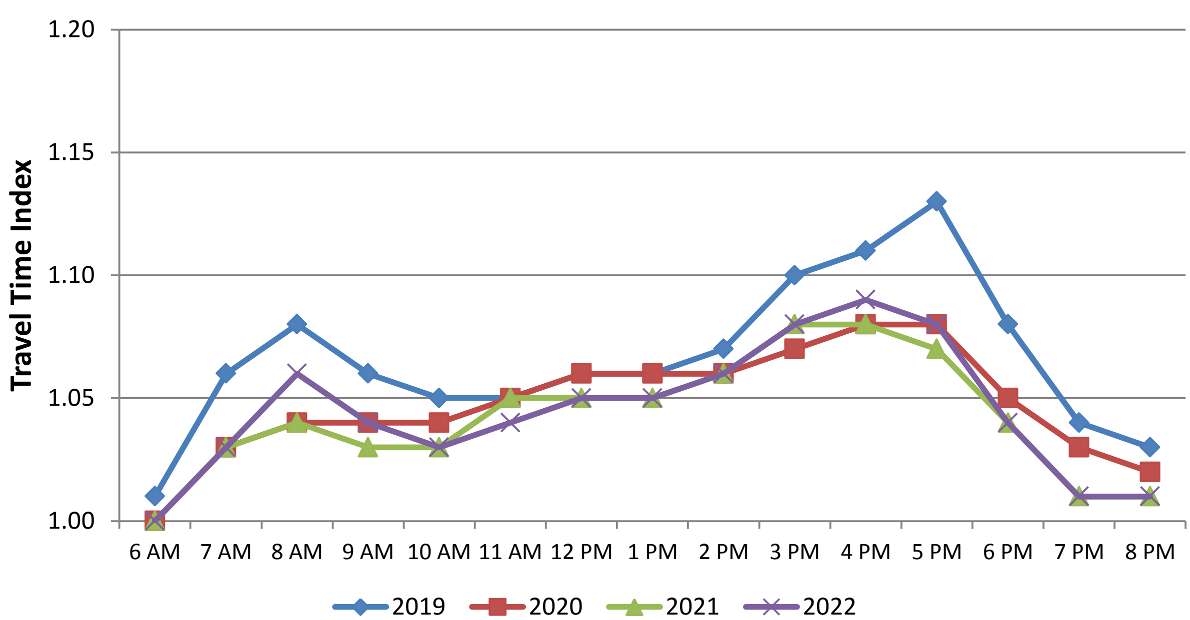
Data Source: RITIS PDA Suite; Note that 2020 values contained lower data coverage and increased reliance on historical data due to reductions in traffic due to Covid-19.

Figure 6: Travel Time Index by Time of Day for DVRPC Pennsylvania Counties



Data Source: RITIS PDA Suite; Note that 2020 values contained lower data coverage and increased reliance on historical data due to reductions in traffic due to Covid-19.

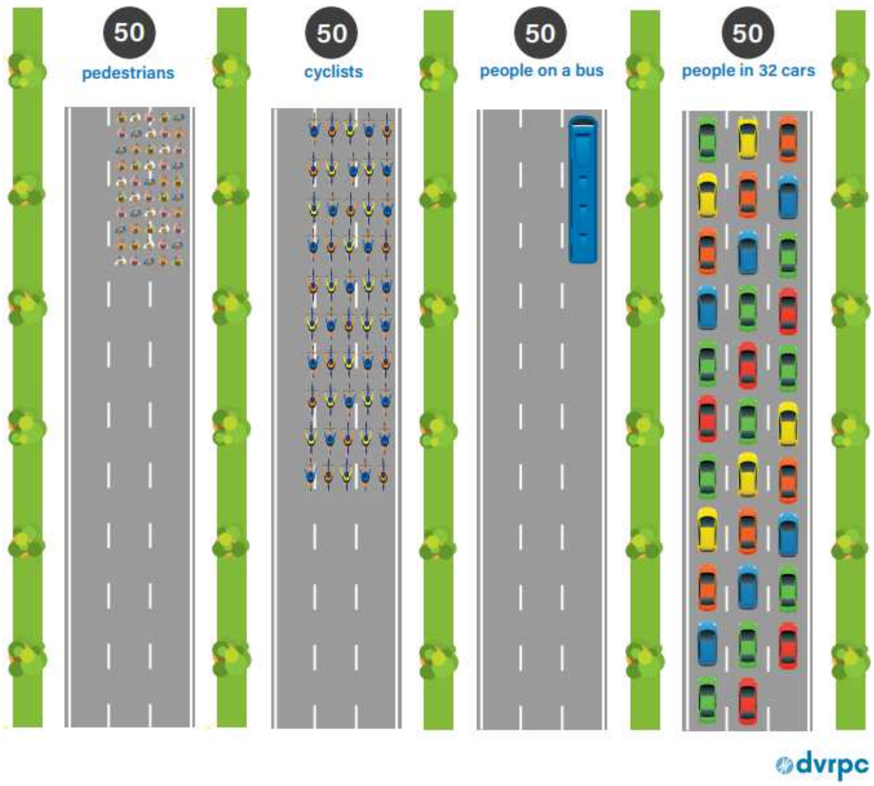
Figure 7: Travel Time Index by Time of Day for DVRPC New Jersey Counties



Data Source: RITIS PDA Suite; Note that 2020 values contained lower data coverage and increased reliance on historical data due to reductions in traffic due to Covid-19.

Transit ridership and other non-SOV modes are important travel options to reduce traffic congestion. You can significantly fit more people inside a bus, than in vehicles within the same space. Figure 8 illustrates this by showing how much space 50 people fill for different modes: pedestrians, cyclists, people on a bus, and in cars.[3] Car occupancy is based on DVRPC's *2012–13 Household Travel Survey for the Delaware Valley Region* (Publication #14033), which indicates an average occupancy of 1.58 persons per vehicle.

Figure 8: Mode Share Capacity



Source: DVRPC

Southeastern Pennsylvania Transportation Authority (SEPTA) annual ridership increased for all mode types from FY 2022 to FY 2023. Regional rail experienced the highest percent increase from 13.70 million to 17.91 million, or 30.7 percent (see Figure 9). The Market-Frankford Line experienced the lowest increase from 23.98 million to 24.13 million (0.6 percent). However, ridership decreased for all modes comparing FY 2019 to FY 2023 due in large part to the pandemic and some workers shifting to working at home instead of commuting on transit. The Norristown High Speed Line experienced the highest percent decrease from 3.10 million in FY 2019 to 1.35 million in FY 2023 (56.5 percent). The City bus ridership experienced the lowest percent decrease from 126.96 million to 91.64 million (27.8 percent), and it is also, by far, the most used transit mode type at about 53 percent of all ridership trips in FY 2023, followed by the Market-Frankford Line and Regional Rail at 14 percent and 10 percent, respectively.

NJ Transit ridership increased for all modes from FY 2021 to FY 2022. The Northeast Corridor line, which is operated by NJ Transit along Amtrak's right-of-way from the Trenton Transit Center to New York Penn Station, experienced by far the highest percent increase from 8.43 million to 17.14 million, or 103.3 percent (see Figure 10). Philadelphia Interstate buses had a slight increase from 2.69 million to 2.72 million, or 1.1 percent. For similar reasons as SEPTA, NJ Transit ridership decreased for all modes

[3] *The bus ridership space in Figure 8 does not account for the headways between buses, which increases this mode's roadway space needs.*

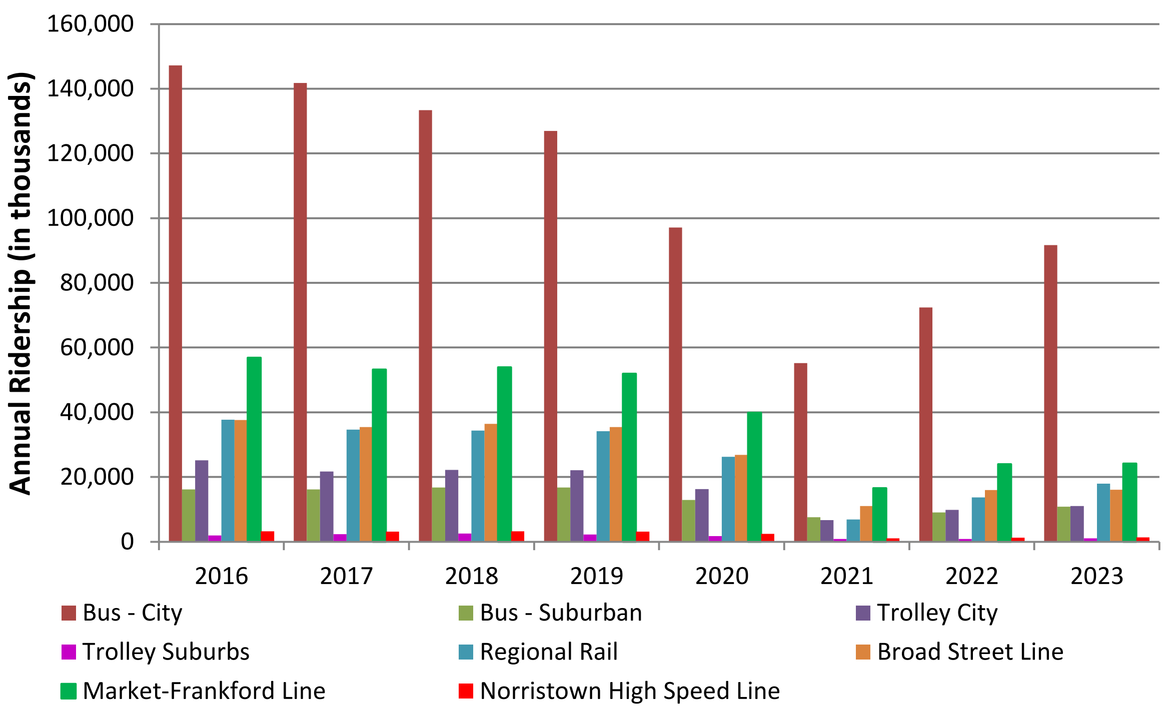
comparing FY 2019 to FY 2022. The Northeast Corridor experienced the highest percent decrease from 35.49 million to 17.14 million (51.7 percent). The Atlantic City Line had the lowest percent decrease, due in part to a service suspension in FY 2019, which caused ridership to be less than normal. The next lowest percent decrease was the River LINE from 2.74 million to 1.71 (37.6 percent). The Northeast Corridor Line is by far the most used transit mode type at about 67 percent of all unlinked trips in FY 2022, followed by Philadelphia Interstate Bus and Mercer Bus at 11 percent and 8 percent, respectively.

The Port Authority Transit Corporation (PATCO) transit ridership increased from 3.68 million in 2021 to 4.87 million in 2022, or 32.3 percent (see Figure 11), but is still well below pre-Covid levels. Comparing 2019 to 2022, ridership sharply decreased from 11.1 million to 4.87 million (56.1 percent), which was mainly due to the pandemic and people working from home.

The Delaware River Port Authority (DRPA) bridge traffic is a key measure to track since the bridges provide key transportation links to the Pennsylvania and New Jersey portions of the DVRPC region. DRPA manages four bridges over the Delaware River, including the Betsy Ross Bridge, which carries Route 90; the Ben Franklin Bridge, which carries I-676; the Walt Whitman Bridge which carries I-76; and the Commodore Barry Bridge, which carries US 322. Comparing 2021 to 2022, combined traffic for all bridges increased from 46.64 million to 48.12 million (3.2 percent), which is approaching pre-Covid 2019 levels of 53.10 million (see Figure 12). Comparing 2019 to 2022 traffic decreased from 53.1 million to 48.12 million, or 9.4 percent, but it is not as significant a drop compared to transit.

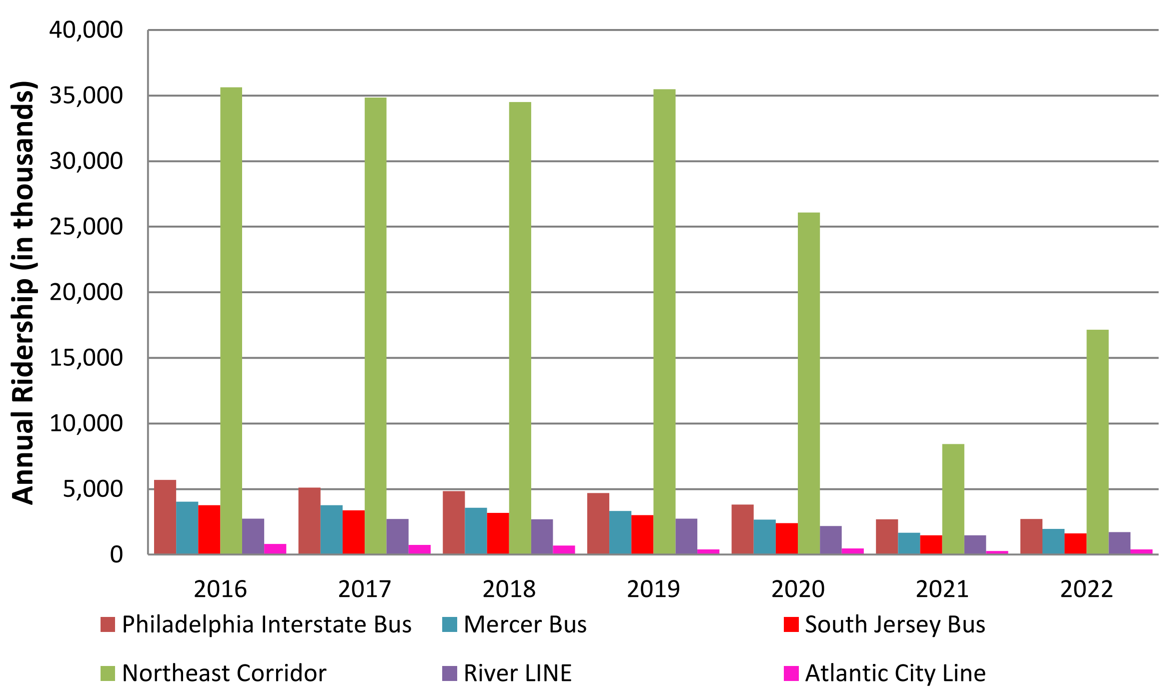
The overall decrease in rail, bus, and trolley ridership, and bridge traffic comparing 2019 to 2022 is largely due to the pandemic and more workers shifting to working from home starting in early 2020. However, decreases in transit ridership can also be attributed to other factors, including higher car ownership rates; introduction of shared-ride services, such as Uber and Lyft; and bus transit delays due to traffic congestion that may entice riders with the means to find other transportation options, including SOVs. As a result, traffic congestion may increase, and strategies will be needed to mitigate it.

Figure 9: SEPTA Ridership by Mode Type FY 2016 – FY 2023



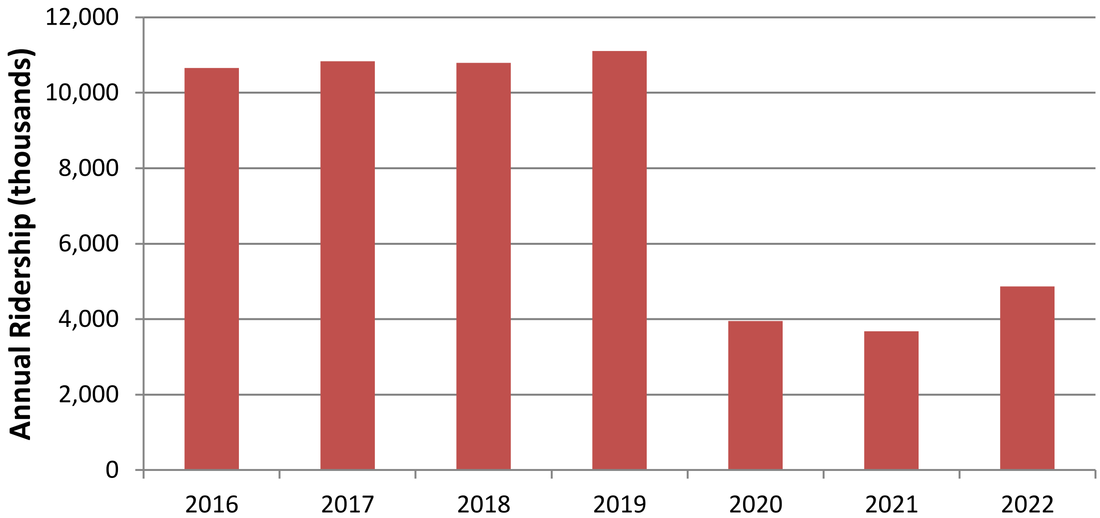
Data Source: Division & Mode Unlinked Ridership (FY 2016 – FY 2023)

Figure 10: NJ Transit Ridership Mode FY 2016 – FY 2022



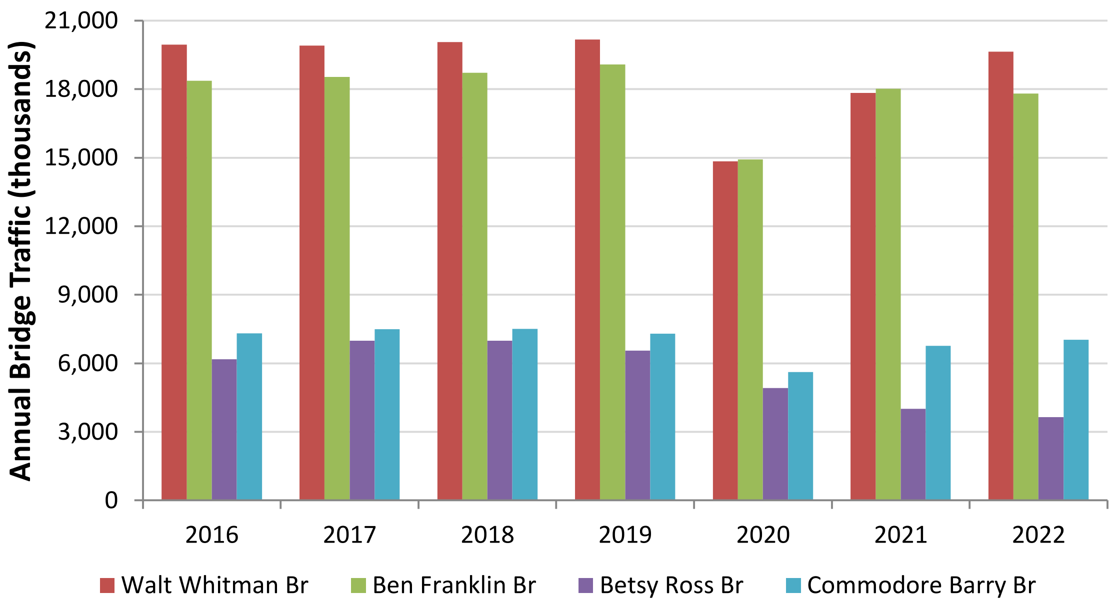
Data Source: NJ Transit Annual Unlinked Ridership Data; Northeast Corridor line includes ridership trips from Trenton Station to Penn Station

Figure 11: PATCO Ridership 2016 – 2022



Data Source: DRPA Comprehensive Annual Financial Reports; Unlinked Ridership

Figure 12: DRPA Bridge Traffic 2016 – 2022

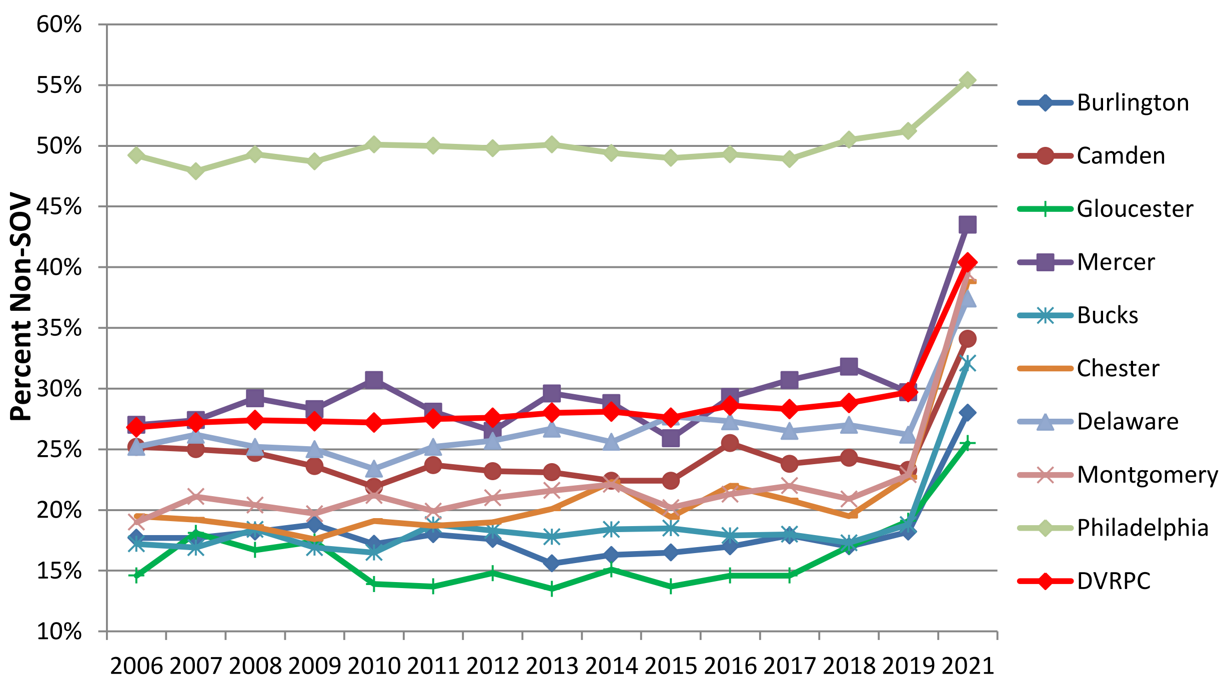


Data Source: DRPA Comprehensive Annual Financial Reports

Other modes of travel besides SOV (or driving alone) should be encouraged and expanded where appropriate to improve mobility and reliability, and reduce congestion. To help track progress toward achieving this, the U.S. Census American Community Survey (ACS) provides journey-to-work trip estimates for percent non-SOV travel. This measure includes carpool, train, bus, walk, bicycle, taxi, rideshare, working at home, etc.; anything other than driving alone. Although all trips (not just journey to work) would be optimal to track, this regularly updated and approved ACS dataset is recognized as one of the best available to measure mode share. Increases in transit ridership, ridesharing, transportation network companies, walking, biking, and working from home would contribute to increases in this measure.

Analyzing non-SOV travel prior to the pandemic (2006 to 2019), Philadelphia far exceeded other counties throughout the region, averaging about 50 percent (see Figure 13). Mercer County, New Jersey followed by Delaware County, Pennsylvania contains the second and third most non-SOV travel, averaging 29 percent, and 26 percent, respectively. Gloucester County, New Jersey experienced the least at 16 percent on average. The Covid-19 pandemic dramatically increased percent non-SOV travel in all the region's counties comparing 2019 to 2021 (2020 ACS one-year data not available due the pandemic). The suburban counties experienced the highest percent increase with Montgomery County (16.6 percent), Chester County (16.1 percent), Mercer County (13.8 percent), and Bucks County (13.3 percent). There were significant declines in non-SOV transit trips starting in 2020 as a result of the pandemic, but these were more than offset by increases in people working from home.

Figure 13: Percent Non-SOV Travel by County



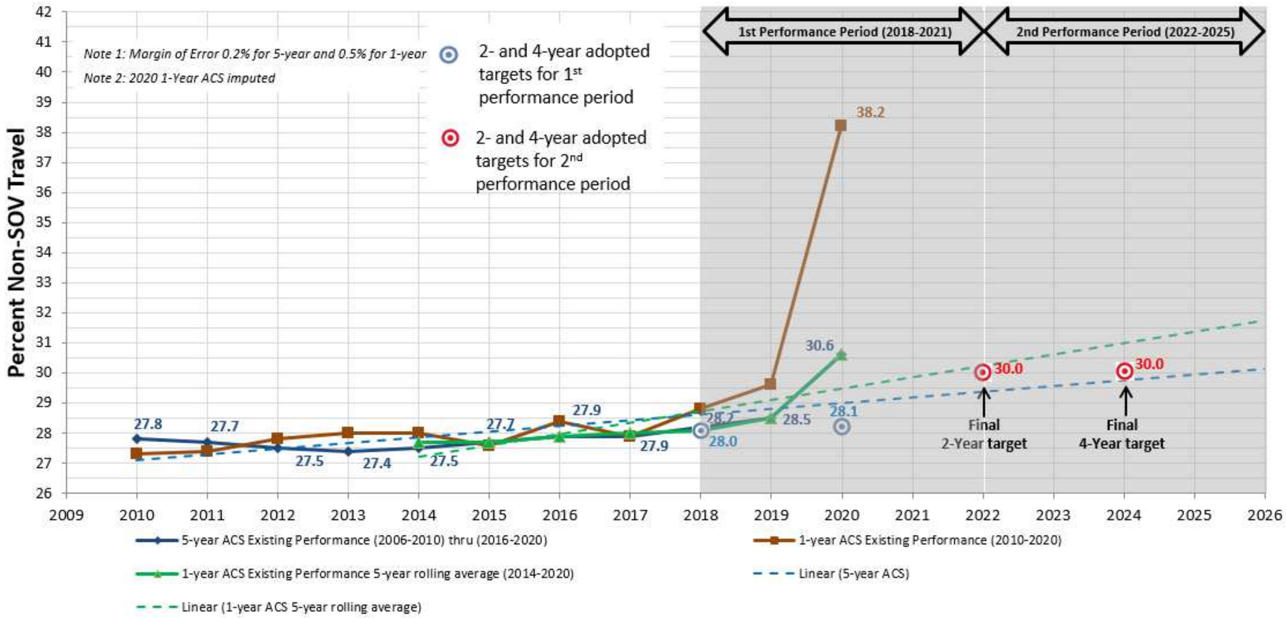
Data Source: U.S. Census ACS 1-year S0801, B08006: Percent Non-SOV Travel (No ACS 1-year 2020 Percent Non-SOV available)

Percent non-SOV travel is also one of the required national Performance Management traffic congestion measures (PM3) to track as part of the IIJA for UZAs with populations greater than 200,000 (previously over 1,000,000 population in the first performance period). DVRPC, as the largest MPO in the Philadelphia PA-NJ-DE-MD and Trenton, NJ UZA's, established baseline, and two- and four-year targets for the second performance period (2022–2025) for percent non-SOV based on required U.S. Census ACS five-year estimates in coordination with PM3 coordination group (see Figures 14 and 15). For the Philadelphia PA-NJ-DE-MD UZA, the 2020 baseline year value is 30.6 percent (based on the 2016–2020 ACS 5–year estimate) and the two- and four-year targets (2022 and 2024) are both 30.0 percent. For the Trenton, NJ UZA, the 2020 baseline is 26.4 percent and the two- and four-year targets (2022 and 2024) are 26.5 percent and 26.8 percent, respectively.

There are various considerations and uncertainties in establishing the targets. Trendlines based on past non-SOV five-year estimates (2006–2010 through 2016–2020) were used to help establish targets. There is a two-year time lag in reporting percent non-SOV, so any non-SOV completed project would not be reflected in the measure until two years later. Changes to the measure are incremental due to five-year averages. In addition, these targets were set with the uncertainties of the pandemic and its impact on more people working remotely, which contributes to increases in this measure. Inflation, fuel energy costs, and supply chain disruptions have further impacted travel and this measure.

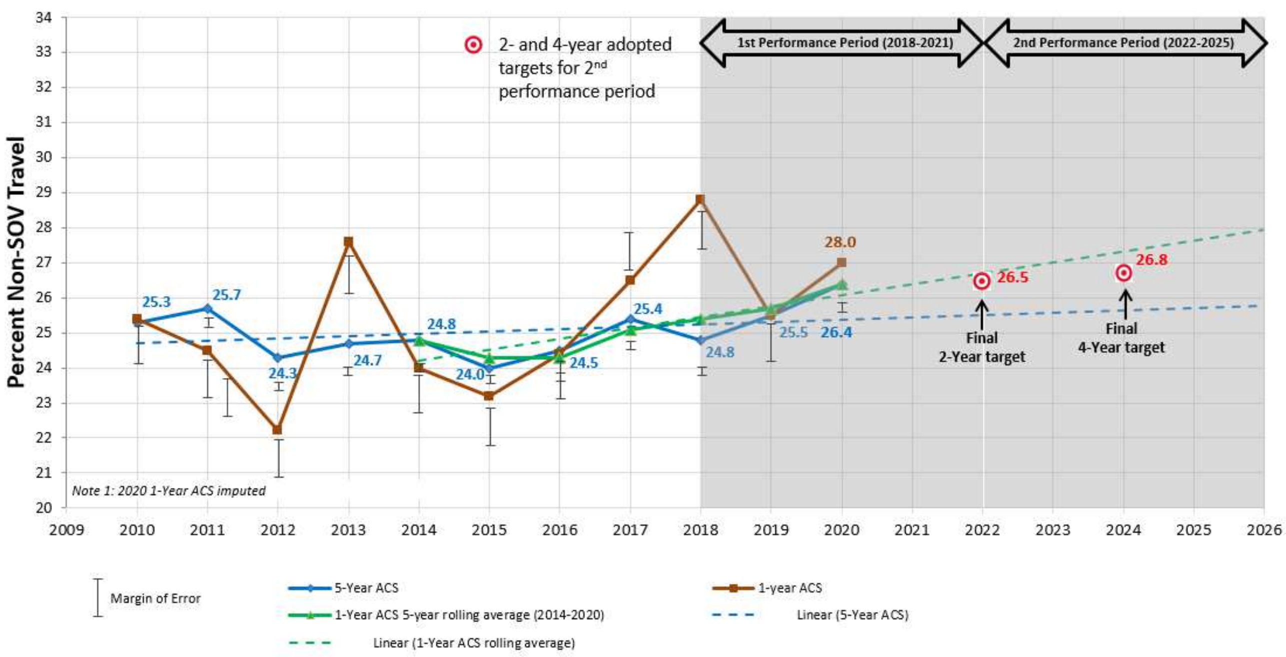
Percent non-SOV travel five-year estimates (2006–2010 to 2017–2021) by commute mode were also analyzed to help establish the targets (see Figures 16 and 17). For the last two ACS five-year estimates (2016-2020 and 2017–2021) work from home significantly increased and public transit decreased, but transit was more than offset by increases in people working from home. For the Philadelphia, PA-NJ-DE-MD UZA, work from home increased from 8.1 percent (2016–2020) to 11.7 percent (2017–2021), which is the highest absolute percent change increase compared to any prior period. Public transit decreased by one percent from 9.5 percent to 8.5 percent. For the Trenton, NJ UZA work from home increased from 6.2 percent in 2016–2020 to 9.8 percent in 2017–2021. This is the highest absolute percent change increase compared to prior time periods, and public transit decreased a modest 0.3 percent, from 5.0 percent to 4.7 percent.

Figure 14: Percent Non-SOV Targets, Philadelphia, PA-NJ-DE-MD UZA



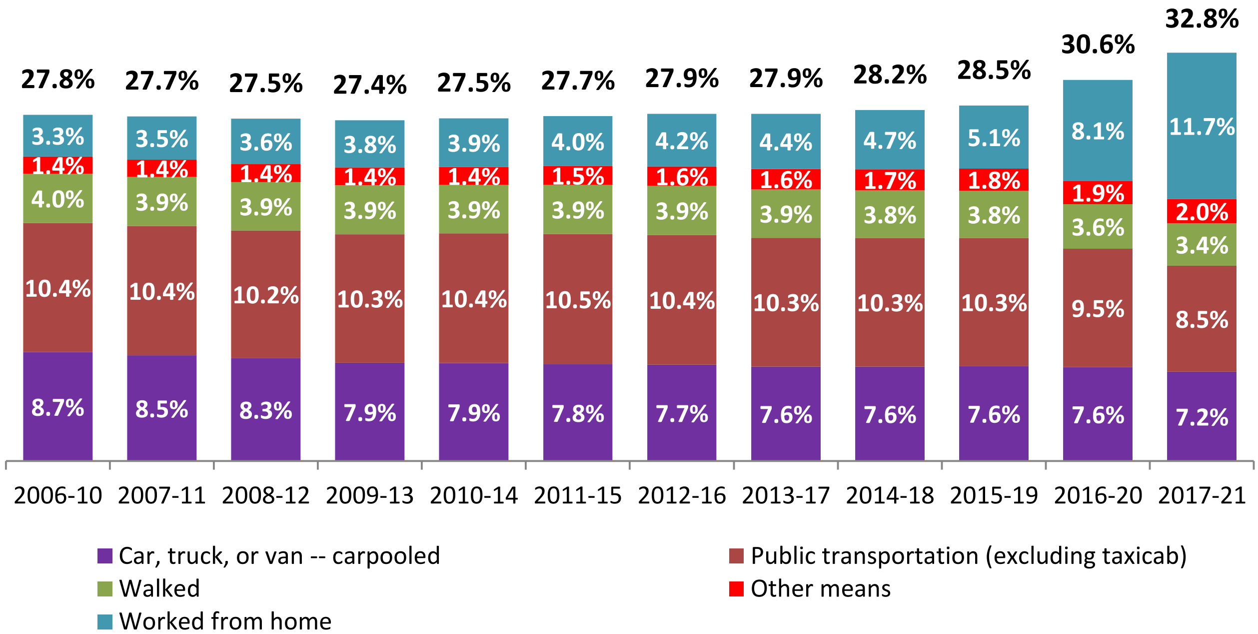
Data Sources: U.S. Census Bureau, DVRPC

Figure 15: Percent Non-SOV Targets, Trenton, NJ UZA



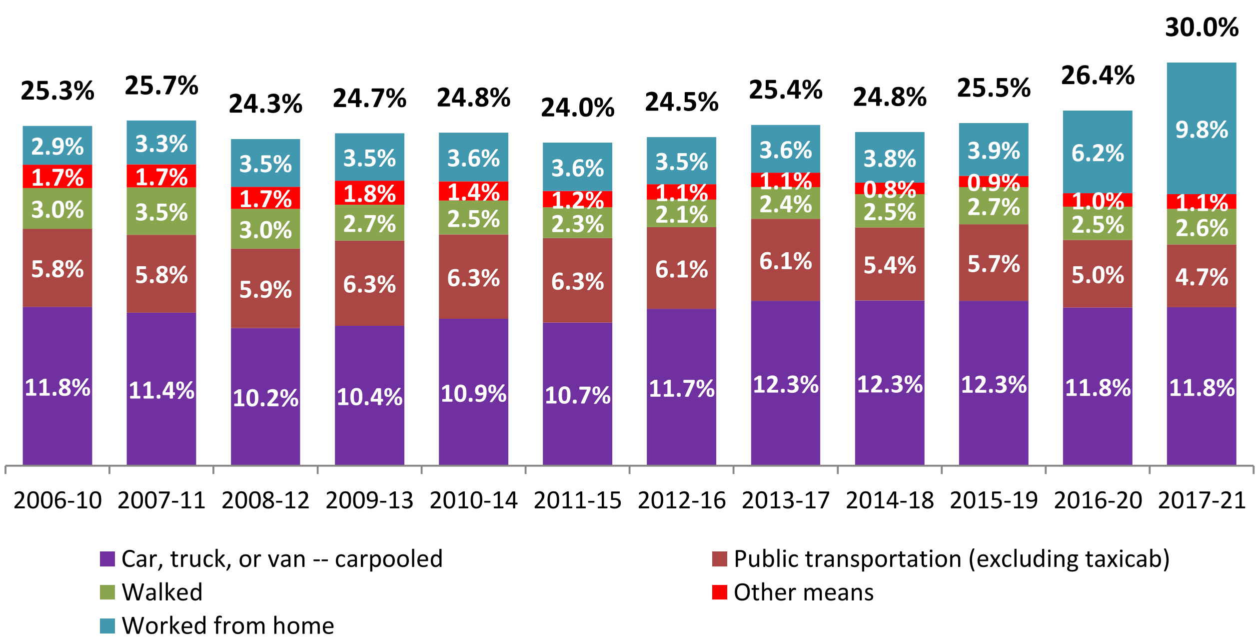
Data Sources: U.S. Census Bureau, DVRPC

Figure 16: Percent Non-SOV Commute Mode Trends, Philadelphia, PA-NJ-DE-MD UZA



Data Source: U.S. Census ACS 5–year DP03 Selected Economic Characteristic: Commuting to Work

Figure 17: Percent Non-SOV Commute Mode Trends, Trenton, NJ UZA



Data Source: U.S. Census ACS 5-year DP03 Selected Economic Characteristic: Commuting to Work

Analysis of PennDOT and NJDOT crash data for the DVRPC region indicates increased traffic fatalities since the pandemic despite lower VMT compared to pre-Covid conditions[4]. Similar trends are observed nationally. There are many contributing factors for rising fatalities, but studies show that reduced congestion owing to lower VMT, spurs drivers to travel at higher speeds, and increases severity when crashes occur. The INRIX data indicates higher speeds owing to decreased congestion overall comparing 2017 to 2021 and 2022 (see Chapter 6). Crash data also indicates that pedestrian and cyclist fatalities have increased since the pandemic. The scope of engineering strategies to make drivers, pedestrians and bicyclists safer and reduce fatalities depends in part on the roadway location, such as urban or rural, or limited and non-limited access. For example, on limited access highways, perhaps rumble strips represent an appropriate strategy to keep cars in their lane and not leaving the road at high speeds. In urban areas, installing protected sidewalks and bicycle lanes may be an appropriate strategy. Other safety strategies could include “speed management” to reduce speeds, such as more traffic signals, road diets, roundabouts, and traffic-calming. All these solutions tie to the CMP’s Vision Zero objective and the *Connection 2050* Plan’s Vision Zero goal by 2050. As strategies are put in place to improve both mobility and reliability they simultaneously must attain Vision Zero goals.

[4] *The Transportation Safety indicator in the Tracking Progress dashboard (www.dvrpc.org/trackingprogress) has up-to-date roadway annual kills and severe injuries data.*

2. Regional Objectives for Congestion Management

Congestion management objectives define the region's goals for managing congestion in the context of livability, economic vitality, equity, safety, and multimodal access. The objectives support the Long-Range Plan's goals, including improving the performance and operation of the transportation system.

CMP Objectives include: (1) increase mobility and reliability, including minimizing growth in recurring and non-recurring congestion, and meeting PM3 targets; (2) integrate modes, including providing transit, trails and sidewalks where they are most needed for an accessible and connected multimodal network; (3) modernize infrastructure, including improving existing core transportation network; (4) achieve Vision Zero, including improving vehicle, pedestrian and bicycle safety, and reducing nonrecurring congestion by reducing crashes; (5) make global connections, including maintaining movement of goods by truck and rail and improving connections to ports and airports; (6) maintain transportation security and cybersecurity, while increasing the transportation network's preparedness for major events; and 7) ensure that all transportation investments support DVRPC Long-Range Plan principles. These include prioritizing transportation investments in less sensitive environmental areas; investing to support land use centers first, then infill and redevelopment areas, and then emerging growth areas; sustaining the environment; developing livable communities; reducing poverty and increasing workforce skills by investing in EJ and Equity populations; and creating an integrated, multimodal transportation network. These objectives flow from the Long-Range Plan goals (see Table 1). The table includes LRP goals, associated CMP Objectives, a description of the measure criteria for each CMP Objective, and possible scores.

CMP Objectives are translated into specific CMP Objective Measure criteria and then scored to analyze performance of the regional transportation system, and for developing strategies to mitigate congestion. For example, the CMP Objective of "Increasing mobility and reliability, including minimizing growth in recurring and non-recurring congestion, and meeting PM3 targets", includes six measure criteria as indicated in the first part of the "Sub ID" identifier. Some criteria have more than one threshold with the higher threshold scored more. For example, the TTI measure has two thresholds, which is indicated in the second part of the "Sub ID" identifier. TTI greater than 1.50 would be the highest threshold and be weighted more with a score 1.0, and the TTI between 1.20 and 1.50 would be scored less at 0.5. The scores are capped for each CMP Objective to a maximum score in order to weigh some measures more than others. For this measure, a maximum score of 4.0 can be attained even though the six criteria could sum to a total score of 6.0. The criteria analysis is multimodal and performed using Geographic Information Systems (GIS), where the results are represented on the roadway network. The measure criteria are further described in Chapter 3.

Table 1: Long-Range Plan Goals and CMP Objective Measures

ID	2050 LRP Goal	CMP Objective	SUB ID	CMP Objective Measure Criteria	Score	Max Score
1	Increase Mobility and Reliability	Increase mobility and reliability, including minimizing growth in recurring and non-recurring congestion, and meeting PM3 targets	1.1a	High TTI (> 1.50) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [1]	1.0	4.0
			1.1b	Medium TTI (1.20 to 1.50) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [1]	0.5	
			1.2	PM3 Peak Hour Excessive Delay Per Road Segment Mile (1x the regional average) [2]	1.0	
			1.3	Anticipated moderate to high congestion (>.85) V/C LRP TDM 2050 - highest peak hour (7-8 am, 8-9 am, 4-5 pm, 5-6 pm)	1.0	
			1.4	Anticipated moderate to high congestion (>.85) V/C LRP TDM 2015 & increase in congestion (15%) LRP TDM (2015-50)	0.5	
			1.5a	Very High PTI (> 3.50) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [1]	1.5	
			1.5b	High PTI (3.00 to 3.50) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [1]	1.0	
			1.5c	Medium PTI (2.00 to 3.00) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [1]	0.5	
			1.6a	PM3 LOTTR High (2.50 or more) [2]	1.0	
			1.6b	PM3 LOTTR Medium (1.50 to 2.49) [2]	0.5	
2	Integrate Modes and Increase Accessibility	Integrate modes and provide transit where it is most needed for accessibility	2.1	High Transit Score: high population and employment density, and zero-car households	1.0	2.0
			2.2	Near bus transit (1/4 mile) and passenger rail stations (1 mile)	1.0	
3	Modernize Infrastructure	Modernize and maintain the existing core transportation network	3.1a	Substantial Transit bus and shuttle routes (>= 3 runs in urban areas and >=2 runs in suburban) during peak periods	1.0	1.5
			3.1b	Any Transit bus and shuttle routes	0.5	
			3.2	Near Transit passenger rail, including Amtrak (1-mile buffer)	1.0	
			3.3	National Highway System, including freight connectors	0.5	
			3.4	Freight - centers, ports, and PHL airport; near rail lines (1-mile buffer)	1.0	
4	Achieve Vision Zero	Improve safety and reduce nonrecurring congestion due in part to crashes	4.1	High crash frequency (crashes per million vehicle miles traveled)	1.0	2.0
			4.2	High crash severity	1.0	
5	Make Global Connections	Maintain movement of goods by truck and meet PM3 targets	5.1a	High TTTI (> 3.00) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [2]	1.0	1.5
			5.1b	Medium TTTI (2.00 to 3.00) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5- 6 pm) [2]	0.5	
			5.2a	High TPTI (> 6.50) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [2]	1.0	
			5.2b	Medium TPTI (5.50 to 6.50) weekday peak hour (7-8 am, 8-9 am, 4-5 pm, or 5-6 pm) [2]	0.5	
			5.3	PM3 TTTR High (>= 2.00) [2]	1.0	
6	Strengthen Security and Cybersecurity	Maintain and enhance the transportation security and prepare for major events, especially ones that call for inter-regional movements far beyond normal; this also serves routine needs	6.1	High population or employment density (>2x regional average) by Census Block Group	0.5	1.0
			6.2	Heavily used transit stations	0.5	
			6.3	Limerick nuclear power plant evacuation zone	0.5	
			6.4	Major roadway bridges (> 100,000 AADT)	0.5	
			6.5	Major passenger and freight rail bridges	0.5	
			6.6	Key military locations	0.5	
			6.7	Stadium and waterfront Locations	0.5	
7	Support 2050 Long-Range Plan Principles – Sustainability / Resiliency/ Equity	Invest to support centers first, then infill and redevelopment areas, and then emerging growth areas	7.1	Land use centers	0.5	3.0
			7.2	Infill and redevelopment areas, and emerging growth areas	0.5	
		Prioritize transportation investments in less sensitive environmental areas	7.3	Environmental Screening Tool	0.5	
			7.4	100- and 500-year floodplains	0.5	
		Assess EJ indicators	7.5	Assess IPD EJ indicators	1.0	
Total Maximum Score						15.0

TTI: Travel Time Index | PTI: Planning Time Index | TTTI: Truck Travel Time Index | TPTI: Truck Planning Time Index | LOTTR: Level of Travel Time Reliability

[1] *Data Source: INRIX*

[2] *Data Source: National Performance Management Research Dataset (NPMRDS)*

Source: DVRPC, 2023

3. CMP Objective Measure Criteria

Congestion is a broad and subjective topic that makes it challenging to measure. There are a number of approaches that attempt to quantify congestion using performance measures to systematically assess roadways and other facilities. DVRPC derives CMP Objectives from its Long-Range Plan goals. Availability, ease of update, staff time, overall cost, and the ability to partner with others are some of the considerations used to determine performance measures. The measures can be categorized into congestion and reliability measures, and other CMP Objective Measure criteria.

3.1 Congestion and Reliability Measure Criteria

Congestion and reliability measures help to identify the extent, intensity, and variability of congestion on the transportation network. The main data source used for these measures was INRIX travel time data, which was made available through INRIX. The CMP collected and processed this data on most roads in the region for every minute of every day for all of 2021, and analyzed over weekdays and peak time periods. The data was chosen over other travel time datasets due to availability and advantages of extensive coverage and improved granularity. The measures used include TTI, PTI, and vehicle and volume travel time and planning time delays. PennDOT and other transportation agencies have partnered with INRIX to use the data for traffic analysis, which also allows DVRPC to use the data. INRIX data is also made available through the Eastern Transportation Coalition's University of Maryland Center for Advanced Transportation Technology Laboratory (CATT Lab) Probe Data Analytics (PDA) Software Suite. The Coalition contracts with private companies to provide travel time data collected from connected vehicles and other location-based services, and develops tools to access and analyze various congestion and reliability measures. The CMP used the PDA software to analyze truck delays using the TTTI and TPTI measures, PM3 measures, and intersection bottleneck vehicle and volume delays. The DVRPC regional Travel Demand Model, which estimates trips based on population and employment forecasts and planned infrastructure investments, was used to identify base and future year volume-to-capacity (V/C) ratios. State DOT annualized traffic volume data was combined with the travel time data to understand which locations experience both high volumes and high travel time congestion and unreliability.

New national performance management reliability and congestion PM3 measures derived from the National Performance Management Research Data Set (NPMRDS), are used in the CMP congestion analysis. While the measures are reported at the statewide and UZA level for target setting, some of the data is available at the roadway segment level for a more granular analysis. This data contains speeds and travel times by road segment, like INRIX, but is limited to the NHS. The PM3 measures include: LOTTR, TTTR, and PHED.

A transit reliability measure, largely based on INRIX data, is utilized by the CMP to help measure bus transit service efficiency in the region. Congestion and transit agency route and ridership data are combined to develop composite reliability indicators.

More detailed descriptions of these CMP Measures are provided below.

Travel Time Index (TTI)
This measure is derived from the INRIX 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 the 66th percentile observed speed for all time

periods. The greater the TTI value, the more congestion it indicates. TTI is analyzed for AM peak hours 7:00–8:00 and 8:00–9:00, and the PM peak hours 4:00–5:00 and 5:00–6:00. A TTI of 1.00 indicates vehicles are traveling at free-flow speeds, while a value of 1.50 indicates that a 20-minute free-flow trip takes 30 minutes. Roadways with a TTI between 1.20 and 1.50 are considered moderately congested, and those greater than 1.50 are considered highly congested.

Planning Time Index (PTI)

This measure is the ratio of the peak period 95th percent travel time to the free-flow travel time for a given roadway segment. It is also derived from INRIX travel time data. 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 unreliability. A PTI of 3.00 indicates a 20-minute free-flow trip will take 60 minutes in the peak period, where one might expect to plan 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. PTI measures are analyzed for weekdays during the AM peak hours 7:00–8:00 and 8:00–9:00, and the PM peak hours 4:00–5:00 and 5:00–6:00.

Peak Vehicle Delay

This measure indicates the travel time and planning time delay by roadway segment, in seconds. Peak vehicle delay is the difference between the average peak period travel time and the free-flow time for peak travel time delay and the difference between the 95th percentile travel time and the free-flow time for peak planning time delay. The greater the difference, the greater the delay. This measure is derived from the INRIX data for weekdays during the AM peak hours of 7:00–8:00 and 8:00–9:00, and the PM peak hours of 4:00–5:00 and 5:00–6:00. It is used to analyze and rank delay by Focus Roadway Corridor Facility, and Intersection and Limited Access Roadway Bottleneck. For the facilities, the vehicle delay is divided by the facility length, resulting in a peak vehicle delay per mile measure. Roads with high vehicle delay are identified in order to manage congestion for every driver on the road, not just locations with high traffic volumes.

Peak Volume Delay

This measure indicates peak period vehicle delay, measured in hours, as a function of traffic volumes for the peak hour (which accounts for seven percent of total daily traffic in the AM, and nine percent in the PM). Roads with both high vehicle and volume travel time and planning time delay normally lead to congestion with a more regional impact, compared to ones with just high vehicle delay, due to the sheer number of vehicles involved. This measure is used to analyze and rank peak travel time and planning time volume delay by Focus Roadway Corridor Facility, and just travel time volume delay by Focus Intersection and Limited Access Roadway Bottleneck. For facilities, the volume delay is divided by the facility length, resulting in a peak volume delay per mile measure. The volume part of the delay measure is derived from traffic flow defined as Annual Average Daily Traffic (AADT), which is the average number of daily vehicles that traverse a roadway analyzed for all days in the week over a one-year period. AADT is determined through continual and seasonal traffic counts conducted by PennDOT, NJDOT, and DVRPC. For purposes of this CMP, AADT was conflated to INRIX roadway segments using GIS and other conflation tools to calculate peak hour volume delays. The conflation results in minor inaccuracies that can occur when transferring spatial data between two spatially inconsistent databases.

High Anticipated V/C and High Anticipated Growth in V/C

This measure indicates where high traffic congestion might be in the future, and where it is likely to significantly increase in the future according to the time span of the DVRPC Long-Range Plan (currently 2022 to 2050). The V/C ratio is a traditional traffic engineering measure indicating road capacity sufficiency, or whether the physical geometry provides sufficient capacity for travel movements. It is an important measure for comparing a roadway's performance over a future time period, as opposed to travel time data, which is a more effective measure for indicating existing quality of service, and a driver's frustration. DVRPC Travel Demand Model runs provide AM and PM peak period V/C by roadway link (or segment) for both the model's base year (2015) and the Long-Range Plan's horizon year (2050) in addition to other analysis years in between. It identifies potential future congested roadways in 2050 using the 2050 socioeconomic forecasts, programmed projects approved for funding, and a host of other inputs. Links with high anticipated V/C (>=0.85) for either the AM or PM peak hour in the horizon year and links with high base year V/C (>=0.85) and 15 percent or more change increase between the base and horizon year are used in this measure. Like AADT, Travel Demand Model V/C was conflated to the INRIX roadway network.

National Transportation Performance Management Measures (System Performance/PM3)
FHWA completed rulemaking for PM3 measures in May 2017. They were initially legislated by MAP-21, and continued in both the FAST Act and the IIJA. Transportation Performance Management aims to improve transportation project investments and decisions through performance-based planning and programming. Baseline and required two- and four-year targets are established at the statewide and UZA levels with the intention of programming projects to meet the regional targets (see Tables 2 through 5). Although the baseline and target values are established at the statewide and UZA geographic levels, they are calculated at the roadway segment level (except percent non-SOV travel which is calculated at the census block group level) from the NPMRDS data, which includes roadways on the NHS. While it would be helpful to have these measures calculated at lower level non-NHS road segments, this NPMRDS dataset is federally approved. The NPMRDS data was conflated to the INRIX roadway network and utilized in the CMP to identify and prioritize congested locations, and to develop strategies to mitigate congestion. The three PM3 measures used in the CMP are LOTTR, TTTR, and PHED, and they are described below.

Reliability Measure and Level of Travel Time Reliability (LOTTR)
This statewide PM3 reliability measure helps to assess the performance of the NHS and indicates the percentage of person miles traveled on the interstate and non-interstate NHS that are reliable within a region (see 23 CFR 490.507(a)(1,2)). The measure is in part computed by calculating a LOTTR value for each road segment, which is the ratio of the 80th percentile travel time to a "normal" travel time (50th percentile). This measure is calculated for four peak time periods: weekdays 6:00–10:00 AM, 10:00 AM–4:00 PM, and 4:00–8:00 PM; and weekends 6:00 AM–8:00 PM. If all four periods are below a 1.50 threshold criteria, the reporting segment is designated reliable; if not then it is unreliable. This is the portion of the measure that is used in the CMP. Both VMT and average vehicle occupancy are factored into the reliability measure. The final reliability measure is calculated separately for interstate and non-interstate routes as the total person miles that are reliable divided by the total person miles.

Table 2 shows the applicable statewide baseline, and two- and four-year actual performance and targets for this PM3 measure for the first performance period (2017–2021). In New Jersey, the 2021 interstate and non-interstate established targets were set at 82.0 percent and 84.1 percent, respectively, aiming for actual performance to be above these figures. The actual performance was 94.0 percent and 92.2 percent, respectively; therefore the targets were achieved. In Pennsylvania, the 2021 interstate and non-interstate targets were set at 89.5 percent and 87.4 percent, respectively. The actual performance was 92.8 percent and 92.6 percent, respectively; therefore the 2021 four-year targets were achieved. The reliability targets were easily achieved in both states due largely to the impact of Covid-19 on travel patterns and more workers shifting to working at home thereby reducing congestion owing to reduced travel.

Figure 18 shows the interstate and non-interstate roadways in the region that are unreliable using the LOTTR part of the reliability measure. The time period with the highest LOTTR is mapped with brown segments the most unreliable. For purposes of the CMP, an LOTTR value between 1.50 and 2.49 is considered moderately unreliable, and 2.50 or more is considered most unreliable.

For the second performance period (2022–2025), the baseline and two- and four-year targets for interstate and non-interstate reliability are established, but no two- or four-year performance to compare against is yet available (see Table 3). For New Jersey, the 2021 baseline for interstate reliability is 94.0 percent and the two- and four-year established targets are 82.0 percent and 83.0 percent, respectively. The 2021 baseline for non-interstate reliability is 92.2 percent and the two- and four-year targets are 85.0 and 86.0 percent, respectively. NJDOT set the targets for future years based more on pre-pandemic performance, while considering the possible effects of future changes in traffic trends due to the pandemic and working remotely, and more off-peak trips. For Pennsylvania, the 2021 baseline for interstate reliability is 92.8 percent and the two- and four-year targets are both 89.5 percent, and the baseline for the non-interstate reliability is 92.6 percent and the two- and four-year targets are both 88.0 percent. PennDOT set targets considering increased freight and more road construction impacting performance, as well as considering the effects of the pandemic.

Truck Travel Time Reliability (TTTR) Index

This statewide index measure helps to assess freight movements on the interstate system within the region, and is also referred to as the freight reliability measure (see 23 CFR 490.607). The TTTR indicates the reliability of the interstates for freight movement measured by the ratio of the 95th percentile travel time to a "normal" travel time (50th percentile). Unlike LOTTR, it does not include VMT and average vehicle occupancy in the calculations, and there is no threshold criteria established for unreliability, the higher the index, the more unreliable a roadway is. Table 2 shows the applicable statewide baseline and two- and four-year actual performance and targets for the first performance period (2017–2021). In New Jersey, the 2021 freight reliability index four-year established target was set at 1.95, aiming for actual performance to be below this figure. The actual performance in 2021 was 1.56 compared, so the four-year target was achieved. In Pennsylvania, the 2021 freight reliability index target was set at 1.40. The actual performance in 2021 was 1.30, so the four-year target was achieved.

For the second performance period (2022–2025), the baseline and two- and four-year targets are established, but no two- or four-year performance to compare against is yet available (see Table 3). For New Jersey, the 2021 baseline for the freight reliability index is 1.82 and the two- and four-year targets are 1.90 and 1.95, respectively. NJDOT set the two- and four-year targets higher in future years, considering the long-term growth in e-commerce as a contributor to traffic congestion and unreliability. For Pennsylvania, the 2021 baseline for the freight reliability index is 1.30 and the two- and four-year targets are both 1.40. PennDOT set targets considering increased freight and more road construction impacting performance, and anticipates performance will move closer to pre-pandemic levels.

Figure 19 shows mapping of the freight reliability index on interstate roadways in 2021 classified into four categories, with brown segments the most unreliable. This measure is calculated for five peak time periods: weekdays 6:00–10:00 AM, 10:00 am–4:00 PM, and 4:00–8:00 PM; weekends 6:00 AM–8:00 PM, and every day 8:00 PM–6:00 AM. The time period with the highest TTTR is used as the criteria for determining reliability by road segment and mapped. For purposes of the CMP, a TTTR value of 2.00 or more was considered unreliable, and included in the CMP Objective Measure scoring.

Table 2: Reliability and TTTR Baseline, Target and Performance for Reliability Measures First Performance Period (2017–2021)

Measure	New Jersey					Pennsylvania				
	2017 Baseline	2019 Actual	2019 2-Year Target	2021 Actual	2021 4-Year Target	2017 Baseline	2019 Actual	2019 2-Year Target	2021 Actual	2021 4-Year Target
Interstate Reliability (Statewide)	82.0%	80.6%	82.0%	94.0%	82.0%	89.8%	89.9%	89.8%	92.8%	89.5%
Non-Interstate Reliability (Statewide)	84.1%	86.2%	Optional	92.2%	84.1%	87.4%	88.5%	Optional	92.6%	87.4%
Truck Reliability (Statewide)	1.82	1.89	1.90	1.56	1.95	1.35	1.36	1.34	1.30	1.40

Sources: DVRPC CATT Lab, PennDOT, NJDOT, U.S. Census Bureau
Gray text indicates target not achieved

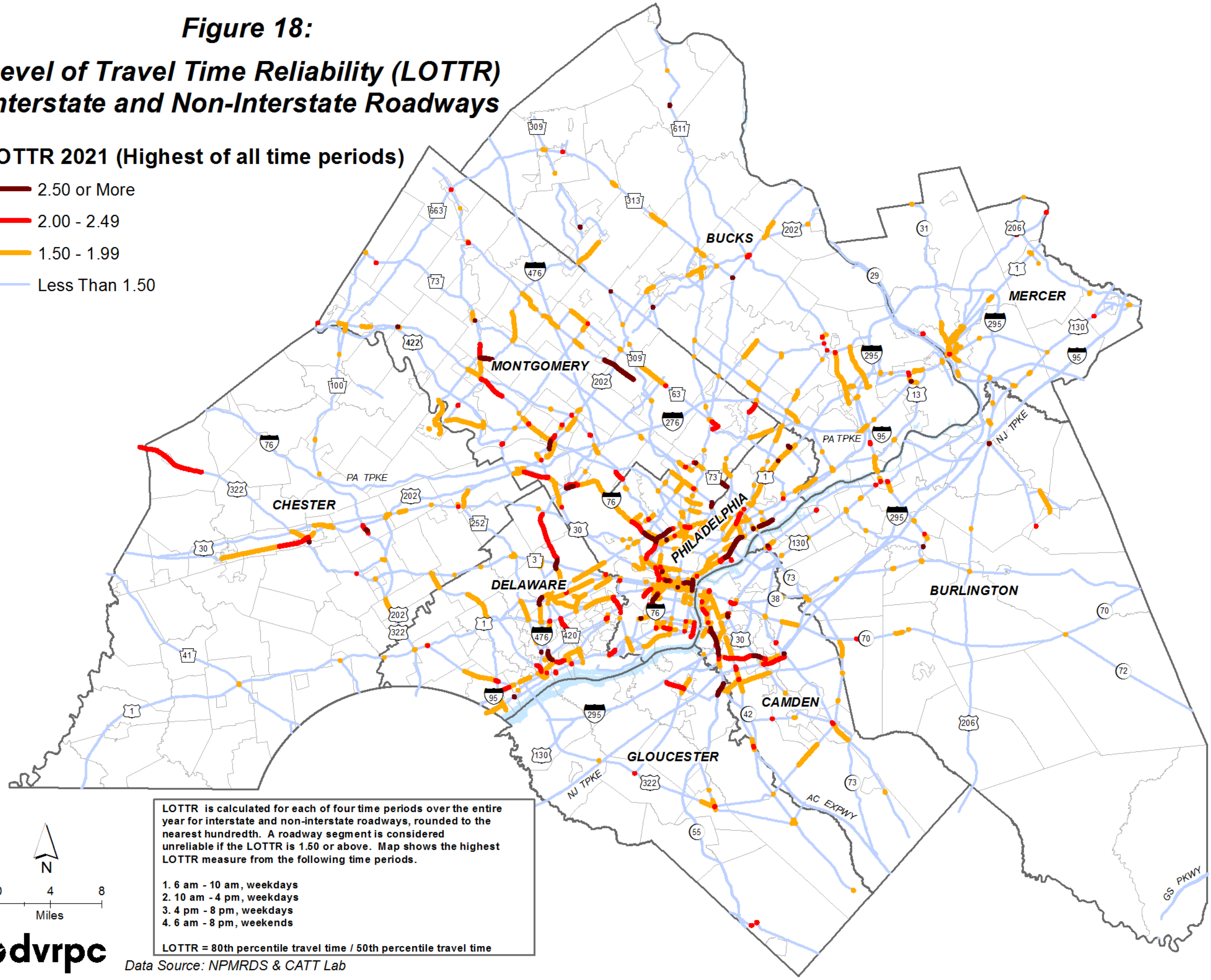
Table 3: Reliability and TTTR Baseline and Targets for Reliability Measures Second Performance Period (2022–2025)

Measure	New Jersey			Pennsylvania		
	2021 Baseline	2023 2-Year Target	2025 4-Year Target	2021 Baseline	2023 2-Year Target	2025 4-Year Target
Interstate Reliability (Statewide)	94.0%	82.0%	83.0%	92.8%	89.5%	89.5%
Non-Interstate Reliability (Statewide)	92.2%	85.0%	86.0%	92.6%	88.0%	88.0%
Truck Reliability (Statewide)	1.82	1.90	1.95	1.30	1.40	1.40

Sources: DVRPC, CATT Lab, PennDOT, NJDOT, U.S. Census Bureau

Figure 18:

Level of Travel Time Reliability (LOTTR) Interstate and Non-Interstate Roadways



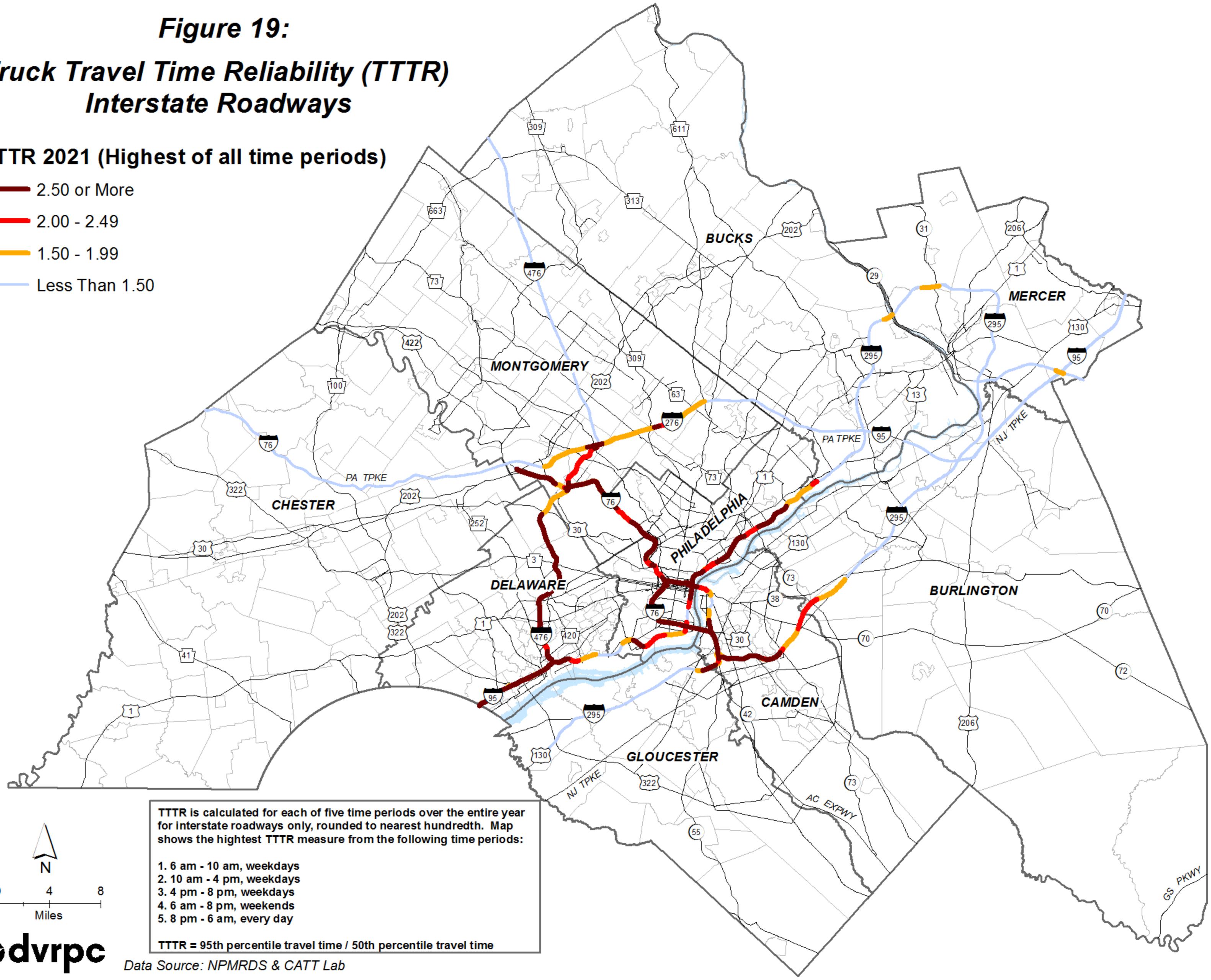
Data Source: NPMRDS & CATT Lab

Figure 19:

Truck Travel Time Reliability (TTTR) Interstate Roadways

TTTR 2021 (Highest of all time periods)

- 2.50 or More
- 2.00 - 2.49
- 1.50 - 1.99
- Less Than 1.50



TTTR is calculated for each of five time periods over the entire year for interstate roadways only, rounded to nearest hundredth. Map shows the hightest TTTR measure from the following time periods:

1. 6 am - 10 am, weekdays
2. 10 am - 4 pm, weekdays
3. 4 pm - 8 pm, weekdays
4. 6 am - 8 pm, weekends
5. 8 pm - 6 am, every day

TTTR = 95th percentile travel time / 50th percentile travel time

Data Source: NPMRDS & CATT Lab

Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita

This UZA measure helps to assess excessive traffic congestion and the role it plays in pollutant emissions as part of the CMAQ Program (see 23 CFR 490.707(a)). In the second performance period starting in 2021, this measure applies to UZA populations over 200,000 that are, in all or part, of a designated nonattainment or maintenance area for ozone, carbon monoxide, or particulate matter for air quality conformity purposes under the Clean Air Act. The first performance period, which started in 2017, applied only to UZAs with more than one million population. The Philadelphia, PA-NJ-DE-MD UZA was included in this measure for the first performance period and the Trenton, NJ UZA is included in this measure starting in the second performance period. Travel times, hourly traffic volumes, posted speed limits, mode shares (passenger vehicles, transit, and trucks), and average vehicle occupancy factors are used in the excessive delay calculation at the roadway segment level for the full reporting calendar year for peak periods 6:00–10:00 AM and 3:00–7:00 PM, and then aggregated to the UZA. The "excessive" part of the PHED name is because some level of congestion is recognized as acceptable, and is thus not counted in the measure. This corresponds to the recognition that it is not possible, nor sometimes desirable, to eliminate all congestion delay; some congestion relates to economic activity and naturally occurs in thriving places. The "per capita" implies that the total delay is shared by all residents; and that everyone can benefit when some trips are avoided, shifted to walking or biking, or occur outside the peak time period. Annual hours of PHED per capita is indicated by the ratio of the total delay to the population of the UZA.

Table 4 shows the Philadelphia, PA-NJ-DE-NJ UZA baseline and two- and four-year actual performance and targets for the first performance period (2017–2021). The four-year target was set at 17.2 hours of PHED per capita, aiming for actual performance to be below this figure. The actual performance in 2021 was 13.1; therefore the four-year target was easily achieved. The impact of the Covid-19 pandemic and more people working from home, greatly contributed to the low 2021 PHED actual performance.

For the second performance period (2022–2025), the baseline, and two- and four-year targets are established, but no two or four-year performance to compare against is yet available (see Table 5). The Philadelphia, PA-NJ-DE-MD UZA 2021 baseline was 13.1 annual hours of PHED per capita and the two- and four-year targets are 15.2 and 15.1, respectively. The Trenton, NJ UZA 2021 baseline was 3.4 and the two- and four-year targets are both 5.7. The targets support the DVRPC *Connections 2050* Long-Range Plan and the DOT's transportation goals of increasing mobility and reliability while reducing congestion and vehicle miles traveled. The targets were established in part based on past PHED trends and on anticipating workers going back to the offices closer to 2019 traffic levels. Uncertainties still remain that may impact the targets, including how many workers will continue to work remotely, and how much inflation, energy costs, and supply chain disruptions will affect travel and congestion.

Figure 20 shows mapping of the annual hours of PHED in 2021 for both the Philadelphia, PA-NJ-DE-MD and Trenton, NJ UZAs. Roadways outside the UZAs are excluded from this measure, which includes some areas in each of the counties, with the exception of Philadelphia, which is totally inclusive. For purposes of the CMP, roadway segments with PHED greater than the regional average are considered high excessive delay, and included in the CMP Objective Measures scoring.

Table 4: PHED and Non-SOV Baseline, Targets and Performance for Congestion Measures First Performance Period (2017–2021)

Measure	Philadelphia, PA-NJ-DE-MD UZA				
	2017 Baseline	2019 Actual	2019 2-Year Target	2021 Actual	2021 4-Year Target
Annual Hours of PHED Per Capita	16.8	14.6	17.0 Optional	13.1	17.2
Percent Non-SOV Travel*	27.9%	28.2%	28.0%	30.6%	28.1%

Sources: DVRPC CATT Lab. PennDOT. NJDOT. U.S. Census Bureau

**Measure based on one-year prior to baseline, actual, and two- and four-year target years due to two-year lag in availability of ACS 5-year data*

Table 5: PHED and Non-SOV Baseline and Targets for Congestion Measures Second Performance Period (2022–2025)

Measure	Philadelphia, PA-NJ-DE-MD UZA			Trenton, NJ UZA		
	2021 Baseline	2023 2-Year Target	2025 4-Year Target	2021 Baseline	2023 2-Year Target	2025 4-Year Target
Annual Hours of PHED Per Capita	13.1	15.2	15.1	3.4	5.7	5.7
Percent Non-SOV Travel*	30.6%	30.0%	30.0%	26.4%	26.5%	26.8%

Sources: DVRPC CATT Lab, PennDOT, NJDOT, U.S. Census Bureau

**Measure based on one-year prior to baseline and two- and four-year target years due to two-year lag in availability of ACS 5-year data*

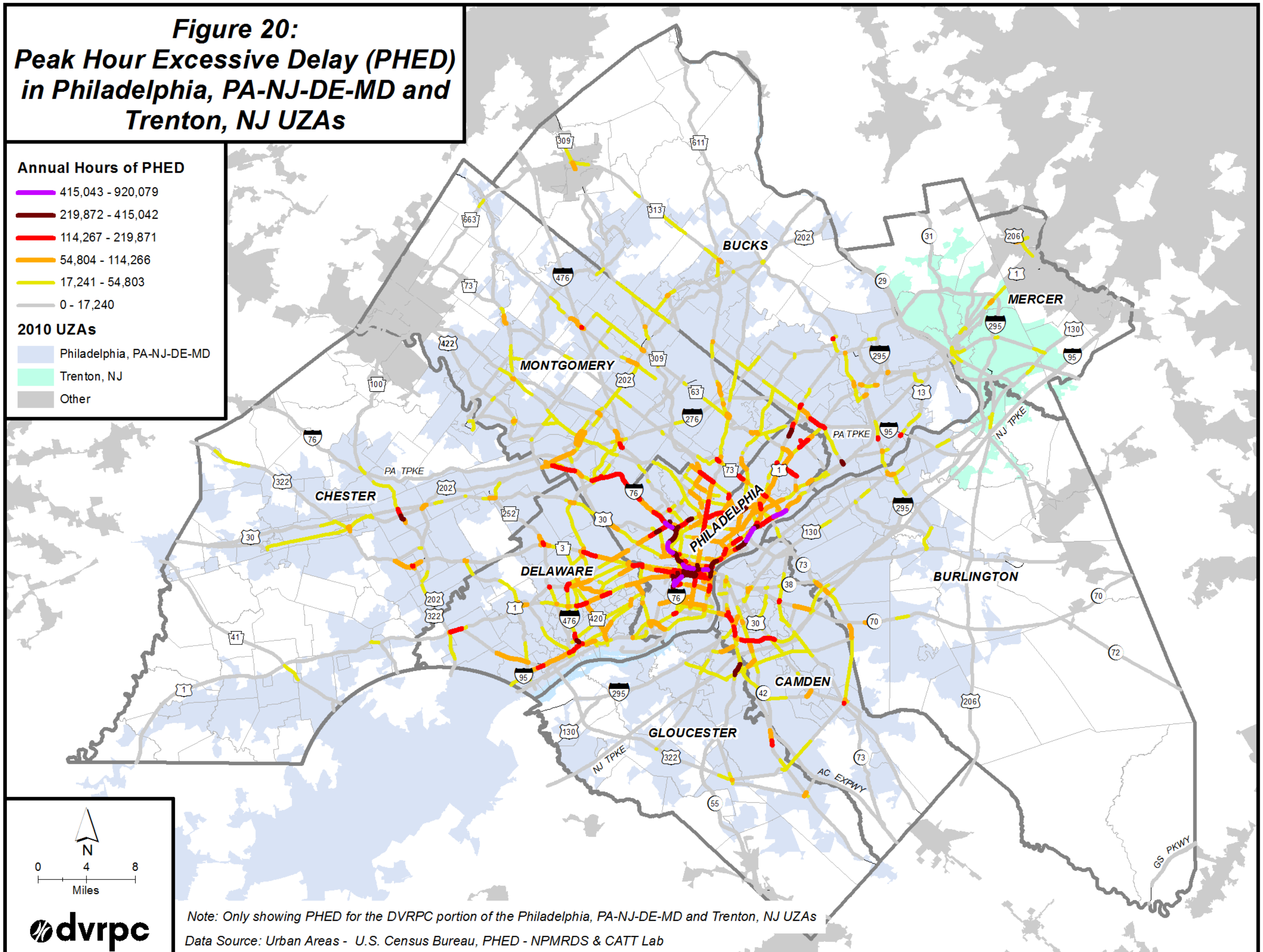
Truck Travel Time Index (TTTI) and Truck Planning Time Index (TPTI)

These measures use truck-only travel times on the NHS (interstate and non-interstate) from the NPMRDS database, separate from the PM3 measures, to identify congested and unreliable locations due to truck traffic. TTTI is defined as the ratio of the observed truck travel time to the free-flow truck travel time by roadway segment. Free-flow values are based on observed speeds for all time periods. Roadways with a TTTI between 2.00 and 3.00 are considered moderately congested and ones greater than 3.00 are considered highly congested. TTTI is analyzed for weekdays during the AM peak hours 7:00–8:00 and 8:00–9:00, and the PM peak hours 4:00–5:00 and 5:00–6:00. TPTI is defined as the ratio of the observed truck planning time (95th percentile) to the free-flow truck travel time by roadway segment. Free-flow values are based on observed speeds for all time periods. Roadways with a TPTI between 5.50 and 6.50 are considered moderately unreliable and ones greater than 6.50 are considered highly unreliable. The measure data was conflated to the INRIX road network.

Bus Transit Reliability

This composite bus transit reliability measure was derived from the INRIX 2021 travel time data and the latest bus route and ridership information available to identify routes where bus transit service is particularly slow or delayed, and where road or transit improvements could increase reliability. Bus transit reliability was calculated for most bus routes using planning time delay for each road segment along the route. Planning time delay was also weighted by riders to indicate road segments and routes that are most impacted by ridership. For purposes of the CMP, the reliability was calculated as vehicle and ridership delay by route and mapped to identify which routes performed more reliably than others according to the analysis. See Chapter 4, section 6 for more on the transit reliability analysis.

Figure 20: Peak Hour Excessive Delay (PHED) in Philadelphia, PA-NJ-DE-MD and Trenton, NJ UZAs



Note: Only showing PHED for the DVRPC portion of the Philadelphia, PA-NJ-DE-MD and Trenton, NJ UZAs

Data Source: Urban Areas - U.S. Census Bureau, PHED - NPMRDS & CATT Lab

3.2 Other CMP Objective Measure Criteria

In addition to the congestion and reliability measures, other CMP Objective Measures are developed to support the goals of the Long-Range Plan (see Table 1). The measures are conflated to the INRIX roadway network and help to prioritize congested roadways for improvements and to develop strategies to mitigate congestion. The measures are classified by CMP Objective and Long-Range Plan goals, and include integrate modes by improving convenience for transferring between modes and provide transit where it is most needed for accessibility, modernize and maintain the existing transportation network, achieve Vision Zero, make global connections and improve goods movement, maintain and enhance the transportation network security and cybersecurity and prepare for major events, and supporting Long-Range Plan principles.

To support the goal to integrate modes and increase accessibility, the CMP gives more weight to congested roadway locations near rail transit passenger stations, along and near bus transit routes, in areas where there are high population and employment densities, and areas with high concentrations of zero-car households.

To support the goal to rebuild and maintain infrastructure, the CMP gives more weight to congested locations where they exist on the NHS, on the National Highway Freight Network and associated freight connectors, on transit bus and shuttle routes, near passenger and freight rail, near the Philadelphia International Airport, and within freight centers. This analysis aligns with the federal PM2 pavement and bridge condition measures where more emphasis is placed on managing congestion on NHS roadways—however, condition measure figures are not included in this CMP analysis.

To support the Vision Zero goal, the CMP gives more weight to congested roadways where they exist along high crash frequency and severity corridors. High crash frequency corridors are ones where actual crash rates are four or more times the average rate (three or more in the New Jersey portion of the DVRPC region) for a type of roadway. Roadway types include urban or rural, divided or undivided, limited access or no access control, and roadway width and AADT thresholds. Crash rates are calculated as crashes per one hundred million VMT, and average crash rates are assigned for each combination of roadway types. High crash severity corridors are ones with five or more kills or severe injuries (four or more for the New Jersey portion for the DVRPC region) per mile of roadway. Both crash frequency and severity are analyzed from PennDOT and NJDOT crash databases over a five-year time period from 2017 to 2021 for PennDOT and 2016 to 2020 for NJDOT. This analysis generally aligns with federal PM1 Transportation Performance Management measures for assessing fatalities and serious injuries for both motorized and non-motorized roadway users.

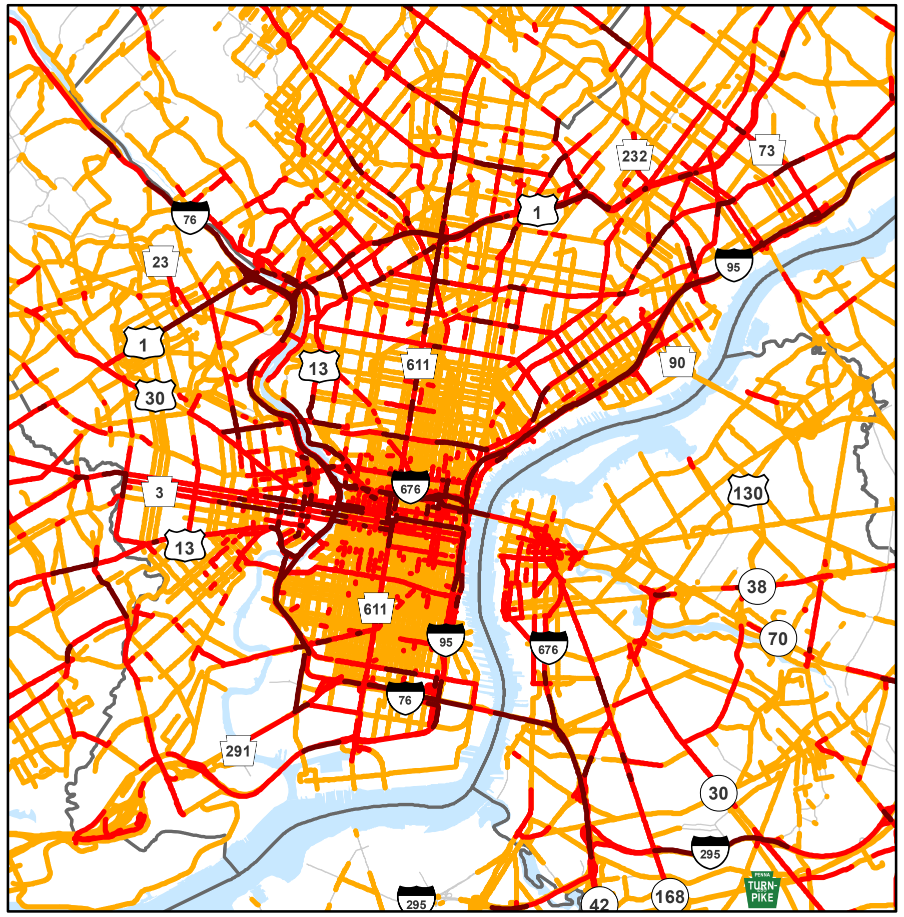
To support the making global connections goal, the CMP gives more weight to locations where trucks experience high congestion or unreliable travel times. Road segments that contain a high TTTI, TPTI, or PM3 TTTR are given more weight in this CMP analysis.

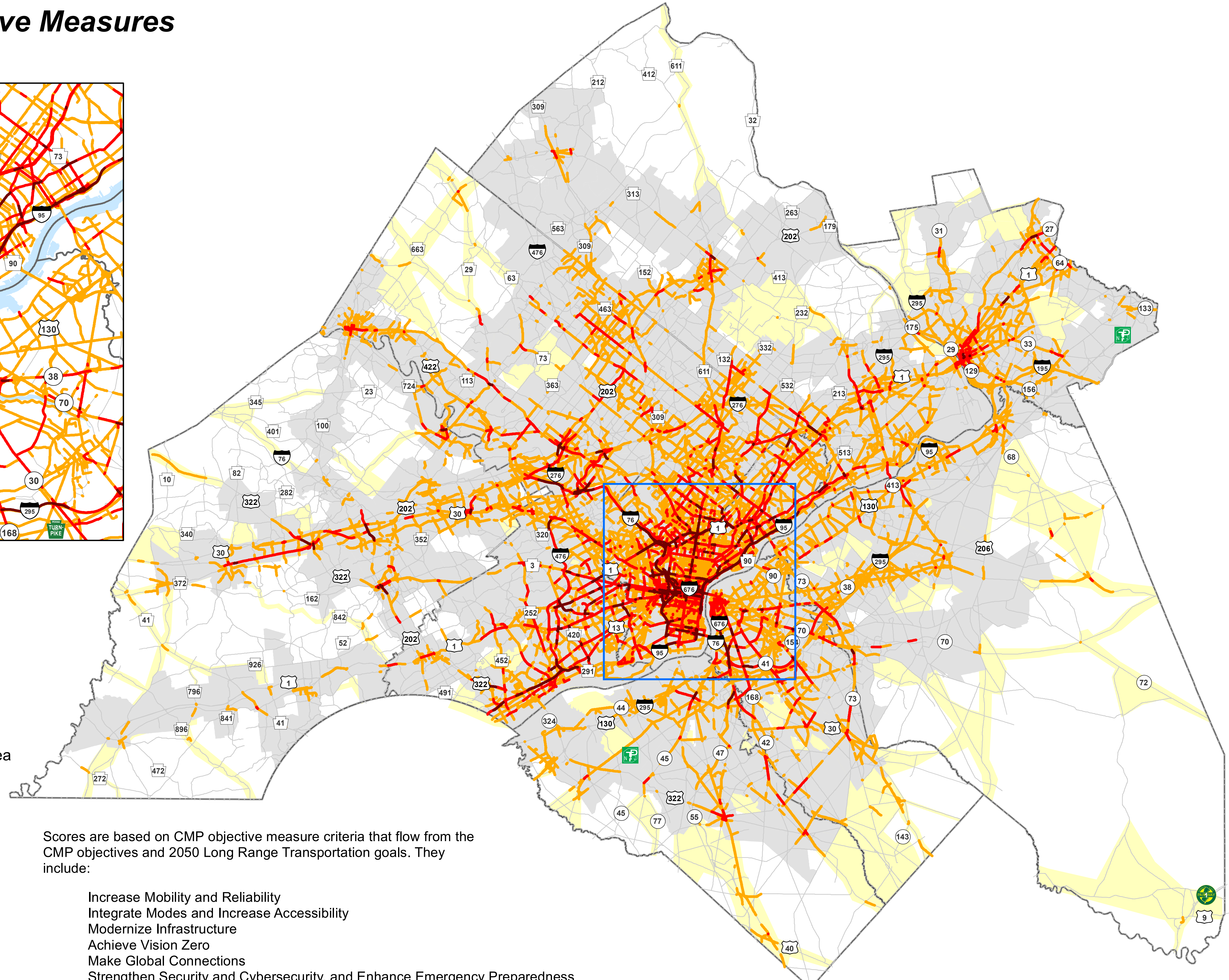
To support the enhancing security goal, the CMP gives more weight to congested roadways where they exist within high population and employment density areas; near heavily used transit stations; near major roadway, passenger, and freight rail bridges; near key military, stadium, and waterfront locations; and within the Limerick nuclear power plant evacuation zone.

To support the Long-Range Plan principles, the CMP gives more weight to congested roadways where they are within land use centers; within infill, redevelopment and emerging growth areas; within 100- and 500-year floodplains; at locations with fewer environmental impacts; and in areas with high EJ populations that are above and well above average based on DVRPC's Equity Analysis for the Greater Philadelphia Region (See website at **www.dvrpc.org/webmaps/ipd/**).

Figure 21 shows composite mapping of the CMP Objective Measures. Congested road segment locations that meet more CMP Objective Measure criteria than others contain higher score totals and are given stronger support for managing congestion. This analysis is used to help prioritize Congested Corridor and Subcorridor Areas, which is further described in Chapter 4, section 7, and is used to help prioritize Focus Roadway Corridor Facilities, Transit Facilities, and Intersection and Limited Access Roadway Bottlenecks, where each contain a CMP Objective score. Also, see the CMP website at **www.dvrpc.org/webmaps/CMP2023/** for the CMP Objective Measure mapping.

Figure 21: CMP Objective Measures





Measure Score Totals

- Greater Than 9.0
- 6.1 - 9.0
- 3.1 - 6.0
- 0.0 - 3.0
- Congested Corridor and Subcorridor Area
- Emerging Growth Corridor Area

N

0 4 8

Miles

dvrpc

Data Source: DVRPC

Scores are based on CMP objective measure criteria that flow from the CMP objectives and 2050 Long Range Transportation goals. They include:

- Increase Mobility and Reliability
- Integrate Modes and Increase Accessibility
- Modernize Infrastructure
- Achieve Vision Zero
- Make Global Connections
- Strengthen Security and Cybersecurity, and Enhance Emergency Preparedness
- Support LRP Principles

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4. Network Analysis

The CMP transportation network is represented on the region's INRIX road network where travel time data is available to help identify congested locations. Although congestion is analyzed and mapped by roadway segment across the network using congestion and other CMP Objective Measures, further analysis is conducted by aggregating road segments by roadway facility, transit facility, and intersection to analyze peak travel time and planning time vehicle and volume delays, and transit ridership delays.

4.1 Selecting Focus Roadway Corridor Facilities

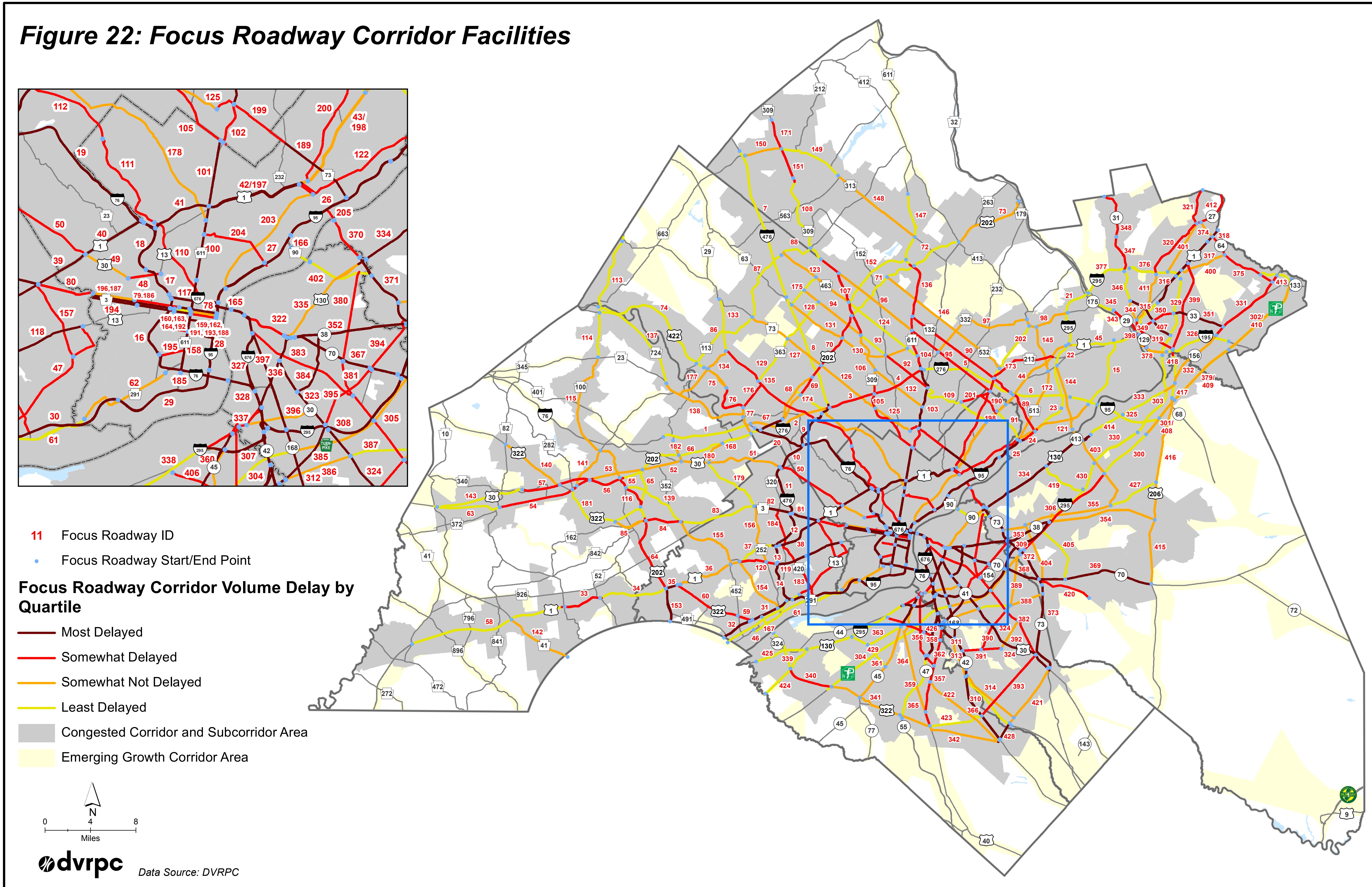
Analyzing congestion at the roadway corridor facility level, rather than by roadway segment, can give a better understanding of why some roadway corridors are performing better than others, and enables congestion to be tracked over time. Focus Roadway Corridor Facilities are identified based on locations with high congestion using TTI, PTI, and other congestion performance measures, and that are within the CMP Congested Corridor, Subcorridor, and Emerging Growth Corridor Areas. There are 336 Focus Roadway Corridor Facilities in the DVRPC region – 205 in Pennsylvania and 131 in New Jersey (see Figure 22). These facilities are symbolized by volume delay in quartiles separately for the Pennsylvania and New Jersey subregions, with brown locations being the most delayed and yellow the least delayed. The facility mapping label identifier can be cross-referenced with Tables 6 and 7 to identify more detailed delay and ranking information. The facilities are used to assist in prioritizing congested locations and developing a set of focused strategies to manage congestion (see Chapter 4, section 7). Facility limits are delineated based on where there are breaks between Congested Corridor and Subcorridor Areas, and between major interchanges, and major arterial roadways. Ramps are not included in facilities mainly due to lack of traffic volume data to analyze delays, but mainline merge roadways that typically contain volumes are included, such as ramps connecting I-476 to I-95 in Delaware County, or NJ 42 to I-295 in Camden County.

Peak vehicle and volume delay measures for both travel times and planning times are calculated from the INRIX travel time and DOT traffic volume data, then totaled by facility and divided by the facility length, and ranked separately for the Pennsylvania and New Jersey portions of the DVRPC region from most to least in delay, for both measures. The delay is divided, or normalized, by facility length to get a per mile measure, since longer facilities tend to over-represent delay. For example, Ridge Pike from I-476 to PA 29 (CMP facility 135) in Montgomery County is 20 miles, while US 1 (Roosevelt Boulevard) from PA 611 to US 13 (CMP facility 42) in Philadelphia is only 9.5 miles. Facility mileage is the total miles in each direction of vehicle travel, regardless of the number of through lanes.

Tables 6 and 7 contain a list of the Focus Roadway Corridor Facilities in the Pennsylvania and New Jersey portions of the DVRPC region, respectively, sorted in ascending order by county and roadway name, and ranked by both peak average travel time vehicle and volume delay with a rank of 1 being the most delayed. The delay rankings are color coded by quartiles from the most to least in delay, with brown being the most delayed and yellow the least. Most of the facilities have more delays during the PM peak hour. There are a few with higher delay during the AM peak hour, which are noted in the "AM/PM Highest Delay" column. Vehicle delays are measured in seconds, while volume delays are measured in hours. Although congestion measures are of primary importance for the CMP, they are not the sole consideration in ranking facilities, nor the only factors used to influence investment decisions. Additional factors to consider are the other CMP Objective Measures drawn from the Long-Range Plan, and are used to help select Priority Congested Corridor and Subcorridor Areas (see Chapter 4, section 8) and to identify strategies to mitigate congestion (see Chapter 4, section 9). Other considerations are the *Plan-TIP Project Evaluation Criteria* (DVRPC Publication #23128), and broader Plan goals, such as Vision Zero and net zero greenhouse gases (GHG). The CMP Objective Measure score totals for all segments that are part of the facility are averaged to derive a CMP objective score by facility and it is ranked in comparison to the other facilities. Both the score and ranking are listed for each facility along with the other delay information for that facility.

The Focus Roadway Corridor Facilities should be considered in DVRPC corridor and other planning studies, for evaluating before-and-after performance tracking, trending performance over time, and could be added in the future to the *Plan-TIP Project Evaluation Criteria*. Improvement recommendations will need to be weighed against regional priorities and the region’s extreme funding constraint.

Figure 22: Focus Roadway Corridor Facilities



Data Source: DVRPC

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Table 6:

Focus Roadway Corridor Facilities in the Pennsylvania Portion of the DVRPC Region: Peak Travel Time Vehicle and Volume Delay (Sorted by County and Roadway Name)

							Peak Hour Travel Time Vehicle Delay (sec/mi)					Peak Hour Travel Time Volume Delay (hr/mi) (hh:mm:ss)							
Map ID	Roadway	From Limit	To Limit	Miles	Limited Access	County	AM Peak Delay	PM Peak Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	AADT	AM Peak Volume Delay	PM Peak Volume Delay	Highest Peak Volume Delay	AM/PM Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
146	Bristol Rd	PA 532	US 202 Pky	25.66	No	Bucks	10.7	17.2	17.2	PM	106	143	12,467	1:30:38	3:12:09	3:12:09	PM	1.92	203
6	I-276 PA Tpk	US 1	I-95	10.60	Yes	Bucks	0.0	0.0	0.0	AM	202	201	34,668	0:00:21	0:00:06	0:00:21	AM	2.98	172
21	I-295	PA 29 (Delaware River)	US 1	11.46	Yes	Bucks	0.9	0.1	0.9	AM	187	191	49,080	0:21:38	0:04:30	0:21:38	AM	2.14	200
22	I-295	US 1	I-95	12.45	Yes	Bucks	0.1	0.0	0.1	AM	200	199	60,807	0:02:44	0:01:44	0:02:44	AM	4.12	135
25	I-95	PA 63	Academy Rd	5.43	Yes	Bucks	0.9	8.0	8.0	PM	163	50	131,561	1:11:11	13:30:11	13:30:11	PM	6.10	72
24	I-95	PA 132 (Street Rd)	PA 63	3.22	Yes	Bucks	0.7	5.9	5.9	PM	174	87	97,780	0:40:14	7:12:08	7:12:08	PM	5.26	102
23	I-95	I-276 PA Tpk	PA 132 (Street Rd)	6.09	Yes	Bucks	0.0	1.2	1.2	PM	186	175	88,959	0:00:41	1:20:09	1:20:09	PM	4.37	128
169	I-95	I-276 PA Tpk	PA-NJ State Line	4.70	Yes	Bucks	0.1	0.1	0.1	PM	197	198	33,164	0:02:03	0:03:42	0:03:42	PM	3.44	157
89	PA 132 (Street Rd)	I-95	US 1	7.45	No	Bucks	8.4	29.2	29.2	PM	69	55	36,270	2:27:58	12:26:24	12:26:24	PM	5.62	88
90	PA 132 (Street Rd)	US 1	PA 611 (Easton Rd)	22.83	No	Bucks	11.1	23.3	23.3	PM	85	62	33,525	3:57:43	10:39:21	10:39:21	PM	5.33	101
151	PA 309	Bethlehem Pk	PA 663 (John Fries Hwy)/PA 113	6.29	No	Bucks	5.3	19.2	19.2	PM	102	69	41,227	2:03:18	9:38:43	9:38:43	PM	3.67	149
171	PA 309	PA 663/PA 313	Cherry Rd	5.46	No	Bucks	0.9	11.5	11.5	PM	144	100	39,523	0:19:55	5:40:12	5:40:12	PM	3.56	154
148	PA 313	PA 611	PA 563	16.78	No	Bucks	17.1	22.3	22.3	PM	90	117	17,104	2:46:58	4:35:47	4:35:47	PM	2.20	197
149	PA 313	PA 563	PA 309	12.03	No	Bucks	10.2	13.0	13.0	PM	131	164	12,752	1:10:22	1:55:28	1:55:28	PM	2.19	198
98	PA 332	PA 413 (Newtown Bypass)	I-295	8.86	No	Bucks	4.8	8.5	8.5	PM	159	138	32,460	1:26:33	3:23:54	3:23:54	PM	2.81	181
97	PA 332	County Line Rd	PA 413 (Newtown Bypass)	19.41	No	Bucks	6.9	14.2	14.2	PM	124	149	16,267	1:11:14	2:57:29	2:57:29	PM	3.10	167
145	PA 413	US 1 Bus (Lincoln Hwy)	PA 332	8.65	No	Bucks	12.2	25.9	25.9	PM	77	111	15,592	1:49:44	5:02:02	5:02:02	PM	6.49	62
144	PA 413	PA-NJ State Line	US 1 Bus (Lincoln Hwy)	12.58	No	Bucks	4.1	11.9	11.9	PM	137	148	19,856	0:56:52	2:58:50	2:58:50	PM	5.47	94
172	PA 513	US 13	US 1 (Lincoln Hwy)	12.88	No	Bucks	15.4	21.7	21.7	PM	91	137	11,250	1:49:21	3:25:19	3:25:19	PM	3.60	152
202	PA 532 (Buck Rd)	PA 213 (Bridgetown Pk)	PA 332 (Newtown Byp)	10.87	No	Bucks	9.7	12.6	12.6	PM	134	160	16,242	1:29:06	2:27:26	2:27:26	PM	2.73	188
173	PA 532/PA 213	PA 132 (Street Rd)	US 1	11.81	No	Bucks	15.5	27.3	27.3	PM	72	101	13,581	2:23:00	5:30:23	5:30:23	PM	3.63	151
136	PA 611	PA 132 (Street Rd)	US 202 Pkwy	9.57	No	Bucks	6.6	14.9	14.9	PM	120	88	37,280	2:21:05	6:52:03	6:52:03	PM	4.47	127
147	PA 611	US 202 Pkwy	Stump Rd	14.07	No	Bucks	4.7	7.0	7.0	PM	167	172	23,981	0:44:20	1:26:44	1:26:44	PM	2.74	187
150	PA 663 (John Fries Hwy)	PA 309	I-476 NE Ext	6.72	No	Bucks	7.9	15.4	15.4	PM	116	129	19,281	1:31:03	3:46:30	3:46:30	PM	2.92	174
44	US 1	Old Lincoln Hwy	I-295	15.40	No	Bucks	0.8	3.7	3.7	PM	177	150	57,696	0:39:39	2:56:09	2:56:09	PM	4.76	117
45	US 1	I-295	PA-NJ State Line	12.66	Yes	Bucks	0.2	0.8	0.8	PM	190	187	53,181	0:06:47	0:32:03	0:32:03	PM	3.43	158
121	US 13	I-95	PA 63	14.28	No	Bucks	9.6	14.3	14.3	PM	123	153	16,777	1:22:47	2:44:06	2:44:06	PM	5.61	89
15	US 13	US 1	I-95	12.97	No	Bucks	0.2	0.5	0.5	PM	192	195	20,603	0:02:14	0:07:13	0:07:13	PM	3.91	142
73	US 202	PA 413	PA 32	13.87	No	Bucks	9.9	12.8	12.8	PM	133	152	16,783	1:37:25	2:46:36	2:46:36	PM	2.29	195
72	US 202	PA 611	PA 413	9.45	No	Bucks	3.1	2.7	3.1	AM	180	186	17,389	0:31:04	0:35:39	0:35:39	PM	2.91	175
152	US 202 Business	PA 611	PA 309	13.83	No	Bucks	14.8	15.2	15.2	PM	118	159	12,408	1:49:26	2:29:32	2:29:32	PM	4.62	119
95	County Line Rd	PA 532	PA 611	17.44	No	Bucks, Montgomery	8.9	19.3	19.3	PM	101	92	24,217	2:11:29	6:20:37	6:20:37	PM	3.73	147
96	County Line Rd	PA 611	PA 309	16.37	No	Bucks, Montgomery	10.4	18.6	18.6	PM	103	136	15,456	1:29:35	3:29:49	3:29:49	PM	3.20	165
5	I-276 PA Tpk	PA 611 (Hatboro)	US 1	16.77	Yes	Bucks, Montgomery	0.2	1.6	1.6	PM	185	173	70,724	0:09:08	1:24:08	1:24:08	PM	4.01	137
108	PA 309	Bergey Rd	PA 663/PA 313	16.36	No	Bucks, Montgomery	0.9	0.8	0.9	AM	188	189	38,222	0:21:14	0:23:14	0:23:14	PM	2.06	202
71	US 202 Pkwy	PA 309	PA 611	15.05	No	Bucks, Montgomery	3.2	6.2	6.2	PM	171	170	20,964	0:37:00	1:35:50	1:35:50	PM	2.87	178
1	I-76 PA Tpk	PA 29	I-76 (Valley Forge)	15.44	Yes	Chester	0.0	0.0	0.0	PM	203	203	36,852	0:00:00	0:00:12	0:00:12	PM	2.45	192
116	PA 100	US 30 Bypass	US 202	6.33	Yes	Chester	5.8	17.2	17.2	PM	107	57	40,208	2:59:55	11:13:16	11:13:16	PM	4.49	124
115	PA 100	Ridge Rd	US 30 Bypass	26.44	No	Chester	7.5	11.6	11.6	PM	142	119	22,824	1:58:00	4:31:38	4:31:38	PM	2.78	183
114	PA 100	US 422	Ridge Rd	9.09	No	Chester	7.3	5.5	7.3	AM	166	179	18,483	1:16:01	1:14:28	1:16:01	AM	2.14	200
141	PA 113	PA 100	US 30 Business	7.89	No	Chester	16.1	15.0	16.1	AM	112	130	18,914	3:13:17	3:44:34	3:44:34	PM	2.64	190
180	PA 252	US 30	US 202	4.64	No	Chester	13.6	12.2	13.6	AM	126	141	21,104	2:49:21	3:16:15	3:16:15	PM	5.89	77
182	PA 29	US 30	I-76 PA Tpk	4.02	No	Chester	8.4	9.5	9.5	PM	155	139	29,440	2:22:27	3:22:32	3:22:32	PM	4.19	133
84	PA 3 (West Chester Pk)	PA 352	US 202	6.61	No	Chester	12.6	15.6	15.6	PM	114	84	35,942	4:31:32	7:15:03	7:15:03	PM	4.14	134
85	PA 3 (West Chester Pk)	US 202	US 322 Bus (High St)	6.03	No	Chester	6.9	15.0	15.0	PM	119	135	17,321	0:55:09	3:36:21	3:36:21	PM	5.41	98
139	PA 352/SR 2022 (Boot Rd)	Pottstown Pk	PA 3	12.21	No	Chester	10.9	10.9	10.9	AM	149	165	13,364	1:28:52	1:51:42	1:51:42	PM	2.44	193
142	PA 41	US 1	PA-DE State Line	12.29	No	Chester	14.5	20.8	20.8	PM	97	123	17,460	2:23:39	4:20:08	4:20:08	PM	2.96	173
137	PA 724	PA 100	PA 23	18.35	No	Chester	8.0	10.6	10.6	PM	152	167	12,494	0:58:14	1:41:00	1:41:00	PM	3.03	171
33	US 1	PA 82 (Unionville Rd)	PA 52 (Kennett Pk) South	6.94	No	Chester	2.6	11.5	11.5	PM	143	96	36,186	1:02:00	5:52:06	5:52:06	PM	3.22	164
58	US 1	PA 10	PA 82 (Unionville Rd)	28.04	Yes	Chester	0.0	0.0	0.0	AM	204	204	29,001	0:00:01	0:00:00	0:00:01	AM	2.15	199
66	US 202	US 30	PA 29	8.75	Yes	Chester	0.1	0.2	0.2	PM	193	192	91,493	0:05:45	0:14:05	0:14:05	PM	3.04	170
65	US 202	PA 3	US 30	9.69	Yes	Chester	0.0	0.1	0.1	PM	199	193	53,751	0:01:44	0:08:25	0:08:25	PM	3.25	163
52	US 30	PA 252 (Leopard Rd)	US 202	11.63	No	Chester	15.0	22.5	22.5	PM	89	104	18,499	2:48:18	5:15:08	5:15:08	PM	4.61	120

Table 6
Continued

Map ID	Roadway	From Limit	To Limit	Miles	Limited Access	County	Peak Hour Travel Time Vehicle Delay (sec/mi)					Peak Hour Travel Time Volume Delay (hr/mi) (hh:mm:ss)						CMP Obj. Score	CMP Obj. Score Rank
							AM Peak Delay	PM Peak Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	AADT	AM Peak Volume Delay	PM Peak Volume Delay	Highest Peak Volume Delay	AM/PM Highest Delay		
54	US 30 Business	US 30 Bypass	PA 82 (Coatesville)	17.29	No	Chester	12.6	36.1	36.1	PM	47	91	14,118	1:45:57	6:30:00	6:30:00	PM	6.96	53
53	US 30 Business	US 202	US 30 Bypass	9.31	No	Chester	8.1	19.6	19.6	PM	100	124	16,073	1:18:06	4:17:23	4:17:23	PM	5.05	108
63	US 30 Business	PA 82 (Coatesville)	PA 10	11.82	No	Chester	1.1	8.0	8.0	PM	161	177	11,550	0:07:14	1:18:01	1:18:01	PM	3.17	166
56	US 30 Bypass	PA 100	US 30 Business	5.25	Yes	Chester	0.2	13.4	13.4	PM	127	80	45,400	0:04:42	7:33:00	7:33:00	PM	5.94	74
57	US 30 Bypass	US 30 Business	Reeceville Rd	12.62	Yes	Chester	11.3	5.8	11.3	AM	146	86	66,757	7:12:43	4:33:40	7:12:43	AM	3.96	139
55	US 30 Bypass	US 202	PA 100	4.13	Yes	Chester	2.0	2.0	2.0	PM	184	182	36,567	0:41:28	0:54:53	0:54:53	PM	4.95	111
143	US 30 Bypass	Reeceville Rd	PA 10	15.21	Yes	Chester	0.2	0.2	0.2	PM	194	196	37,115	0:04:42	0:06:38	0:06:38	PM	2.69	189
140	US 322	PA 82	US 30 Business	12.06	No	Chester	15.1	16.4	16.4	PM	111	140	15,686	2:30:05	3:17:43	3:17:43	PM	2.77	184
181	US 322	US 202	US 30 Business	16.64	No	Chester	5.4	9.4	9.4	PM	157	169	12,970	0:43:29	1:37:51	1:37:51	PM	2.36	194
179	PA 252	PA 3 (Newtown Rd)	US 30	11.66	No	Chester, Delaware	11.6	10.8	11.6	AM	141	156	22,369	1:57:33	2:35:16	2:35:16	PM	2.80	182
34	US 1	PA 52 (Kennett Pk) South	US 202	12.00	No	Chester, Delaware	3.5	6.2	6.2	PM	172	161	31,356	1:04:43	2:24:42	2:24:42	PM	3.26	162
51	US 30	I-476	PA 252 (Leopard Rd)	13.34	No	Chester, Delaware	13.7	20.1	20.1	PM	98	110	18,410	2:40:20	5:03:27	5:03:27	PM	5.52	91
64	US 322/US 202	US 1	PA 3	13.56	No	Chester, Delaware	7.3	14.1	14.1	PM	125	74	48,505	3:22:04	8:20:00	8:20:00	PM	3.07	168
138	PA 23	PA 724	PA 422	16.90	No	Chester, Montgomery	18.4	27.1	27.1	PM	74	106	13,087	2:37:41	5:10:23	5:10:23	PM	4.33	129
168	US 202	PA 29	I-76	14.10	Yes	Chester, Montgomery	0.1	0.2	0.2	PM	196	194	93,787	0:01:55	0:08:03	0:08:03	PM	3.73	147
118	Baltimore Ave	US 13	Bishop Ave	6.30	No	Delaware	22.2	74.8	74.8	PM	13	38	18,476	3:42:49	16:11:07	16:11:07	PM	8.32	24
119	Baltimore Pk	Bishop Ave	I-476	5.73	No	Delaware	24.6	64.6	64.6	PM	16	23	30,874	7:09:54	24:44:51	24:44:51	PM	7.91	31
120	Baltimore Pk	I-476	US 1	6.47	No	Delaware	24.7	32.4	32.4	PM	59	90	18,573	3:54:53	6:35:07	6:35:07	PM	5.94	74
11	I-476	US 30 (Villanova)	US 3 (Broomall)	9.14	Yes	Delaware	1.4	30.3	30.3	PM	63	16	98,431	1:18:26	35:27:38	35:27:38	PM	6.25	69
14	I-476	Baltimore Pk (Swarthmore)	I-95	7.36	Yes	Delaware	18.6	29.5	29.5	PM	65	17	83,463	15:18:24	30:09:52	30:09:52	PM	6.99	50
13	I-476	US 1	Baltimore Pk (Swarthmore)	3.40	Yes	Delaware	23.2	26.2	26.2	PM	75	20	83,725	18:40:19	27:12:07	27:12:07	PM	6.23	70
12	I-476	US 3 (Broomall)	US 1	7.32	Yes	Delaware	8.6	24.6	24.6	PM	82	24	78,823	6:24:35	23:23:22	23:23:22	PM	5.11	105
31	I-95	I-476	US 322	7.59	Yes	Delaware	7.1	21.5	21.5	PM	93	11	193,746	13:40:18	56:55:43	56:55:43	PM	8.42	21
32	I-95	US 322	PA-DE State Line	5.50	Yes	Delaware	10.5	23.5	23.5	PM	84	15	117,627	13:11:41	36:44:18	36:44:18	PM	7.55	39
157	Lansdowne Ave	US 13	PA 3	7.59	No	Delaware	33.2	56.8	56.8	PM	24	53	17,857	6:11:22	13:00:43	13:00:43	PM	5.85	78
156	PA 252	Baltimore Pk	PA 3	10.49	No	Delaware	16.2	24.6	24.6	PM	83	105	14,290	2:27:58	5:12:38	5:12:38	PM	5.83	80
61	PA 291	US 13	I-95	18.12	No	Delaware	2.8	2.5	2.8	AM	181	188	14,266	0:20:17	0:26:48	0:26:48	PM	5.11	105
80	PA 3	63rd St (Cobbs Creek Pkwy)	US 1	5.20	No	Delaware	22.7	33.3	33.3	PM	56	61	25,941	5:52:15	10:50:25	10:50:25	PM	7.66	35
81	PA 3 (West Chester Pk)	US 1	I-476	5.05	No	Delaware	21.7	42.8	42.8	PM	36	32	36,085	7:46:57	20:37:34	20:37:34	PM	7.33	47
82	PA 3 (West Chester Pk)	I-476	PA 252	6.54	No	Delaware	31.3	38.6	38.6	PM	42	45	29,028	9:02:56	14:18:05	14:18:05	PM	5.60	90
184	PA 320 (Sprowl Rd)	US 1	PA 3 (West Chester Pk)	6.49	No	Delaware	22.8	29.4	29.4	PM	67	67	29,578	5:47:33	9:51:57	9:51:57	PM	4.49	124
154	PA 352	I-95	US 1	11.05	No	Delaware	8.4	16.5	16.5	PM	110	121	22,771	1:54:25	4:22:16	4:22:16	PM	5.92	76
183	PA 420/PA 320 (Sprowl Rd)	I-95	US 1	11.31	No	Delaware	15.6	32.2	32.2	PM	61	83	19,851	2:33:56	7:20:42	7:20:42	PM	6.96	53
35	US 1	US 202	US 322	2.40	No	Delaware	17.2	36.6	36.6	PM	46	35	37,075	6:29:36	17:51:39	17:51:39	PM	6.48	63
38	US 1	I-476	PA 3	9.03	No	Delaware	18.5	37.5	37.5	PM	44	51	28,679	5:11:57	13:23:31	13:23:31	PM	6.94	55
36	US 1	US 322	PA 352	11.62	No	Delaware	3.8	9.8	9.8	PM	154	134	31,284	1:03:51	3:37:10	3:37:10	PM	5.07	107
37	US 1	PA 352	I-476	7.72	Yes	Delaware	1.9	3.7	3.7	PM	176	166	41,057	0:39:28	1:45:24	1:45:24	PM	4.28	131
47	US 13	I-95	Baltimore Ave	13.92	No	Delaware	15.8	32.2	32.2	PM	60	79	19,226	2:54:44	7:33:35	7:33:35	PM	7.36	45
46	US 13	PA-DE State Line	I-95	15.38	No	Delaware	7.0	16.7	16.7	PM	109	155	11,581	0:51:57	2:38:35	2:38:35	PM	5.78	83
153	US 202	US 1	State Line Rd	6.04	No	Delaware	9.8	25.0	25.0	PM	81	39	49,856	4:51:53	15:49:11	15:49:11	PM	3.05	169
60	US 322	PA 452	US 1	12.38	No	Delaware	20.6	32.7	32.7	PM	58	65	26,581	5:07:05	10:00:39	10:00:39	PM	5.22	103
59	US 322	I-95	PA 452	2.49	No	Delaware	10.1	12.3	12.3	PM	135	89	41,056	4:16:19	6:39:49	6:39:49	PM	3.88	144
167	US 322 (Commodore Barry Br)	I-95	PA-NJ State Line	3.30	Yes	Delaware	0.0	0.2	0.2	PM	195	197	37,000	0:00:00	0:05:39	0:05:39	PM	4.50	123
83	PA 3 (West Chester Pk)	PA 252	PA 352	13.31	No	Delaware, Chester	4.4	7.7	7.7	PM	164	154	29,560	1:09:38	2:43:15	2:43:15	PM	3.60	152
155	PA 352	US 1	PA 3	12.95	No	Delaware, Chester	10.3	20.9	20.9	PM	96	132	12,873	1:19:14	3:42:04	3:42:04	PM	3.32	161
30	I-95	PA 291 (Philadelphia Airport)	I-476	14.49	Yes	Delaware, Philadelphia	1.5	10.7	10.7	PM	151	47	123,673	1:37:49	14:07:44	14:07:44	PM	6.19	71
4	I-276 PA Tpk	PA 309 (Fort Washington)	PA 611 (Hatboro)	8.88	Yes	Montgomery	7.2	8.6	8.6	PM	158	72	79,260	5:35:44	8:36:17	8:36:17	PM	4.29	130
3	I-276 PA Tpk	I-476 PA Tpk NE Ext (Plymouth Meeting)	PA 309 (Fort Washington)	9.13	Yes	Montgomery	3.6	6.5	6.5	PM	170	81	90,465	3:09:49	7:24:41	7:24:41	PM	3.79	145
2	I-276 PA Tpk	I-76 (Valley Forge)	I-476 PA Tpk NE Ext (Plymouth Meeting)	15.02	Yes	Montgomery	0.1	6.2	6.2	PM	173	112	52,479	0:03:09	5:01:08	5:01:08	PM	4.49	124
9	I-476	I-276 PA Tpk (Plymouth Meeting)	I-76 (Conshohocken)	8.51	Yes	Montgomery	2.7	13.1	13.1	PM	130	28	136,636	3:53:25	22:11:48	22:11:48	PM	6.30	66
8	I-476 PA Tpk NE Ext	PA 63 (Sumneytown Pk)	I-276 PA Tpk (Plymouth Meeting)	21.21	Yes	Montgomery	0.7	0.1	0.7	AM	191	190	55,522	0:21:40	0:05:38	0:21:40	AM	2.77	184
19	I-76	US 1 (City Ave)	I-476	16.21	Yes	Montgomery	29.8	50.5	50.5	PM	28	7	135,304	40:17:20	88:16:42	88:16:42	PM	8.59	15
20	I-76	I-476	I-76 PA Tpk	8.99	Yes	Montgomery	21.9	41.2	41.2	PM	38	10	123,308	27:13:27	65:37:32	65:37:32	PM	8.51	17

Table 6
Continued

Map ID	Roadway	From Limit	To Limit	Miles	Limited Access	County	Peak Hour Travel Time Vehicle Delay (sec/mi)					Peak Hour Travel Time Volume Delay (hr/mi) (hh:mm:ss)						CMP Obj. Score	CMP Obj. Score Rank
							AM Peak Delay	PM Peak Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	AADT	AM Peak Volume Delay	PM Peak Volume Delay	Highest Peak Volume Delay	AM/PM Highest Delay		
174	Johnson Hwy/Plymouth Rd	US 202 (Markely St)	Germantown Pk	6.06	No	Montgomery	5.3	6.7	6.7	PM	169	184	8,276	0:24:52	0:43:35	0:43:35	PM	3.37	160
130	Norristown Rd	PA 463	US 202	12.71	No	Montgomery	15.2	17.6	17.6	PM	105	142	14,752	2:14:23	3:12:26	3:12:26	PM	2.88	176
87	PA 113	PA 73 (Skippack Pk)	Allentown Rd	13.37	No	Montgomery	7.5	11.2	11.2	PM	147	162	14,570	1:12:22	2:17:52	2:17:52	PM	2.58	191
86	PA 113	US 422	PA 73 (Skippack Pk)	14.12	No	Montgomery	6.1	8.0	8.0	PM	162	181	10,398	0:36:31	1:02:42	1:02:42	PM	2.84	179
134	PA 29	Ridge Pk	US 422	4.90	No	Montgomery	5.2	14.4	14.4	PM	121	144	19,521	0:49:58	3:07:22	3:07:22	PM	4.04	136
133	PA 29	PA 73 (Skippack Pk)	Ridge Pk	9.43	No	Montgomery	13.0	10.0	13.0	AM	132	174	10,297	1:22:11	1:22:01	1:22:11	AM	2.75	186
105	PA 309	PA 611	I-276	13.44	Yes	Montgomery	1.8	15.2	15.2	PM	117	75	57,358	0:51:20	7:50:53	7:50:53	PM	4.81	115
106	PA 309	I-276	PA 63	11.00	Yes	Montgomery	1.0	3.7	3.7	PM	178	151	60,533	0:37:35	2:50:39	2:50:39	PM	2.83	180
129	PA 363 (S Valley Forge Rd)	PA 73 (Skippack Pk)	Ridge Pk	9.20	No	Montgomery	7.8	10.0	10.0	PM	153	168	13,746	1:01:19	1:40:37	1:40:37	PM	2.88	176
128	PA 363 (S Valley Forge Rd)	PA 63 (Welsh Rd)	PA 73 (Skippack Pk)	8.57	No	Montgomery	3.6	6.9	6.9	PM	168	180	13,451	0:27:32	1:08:14	1:08:14	PM	3.95	140
176	PA 363 (Trooper Rd)	Ridge Pk	US 422	5.15	No	Montgomery	13.9	28.6	28.6	PM	70	85	23,651	2:56:36	7:13:06	7:13:06	PM	5.19	104
123	PA 463	PA 113	PA 309	14.67	No	Montgomery	14.3	25.8	25.8	PM	79	118	12,069	1:39:18	4:34:49	4:34:49	PM	3.78	146
124	PA 463	PA 309	PA 611	15.24	No	Montgomery	6.7	10.8	10.8	PM	150	163	14,956	1:00:40	2:04:38	2:04:38	PM	1.88	204
103	PA 611	PA 73	I-276	11.43	No	Montgomery	19.9	44.4	44.4	PM	35	40	29,666	5:36:19	15:43:12	15:43:12	PM	7.34	46
102	PA 611	PA 309	PA 73	3.86	No	Montgomery	10.1	22.6	22.6	PM	88	82	25,630	2:33:35	7:22:58	7:22:58	PM	5.43	97
92	PA 63	PA 611 (Easton Rd)	PA 152 (Limekiln Pk)	9.43	No	Montgomery	12.2	22.9	22.9	PM	87	97	19,046	2:10:55	5:44:02	5:44:02	PM	5.68	87
94	PA 63	PA 309	PA 463 (Forty Foot Rd)	12.74	No	Montgomery	9.6	29.3	29.3	PM	68	103	15,454	1:18:10	5:19:25	5:19:25	PM	5.80	81
93	PA 63	PA 152 (Limekiln Pk)	PA 309	5.59	No	Montgomery	9.7	11.8	11.8	PM	138	176	9,915	0:51:10	1:19:59	1:19:59	PM	3.47	156
175	PA 63/PA 463 (Forty Food Rd)	Sumneytown Pk	PA 463 (Cowpath Rd)	6.46	No	Montgomery	13.4	12.9	13.4	AM	128	157	14,951	1:51:53	2:33:47	2:33:47	PM	3.92	141
126	PA 73	PA 309	US 202	12.18	No	Montgomery	18.2	21.5	21.5	PM	92	127	15,191	2:42:21	4:06:32	4:06:32	PM	3.90	143
125	PA 73	SR 2056 (Washington Lane)	PA 309	7.54	Yes	Montgomery	17.0	21.3	21.3	PM	94	131	12,808	2:14:26	3:44:06	3:44:06	PM	4.79	116
127	PA 73	US 202	PA 113	15.07	No	Montgomery	12.6	16.1	16.1	PM	113	146	15,131	1:53:35	3:03:27	3:03:27	PM	3.41	159
112	Ridge Ave	Northwestern Ave (County Line)	I-476	8.54	No	Montgomery	9.6	26.0	26.0	PM	76	73	25,815	2:31:07	8:25:28	8:25:28	PM	5.34	99
135	Ridge Pk	I-476	PA 29	20.47	No	Montgomery	12.8	25.1	25.1	PM	80	98	18,149	2:28:51	5:42:02	5:42:02	PM	5.78	83
132	SR 2017 (Susquehanna Rd)	PA 611	PA 309	10.73	No	Montgomery	17.4	17.9	17.9	PM	104	147	12,774	2:15:34	3:02:15	3:02:15	PM	3.64	150
131	Sumneytown Pk	US 202	PA 63 (Forty Foot Rd)	10.76	No	Montgomery	22.6	25.8	25.8	PM	78	107	15,869	3:29:15	5:10:14	5:10:14	PM	4.89	113
67	US 202	I-76	DeKalb St	4.60	No	Montgomery	13.0	40.9	40.9	PM	39	34	39,297	4:33:46	18:52:41	18:52:41	PM	7.06	49
69	US 202 (DeKalb Pk)	Johnson Hwy (202 split)	PA 73 (Skippack Pk)	6.34	No	Montgomery	17.9	27.2	27.2	PM	73	99	15,672	3:01:11	5:40:53	5:40:53	PM	5.45	95
70	US 202 (DeKalb Pk)	PA 73 (Skippack Pk)	PA 309	10.57	No	Montgomery	17.4	19.9	19.9	PM	99	102	21,926	3:34:43	5:19:48	5:19:48	PM	4.96	110
68	US 202 (Markley St)	US 202 (DeKalb Pk)	Swede Rd	9.45	No	Montgomery	12.0	15.6	15.6	PM	115	126	21,088	2:36:12	4:14:05	4:14:05	PM	5.85	78
170	US 202 Dekalb Pk	US 202 (Markley St)	Johnson Hwy Split	4.00	No	Montgomery	8.5	23.0	23.0	PM	86	133	12,422	1:09:18	3:37:16	3:37:16	PM	7.82	32
76	US 422	Egypt Rd	Trooper Rd	6.53	Yes	Montgomery	4.9	11.1	11.1	PM	148	56	77,469	3:37:56	11:46:18	11:46:18	PM	4.87	114
75	US 422	PA 29	Egypt Rd	5.65	Yes	Montgomery	2.4	4.2	4.2	PM	175	113	88,573	1:54:21	4:55:51	4:55:51	PM	5.04	109
77	US 422	Trooper Rd	US 202	4.65	Yes	Montgomery	3.2	1.0	3.2	AM	179	145	92,498	3:03:30	1:00:52	3:03:30	AM	3.97	138
74	US 422	PA 100	PA 29	25.06	Yes	Montgomery	0.9	0.2	0.9	AM	189	185	63,829	0:42:10	0:11:44	0:42:10	AM	3.48	155
7	I-476 PA Tpk NE Ext	PA 663 (John Fries Hwy)	PA 63 (Sumneytown Pk)	27.27	Yes	Montgomery, Bucks	0.0	0.0	0.0	AM	201	202	42,137	0:00:15	0:00:02	0:00:15	AM	1.69	205
88	PA 113	Allentown Rd	PA 309	6.33	No	Montgomery, Bucks	13.6	14.4	14.4	PM	122	171	9,257	1:09:30	1:33:19	1:33:19	PM	4.75	118
107	PA 309	PA 63	Bergey Rd	15.30	No	Montgomery, Bucks	10.5	20.9	20.9	PM	95	66	37,732	3:53:37	9:54:45	9:54:45	PM	4.90	112
104	PA 611	I-276	PA 132 (Street Rd)	9.29	No	Montgomery, Bucks	8.6	17.2	17.2	PM	108	77	34,517	2:56:36	7:43:18	7:43:18	PM	4.59	121
113	PA 100	PA 73	US 422	13.72	No	Montgomery, Chester	0.4	2.4	2.4	PM	182	183	25,412	0:06:15	0:46:59	0:46:59	PM	2.27	196
177	PA 29	PA 23	US 422	6.93	No	Montgomery, Chester	17.0	32.8	32.8	PM	57	120	11,848	1:57:17	4:27:53	4:27:53	PM	5.34	99
10	I-476	I-76 (Conshohocken)	US 30 (Villanova)	5.31	Yes	Montgomery, Delaware	1.2	8.4	8.4	PM	160	41	141,495	1:36:39	15:07:36	15:07:36	PM	5.44	96
50	US 30	US 1 (City Ave)	I-476	13.09	No	Montgomery, Delaware	23.0	36.0	36.0	PM	48	59	25,537	5:24:58	11:10:08	11:10:08	PM	6.38	65
39	US 1	PA 3	US 30 (Girard Ave)	5.11	No	Montgomery, Delaware	21.8	33.9	33.9	PM	54	43	35,854	7:51:26	14:59:52	14:59:52	PM	6.68	57
109	PA 63	US 1	PA 611 (Easton Rd)	14.67	No	Montgomery, Philadelphia	8.9	11.3	11.3	PM	145	158	16,077	1:16:46	2:30:55	2:30:55	PM	5.80	81
199	PA 73	PA 232 (Oxford Ave)	Church Rd	7.79	No	Montgomery, Philadelphia	17.5	33.8	33.8	PM	55	76	18,061	3:07:32	7:43:27	7:43:27	PM	6.51	61
201	Philmont Ave	PA 63 (Red Lion Rd)	Bustleton Ave	5.08	No	Montgomery, Philadelphia	24.7	32.1	32.1	PM	62	94	15,958	3:46:42	6:13:28	6:13:28	PM	6.53	60
40	US 1 (City Ave)	US 30 (Lancaster Ave)	I-76	5.89	No	Montgomery, Philadelphia	44.6	75.0	75.0	PM	12	13	43,195	19:17:39	40:34:17	40:34:17	PM	8.69	14
204	Allegheny Ave	I-95	PA 611 (Broad St)	7.03	No	Philadelphia	23.6	64.3	64.3	PM	17	70	11,648	2:49:50	9:34:34	9:34:34	PM	7.43	44
190	Byberry Rd	US 1 (Roosevelt Blvd)	Philmont Ave	4.26	No	Philadelphia	41.1	62.4	62.4	PM	19	52	16,357	6:51:06	13:10:23	13:10:23	PM	5.74	85
196	Chestnut St	63rd St	44th St	2.00	No	Philadelphia	41.5	38.7	41.5	AM	37	44	15,211	12:05:01	14:30:31	14:30:31	PM	7.26	48
203	Frankford Ave	I-95	US 13	12.24	No	Philadelphia	12.6	34.1	34.1	PM	52	128	8,824	1:11:27	4:04:26	4:04:26	PM	7.50	43
165	I-676 (Ben Franklin Br)	North 5th St	PA-NJ State Line	1.06	Yes	Philadelphia	28.0	14.4	28.0	AM	71	21	98,700	26:51:08	17:45:43	26:51:08	AM	8.02	29

Table 6

Continued

Map ID	Roadway	From Limit	To Limit	Miles	Limited Access	County	Peak Hour Travel Time Vehicle Delay (sec/mi) AM Peak Delay	PM Peak Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Peak Hour Travel Time Volume Delay (hr/mi) (hh:mm:ss) Rank	AADT	AM Peak Volume Delay	PM Peak Volume Delay	Highest Peak Volume Delay	AM/PM Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
117	I-676 (Vine Street Expy)	I-76	I-95	4.06	Yes	Philadelphia	70.9	141.0	141.0	PM	1	1	141,231	87:25:36	252:53:51	252:53:51	PM	11.65	1
17	I-76	I-676 (Vine Street Expy)	US 30 (Girard Ave)	3.39	Yes	Philadelphia	30.0	103.0	103.0	PM	4	2	158,785	43:24:11	197:19:36	197:19:36	PM	10.02	3
18	I-76	US 30 (Girard Ave)	US 1 (City Ave)	5.82	Yes	Philadelphia	79.2	82.6	82.6	PM	8	3	187,396	130:51:58	188:03:20	188:03:20	PM	9.57	5
16	I-76	I-676 (Vine Street Expy)	Passyunk Ave	6.08	Yes	Philadelphia	35.5	61.4	61.4	PM	20	6	120,294	41:23:51	98:03:16	98:03:16	PM	10.41	2
185	I-76	Passyunk Ave	PA-NJ State Line	7.30	Yes	Philadelphia	8.6	11.6	11.6	PM	140	46	98,078	8:14:22	14:12:58	14:12:58	PM	7.52	42
27	I-95	PA 90 (Betsy Ross Bridge)	I-676 (Vine Street Expy)	9.30	Yes	Philadelphia	26.8	63.1	63.1	PM	18	4	208,318	46:39:42	155:46:09	155:46:09	PM	9.89	4
26	I-95	Academy Rd	PA 90 (Betsy Ross Bridge)	11.35	Yes	Philadelphia	47.1	45.2	47.1	AM	32	5	185,896	87:50:27	110:38:39	110:38:39	PM	7.95	30
28	I-95	I-676 (Vine Street Expy)	I-76 (Walt Whitman Bridge)	6.00	Yes	Philadelphia	2.0	29.5	29.5	PM	64	9	144,542	3:14:31	66:29:24	66:29:24	PM	8.34	22
29	I-95	I-76 (Walt Whitman Bridge)	PA 291 (Philadelphia Airport)	9.83	Yes	Philadelphia	2.9	12.0	12.0	PM	136	25	154,048	4:20:42	23:05:12	23:05:12	PM	6.77	56
79	Market St	PA 611 (Broad St)	21st Street	0.43	No	Philadelphia	51.7	93.1	93.1	PM	5	14	16,008	16:17:23	37:10:17	37:10:17	PM	8.21	27
78	Market St	I-95 (Penns Landing)	PA 611 (Broad St)	2.08	No	Philadelphia	82.0	122.5	122.5	PM	2	22	13,668	13:27:48	25:17:01	25:17:01	PM	9.21	8
186	Market St	21st St	44th St	3.89	No	Philadelphia	36.4	57.9	57.9	PM	22	58	14,850	5:33:47	11:11:33	11:11:33	PM	8.97	11
187	Market St	44th St	63rd St	4.01	No	Philadelphia	6.0	34.7	34.7	PM	50	114	10,999	0:33:59	4:55:38	4:55:38	PM	6.99	50
62	PA 291	I-95	I-76	8.75	No	Philadelphia	5.5	7.4	7.4	PM	165	115	50,121	2:57:23	4:47:33	4:47:33	PM	5.97	73
161	PA 3 (Chestnut St)	23rd St	44th St	1.69	No	Philadelphia	22.7	40.5	40.5	PM	40	33	19,141	8:25:45	19:52:56	19:52:56	PM	9.04	10
159	PA 3 (Chestnut St)	Front St	Broad St	1.15	No	Philadelphia	8.6	48.5	48.5	PM	29	116	3,866	0:42:27	4:46:58	4:46:58	PM	8.22	26
160	PA 3 (Chestnut St)	Broad St	23rd St	0.76	No	Philadelphia	0.0	0.0	0.0	PM	205	205	6,922	0:00:00	0:00:00	0:00:00	PM	8.57	16
164	PA 3 (Walnut St)	23rd St	44th St	1.69	No	Philadelphia	31.5	71.1	71.1	PM	14	18	16,524	9:57:19	29:20:56	29:20:56	PM	9.50	6
163	PA 3 (Walnut St)	Broad St	23rd St	0.76	No	Philadelphia	53.0	87.1	87.1	PM	7	31	9,925	9:47:21	20:47:42	20:47:42	PM	8.79	12
162	PA 3 (Walnut St)	Front St	Broad St	1.15	No	Philadelphia	38.7	54.0	54.0	PM	26	71	6,587	5:13:27	9:34:18	9:34:18	PM	8.18	28
100	PA 611 (Broad St)	Girard Ave	US 1	6.77	No	Philadelphia	44.1	92.4	92.4	PM	6	12	35,078	15:02:46	41:16:43	41:16:43	PM	9.28	7
101	PA 611 (Broad St)	US 1	PA 309	6.02	No	Philadelphia	39.7	54.7	54.7	PM	25	27	28,727	12:39:36	22:14:19	22:14:19	PM	7.54	40
188	PA 611 (Broad St)	Washington Ave	Market St	1.91	No	Philadelphia	32.2	65.9	65.9	PM	15	37	20,599	6:32:17	16:41:16	16:41:16	PM	8.27	25
99	PA 611 (Broad St)	Market St	Girard Ave	2.54	No	Philadelphia	38.6	47.6	47.6	PM	30	48	23,127	8:36:21	13:57:35	13:57:35	PM	8.78	13
158	PA 611 (Broad St)	I-76	Washington Ave	3.83	No	Philadelphia	45.4	56.8	56.8	PM	23	36	24,728	10:48:25	17:29:23	17:29:23	PM	7.67	34
189	PA 73 (Cottman Av)	I-95	PA 232 (Oxford Ave)	7.51	No	Philadelphia	27.2	53.7	53.7	PM	27	42	22,382	5:51:33	15:04:08	15:04:08	PM	7.69	33
195	Passyunk Ave	Broad St	I-76	2.26	No	Philadelphia	36.4	75.9	75.9	PM	10	54	12,639	4:51:21	12:53:04	12:53:04	PM	8.43	20
193	Pine St	Front St	Broad St	1.15	No	Philadelphia	39.4	116.2	116.2	PM	3	26	7,772	5:57:17	22:34:18	22:34:18	PM	6.61	58
111	Ridge Ave	US 1	Northwestern Ave (County Line)	10.27	No	Philadelphia	27.1	46.4	46.4	PM	33	78	13,019	3:29:00	7:34:50	7:34:50	PM	5.73	86
110	Ridge Ave	Callowhill St	US 1	8.21	No	Philadelphia	24.1	45.3	45.3	PM	34	95	11,049	2:38:15	6:09:24	6:09:24	PM	6.46	64
166	Route 90 (Betsy Ross Br)	Richmond St	PA-NJ State Line	1.78	Yes	Philadelphia	0.1	0.0	0.1	AM	198	200	22,000	0:01:17	0:00:00	0:01:17	AM	4.28	131
205	Tacony-Palmyra Br	I-95	PA-NJ State Line	1.02	Yes	Philadelphia	5.3	13.3	13.3	PM	129	93	36,772	2:15:12	6:18:20	6:18:20	PM	5.50	92
41	US 1	I-76	PA 611	6.08	Yes	Philadelphia	28.6	75.6	75.6	PM	11	8	84,056	17:38:54	84:09:07	84:09:07	PM	9.20	9
42	US 1 (Roosevelt Blvd)	PA 611	US 13	9.50	No	Philadelphia	27.4	34.2	34.2	PM	51	29	48,462	13:40:27	21:38:09	21:38:09	PM	8.46	18
43	US 1 (Roosevelt Blvd)	US 13	Old Lincoln Hwy	14.42	No	Philadelphia	3.3	9.5	9.5	PM	156	125	34,652	1:09:39	4:17:10	4:17:10	PM	5.50	92
197	US 1 (Roosevelt Blvd) Frontage Rd	PA 611	US 13	8.08	No	Philadelphia	19.7	40.1	40.1	PM	41	30	40,689	7:56:27	21:04:50	21:04:50	PM	8.34	22
198	US 1 (Roosevelt Blvd) Frontage Rd	US 13	I-276 PA Tpk	15.36	No	Philadelphia	5.9	11.6	11.6	PM	139	122	28,152	1:44:45	4:21:45	4:21:45	PM	6.30	66
48	US 30 (Girard Ave)	US 13 (N 33rd St)	Lancaster Ave	2.95	No	Philadelphia	16.8	34.0	34.0	PM	53	64	21,901	4:02:56	10:05:00	10:05:00	PM	8.46	18
49	US 30 (Lancaster Ave)	Girard Ave	US 1 (City Ave)	4.44	No	Philadelphia	22.7	37.2	37.2	PM	45	108	11,365	2:28:14	5:09:30	5:09:30	PM	7.54	40
194	Walnut St	44th St	63rd St	2.01	No	Philadelphia	18.9	79.0	79.0	PM	9	19	13,407	4:46:21	27:19:14	27:19:14	PM	7.65	36
191	Washington Ave	Front St	Broad St	2.32	No	Philadelphia	38.8	61.1	61.1	PM	21	49	17,922	6:45:43	13:41:13	13:41:13	PM	7.62	37
192	Washington Ave	Broad St	Grays Ferry Ave	2.22	No	Philadelphia	30.3	38.6	38.6	PM	43	68	20,104	5:54:46	9:41:25	9:41:25	PM	6.99	50
200	PA 532 (Bustleton Pk)	US 1 Roosevelt Blvd	PA 132 (Street Rd)	17.37	No	Philadelphia, Bucks	9.4	29.4	29.4	PM	66	60	28,366	2:51:16	10:54:00	10:54:00	PM	6.58	59
91	PA 63	I-95	US 1	6.40	Yes	Philadelphia, Bucks	0.2	2.3	2.3	PM	183	178	63,460	0:05:12	1:16:18	1:16:18	PM	4.52	122
122	US 13	PA 63	US 1 (Roosevelt Blvd)	13.70	No	Philadelphia, Bucks	21.5	47.4	47.4	PM	31	63	18,091	3:35:36	10:32:07	10:32:07	PM	7.57	38
178	Germantown Pk	Broad St	I-476 NE Ext	21.32	No	Philadelphia, Montgomery	18.4	35.9	35.9	PM	49	109	11,989	2:05:00	5:08:00	5:08:00	PM	6.29	68

Most Delayed

Somewhat Delayed

Somewhat Not Delayed

Least Delayed

AM Delay

Source: DVRPC analysis of 2021 INRIX data

Table 7:
Focus Roadway Corridor Facilities in the New Jersey Portion of the DVRPC Region: Peak Travel Time Vehicle and Volume Delay (Sorted by County and Roadway Name)

							Peak Hour Travel Time Vehicle Delay (sec/mi)					Peak Hour Travel Time Volume Delay (hr/mi) (hh:mm:ss)							
Map ID	Roadway	From Limit	To Limit	Miles	Limited Access	County	AM Peak Delay	PM Peak Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	AADT	AM Peak Volume Delay	PM Peak Volume Delay	Highest Peak Volume Delay	AM/PM Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
427	CR 537	CR 541 (Mt. Holly Byp)	US 206	9.12	No	Burlington	2.9	5.7	5.7	PM	82	96	8,210	0:14:33	0:35:27	0:35:27	PM	1.90	121
355	CR 537 (Marne Hwy)	NJ 73	CR 541 (Mt. Holly Byp)	20.02	No	Burlington	9.7	14.2	14.2	PM	42	72	8,846	0:55:23	1:44:08	1:44:08	PM	3.66	82
403	CR 541 (Mt. Holly Rd)/CR 691	CR 537 (Washington St)	US 130	13.89	No	Burlington	0.8	6.3	6.3	PM	81	79	23,766	0:11:28	1:33:30	1:33:30	PM	4.62	47
405	CR 603/N Elmwood Rd	NJ 70	CR 537 (Marne Hwy)	12.79	No	Burlington	4.8	5.4	5.4	PM	88	104	7,201	0:19:51	0:28:28	0:28:28	PM	1.61	128
404	CR 607	NJ 70	CR 537 (Marne Hwy)	11.26	No	Burlington	3.9	11.0	11.0	PM	64	79	12,000	0:24:52	1:35:38	1:35:38	PM	2.97	100
420	CR 620	NJ 73	CR 623	9.06	No	Burlington	8.1	17.7	17.7	PM	36	58	11,252	0:53:00	2:26:56	2:26:56	PM	2.45	115
419	CR 626	I-295	US 130	8.47	No	Burlington	0.7	1.3	1.3	PM	109	114	15,428	0:06:25	0:15:29	0:15:29	PM	3.63	83
430	I-295	NJ 38 (Exit 40)	CR 541 (Exit 47)	13.67	Yes	Burlington	0.1	0.4	0.4	PM	116	109	81,776	0:04:06	0:22:23	0:22:23	PM	3.90	73
330	I-295	CR 541 (Mt. Holly Rd)	I-95	9.56	Yes	Burlington	0.0	0.0	0.0	AM	129	129	73,305	0:00:15	0:00:00	0:00:15	AM	2.96	101
325	I-95	PA-NJ State Line	NJ Tpk	13.71	Yes	Burlington	0.1	0.2	0.2	PM	122	126	40,937	0:01:51	0:02:51	0:02:51	PM	2.48	113
353	NJ 38	NJ 73	I-295	7.93	No	Burlington	5.4	17.9	17.9	PM	35	20	35,046	1:50:01	7:47:09	7:47:09	PM	4.90	40
354	NJ 38	I-295	US 206	19.21	No	Burlington	0.6	4.6	4.6	PM	92	76	29,656	0:11:32	1:40:09	1:40:09	PM	3.79	78
369	NJ 70	NJ 73	US 206	20.40	No	Burlington	11.5	21.0	21.0	PM	25	30	19,392	2:16:19	5:17:59	5:17:59	PM	2.67	106
372	NJ 73	NJ Tpk (Exit 4)	NJ 70	6.07	No	Burlington	5.1	19.4	19.4	PM	30	11	38,006	2:27:27	11:41:26	11:41:26	PM	5.16	31
306	NJ Tpk	Exit 4 (Camden - Philadelphia)	Exit 5 (Burlington - Mt. Holly)	18.99	Yes	Burlington	0.0	3.3	3.3	PM	95	57	58,832	0:00:00	2:27:14	2:27:14	PM	3.60	84
408	NJ Tpk	Exit 6 (I-95)	Exit 7 (Bordentown - Trenton) - Cars Only	8.61	Yes	Burlington	2.5	2.4	2.5	AM	100	87	39,678	0:59:19	1:13:48	1:13:48	PM	1.68	126
300	NJ Tpk	Exit 5 (Burlington - Mt. Holly)	Exit 6 (I-95)	10.60	Yes	Burlington	0.1	0.0	0.1	AM	124	121	64,524	0:04:45	0:00:14	0:04:45	AM	1.64	127
301	NJ Tpk	Exit 6 (I-95)	Exit 7 (Bordentown - Trenton)	8.62	Yes	Burlington	0.1	0.0	0.1	AM	127	127	46,272	0:01:53	0:00:00	0:01:53	AM	1.85	122
334	US 130	NJ 73	CR 543 (Columbus Rd)	23.15	No	Burlington	2.7	11.3	11.3	PM	60	26	20,111	1:04:23	5:44:01	5:44:01	PM	4.82	42
414	US 130	CR 543 (Columbus Rd)	I-95	6.48	No	Burlington	0.8	2.1	2.1	PM	105	100	23,022	0:10:51	0:35:57	0:35:57	PM	4.38	56
333	US 130	I-295	I-95	9.19	No	Burlington	0.7	1.9	1.9	PM	108	103	23,800	0:08:43	0:29:40	0:29:40	PM	4.54	51
415	US 206	NJ 70	NJ 38	11.56	No	Burlington	4.6	9.2	9.2	PM	73	80	13,730	0:36:52	1:35:09	1:35:09	PM	1.34	130
416	US 206	NJ 38	NJ Tpk	22.05	No	Burlington	2.2	5.2	5.2	PM	91	95	15,035	0:18:46	0:55:26	0:55:26	PM	1.79	123
417	US 206	NJ Tpk	US 130	2.42	No	Burlington	1.2	2.1	2.1	PM	106	102	19,952	0:13:56	0:31:16	0:31:16	PM	3.95	72
309	I-295	NJ 70 (Exit 34)	NJ 38 (Exit 40)	11.83	Yes	Burlington, Camden	0.6	8.8	8.8	PM	76	15	94,086	0:33:47	10:35:24	10:35:24	PM	4.37	57
371	NJ 73	US 130	NJ Tpk (Exit 4)	10.28	No	Burlington, Camden	2.3	14.6	14.6	PM	43	14	50,240	1:14:49	10:36:03	10:36:03	PM	4.61	49
303	I-295	CR 656 (Florence Columbus Rd)	I-95	15.51	Yes	Burlington, Mercer	0.1	0.1	0.1	AM	126	122	70,478	0:03:47	0:04:32	0:04:32	PM	3.90	73
409	NJ Tpk	Exit 7 (Bordentown - Trenton)	Exit 7A (Trenton - Hamilton Twp) - Cars Only	13.92	Yes	Burlington, Mercer	2.7	2.9	2.9	PM	97	74	47,384	1:13:23	1:44:36	1:44:36	PM	1.35	129
379	NJ Tpk	Exit 7 (Bordentown - Trenton)	Exit 7A (Trenton - Hamilton Twp)	13.96	Yes	Burlington, Mercer	0.3	0.2	0.3	AM	118	117	63,455	0:09:43	0:11:19	0:11:19	PM	1.33	131
332	US 130	I-195	I-295	13.22	No	Burlington, Mercer	0.7	3.0	3.0	PM	96	93	22,354	0:10:31	0:58:18	0:58:18	PM	3.54	87
418	US 206	US 130	I-195	4.65	No	Burlington, Mercer	0.8	2.1	2.1	PM	104	104	17,382	0:08:07	0:29:23	0:29:23	PM	4.09	66
391	CR 534 (Blackwood-Cementon Rd)	NJ 42	CR 686 (Gibbsboro Rd)	7.03	No	Camden	3.7	13.7	13.7	PM	47	46	20,713	0:43:01	3:30:42	3:30:42	PM	4.87	41
421	CR 536 Spur	NJ 42	US 30	11.90	No	Camden	4.9	5.6	5.6	PM	88	94	12,798	0:32:36	0:56:33	0:56:33	PM	2.55	111
386	CR 544	NJ 41	US 30	6.25	No	Camden	2.5	12.6	12.6	PM	52	71	11,416	0:16:29	1:48:07	1:48:07	PM	4.62	47
388	CR 544	CR 673	NJ 73	5.95	No	Camden	3.9	7.0	7.0	PM	82	85	16,863	0:38:49	1:27:23	1:27:23	PM	3.72	81
387	CR 544 (Evesham Rd)	US 30	CR 673	5.70	No	Camden	1.0	5.8	5.8	PM	86	97	12,879	0:06:39	0:49:50	0:49:50	PM	4.97	39
396	CR 551 (Kings Hwy)	US 30	US 130	6.16	No	Camden	5.9	9.1	9.1	PM	74	91	9,628	0:33:15	1:05:39	1:05:39	PM	4.07	69
383	CR 561	I-676	I-295	13.65	No	Camden	10.0	23.8	23.8	PM	19	41	11,113	1:23:32	3:58:17	3:58:17	PM	5.12	33
382	CR 561	I-295	CR 689 (Berlin - Cross Keys Rd)	14.15	No	Camden	6.6	12.9	12.9	PM	50	42	18,984	1:21:15	3:46:24	3:46:24	PM	4.16	64
384	CR 636	US 30	NJ 38	6.34	No	Camden	14.6	31.2	31.2	PM	8	23	17,744	2:23:38	6:39:37	6:39:37	PM	6.02	13
380	CR 644	Route 90	NJ 70	7.93	No	Camden	0.1	13.5	13.5	PM	48	35	21,927	0:01:13	4:49:29	4:49:29	PM	5.03	37
381	CR 644	NJ 70	CR 561	3.49	No	Camden	18.4	23.5	23.5	PM	20	39	13,977	2:22:06	4:17:36	4:17:36	PM	5.86	16
389	CR 673 (Springdale Rd)	CR 561 (Haddonfield-Berlin Rd)	CR 616 (Church Rd)	10.45	No	Camden	3.0	11.1	11.1	PM	63	69	15,221	0:23:10	2:01:32	2:01:32	PM	3.34	92
390	CR 673 (White Horse Rd)	CR 561 (Haddonfield-Berlin Rd)	CR 534 (Blackwood-Cementon Rd)	8.20	No	Camden	14.3	24.2	24.2	PM	18	34	16,685	2:11:31	4:52:19	4:52:19	PM	5.18	30
392	CR 686 (Gibbsboro Rd)	CR 534 (Blackwood-Cementon Rd)	CR 561 (Lakeview Dr)	5.78	No	Camden	1.8	8.6	8.6	PM	77	89	9,580	0:09:12	1:10:05	1:10:05	PM	3.98	71
308	I-295	NJ 42 (Exit 26)	NJ 70 (Exit 34)	16.38	Yes	Camden	7.8	31.5	31.5	PM	7	2	113,655	8:42:03	45:46:36	45:46:36	PM	6.08	11
327	I-676	NJ-PA State Line	I-76	9.88	Yes	Camden	2.7	17.4	17.4	PM	37	7	54,804	0:56:42	13:23:59	13:23:59	PM	6.67	4
328	I-76	NJ-PA State Line	I-295	6.87	Yes	Camden	3.5	40.0	40.0	PM	2	1	130,306	4:51:22	66:18:17	66:18:17	PM	8.46	1
312	NJ 168 (Black Horse Pk)	I-295	NJ 42	7.97	No	Camden	25.3	59.6	59.6	PM	1	13	14,589	3:39:37	11:27:02	11:27:02	PM	6.28	9
397	NJ 168/CR 605	I-295	CR 561 (Haddon Av)	9.57	No	Camden	7.0	30.7	30.7	PM	9	27	14,233	1:00:58	5:42:03	5:42:03	PM	7.26	2
395	NJ 41 (Kings Highway)/ CR 551	NJ 70	US 30	7.23	No	Camden	14.1	21.0	21.0	PM	24	51	10,491	1:26:53	2:48:28	2:48:28	PM	5.05	36
367	NJ 70	NJ 38	I-295	10.35	No	Camden	9.6	27.0	27.0	PM	11	5	44,232	4:23:13	15:41:10	15:41:10	PM	6.22	10

Table 7
Continued

							Peak Hour Travel Time Vehicle Delay (sec/mi)					Peak Hour Travel Time Volume Delay (hr/mi) (hh:mm:ss)							
Map ID	Roadway	From Limit	To Limit	Miles	Limited Access	County	AM Peak Delay	PM Peak Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	AADT	AM Peak Volume Delay	PM Peak Volume Delay	Highest Peak Volume Delay	AM/PM Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
305	NJ Tpk	Exit 3 (Woodbury - South Camden)	Exit 4 (Camden - Philadelphia)	17.10	Yes	Camden	1.0	2.5	2.5	PM	101	84	46,883	0:26:24	1:27:34	1:27:34	PM	3.75	80
314	Sicklerville Rd	AC Expressway	536 Spur	11.22	No	Camden	3.6	11.7	11.7	PM	55	67	14,505	0:31:09	2:08:27	2:08:27	PM	3.56	86
336	US 130	US 30	I-76	5.19	No	Camden	6.0	33.9	33.9	PM	5	3	49,245	2:46:54	17:42:35	17:42:35	PM	6.37	7
335	US 130	NJ 73	US 30	10.17	No	Camden	0.9	5.2	5.2	PM	90	65	33,872	0:18:38	2:12:29	2:12:29	PM	4.43	54
323	US 30	US 130	I-295	9.82	No	Camden	18.6	35.1	35.1	PM	3	12	26,443	3:58:02	11:31:56	11:31:56	PM	6.39	6
324	US 30	I-295	NJ 73	20.05	No	Camden	7.4	19.2	19.2	PM	31	21	25,534	1:58:42	6:47:53	6:47:53	PM	5.14	32
322	US 30	I-676	US 130	4.40	Yes	Camden	0.3	3.6	3.6	PM	94	60	50,673	0:09:23	2:25:23	2:25:23	PM	5.66	18
352	NJ 38	US 130	NJ 73	10.98	No	Camden, Burlington	3.6	22.2	22.2	PM	22	9	43,811	1:33:32	12:29:43	12:29:43	PM	5.89	15
394	NJ 41	NJ 70	NJ 38	5.08	No	Camden, Burlington	4.1	16.3	16.3	PM	39	37	21,078	0:50:58	4:24:32	4:24:32	PM	3.23	95
368	NJ 70	I-295	NJ 73	6.38	No	Camden, Burlington	14.4	26.1	26.1	PM	14	4	49,391	7:07:23	16:41:14	16:41:14	PM	5.93	14
373	NJ 73	NJ 70	US 30	17.08	No	Camden, Burlington	6.6	23.5	23.5	PM	21	17	33,043	2:19:52	10:11:11	10:11:11	PM	4.82	42
370	NJ 73	NJ-PA State Line	US 130	4.48	No	Camden, Burlington	2.0	10.0	10.0	PM	68	33	40,447	0:46:52	5:00:05	5:00:05	PM	5.22	27
402	NJ 90	NJ-PA State Line	NJ 73	6.64	Yes	Camden, Burlington	0.0	0.0	0.0	PM	130	130	29,110	0:00:00	0:00:00	0:00:00	PM	4.36	60
310	AC Expressway	Williamstown Rd (Exit 38)	Western Terminus (US 42)	12.60	Yes	Camden, Gloucester	0.2	1.0	1.0	PM	110	106	39,586	0:03:23	0:27:11	0:27:11	PM	2.85	103
393	CR 689 (Berlin - Cross Keys Rd)	NJ 42	AC Expressway	14.36	No	Camden, Gloucester	5.3	18.9	18.9	PM	32	36	19,260	0:50:33	4:38:13	4:38:13	PM	4.47	53
313	NJ 168	NJ 42	AC Expressway	6.48	No	Camden, Gloucester	7.0	14.0	14.0	PM	45	73	10,223	0:41:38	1:46:02	1:46:02	PM	4.37	57
385	NJ 41	NJ 42	US 30	7.42	No	Camden, Gloucester	8.9	24.6	24.6	PM	17	31	14,368	1:12:18	5:13:17	5:13:17	PM	5.22	27
311	NJ 42	AC Expressway	I-295	14.78	Yes	Camden, Gloucester	11.3	8.6	11.3	AM	59	6	111,499	12:24:37	14:00:09	14:00:09	PM	5.22	27
337	US 130	I-76	I-295	6.74	No	Camden, Gloucester	2.9	11.6	11.6	PM	56	52	17,980	0:32:05	2:47:18	2:47:18	PM	4.55	50
406	CR 534/CR 640	NJ 41	US 130	10.24	No	Gloucester	3.0	13.2	13.2	PM	49	53	14,004	0:26:35	2:46:26	2:46:26	PM	4.30	61
426	CR 544	NJ 41	CR 534	3.67	No	Gloucester	1.7	26.2	26.2	PM	12	25	15,327	0:22:55	5:46:33	5:46:33	PM	5.12	33
363	CR 551 (Kings Hwy)	CR 678 (Berkley Rd)	NJ 45	6.63	No	Gloucester	1.6	2.0	2.0	PM	107	115	4,402	0:08:03	0:13:23	0:13:23	PM	3.85	76
364	CR 553 (Kings Hwy)	I-295	NJ 55	15.07	No	Gloucester	5.6	11.7	11.7	PM	54	70	11,454	0:40:03	1:55:15	1:55:15	PM	3.42	91
365	CR 553 (Kings Hwy)	NJ 55	NJ 47	4.95	No	Gloucester	3.6	12.5	12.5	PM	53	72	11,394	0:24:10	1:47:18	1:47:18	PM	3.77	79
422	CR 654	US 322	NJ 47	16.08	No	Gloucester	4.7	9.4	9.4	PM	70	92	9,147	0:25:01	1:04:22	1:04:22	PM	2.80	104
429	CR 678	I-295	NJ 45	8.10	No	Gloucester	1.9	2.3	2.3	PM	102	116	7,004	0:07:59	0:12:34	0:12:34	PM	2.60	110
423	CR 689 (Berlin - Cross Keys Rd)	NJ 42	US 322	9.69	No	Gloucester	1.4	6.3	6.3	PM	83	98	9,280	0:07:21	0:49:31	0:49:31	PM	2.74	105
424	I-295	US 322	CR 602	6.08	Yes	Gloucester	0.0	0.0	0.0	AM	128	128	38,836	0:00:51	0:00:00	0:00:51	AM	3.19	96
362	NJ 41	NJ 42	NJ 47	7.09	no	Gloucester	8.4	19.7	19.7	PM	26	47	12,349	1:00:27	3:14:51	3:14:51	PM	2.15	117
366	NJ 42	AC Expressway	US 322	13.61	Yes	Gloucester	4.3	19.5	19.5	PM	29	16	38,393	1:47:08	10:13:23	10:13:23	PM	4.71	44
360	NJ 45	US 130	Kings Hwy	6.13	No	Gloucester	16.2	27.9	27.9	PM	10	32	10,669	2:16:20	5:03:54	5:03:54	PM	5.55	21
361	NJ 45	Kings Hwy	US 322	15.17	No	Gloucester	4.9	11.3	11.3	PM	58	66	14,351	0:41:09	2:09:09	2:09:09	PM	4.09	66
357	NJ 47	NJ 55	US 322	12.89	No	Gloucester	7.5	19.7	19.7	PM	27	43	12,928	0:58:22	3:33:58	3:33:58	PM	3.81	77
356	NJ 47	US 130	NJ 55	11.67	No	Gloucester	10.4	16.8	16.8	PM	38	49	13,473	1:22:46	2:54:15	2:54:15	PM	3.54	87
358	NJ 55	NJ 42	NJ 47	8.28	Yes	Gloucester	19.6	17.8	19.6	AM	28	8	58,164	10:46:57	12:35:23	12:35:23	PM	5.80	17
359	NJ 55	NJ 47	US 322	12.10	Yes	Gloucester	0.6	0.2	0.6	AM	112	111	51,508	0:19:14	0:08:35	0:19:14	AM	2.99	99
304	NJ Tpk	Exit 2 (Swedesboro-Glassboro)	Exit 3 (Woodbury - South Camden)	26.17	Yes	Gloucester	0.0	0.2	0.2	PM	119	118	39,880	0:00:00	0:06:37	0:06:37	PM	2.46	114
425	US 130	I-295	CR 620	9.69	No	Gloucester	0.1	0.2	0.2	PM	120	124	13,557	0:00:17	0:03:13	0:03:13	PM	3.29	93
338	US 130/I-295	I-295	US 322	23.85	Yes	Gloucester	0.2	0.1	0.2	AM	121	119	59,729	0:06:25	0:03:07	0:06:25	AM	2.65	108
340	US 322	I-295	NJ Tpk (Exit 2)	7.63	No	Gloucester	7.8	14.7	14.7	PM	42	50	16,634	1:03:50	2:53:05	2:53:05	PM	3.59	85
342	US 322	NJ 55	CR 536/CR 654 (Main St)	18.04	No	Gloucester	4.7	9.8	9.8	PM	69	78	10,517	0:33:09	1:35:57	1:35:57	PM	3.26	94
341	US 322	NJ Tpk (Exit 2)	NJ 55	14.43	No	Gloucester	4.3	7.2	7.2	PM	78	88	13,051	0:33:25	1:11:38	1:11:38	PM	2.09	118
339	US 322	NJ-PA State Line	I-295	7.33	Yes	Gloucester	0.0	0.0	0.0	PM	130	130	30,802	0:00:00	0:00:00	0:00:00	PM	2.61	109
307	I-295	US 130	NJ 42 (Exit 26)	5.79	Yes	Gloucester, Camden	10.2	9.6	10.2	AM	67	19	70,383	7:29:19	9:11:48	9:11:48	PM	5.52	22
428	US 322/CR 536	CR 536/CR 654 (Main St)	AC Expressway	3.75	No	Gloucester, Camden	7.8	32.4	32.4	PM	6	24	15,344	1:13:33	5:53:11	5:53:11	PM	5.36	24
399	CR 533	US 206	US 1	16.29	No	Mercer	4.5	11.3	11.3	PM	61	55	17,028	0:44:39	2:40:44	2:40:44	PM	3.51	89
375	CR 571	US 1	US 130	13.95	No	Mercer	6.4	10.6	10.6	PM	66	64	18,019	1:00:10	2:15:29	2:15:29	PM	3.02	98
374	CR 571 (Washington Rd)	NJ 27	US 1	3.28	No	Mercer	8.1	9.4	9.4	PM	71	83	12,658	0:59:54	1:29:09	1:29:09	PM	6.61	5
401	CR 583 (Princeton Pk)	I-295	NJ 27	10.23	No	Mercer	11.1	11.5	11.5	PM	57	68	14,801	1:35:20	2:06:02	2:06:02	PM	2.52	112
407	CR 622 (Olden Ave)	I-295	NJ 31	9.75	No	Mercer	13.5	34.2	34.2	PM	4	22	15,846	1:54:34	6:47:16	6:47:16	PM	4.37	57
400	CR 638	US 1	CR 571	8.43	No	Mercer	5.5	9.3	9.3	PM	72	86	11,613	0:35:37	1:18:54	1:18:54	PM	4.08	68
326	I-195	I-295	I-95 (NJ Tpk)	12.23	Yes	Mercer	0.1	0.5	0.5	PM	114	110	58,307	0:02:32	0:21:15	0:21:15	PM	4.15	65

Table 7
Continued

Map ID	Roadway	From Limit	To Limit	Miles	Limited Access	County	Peak Hour Travel Time Vehicle Delay (sec/mi)					Peak Hour Travel Time Volume Delay (hr/mi) (hh:mm:ss)						CMP Obj. Score	CMP Obj. Score Rank
							AM Peak Delay	PM Peak Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	AADT	AM Peak Volume Delay	PM Peak Volume Delay	Highest Peak Volume Delay	AM/PM Highest Delay		
377	I-295	NJ 31	NJ 29	8.40	Yes	Mercer	0.0	0.6	0.6	PM	113	112	39,832	0:00:39	0:16:59	0:16:59	PM	3.07	97
376	I-295	US 1	NJ 31	9.43	Yes	Mercer	0.0	0.1	0.1	PM	125	120	53,759	0:01:29	0:05:03	0:05:03	PM	2.05	120
329	I-295	I-195	US 1	15.18	Yes	Mercer	0.1	0.1	0.1	AM	123	123	53,277	0:03:33	0:04:13	0:04:13	PM	2.95	102
398	NJ 129	NJ 29	US 1	3.96	No	Mercer	9.3	14.8	14.8	PM	41	38	24,109	2:06:46	4:19:14	4:19:14	PM	6.82	3
413	NJ 133	NJ Tpk	CR 571	8.37	No	Mercer	0.3	0.3	0.3	AM	117	125	19,969	0:02:38	0:03:00	0:03:00	PM	2.06	119
412	NJ 27	US 206	County Line	7.49	No	Mercer	17.9	24.9	24.9	PM	16	44	8,938	1:54:19	3:33:19	3:33:19	PM	4.68	46
343	NJ 29	Cass St	CR 579 (Sullivan Way)	6.85	No	Mercer	1.4	6.2	6.2	PM	85	48	35,813	0:28:10	3:00:57	3:00:57	PM	5.24	26
378	NJ 29	Cass St	I-295	5.57	Yes	Mercer	2.2	0.3	2.2	AM	103	90	62,313	1:08:08	0:11:12	1:08:08	AM	4.49	52
345	NJ 29	CR 579 (Sullivan Way)	I-295	6.22	Yes	Mercer	2.6	2.4	2.6	AM	99	108	12,469	0:21:54	0:24:12	0:24:12	PM	3.89	75
348	NJ 31	CR 623 (Pennington Titusville Rd)	CR 518 (Lambertville Hopewell Rd)	9.14	No	Mercer	10.5	11.2	11.2	PM	62	54	15,258	1:52:15	2:44:20	2:44:20	PM	2.67	106
347	NJ 31	I-295	CR 623 (Pennington Titusville Rd)	5.71	No	Mercer	8.5	10.7	10.7	PM	65	56	19,946	1:36:15	2:34:24	2:34:24	PM	4.06	70
344	NJ 31	US 206	CR 622 (Olden Ave)	3.67	No	Mercer	1.9	7.1	7.1	PM	80	96	10,771	0:10:48	0:52:37	0:52:37	PM	5.40	23
346	NJ 31	CR 622 (Olden Ave)	I-295	6.03	No	Mercer	0.8	4.5	4.5	PM	93	99	13,943	0:07:38	0:48:28	0:48:28	PM	3.50	90
351	NJ 33	I-295	US 130	9.24	No	Mercer	10.6	26.2	26.2	PM	13	29	16,940	1:43:48	5:33:06	5:33:06	PM	4.28	62
349	NJ 33	US 1	CR 622 (Olden Ave)	2.37	No	Mercer	5.8	25.5	25.5	PM	15	40	12,529	0:41:55	3:59:00	3:59:00	PM	6.33	8
350	NJ 33	CR 622 (Olden Ave)	I-295	4.04	No	Mercer	4.1	21.1	21.1	PM	23	45	13,929	0:35:09	3:31:27	3:31:27	PM	5.33	25
410	NJ Tpk	Exit 7A (Trenton - Hamilton Twp)	Exit 8 (Hightstown - Freehold) - Cars Only	15.59	Yes	Mercer	2.7	2.5	2.7	AM	98	77	51,343	1:19:40	1:37:17	1:37:17	PM	1.77	124
302	NJ Tpk	Exit 7A (Trenton - Hamilton Twp)	Exit 8 (Hightstown - Freehold)	15.47	Yes	Mercer	0.4	0.0	0.4	AM	115	113	68,821	0:16:25	0:00:00	0:16:25	AM	1.77	124
318	US 1	Alexander Rd	CR 629	2.16	No	Mercer	18.9	18.1	18.9	AM	33	10	50,898	9:40:20	11:45:32	11:45:32	PM	5.65	19
317	US 1	I-295	Alexander Rd	8.44	No	Mercer	2.2	7.1	7.1	PM	81	18	107,267	1:55:40	9:28:54	9:28:54	PM	4.69	45
316	US 1	CR 616 (Whitehead Rd)	I-295	5.78	Yes	Mercer	2.8	9.1	9.1	PM	75	28	36,786	1:22:04	5:39:02	5:39:02	PM	5.09	35
315	US 1	NJ-PA State Line	CR 616 (Whitehead Rd)	7.17	Yes	Mercer	0.4	0.7	0.7	PM	111	107	48,639	0:14:49	0:24:18	0:24:18	PM	5.00	38
331	US 130	NJ 133	I-195	15.29	No	Mercer	0.7	7.2	7.2	PM	79	62	26,174	0:10:52	2:22:09	2:22:09	PM	2.36	116
320	US 206	I-295	NJ 27	12.09	No	Mercer	18.1	13.6	18.1	AM	34	59	12,465	2:26:30	2:18:37	2:26:30	AM	4.39	55
321	US 206	NJ 27	Princeton Ave/County Line	6.55	No	Mercer	15.5	16.0	16.0	PM	40	61	11,910	1:47:28	2:22:57	2:22:57	PM	4.27	63
411	US 206	NJ 31	I-295	9.24	No	Mercer	12.8	11.9	12.8	AM	51	82	9,369	1:11:17	1:30:16	1:30:16	PM	5.58	20
319	US 206	I-195	NJ 31	8.77	No	Mercer, Burlington	2.5	13.9	13.9	PM	46	63	15,674	0:24:53	2:17:29	2:17:29	PM	6.06	12

Most Delayed
Somewhat Delayed
Somewhat Not Delayed
Least Delayed

AM Delay

Source: DVRPC analysis of 2021 INRIX data

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4.2 Most Congested Focus Roadway Corridor Facilities

The top two Focus Roadway Corridor Facilities with the highest peak vehicle delay and volume delay using both travel times and planning times were identified separately for each county in the region. Some county facilities were in the top two for both delay measures using both travel times and planning times, which reduced the total number of most congested facilities for a county. The final analysis identified 41 Most Congested Focus Roadway Facilities, with 23 in the Pennsylvania subregion and 18 in the New Jersey subregion (see Table 8). These facilities are listed in ascending order by county and roadway name, along with the map identifier, from and to limit, municipality (or Planning Area in Philadelphia), and the county in which they are located. The number of facilities is limited due to the importance of targeting locations with the worst traffic congestion and due to funding availability. Some of these facilities are part of projects programmed on the Pennsylvania TIP (Fiscal Year [FY] 2023–2026) and New Jersey TIP (FY 2024–2027), and others are on the Long-Range Plan (*Connections 2050*). Facilities not ranked as the most congested should also be considered for improvements, but weighed against other regional priorities and the region's extreme funding constraint.

Focus Roadway Corridor Facility Summaries

The following pages include a map profile summary of each of the Most Congested Focus Roadway Corridor Facilities in the order they are listed in Table 8, along with a map title indicating the facility map identifier and name. Each map profile summary page provides the following information:

Main Map
Shows the location of the Most Congested Focus Roadway Corridor Facility, the annual average daily traffic for the facility (labeled in black), focus intersection and limited access roadway bottlenecks on or near the facility (see Chapter 4, sections 3 and 4, respectively, for more information on bottlenecks), nearby bus and passenger rail routes, and road segments that show high congestion indicated by the TTI measure (either a TTI between 1.50 and 1.99, or greater than 2.00).

Summary of Conditions
Provides delay measure rankings within each state out of the 205 Pennsylvania and 131 New Jersey Focus Roadway Corridor Facilities in the region. This section identifies roadway type (limited access or arterial) and potential or planned projects to mitigate congestion.

Congestion Measures
Lists the congestion performance measures for the Most Congested Focus Roadway Corridor Facility. The peak average travel time (TT) and planning time (PT) vehicle delay measures are derived from the INRIX travel time data, measured in seconds. Higher values indicate more vehicle delay. The peak hour volume delay measure is derived from the travel time and planning time delay and PennDOT, NJDOT, and DVRPC collected traffic volumes, with higher values indicating more volume delay. LOTTR , TTTR, and PHED are PM3 measures and indicate the miles of the measure that exist along the facility. The measures are only available on NHS roadways with the TTTR and PHED measures having further restrictions. TTTR is only available on interstate roadways and PHED only on NHS roadways within the Philadelphia, PA-NJ-DE-MD or Trenton, NJ UZAs. If these measures are not available to be computed "n/a" is indicated for the value. The TDM Forecasted Congestion measure represents the length of roadway miles where the regional travel demand model forecasts V/C greater than or equal to 0.85 in 2050, which is considered high anticipated congestion.

Planned Improvements on the Long-Range Plan and TIP

Indicates projects on the roadway facility that are programmed on the Pennsylvania TIP (FY 2023–26), New Jersey TIP (FY 2024–27), and the Long-Range Plan (*Connections 2050*). Long-Range Plan projects designated with a letter indicate transit projects and ones with a number road projects. Those italicized indicate unfunded aspirational projects, and un-italicized ones are in the fiscally-constrained funded plan.

Very Appropriate Strategies

Indicates the most appropriate strategies to mitigate congestion for the roadway facility, which might be different from the strategies for the Subcorridor Area which many times contain multiple types of facilities. Recently implemented or partially implemented strategies are listed first and italicized.

Additional Factors

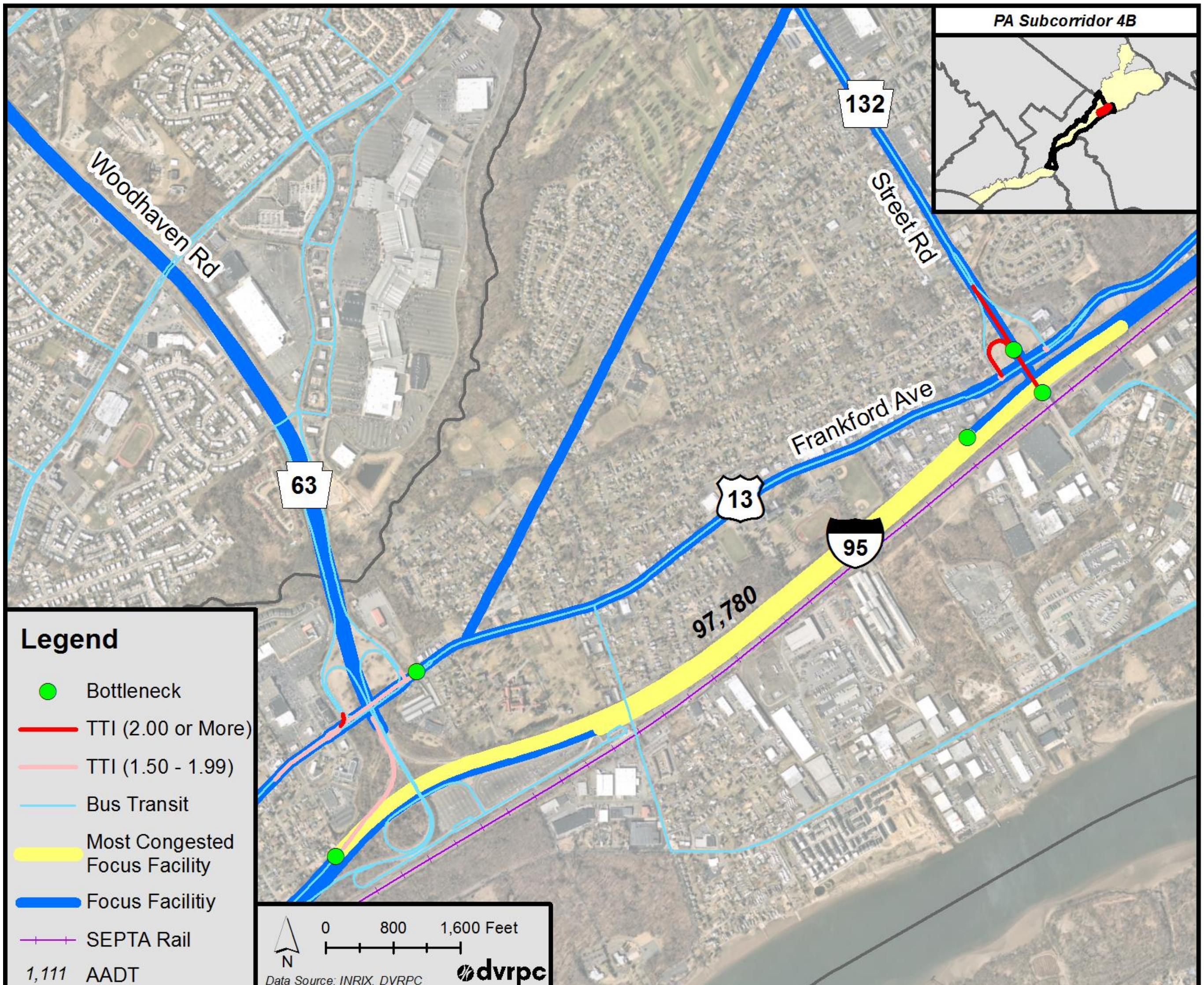
Provides additional information for the facility location that may affect mitigation strategies, and investment decisions. This includes the facility directional miles, whether it is on the NHS, along a bus transit route, along a park and ride lot, the count of Focus Roadway Intersection or Limited Access Roadway Bottlenecks, the miles of CMP high crash frequency and severity, the number of traffic signals (indicated as "n/a" for freeways since they are not applicable), and the annual average daily traffic. It also indicates the CMP objective scores, which are the same ones listed in Tables 6 and 7. Higher scores mean more CMP objectives are met for the facility.

Table 8: Most Congested Focus Roadway Corridor Facilities

Map ID	Roadway	From Limit	To Limit	Municipality	County
Pennsylvania					
24	I-95	PA 132 (Street Rd)	PA 63	Bensalem	Bucks
89	PA 132 (Street Rd)	I-95	US 1	Bensalem, Bristol	Bucks
145	PA 413	US 1 Bus (Lincoln Hwy)	PA 332	Langhore, Langhorne Manor, Middletown	Bucks
173	PA 532/PA 213	PA 132 (Street Rd)	US 1	L. Southampton, Langhorne, Middletown	Bucks
25	I-95	PA 63 (Woodhaven Rd)	Academy Rd	Bensalem, North Delaware	Bucks, Philadelphia
116	PA 100	US 30 Bypass	US 202	West Goshen, West Whiteland	Chester
138	PA 23	PA 724	US 422	East Pikeland, Phoeneixville, Schuylkill	Chester, Montgomery
54	US 30 Business	US 30 Bypass	PA 82 (Coatesville)	Caln, Coatesville, Downingtown, East Caln	Chester
56	US 30 Bypass	PA 100	US 30 Business	East Caln, West Whiteland	Chester
57	US 30 Bypass	US 30 Business	Reeceville Rd	Caln, East Caln	Chester
64	US 322/US 202	US 1	PA 3	various	Chester
118	Baltimore Ave	US 13	Bishop Ave	Clifton Heights, Lansdowne, Upper Darby	Delaware
119	Baltimore Pk	Bishop Ave	I-476	Nether Providence, Springfield	Delaware
31	I-95	I-476	US 322	Chester City, Chester, Ridley	Delaware
32	I-95	US 322	PA-DE State Line	Lower Chichester, Upper Chichester	Delaware
157	Lansdowne Ave	US 13	PA 3	Darby, Lansdowne, Upper Darby, Yeadon	Delaware
19	I-76	US 1 (City Ave)	I-476	Lower Merion, West Conshohocken	Montgomery
20	I-76	I-476	I-76 PA TPK	Upper Merion, West Conshohocken	Montgomery
40	US 1 (City Ave)	US 30 (Girard Ave)	I-76	Lower Merion, West Park	Montgomery, Philadelphia
117	I-676 (Vine Street Expy)	I-76	I-95	Central	Philadelphia
17	I-76	I-676 (Vine Street Expy)	US 30 (Girard Ave)	University - Southwest, West Park	Philadelphia
18	I-76	US 30 (Girard Ave)	US 1 (City Ave)	West Park	Philadelphia
78	Market St	I-95 (Penn's Landing)	PA 611 (Broad St)	Central	Philadelphia
New Jersey					
309	I-295	NJ 70 (Exit 34)	NJ 38 (Exit 40)	Cherry Hill, Mount Laurel	Burlington
369	NJ 70	NJ 73	US 206	Evesham, Medford, Southampton	Burlington
372	NJ 73	NJ TPK (Exit 4)	NJ 70	Evesham, Mount Laurel	Burlington
371	NJ 73	US 130	NJ TPK (Exit 4)	various	Burlington
308	I-295	NJ 42 (Exit 26)	NJ 70 (Exit 34)	various	Camden
328	I-76	NJ-PA State Line	I-295	Bellmawr, Gloucester, Mount Ephraim	Camden
312	NJ 168 (Black Horse Pk)	I-295	NJ 42	Bellmawr, Gloucester, Runnemede	Camden
426	CR 544	NJ 41	CR 534	Deptford	Gloucester
307	I-295	US 130	NJ 42 (Exit 26)	various	Gloucester
311	NJ 42	AC Expressway	I-295	various	Gloucester
360	NJ 45	US 130	Kings Hwy	various	Gloucester
358	NJ 55	NJ 42	NJ 47	Deptford	Gloucester
428	US 322/CR 536	CR 536/CR 654 (Main St)	AC Expressway	Winslow, Monroe	Gloucester
407	CR 622 (Olden Ave)	I-295	NJ 31	Trenton, Hamilton, Ewing	Mercer
351	NJ 33	I-295	US 130	Hamilton, Robbinsville	Mercer
349	NJ 33	US 1	CR 622 (Olden Ave)	Trenton	Mercer
318	US 1	Alexander Rd	CR 629	West Windsor	Mercer
317	US 1	I-295	Alexander Rd	Lawrence, West Windsor	Mercer

Source: DVRPC, 2023

Figure 23: Facility 24
I-95 from PA 132 (Street Rd) to PA 63, Bucks County, PA



Summary of Conditions

I-95 from PA 132 (Street Rd) to PA 63 (Woodhaven Rd) in Bucks County is ranked **#174** and **#87** in peak travel time vehicle and volume delay, respectively, and **#170** and **#53** in peak planning time vehicle and volume delay, respectively. I-95 is an interstate limited access roadway that includes four travel lanes in each direction. A Park and Ride lot is located south of I-95 at PA 63 at Cornwells Heights (15 E 21st N, Bensalem, PA) that contains 1,600 spaces and includes shuttle service from the lot to SEPTA's Trenton Line station. In May 2023, the shuttle service averaged about 120 passengers per day.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	5.9
PT PM Peak Vehicle Delay (sec):	27.9
TT PM Peak Volume Delay (hr):	7:12:08
PT PM Peak Volume Delay (hr):	34:08:01
Level of Travel Time Reliability (mi):	0.00
Truck Travel Time Reliability Index (mi):	0.42
Peak Hour Excessive Delay (per mi):	8,756
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP *#170 I-95 at PA 132 / Street Road; #CS CONNECT NEC 2035*
* FY 2023-26 TIP: MPMS #110309 I-95/US 13/PA 132 Slip Ramp Operation Improvement; #103556 I-95 ATMS (GR9); #98027 I-95 Congestion Management; #17918 I-95 Transit Improvements

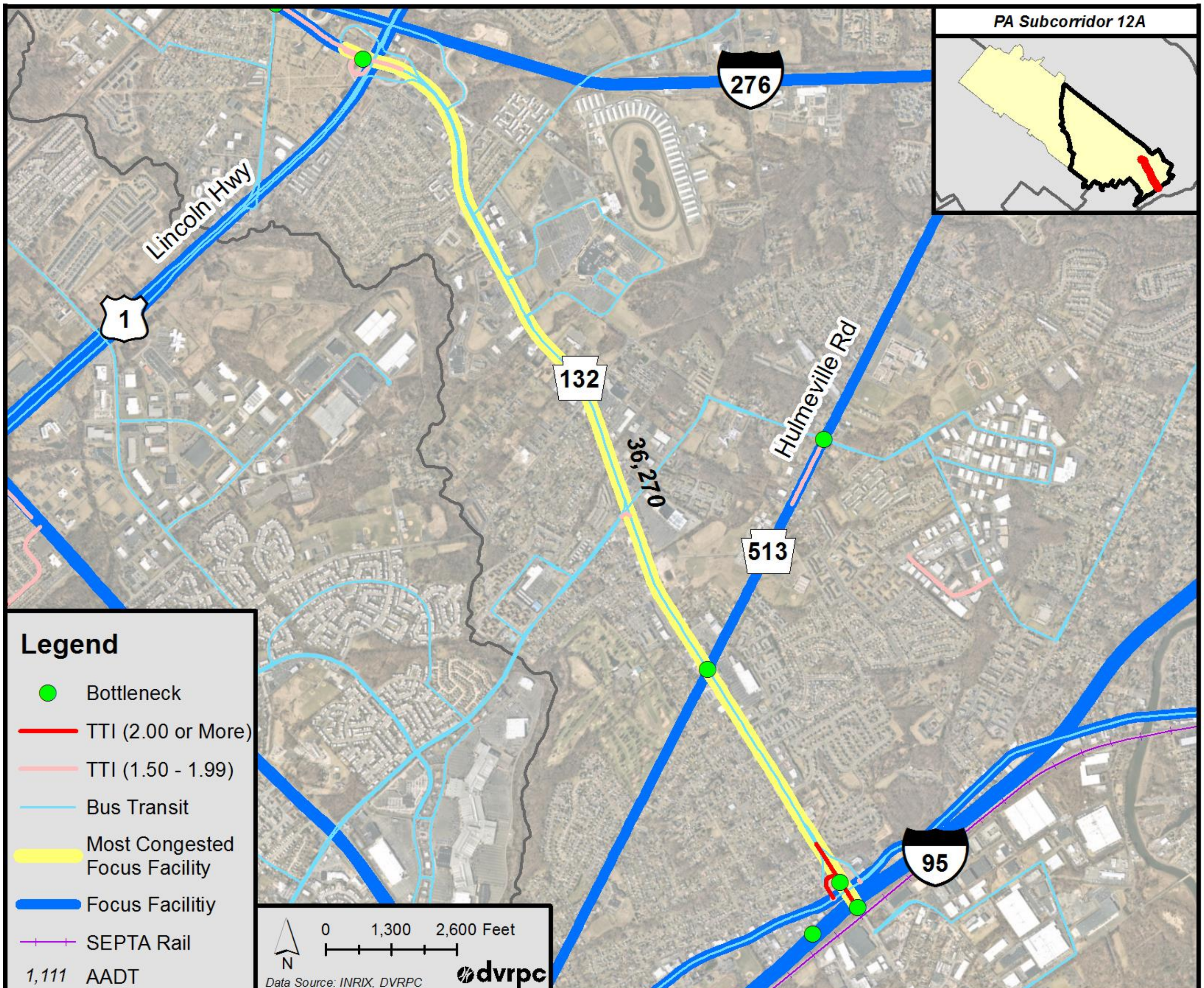
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Active Traffic Management (ATM) and Active Transportation and Demand Management (ATDM)
4) Transit Infrastructure Improvements
5) Expanded Parking for Existing Transit Stations (including remote, all modes)
6) Modifications to Existing Transit Routes or Services

Additional Factors	
Facility Miles:	3.22
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	3
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	97,780
CMP Objectives Score:	5.26

Recently implemented or partially implemented strategies are listed first and italicized

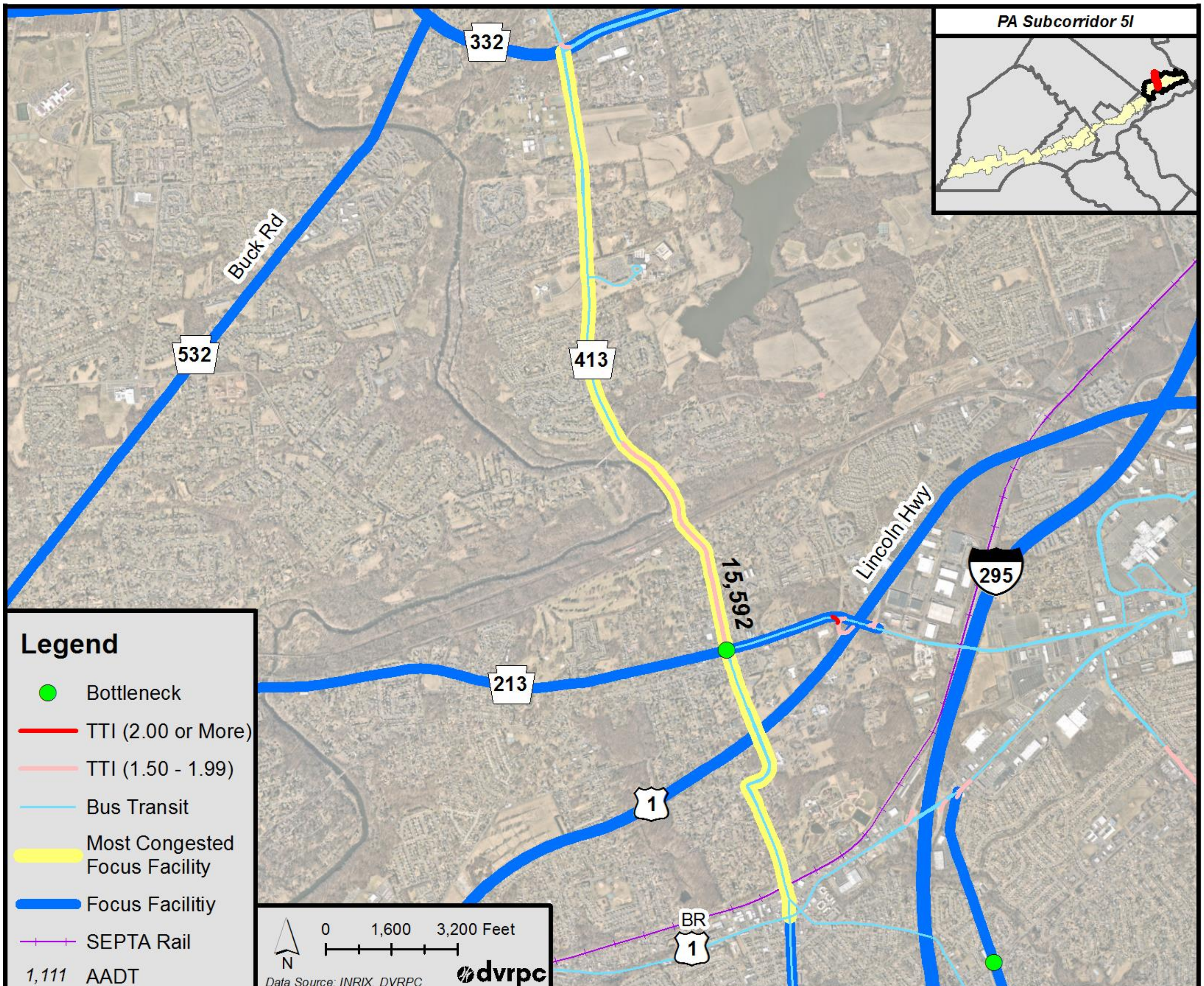
Figure 24: Facility 89
PA 132 (Street Rd) from I-95 to US 1, Bucks County, PA



Summary of Conditions	**Congestion Measures**	
PA 132 (Street Rd) from I-95 to US 1 (Lincoln Ave) in Bucks County is ranked **#69** and **#55** in peak travel time vehicle and volume delay, respectively, and **#80** and **#61** in peak planning time vehicle and volume delay, respectively. PA 132 is an undivided principal arterial roadway that contains two travel lanes in each direction with a middle turn lane along portions of the roadway. An adaptive signaling system is operating along the corridor to help maximize the efficiency of the roadway.	TT PM Peak Vehicle Delay (sec):	29.2
	PT PM Peak Vehicle Delay (sec):	74.1
	TT PM Peak Volume Delay (hr):	12:26:24
	PT PM Peak Volume Delay (hr):	31:51:13
	Level of Travel Time Reliability (mi):	0.57
	Truck Travel Time Reliability Index (mi):	n/a
	Peak Hour Excessive Delay (per mi):	30,715
	TDM Forecasted Congestion (mi):	0.34
Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: MRP *#170 - I-95 at PA 132 / Street Road*	Facility Miles:	7.45
* FY 2023-26 TIP: MPMS #110309 I-95/US 13/PA 132 Slip Ramp Operation Improvement	National Highway System (NHS):	Yes
	CMP High Crash Frequency (mi):	0.00
Very Appropriate Strategies	CMP High Crash Severity (mi):	1.89
1) *Signal Improvements*	Transit Route:	Yes
2) Transit Infrastructure Improvements	Park and Ride:	No
3) County and Local Road Connectivity	Bottlenecks:	4
4) Parking Supply-and-Demand Management	Traffic Signals:	17
5) Shuttle Service to Stations	Annual Average Daily Traffic (AADT):	36,270
	CMP Objectives Score:	5.62

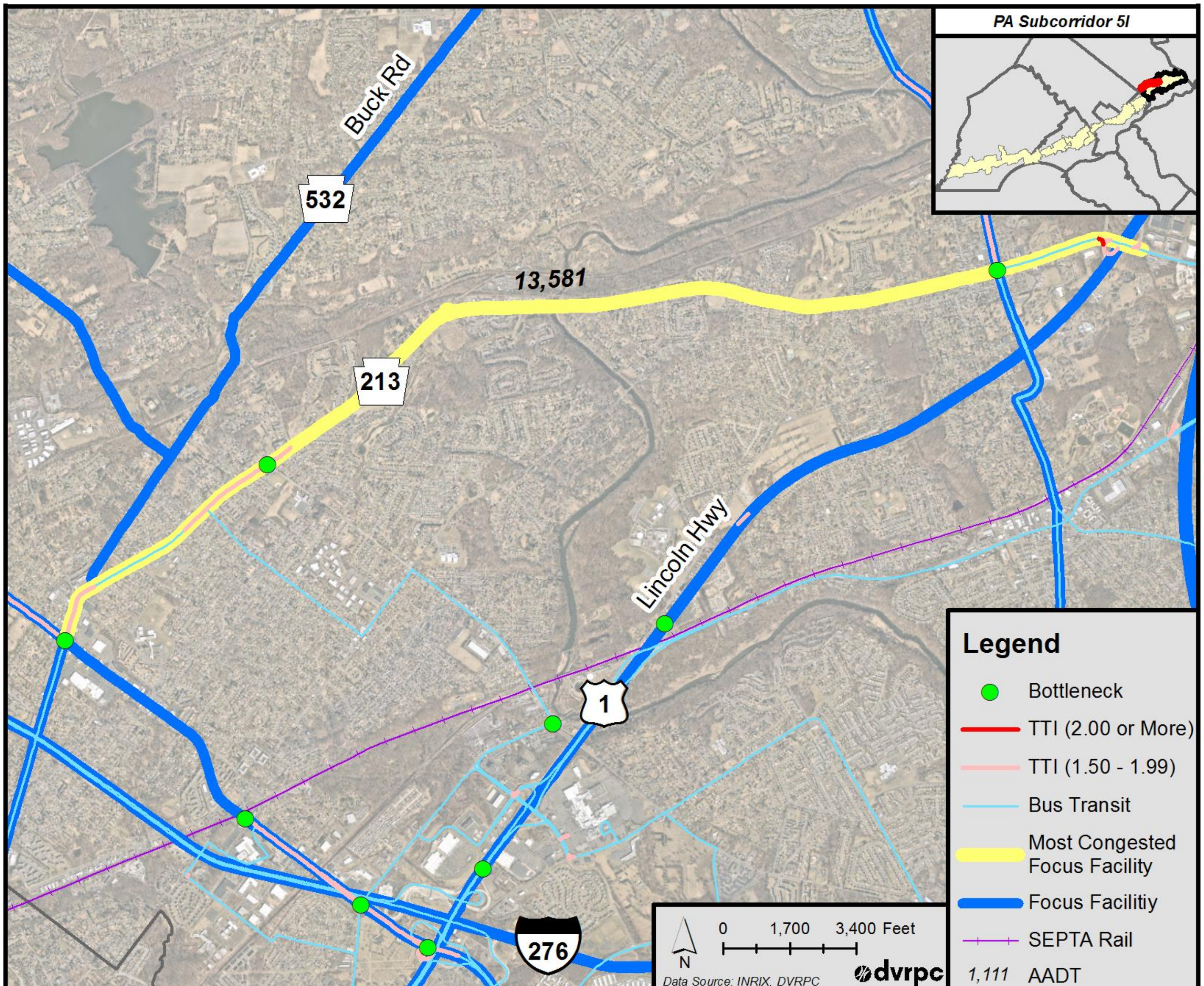
Recently implemented or partially implemented strategies are listed first and italicized

Figure 25: Facility 145
PA 413 from US 1 Bus (Lincoln Hwy) to PA 332 (Newtown Bypass), Bucks County, PA



Summary of Conditions	**Congestion Measures**	
PA 413 from US 1 Business to PA 332 (Newtown Bypass) in Bucks County is ranked **#77** and **#111** in peak travel time vehicle and volume delay, respectively, and **#76** and **#112** in peak planning time vehicle and volume delay, respectively. PA 413 is an undivided principal arterial roadway with primarily one lane in each direction with multiple signalized intersections that include separate turning lanes at the signalized approaches. A new partial cloverleaf interchange is proposed at PA 413 (Pine St) and US 1 with additional lanes along PA 413 at the interchange area, then funneling down to one lane at Flowers Ave to the north and Bellevue Ave to the South.	TT PM Peak Vehicle Delay (sec):	25.9
	PT PM Peak Vehicle Delay (sec):	78.3
	TT PM Peak Volume Delay (hr):	5:02:02
	PT PM Peak Volume Delay (hr):	14:45:11
	Level of Travel Time Reliability (mi):	5.68
	Truck Travel Time Reliability Index (mi):	n/a
	Peak Hour Excessive Delay (per mi):	46,555
	TDM Forecasted Congestion (mi):	3.12
Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: MRP #37 US 1 Reconstruction (RC3) including interchange improvements at PA 413 * FY 2023-26 TIP: MPMS #93446 Route 1 Improvement Frontage Corridor (RC 3); #116082 Bellevue Ave Grade Crossing; #115420 Penndel Borough Intersection Improvements	Facility Miles:	8.65
	National Highway System (NHS):	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.15
	CMP High Crash Severity (mi):	0.03
1) Signal Improvements	Transit Route:	Yes
2) Transit Infrastructure Improvements	Park and Ride:	No
3) Turning Movement Enhancements	Bottlenecks:	1
4) Modifications to Existing Transit Routes or Services	Traffic Signals:	7
5) Walking and Bicycling Improvements	Annual Average Daily Traffic (AADT):	15,592
6) Major Reconstruction with Minor Capacity Additions	CMP Objectives Score:	6.61

Figure 26: Facility 173
PA 532/PA 213 from PA 132 (Street Rd) to US 1, Bucks County, PA



Summary of Conditions

PA 532 (Bustleton Pk)/PA 213 (Bridgetown Pk) from PA 132 (Street Rd) to US 1 in Bucks County is ranked **#72** and **#101** in peak travel time vehicle and volume delay, respectively, and **#89** and **#124** in peak planning time vehicle and volume delay, respectively. PA 532 comprises a small portion of the western portion fo the corridor and then splits off northbound and PA 132 eastbound. PA 532 is a principal arterial roadway and PA 132 a minor arterial, and both are undivided with PA 532 containing two travel lanes in each direction and PA 213 one travel lane. CMP bottlenecks occur at the intersections of PA 532 and PA 132, PA 213 and East Bristol Rd, and PA 213 and PA 413.

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

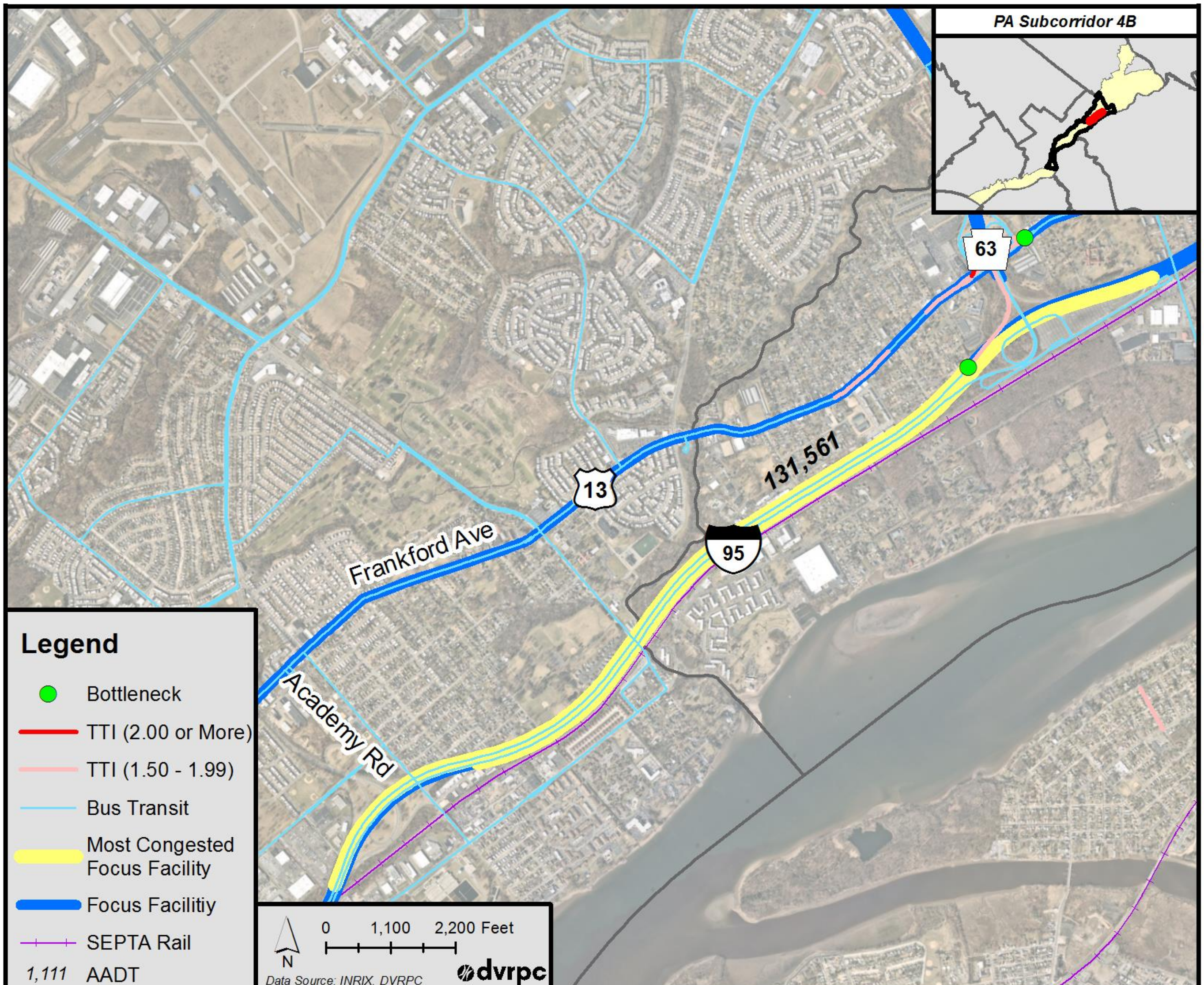
Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Turning Movement Enhancements
4) Modifications to Existing Transit Routes or Services
5) Express Transit Routes or Stop Consolidation

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	27.3
PT PM Peak Vehicle Delay (sec):	66.7
TT PM Peak Volume Delay (hr):	5:30:23
PT PM Peak Volume Delay (hr):	13:07:25
Level of Travel Time Reliability (mi):	0.10
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	1,937
TDM Forecasted Congestion (mi):	2.25

Additional Factors	
Facility Miles:	11.81
National Highway System (NHS):	No
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	1.03
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	3
Traffic Signals:	12
Annual Average Daily Traffic (AADT):	13,581
CMP Objectives Score:	3.63

Figure 27: Facility 25
I-95 from PA 63 (Woodhaven Rd) to Academy Rd, Bucks and Philadelphia Counties, PA



Summary of Conditions

I-95 from PA 63 (Woodhaven Rd) to Academy Road in Bucks and Philadelphia Counties is ranked **#163** and **#50** in peak travel time vehicle and volume delay, respectively, and **#143** and **#24** in peak planning time vehicle and volume delay, respectively. I-95 is an interstate limited access roadway that includes four travel lanes in each direction. A Park and Ride lot is located south of I-95 at PA 63 at Cornwells Heights that contains 1,600 spaces and includes shuttle service from the lot to SEPTA's Trenton Line station. In May 2023, the shuttle service averaged about 120 passengers per day. A limited access roadway bottleneck occurs along I-95 southbound at the PA 63 on-ramp.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	8.0
PT PM Peak Vehicle Delay (sec):	41.7
TT PM Peak Volume Delay (hr):	13:30:11
PT PM Peak Volume Delay (hr):	71:05:48
Level of Travel Time Reliability (mi):	0.00
Truck Travel Time Reliability Index (mi):	0.00
Peak Hour Excessive Delay (per mi):	0.00
TDM Forecasted Congestion (mi):	2.71

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP *#131 I-95 Bucks/Philadelphia Active Traffic Management; #CS CONNECT NEC 2035*
* FY 2023-26 TIP: MPMS #91490 Expr Service Patrol; #103556 - I-95 ATMS (GR9); #98027 I-95 Congestion Management; #17918 I-95 Transit Improvements/FLEX (Cornwells Heights)

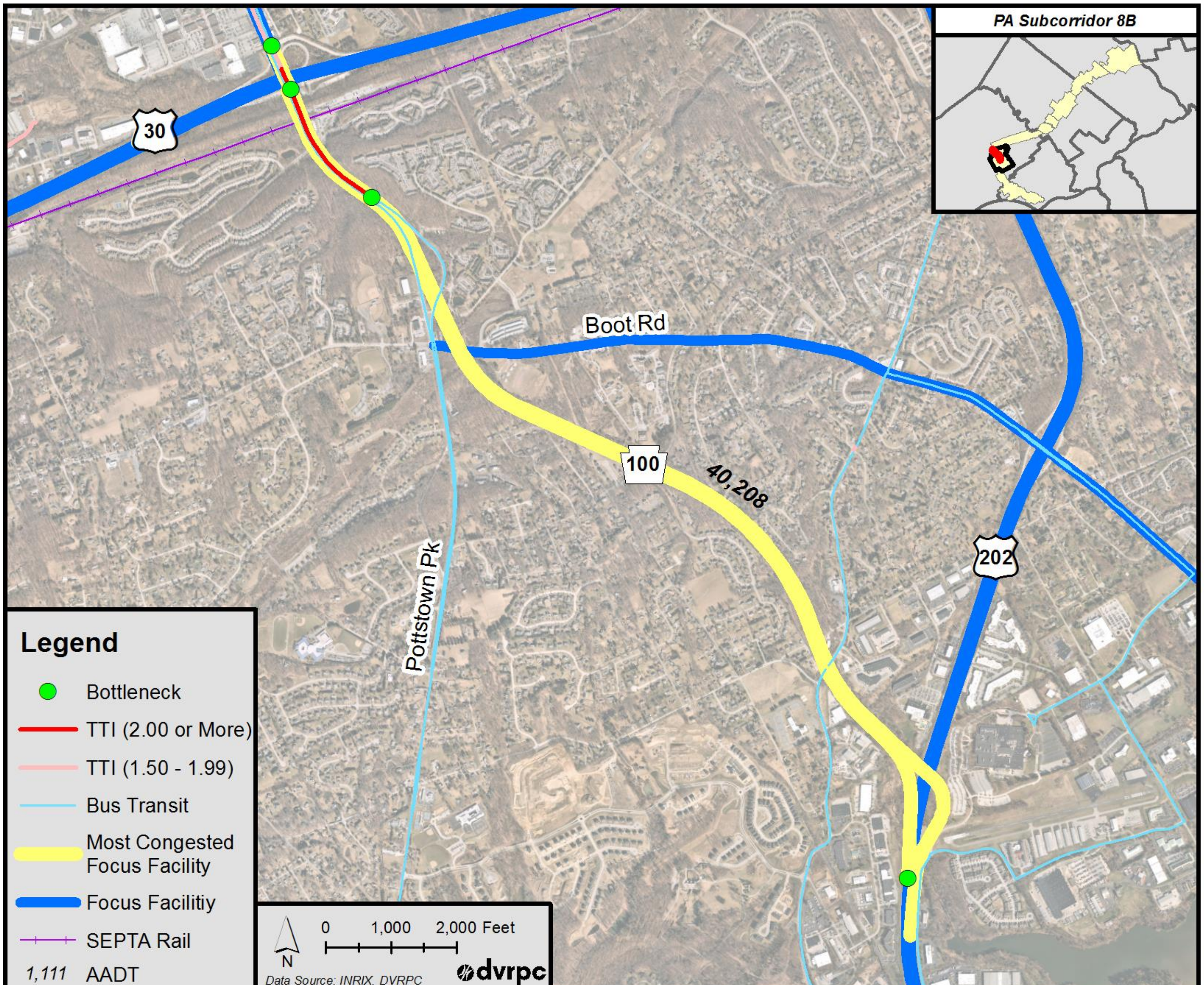
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) *Expanded Parking for Existing Transit Stations (including remote, all modes)*
4) Active Traffic Management (ATM) and Active Transportation and Demand Management (ATDM)
5) Express Transit Routes or Stop Consolidation
6) Modifications to Existing Transit Routes or Services

Additional Factors	
Facility Miles:	5.43
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	1.54
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	1
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	131,561
CMP Objectives Score:	6.10

Recently implemented or partially implemented strategies are listed first and italicized

Figure 28: Facility 116
PA 100 from US 30 Bypass to US 202, Chester County, PA



Summary of Conditions

PA 100 from US 202 to the US 30 Bypass in Chester County is ranked **#107** and **#57** in peak travel time vehicle and volume delay, respectively, and **#145** and **#81** in peak planning time vehicle and volume delay, respectively. PA 100 is a limited access divided expressway that includes two travel lanes in each direction with the northern portion ending at the US 30 Bypass and changing to an arterial roadway and the southern portion merging with US 202. PA 100 northbound experiences traffic congestion from Pottstown Pk to US 30, and a project is currently programmed on the TIP to mitigate. SEPTA's Exton station at PA 100 and US 30 is on the TIP for multimodal improvements.

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #217 PA 100 Northbound at Exton Station; *#172 US 202 (Section 200)*
* FY 2023-26 TIP: MPMS #118025 PA 100 Northbound at Exton Station; #93588 Exton Station

Very Appropriate Strategies

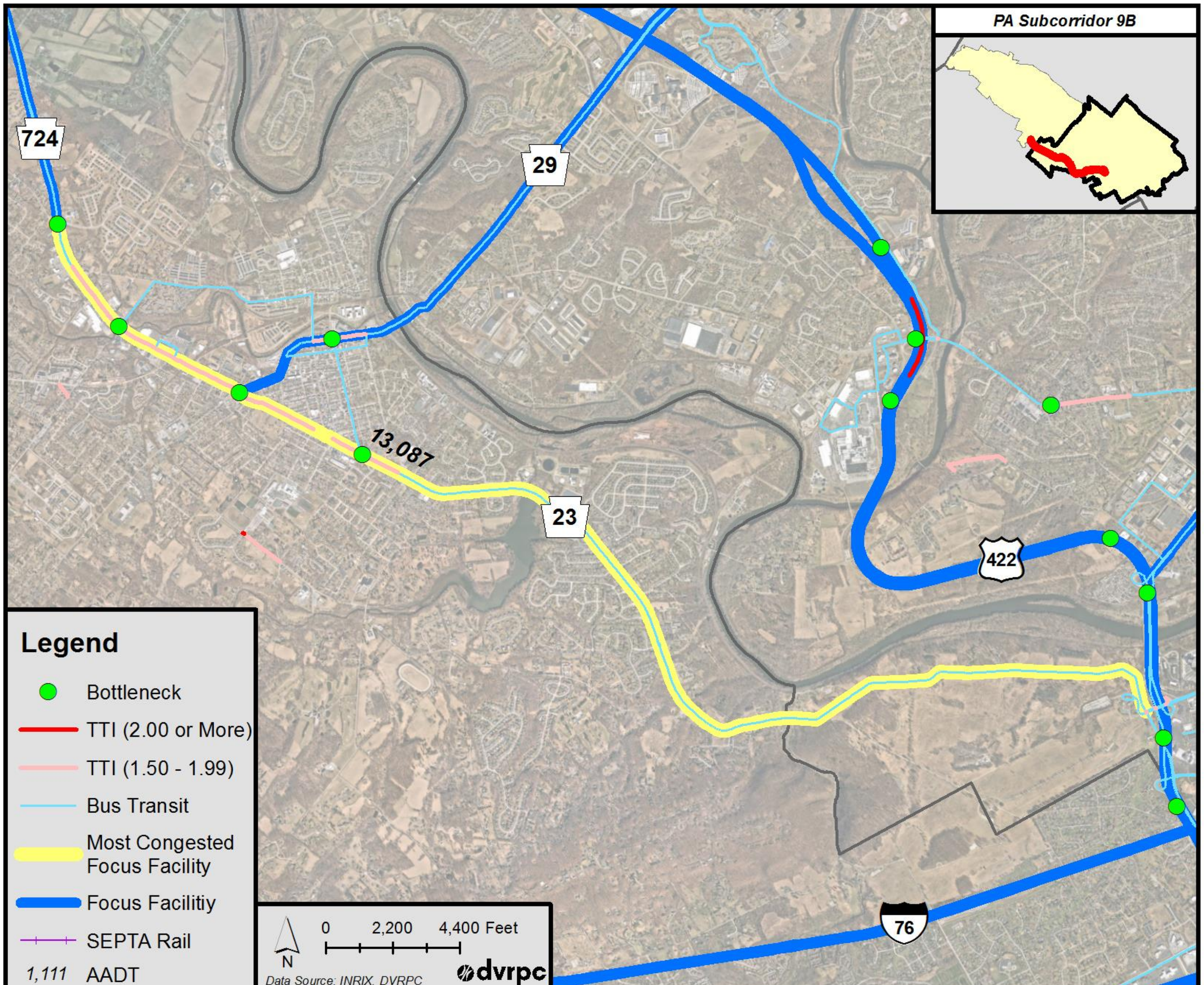
1) Signal Improvements
2) Intelligent Transportation Systems (ITS)
3) Incident Management
4) Turning Movement Enhancements
5) Transit Infrastructure Improvements
6) Bottleneck Removal of a Limited Scale for Cars and Trucks

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	17.2
PT PM Peak Vehicle Delay (sec):	38.6
TT PM Peak Volume Delay (hr):	11:13:16
PT PM Peak Volume Delay (hr):	23:38:35
Level of Travel Time Reliability (mi):	n/a
Truck Travel Time Reliability Index (mi):	0.87
Peak Hour Excessive Delay (per mi):	76,503
TDM Forecasted Congestion (mi):	0.00

Additional Factors	
Facility Miles:	6.33
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	4
Traffic Signals:	2
Annual Average Daily Traffic (AADT):	40,208
CMP Objectives Score:	4.76

Figure 29: Facility 138

PA 23 from PA 724 to US 422, Chester and Montgomery Counties, PA



Summary of Conditions

PA 23 from PA 724 to US 422 in Chester and Montgomery Counties is ranked **#74** and **#106** in peak travel time vehicle and volume delay, respectively, and **#96** and **#133** in peak planning time vehicle and volume delay, respectively. PA 23 is a minor arterial roadway that includes one travel lane in each direction with portions including a middle turn lane. PA 23 passes through Phoenixville Borough which contains various mixed land uses and through the Valley Forge National Historic Park which contains more rural uses. CMP bottlenecks occur along the western portion of the PA 23 corridor, including Main St, PA 113 (Bridge St), Township Line Rd, and PA 724 (Schuylkill Rd).

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: No projects
* FY 2023-26 TIP: MPMS #66952 PA 23/Valley Forge Road and North Gulph Relocation; #115423 Route 23 Corridor Safety Improvements

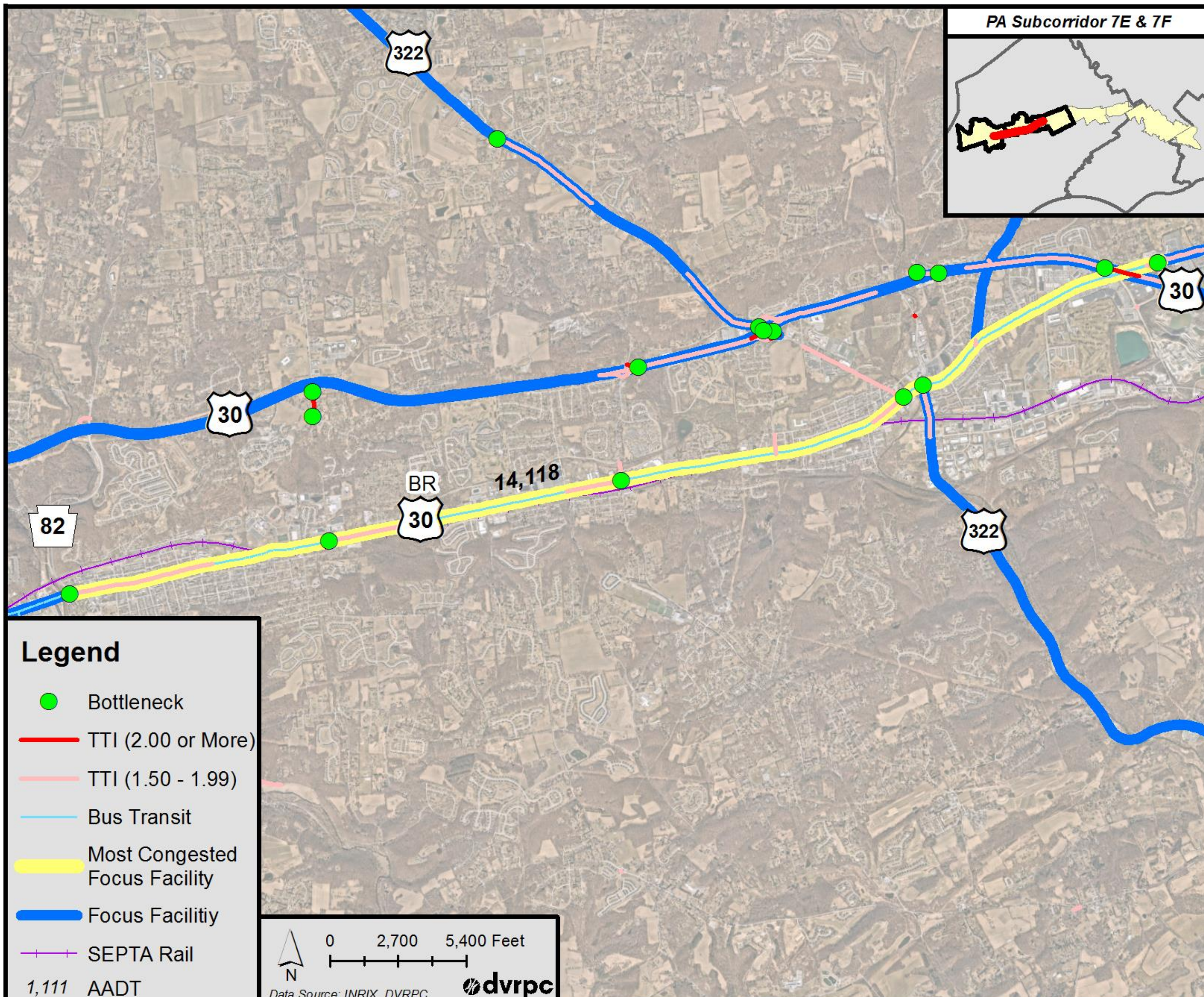
Very Appropriate Strategies

1) Signal Improvements
2) Turning Movement Enhancements
3) Modifications to Existing Transit Routes or Services
4) Complete Streets
5) Intelligent Transportation Systems (ITS)

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	27.1
PT PM Peak Vehicle Delay (sec):	60.5
TT PM Peak Volume Delay (hr):	5:10:23
PT PM Peak Volume Delay (hr):	11:49:36
Level of Travel Time Reliability (mi):	n/a
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	n/a
TDM Forecasted Congestion (mi):	3.31

Additional Factors	
Facility Miles:	16.90
National Highway System (NHS):	No
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	15
Annual Average Daily Traffic (AADT):	13,087
CMP Objectives Score:	4.41

Figure 30: Facility 54
US 30 Business from US 30 Bypass to PA 82 (Coatesville), Chester County, PA



Summary of Conditions

US 30 Business from PA 82 (Manor Rd) to the US 30 Bypass in Chester County is ranked **#47** and **#91** in peak travel time vehicle and volume delay, respectively, and **#70** and **#111** in peak planning time vehicle and volume delay, respectively. US 30 Business is an undivided principal arterial roadway that includes one travel lane in each direction and passes through both the City of Coatesville and Downingtown Borough. US 30 Business contains many signalized intersections with additional left-turn lanes at major intersection approaches, and contains bicycle lanes in both directions on portions of the corridor in Coatesville.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	36.1
PT PM Peak Vehicle Delay (sec):	82.7
TT PM Peak Volume Delay (hr):	6:30:00
PT PM Peak Volume Delay (hr):	14:54:16
Level of Travel Time Reliability (mi):	7.61
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	84,304
TDM Forecasted Congestion (mi):	1.69

Planned Improvements on 2050 LRP & FY 2023-26 TIP

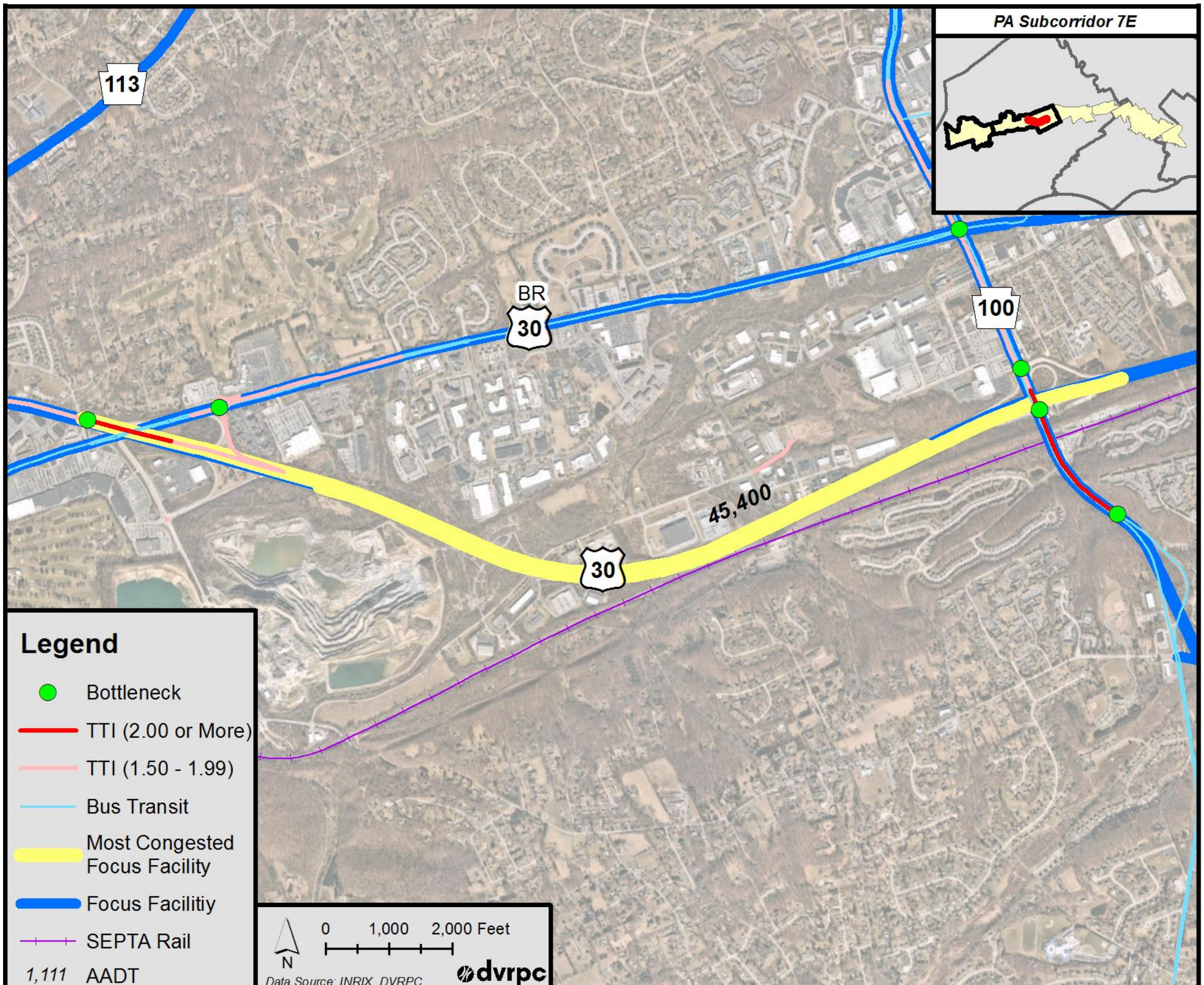
* 2050 LRP: MRP #AF Amtrak Keystone Corridor-Coatesville Station; *#W Atglen Regional Rail Ext*
* FY 2023-26 TIP: MPMS #87534 Coatesville Train Station; #107553 & 87781 US 30 Bypass Eastern and Western sections, including CMP supplemental strategies for portions of US 30 Bus

Very Appropriate Strategies

1) Signal Improvements
2) Improve Circulation
3) Intelligent Transportation Systems (ITS)
4) Transit Infrastructure Improvements
5) Expanded Parking for Existing Transit Stations (all modes)
6) Transit-Oriented Development (TOD)

Additional Factors	
Facility Miles:	17.29
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	7
Traffic Signals:	30
Annual Average Daily Traffic (AADT):	14,118
CMP Objectives Score:	6.96

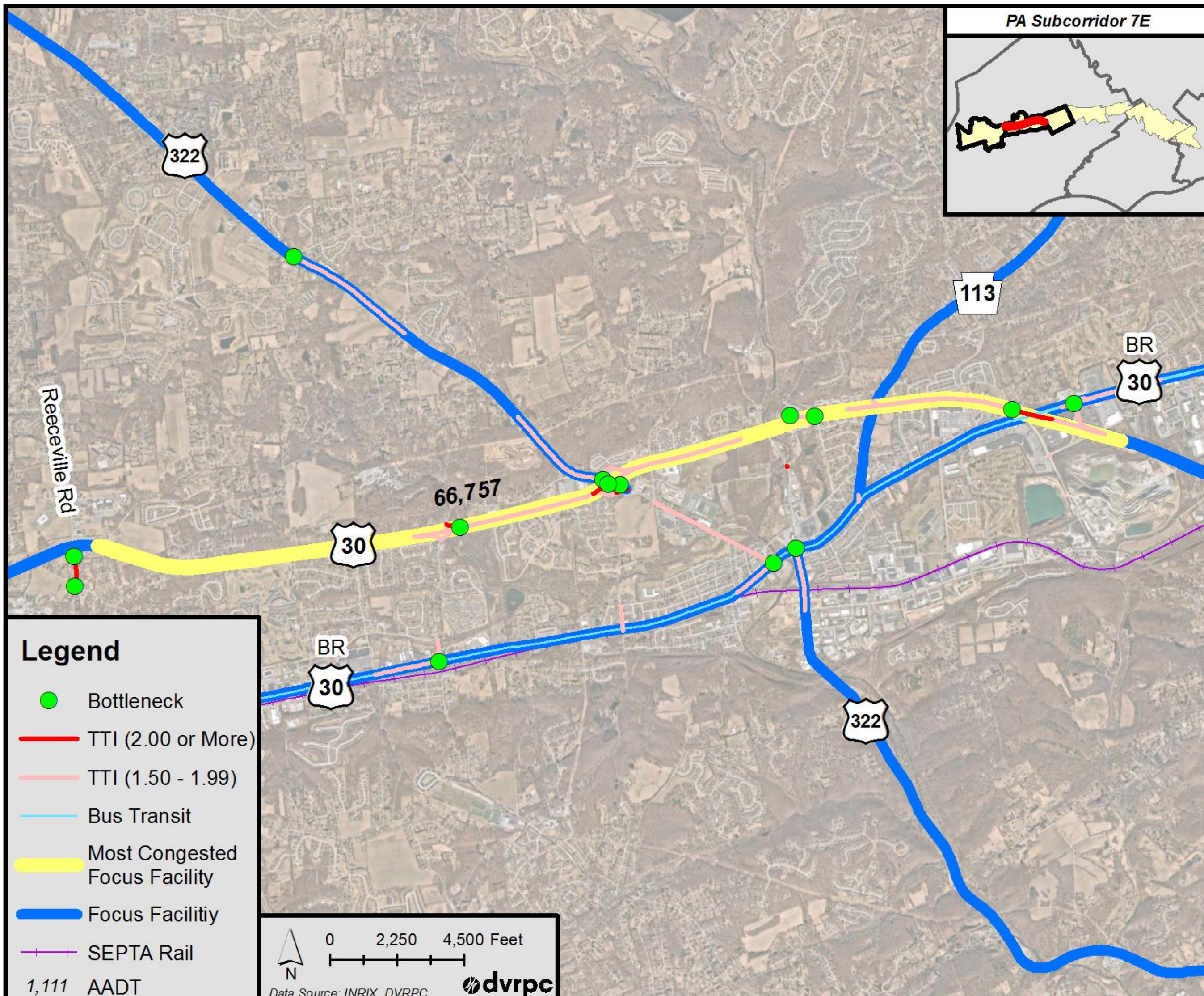
Figure 31: Facility 56
US 30 Bypass from PA 100 to US Business, Chester County, PA



Summary of Conditions	**Congestion Measures**	
US 30 (Exton Bypass) from PA 100 to US 30 Bus in Chester County is ranked **#127** and **#80** in peak travel time vehicle and volume delay, respectively, and **#83** and **#43** in peak planning time vehicle and volume delay, respectively. The Exton Bypass is a limited access divided expressway that includes two travel lanes in each direction, plus shoulders, and interchanges at PA 100 and US 30 Bus. SEPTA's Paoli/Thorndale passenger rail line runs parallel to US 30, and the Exton SEPTA station is located at the southeast corner of the US 30 and PA 100 interchange off Howard Road. A CMP limited access bottleneck occurs along US 30 westbound at the US 30 Bus westbound on-ramp.	TT PM Peak Vehicle Delay (sec):	13.4
	PT PM Peak Vehicle Delay (sec):	73.3
	TT PM Peak Volume Delay (hr):	7:33:00
	PT PM Peak Volume Delay (hr):	41:07:54
	Level of Travel Time Reliability (mi):	1.05
	Truck Travel Time Reliability Index (mi):	n/a
	Peak Hour Excessive Delay (per mi):	6,910
	TDM Forecasted Congestion (mi):	2.08
Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: MRP ID #137 US 30 Coatesville-Downingtown Bypass (Eastern Section) * FY 2023-26 TIP: MPMS #87781 US 30 Bypass (CER Eastern Section), major SOV capacity-adding and includes CMP supplemental strategies; #92182 Expressway Service Patrol	Facility Miles:	5.25
	National Highway System (NHS):	Yes
	CMP High Crash Frequency (mi):	0.00
Very Appropriate Strategies	CMP High Crash Severity (mi):	0.81
1) *Incident Management*	Transit Route:	No
2) *Intelligent Transportation Systems (ITS)*	Park and Ride:	Yes
3) *Park and Ride Lots*	Bottlenecks:	1
4) Signal Improvements (at on- and off-ramps)	Traffic Signals:	n/a
5) Encourage Use of Transit Services and TDM Programs	Annual Average Daily Traffic (AADT):	45,400
6) Transit-Oriented Development (TOD)	CMP Objectives Score:	5.94

Recently implemented or partially implemented strategies are listed first and italicized

Figure 32: Facility 57
US 30 Bypass from US 30 Business to Reeceville Rd, Chester County, PA



Summary of Conditions

US 30 Bypass from US 30 Bus to Reeceville Rd in Chester County is ranked **#146** and **#86** in peak travel time vehicle and volume delay, respectively, and **#109** and **#54** in peak planning time vehicle and volume delay, respectively. US 30 Bypass is a limited access divided expressway that includes two travel lanes in each direction, plus shoulders, and varying median widths. Interchanges are at Reeceville Road, PA 340, US 322, PA 113, and US 30 Bus, and some include limited access and intersection bottlenecks. A Park and Ride lot is located at the southwest corner of US 30 Bypass and US 322. This corridor is on the TIP (MPMS #87781) for proposed major SOV capacity-adding.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	11.3
PT PM Peak Vehicle Delay (sec):	55.4
TT PM Peak Volume Delay (hr):	7:12:43
PT PM Peak Volume Delay (hr):	33:43:07
Level of Travel Time Reliability (mi):	1.04
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	8,002
TDM Forecasted Congestion (mi):	0.06

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP ID #137 US 30 Coatesville-Downingtown Bypass (Eastern Section)
* FY 2023-26 TIP: MPMS #87781 US 30 Bypass (CER Eastern Section), major SOV capacity-adding and includes CMP supplemental strategies; #92182 Expressway Service Patrol

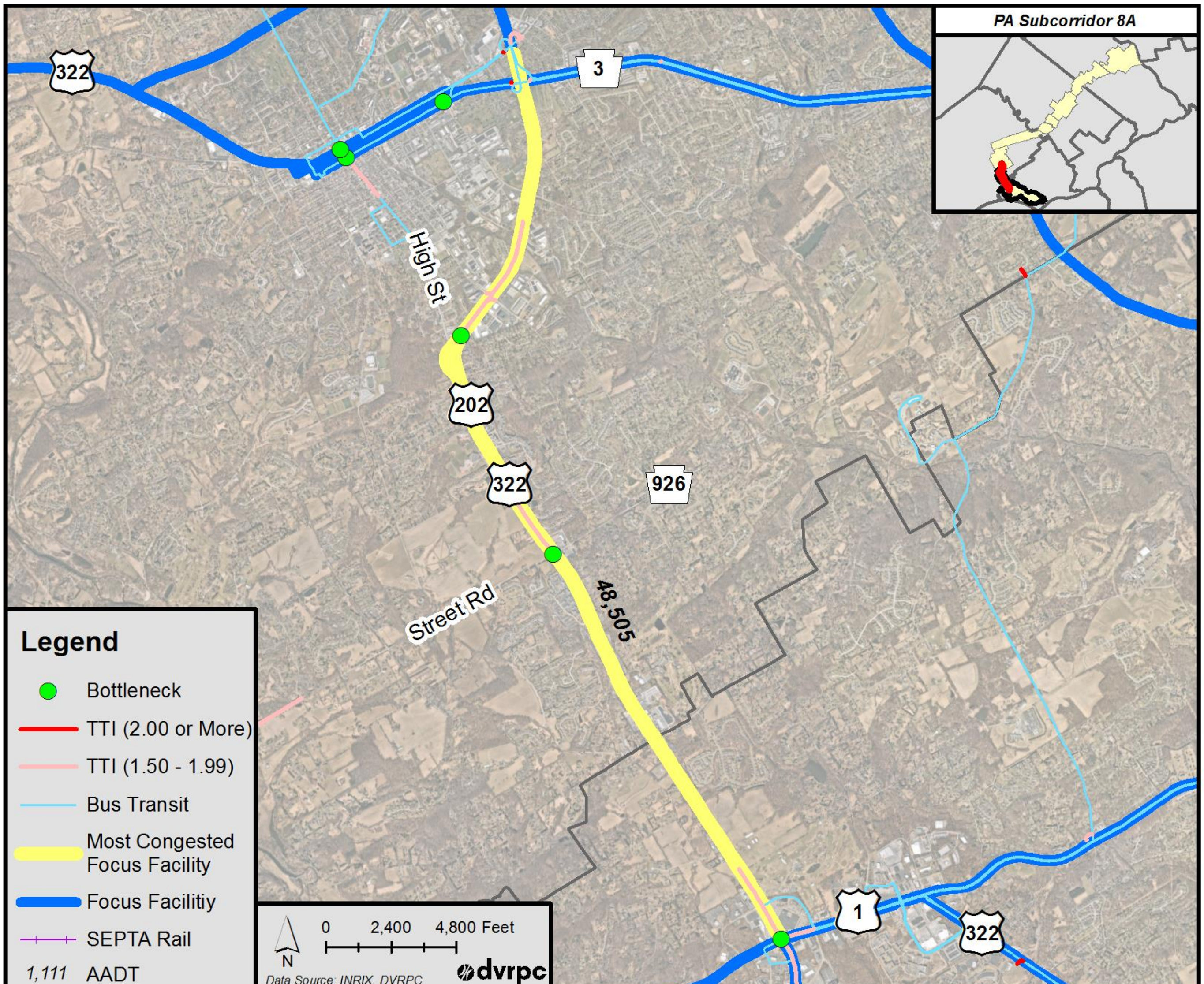
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) *Park and Ride Lots*
4) Signal Improvements (at on- and off-ramps)
5) Encourage Use of Transit Services and TDM Programs
6) Bottleneck Removal of a Limited Scale for Cars and Trucks

Additional Factors	
Facility Miles:	12.62
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.11
Transit Route:	No
Park and Ride:	Yes
Bottlenecks:	7
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	66,757
CMP Objectives Score:	3.98

Recently implemented or partially implemented strategies are listed first and italicized

Figure 33: Facility 64
US 322/US 202 from US 1 to PA 3, Chester and Delaware Counties, PA



Summary of Conditions

US 202/US 322 from US 1 to PA 3 in Chester and Delaware Counties is ranked **#125** and **#74** in peak travel time vehicle and volume delay, respectively, and **#105** and **#55** in peak planning time vehicle and volume delay, respectively. US 202/US 322 includes two travel lanes in each direction and is a limited access divided expressway between PA 3 and High St, and then a divided principal arterial roadway from High St to US 1. CMP bottlenecks occur along the corridor at US 1, PA 926, and northbound at the High St on-ramp. The north and south parts of the corridor are served by bus transit and a park and ride lot is located just north of PA 3 at the US 202/Paoli Pk interchange.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	14.1
PT PM Peak Vehicle Delay (sec):	57.3
TT PM Peak Volume Delay (hr):	8:20:00
PT PM Peak Volume Delay (hr):	33:37:51
Level of Travel Time Reliability (mi):	1.41
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	72,451
TDM Forecasted Congestion (mi):	3.06

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #123 US 202 at US 1 Loop Road and PA 926; *#39 US 202 (Section 100)*
* FY 2023-26 TIP: MPMS #95429 US 202 & US 1 Intersection Area Improvements; #95430 US 202 at SR 926 Intersection Improvements; #118024 US 202 and High Street Interchange

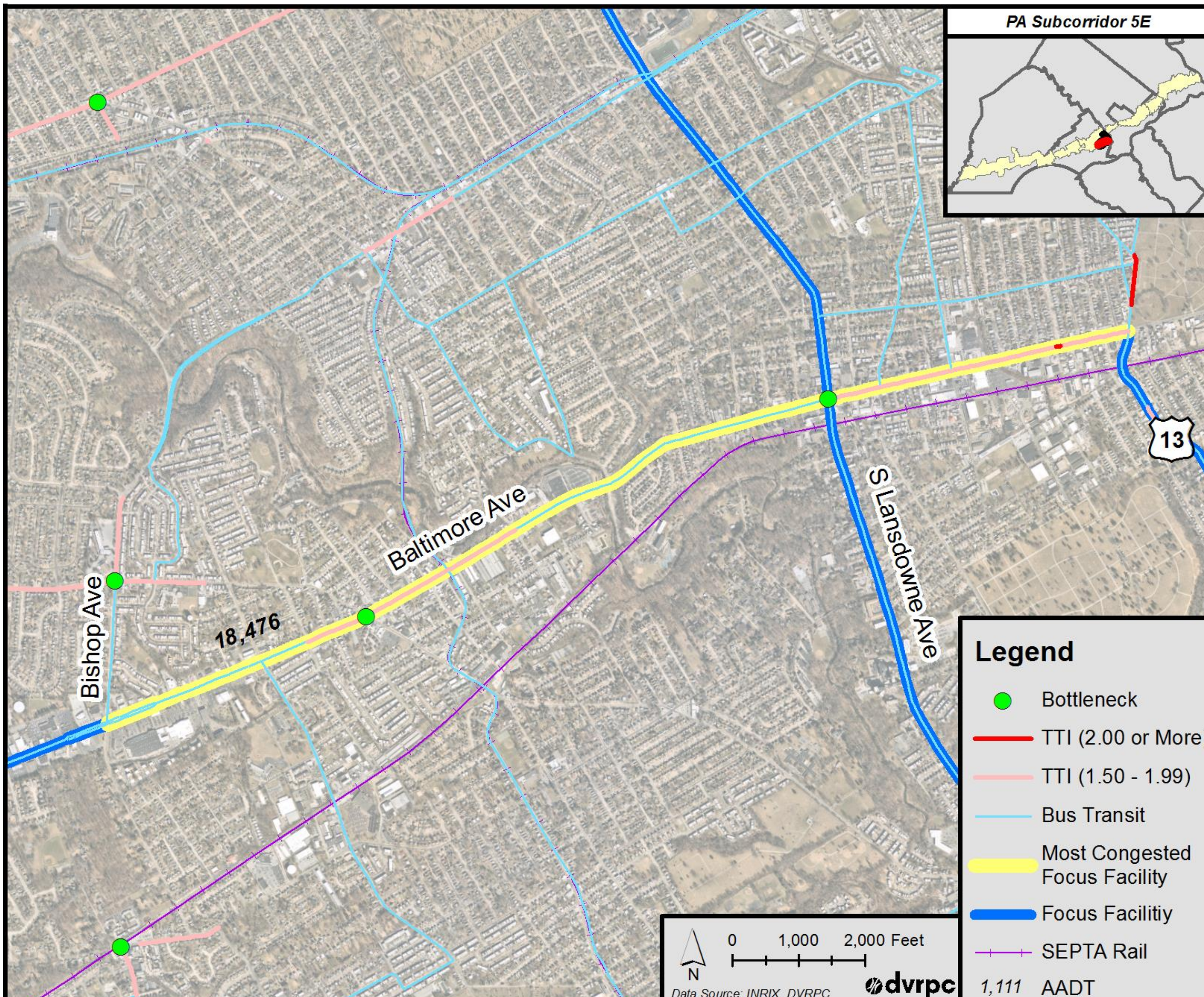
Very Appropriate Strategies

1) *Signal Improvements*
2) *Intelligent Transportation Systems (ITS)*
3) Incident Management
4) Turning Movement Enhancements
5) County and Local Road Connectivity
6) Encourage Use of Transit Services and TDM Programs

Additional Factors	
Facility Miles:	13.56
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.92
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	3
Traffic Signals:	10
Annual Average Daily Traffic (AADT):	48,505
CMP Objectives Score:	3.21

Recently implemented or partially implemented strategies are listed first and italicized

Figure 34: Facility 118
Baltimore Ave from US 13 to Bishop Ave, Delaware County, PA



Summary of Conditions

Baltimore Ave from US 13 to Bishop Ave in Delaware County is ranked **#13** and **#38** in peak travel time vehicle and volume delay, respectively, and **#16** and **#52** in peak planning time vehicle and volume delay, respectively. Baltimore Ave is an undivided principal arterial roadway that includes one travel lane in each direction, and contains many signalized intersections with additional left-turn lanes at major intersection approaches. CMP bottlenecks occur along the corridor at the intersections of Springfield Rd and Lansdowne Ave. Past improvements along the corridor indicate new and upgraded sidewalks and crosswalks, and signal re-timing improvements (MPMS #84457).

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	74.8
PT PM Peak Vehicle Delay (sec):	155.2
TT PM Peak Volume Delay (hr):	16:11:07
PT PM Peak Volume Delay (hr):	34:23:21
Level of Travel Time Reliability (mi):	2.35
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	65,776
TDM Forecasted Congestion (mi):	1.44

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

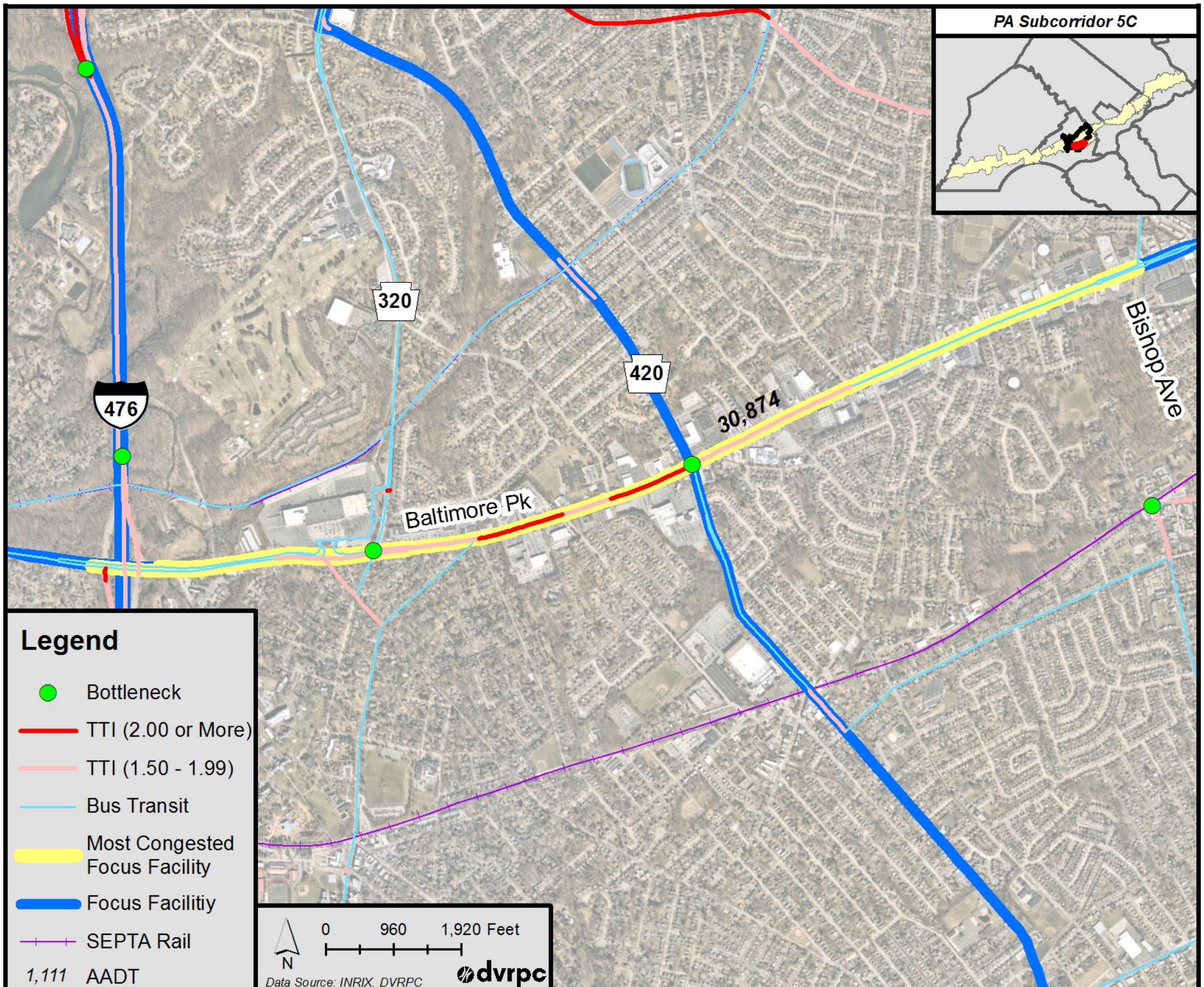
Very Appropriate Strategies

1) *Walking and Bicycling Improvements*
2) *Signal Improvements*
3) Transit Infrastructure Improvements
4) Improve Circulation
5) Transit-Oriented Development (TOD)
6) Modifications to Existing Transit Routes or Services

Additional Factors	
Facility Miles:	6.30
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	1.03
CMP High Crash Severity (mi):	1.03
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	2
Traffic Signals:	17
Annual Average Daily Traffic (AADT):	18,476
CMP Objectives Score:	8.32

Recently implemented or partially implemented strategies are listed first and italicized

Figure 35: Facility 119
Baltimore Pk from Bishop Ave to I-476, Delaware County, PA



Summary of Conditions

Baltimore Pk from Bishop Ave to I-476 in Delaware County is ranked **#16** and **#23** in peak travel time vehicle and volume delay, respectively, and **#29** and **#37** in peak planning time vehicle and volume delay, respectively. Baltimore Pk is an undivided principal arterial roadway that includes one travel lane in each direction, and contains many signalized intersections with additional left-turn lanes at major intersection approaches. CMP bottlenecks occur along the corridor at PA 420 (Woodland Ave) and PA 320 (Sproul Rd). Past improvements along the corridor indicate signal re-timing improvements (MPMS #84457).

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #130 I-476 Active Traffic Management
* FY 2023-26 TIP: MPMS #104821 I-476 Travel Management

Very Appropriate Strategies

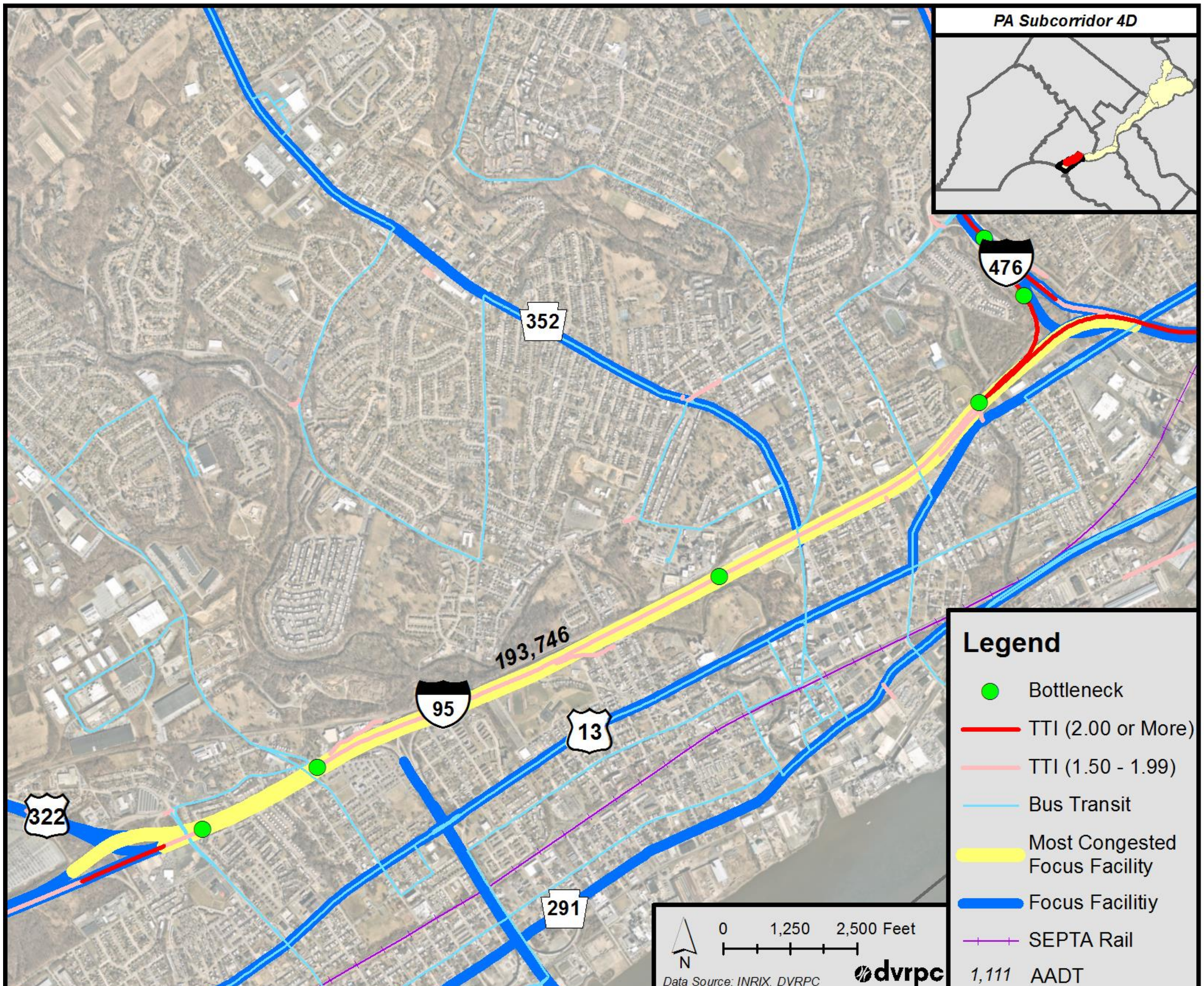
1) *Signal Improvements*
2) Placemaking for Non-motorized Transportation
3) Expanded Parking for Existing Transit Stations (including remote, all modes)
4) Park and Ride Lots
5) Transit-Oriented Development (TOD)
6) Walking and Bicycling Improvements

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	20.9
PT PM Peak Vehicle Delay (sec):	60.5
TT PM Peak Volume Delay (hr):	9:54:45
PT PM Peak Volume Delay (hr):	28:25:04
Level of Travel Time Reliability (mi):	0.17
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	78,732
TDM Forecasted Congestion (mi):	0.00

Additional Factors	
Facility Miles:	5.73
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	2
Traffic Signals:	16
Annual Average Daily Traffic (AADT):	30,874
CMP Objectives Score:	7.91

Recently implemented or partially implemented strategies are listed first and italicized

Figure 36: Facility 31
I-95 from I-476 to US 322, Delaware County, PA



Summary of Conditions
I-95 from I-476 to US 322 in Delaware County is ranked **#93** and **#11** in peak travel time vehicle and volume delay, respectively, and **#69** and **#9** in peak planning time vehicle and volume delay, respectively. I-95 is an interstate limited access roadway that includes three travel lanes in each direction. I-95 passes through the City of Chester and includes on- and off-ramps at various locations, including US 322, Kerlin St, PA 352 (Edgmont Ave), Chestnut St, and I-476. Limited access bottlenecks occur along I-95 southbound at the US 322 westbound on-ramp, the PA 352 on-ramp, and the I-476 on-ramp, and I-95 northbound at the US 322 eastbound on-ramp.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	21.5
PT PM Peak Vehicle Delay (sec):	83.1
TT PM Peak Volume Delay (hr):	56:55:43
PT PM Peak Volume Delay (hr):	218:20:49
Level of Travel Time Reliability (mi):	2.18
Truck Travel Time Reliability Index (mi):	4.79
Peak Hour Excessive Delay (per mi):	24,781
TDM Forecasted Congestion (mi):	5.68

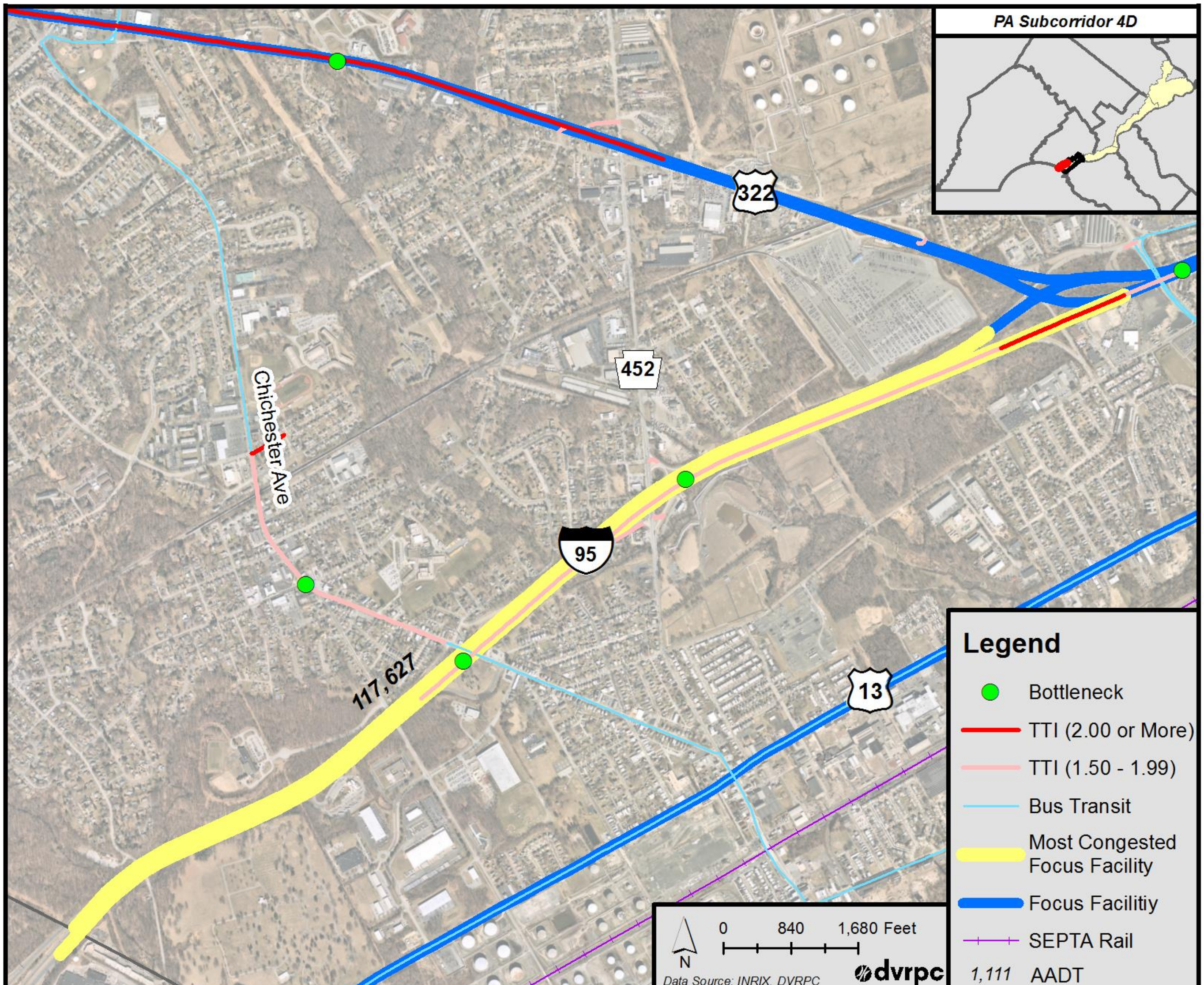
Planned Improvements on 2050 LRP & FY 2023-26 TIP
* 2050 LRP: MRP #130 I-476 Active Traffic Management
* FY 2023-26 TIP: MPMS #104821 I-476 Travel Management;#98207 I-95 Congestion Management; #103556 I-95 ATMS (GR9); #108910 I-95 Noise Abatement; #92182 Expressway Service Patrol

Very Appropriate Strategies
1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Integrated Corridor Management (ICM)
4) Transit Infrastructure Improvements
5) Park and Ride Lots
6) Major Reconstruction with Minor Capacity Additions

Additional Factors	
Facility Miles:	7.59
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	3.70
Transit Route:	No
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	193,746
CMP Objectives Score:	8.42

Recently implemented or partially implemented strategies are listed first and italicized

Figure 37: Facility 32
I-95 from US 322 to PA-DE State Line, Delaware County, PA



Summary of Conditions

I-95 from US 322 to the PA-DE State Line is ranked **#84** and **#15** in peak travel time vehicle and volume delay, respectively, and **#41** and **#12** in peak planning time vehicle and volume delay, respectively. I-95 is an interstate limited access roadway that includes three travel lanes in each direction. I-95 includes on- and off-ramps at various locations, including US 322, PA 452 (Market St), and Chichester Ave. CMP limited access roadway bottlenecks occur on I-95 northbound at the Chichester Ave and PA 452 on-ramps.

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #115 I-95/US 322/Highland Ave Interchange
* FY 2023-26 TIP: MPMS #103556 I-95 ATMS; #98207 I-95 Congestion Management; #15477 I-95/US 322/Conchester Hwy Improv.; #111022 Chichester Ave Corridor Safety Improv.

Very Appropriate Strategies

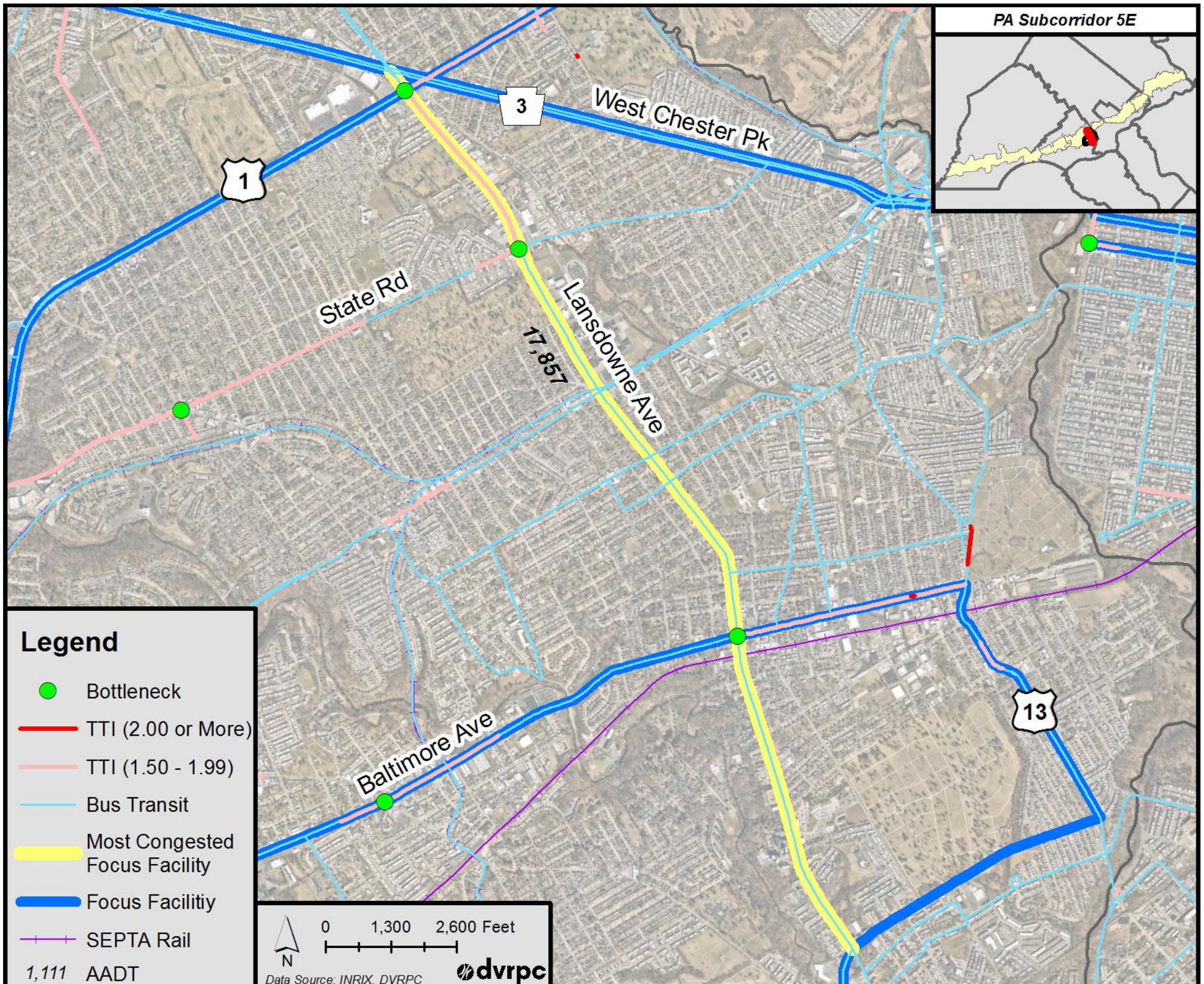
1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Integrated Corridor Management (ICM)
4) Transit Infrastructure Improvements
5) Park and Ride Lots
6) Major Reconstruction with Minor Capacity Additions

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	23.5
PT PM Peak Vehicle Delay (sec):	112.6
TT PM Peak Volume Delay (hr):	36:44:18
PT PM Peak Volume Delay (hr):	170:11:18
Level of Travel Time Reliability (mi):	1.43
Truck Travel Time Reliability Index (mi):	2.98
Peak Hour Excessive Delay (per mi):	23,986
TDM Forecasted Congestion (mi):	2.51

Additional Factors	
Facility Miles:	5.50
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	2.00
Transit Route:	No
Park and Ride:	No
Bottlenecks:	2
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	117,627
CMP Objectives Score:	7.55

Recently implemented or partially implemented strategies are listed first and italicized

Figure 38: Facility 157
Lansdowne Ave from US 13 to PA 3, Delaware County, PA



Summary of Conditions

Lansdowne Ave from US 13 to PA 3 (West Chester Pk) is ranked **#24** and **#53** in peak travel time vehicle and volume delay, respectively, and **#25** and **#62** in peak planning time vehicle and volume delay, respectively. Lansdowne Ave is an undivided principal arterial roadway that includes one travel lane in each direction, and contains many signalized intersections with additional left-turn lanes at major intersection approaches. CMP bottlenecks occur along the corridor at the intersections of Baltimore Ave, State Rd and US 1.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	56.8
PT PM Peak Vehicle Delay (sec):	73.5
TT PM Peak Volume Delay (hr):	13:00:43
PT PM Peak Volume Delay (hr):	15:42:12
Level of Travel Time Reliability (mi):	n/a
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	n/a
TDM Forecasted Congestion (mi):	2.81

Planned Improvements on 2050 LRP & FY 2023-26 TIP

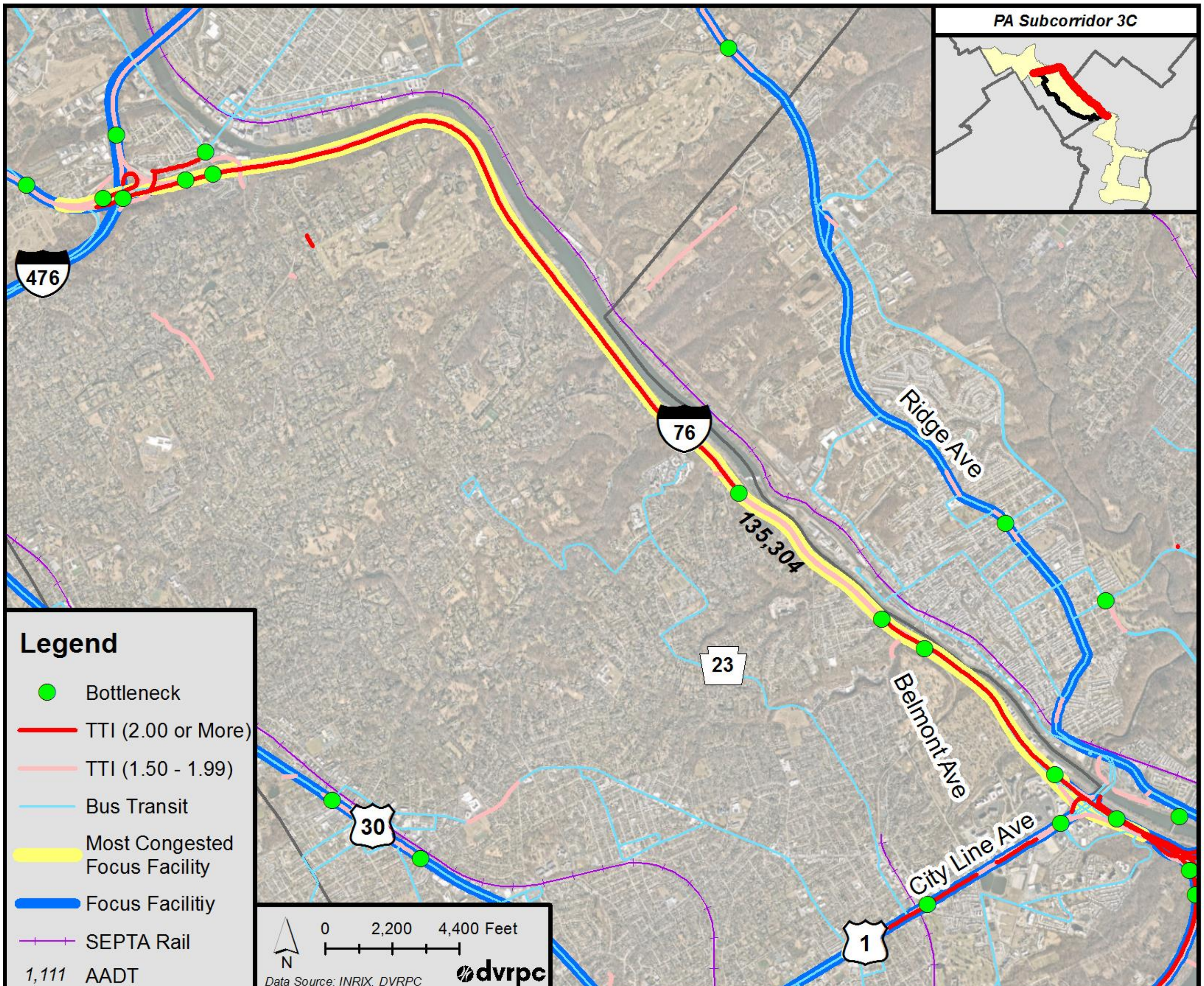
* 2050 LRP: No projects
* FY 2023-26 TIP: MPMS #115427 Lansdowne Ave Corridor Safety Improvements

Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Improve Circulation
4) Transit-Oriented Development (TOD)
5) Modifications to Existing Transit Routes or Services
6) Walking and Bicycling Improvements

Additional Factors	
Facility Miles:	7.59
National Highway System (NHS):	No
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	1.22
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	3
Traffic Signals:	18
Annual Average Daily Traffic (AADT):	17,857
CMP Objectives Score:	5.85

Figure 39: Facility 19
I-76 from US 1 (City Ave) to I-476, Montgomery County, PA



Summary of Conditions

I-76 from US 1 (City Ave) to I-476 in Montgomery County is ranked **#28** and **#7** in peak travel time vehicle and volume delay, respectively, and **#26** and **#8** in peak planning time vehicle and volume delay, respectively. I-76 is an interstate limited access roadway with two lanes in each direction, and includes on- and off-ramps at various locations including US 1 (City Ave), Belmont Ave, Hollow Rd, Matsonford Rd and I-476. Variable Speed Limit devices are operating along the corridor to help improve the flow of traffic and mitigate congestion. The speed limits change based on traffic and safety conditions.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	50.5
PT PM Peak Vehicle Delay (sec):	133.4
TT PM Peak Volume Delay (hr):	88:16:42
PT PM Peak Volume Delay (hr):	229:58:37
Level of Travel Time Reliability (mi):	8.58
Truck Travel Time Reliability Index (mi):	8.73
Peak Hour Excessive Delay (per mi):	180,293
TDM Forecasted Congestion (mi):	17.02

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #132 I-76 ICM; #120 Belmont Ave; #107 PA 23
* FY 2023-26 TIP: MPMS #106662 I-76 ICM; #64795 Belmont Rd/Rock Hill Rd Widening; #111005 Conshohocken Garage; MPMS #91490 - Expressway Service Patrol

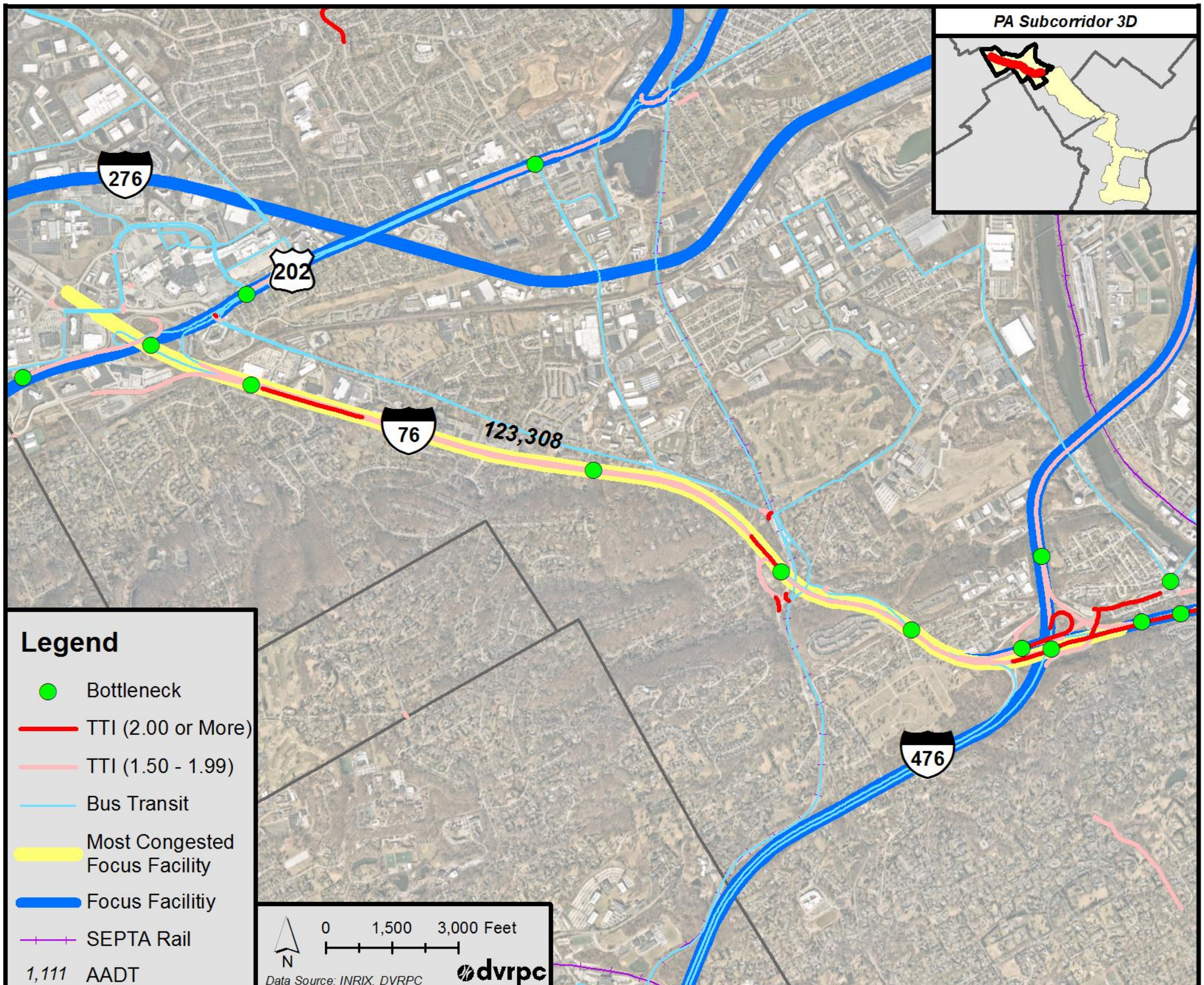
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems*
3) *Integrated Corridor Management (ICM)*
4) *Expanded Parking for Existing Transit Stations (including remote, all modes)*
5) Active Traffic Management and Active Transportation and Demand Management
6) Flex Lanes/Hard Shoulder Running

Additional Factors	
Facility Miles:	16.21
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.27
CMP High Crash Severity (mi):	1.24
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	9
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	135,304
CMP Objectives Score:	8.59

Recently implemented or partially implemented strategies are listed first and italicized

Figure 40: Facility 20
I-76 from I-476 to I-76 PA Turnpike, Montgomery County, PA



Summary of Conditions

I-76 from I-476 to the PA Turnpike in Montgomery County is ranked **#38** and **#10** in peak travel time vehicle and volume delay, respectively, and **#27** and **#10** in peak planning time vehicle and volume delay, respectively. I-76 is an interstate limited access roadway with two lanes in each direction, and includes on- and off-ramps at various locations including I-476 , PA 320 (S Gulf Rd), Henderson Rd, US 202, N Gulf Rd, Mall Blvd, and the PA Turnpike. Variable Speed Limit devices are operating along the corridor to help improve the flow of traffic and mitigate congestion. The speed limits change based on traffic and safety conditions.

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #132 I-76 ICM; #106 I-476 & I-76 ramps; #54 Henderson and S Gulph Rd
* FY 2023-26 TIP: MPMS #106662 I-76 ICM; #48187 Henderson S Gulph Road Widen near I-76 ramps; MPMS #91490 - Expressway Service Patrol

Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems*
3) *Integrated Corridor Management (ICM)*
4) Active Traffic Management and Active Transportation and Demand Management
5) Expanded Parking for Existing Transit Stations (including remote, all modes)
6) Flex Lanes/Hard Shoulder Running

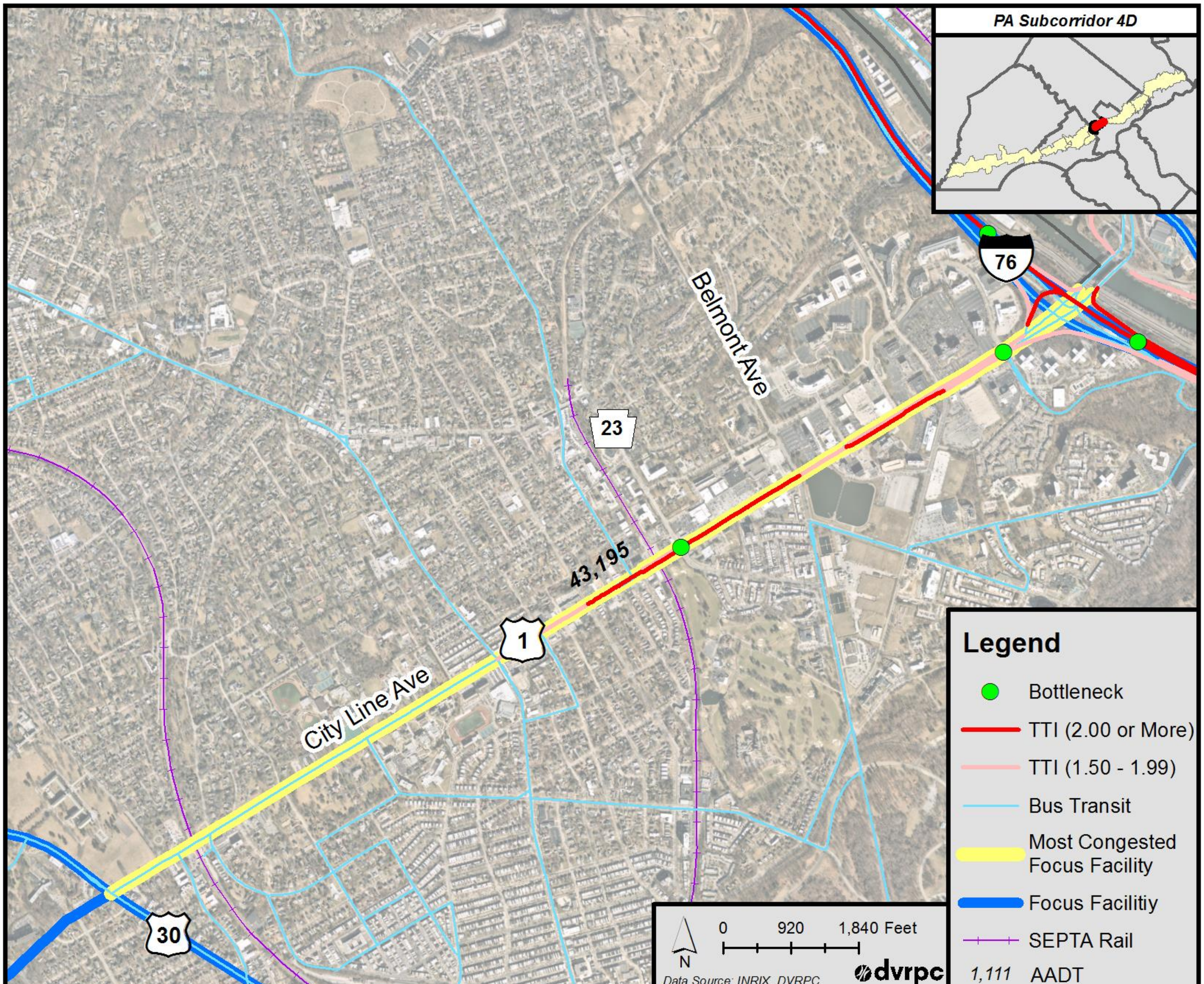
Congestion Measures	
TT PM Peak Vehicle Delay (sec):	41.2
PT PM Peak Vehicle Delay (sec):	132.6
TT PM Peak Volume Delay (hr):	65:37:32
PT PM Peak Volume Delay (hr):	213:02:39
Level of Travel Time Reliability (mi):	5.96
Truck Travel Time Reliability Index (mi):	5.96
Peak Hour Excessive Delay (per mi):	143,573
TDM Forecasted Congestion (mi):	3.21

Additional Factors	
Facility Miles:	8.99
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	1.12
CMP High Crash Severity (mi):	0.57
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	7
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	123,308
CMP Objectives Score:	8.51

Recently implemented or partially implemented strategies are listed first and italicized

Figure 41: Facility 40

US 1 (City Ave) from I-76 to US 30 (Lancaster Ave), Montgomery and Philadelphia Counties, PA

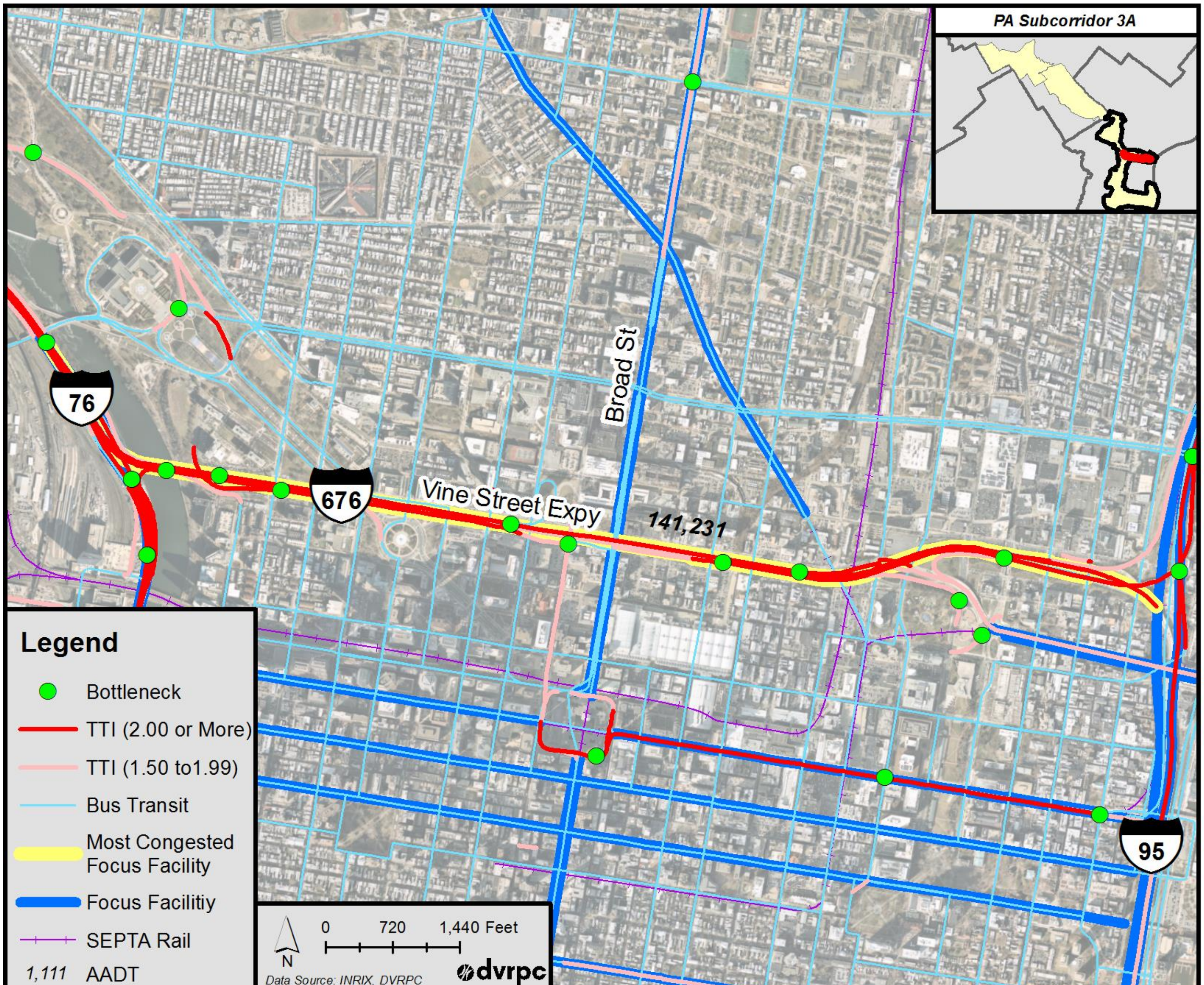


Summary of Conditions	Congestion Measures	
US 1 (City Ave) from I-76 to US 30 (Lancaster Ave) shares a boundary with both the City of Philadelphia and Montgomery County and is ranked **#12** and **#13** in peak travel time vehicle and volume delay, respectively, and **#13** and **#21** in peak planning time vehicle and volume delay, respectively. US 1 is an undivided principal arterial roadway, with largely two travel lanes in each direction with additional left-turn lanes at major intersection approaches. An adaptive signaling system is operating along the corridor to help maximize the efficiency of the roadway. CMP bottlenecks occur at the intersections of PA 23 (Conshohocken State Rd) and Presidential Blvd.	TT PM Peak Vehicle Delay (sec):	75.0
	PT PM Peak Vehicle Delay (sec):	165.1
	TT PM Peak Volume Delay (hr):	40:34:17
	PT PM Peak Volume Delay (hr):	89:44:24
	Level of Travel Time Reliability (mi):	0.71
	Truck Travel Time Reliability Index (mi):	n/a
	Peak Hour Excessive Delay (per mi):	66,257
	TDM Forecasted Congestion (mi):	1.50
Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: No projects	Facility Miles:	5.89
* FY 2023-26 TIP: No projects	National Highway System (NHS):	Yes
	CMP High Crash Frequency (mi):	0.00
Very Appropriate Strategies	CMP High Crash Severity (mi):	1.53
1) *Signal Improvements*	Transit Route:	Yes
2) Enhanced Transit Amenities and Safety	Park and Ride:	No
3) Turning Movement Enhancements	Bottlenecks:	2
4) Improvements to Pedestrian and Bicycle Access to Transit Stations and Bus Stops	Traffic Signals:	17
5) More Frequent Transit or More Hours of Service	Annual Average Daily Traffic (AADT):	43,195
6) Walking and Bicycling Improvements	CMP Objectives Score:	8.69

Recently implemented or partially implemented strategies are listed first and italicized

Figure 42: Facility 117

I-676 (Vine Street Expy) from I-76 to I-95, Philadelphia County, PA



Summary of Conditions

I-676 (Vine Street Expy) from I-76 to I-95 in the City of Philadelphia is ranked **#1** in both peak travel time vehicle and volume delay, and **#1** in both peak planning time vehicle and volume delay. I-676 is an interstate limited access roadway that contains three travel lanes in each direction, and on- and off-ramps at I-95, I-76, Ben Franklin Pkwy, Broad St, 8th St and 6th St/ (Ben Franklin Bridge). Various limited access roadway bottlenecks occur along I-676 at on-ramp merge locations, and along with high traffic volumes, contribute to high traffic congestion in the corridor.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	141.0
PT PM Peak Vehicle Delay (sec):	332.0
TT PM Peak Volume Delay (hr):	252:53:51
PT PM Peak Volume Delay (hr):	593:37:17
Level of Travel Time Reliability (mi):	3.10
Truck Travel Time Reliability Index (mi):	3.81
Peak Hour Excessive Delay (per mi):	100,685
TDM Forecasted Congestion (mi):	1.38

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #193 30th St Station; *#X South Jersey BRT; #192 Vine St Expy Cap*

* FY 2023-26 TIP: MPMS #91490 - Expressway Service Patrol

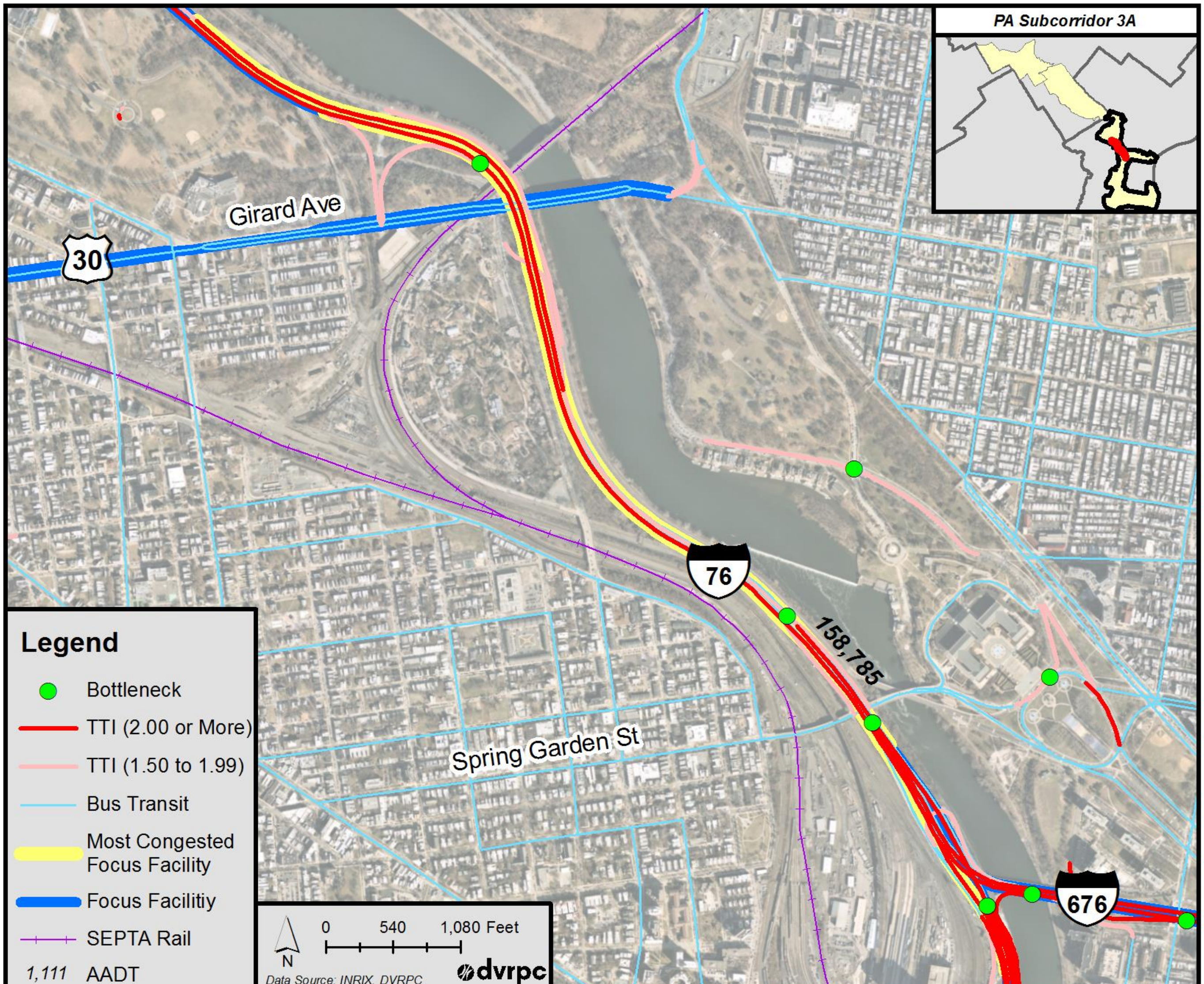
Very Appropriate Strategies

1) *Incident Management*
2) *Travel Information Services*
3) *Integrated Corridor Management (ICM)*
4) *Expanded Parking for Existing Transit Stations (including remote, all modes)*
5) *Transit Infrastructure Improvements*
6) Active Traffic Management and Active Transportation and Demand Management

Additional Factors	
Facility Miles:	4.06
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	2.03
CMP High Crash Severity (mi):	0.95
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	8
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	141,231
CMP Objectives Score:	11.65

Recently implemented or partially implemented strategies are listed first and italicized

Figure 43: Facility 17
I-76 (Schuylkill Expy) from I-676 (Vine Street Expy) to US 30 (Girard Ave), Philadelphia County, PA



Summary of Conditions

I-76 (Schuylkill Expy) from I-676 (Vine Street Expy) to US 30 (Girard Ave) in the City of Philadelphia is ranked **#4** and **#2** in peak travel time vehicle and volume delay, respectively, and **#3** in both peak planning time vehicle and volume delay. I-76 is an interstate limited access roadway that contains three travel lanes in each direction and on- and off-ramps at various locations, including I-676, Spring Garden Street, and Girard Avenue. Limited access roadway bottlenecks occur along I-76 westbound at on-ramp locations at I-676, Spring Garden St, and Schuylkill Ave, and occur along I-76 eastbound at the on-ramp location at Girard Ave.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	103.0
PT PM Peak Vehicle Delay (sec):	332.0
TT PM Peak Volume Delay (hr):	197:19:36
PT PM Peak Volume Delay (hr):	486:36:40
Level of Travel Time Reliability (mi):	2.87
Truck Travel Time Reliability Index (mi):	3.39
Peak Hour Excessive Delay (per mi):	109,569
TDM Forecasted Congestion (mi):	2.77

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP #BO 30th St Station; #204 I-76 Philadelphia Active Traffic Management
* FY 2023-26 TIP: MPMS #91490 - Expressway Service Patrol

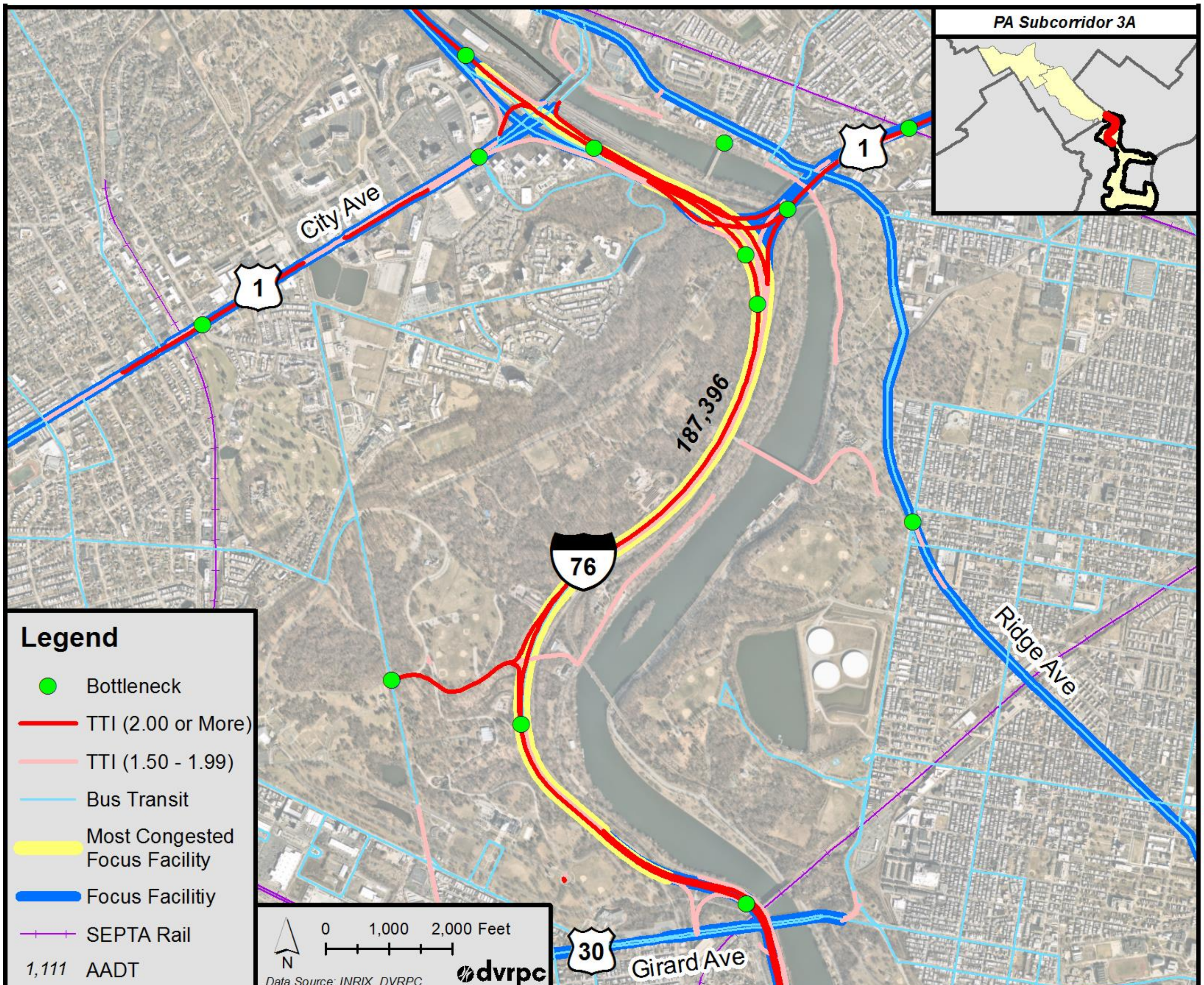
Additional Factors	
Facility Miles:	3.39
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.23
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	158,785
CMP Objectives Score:	10.05

Very Appropriate Strategies

1) *Incident Management*
2) *Travel Information Services*
3) *Integrated Corridor Management (ICM)*
4) *Expanded Parking for Existing Transit Stations (including remote, all modes)*
5) *Transit Infrastructure Improvements*
6) Active Traffic Management and Active Transportation and Demand Management

Recently implemented or partially implemented strategies are listed first and italicized

Figure 44: Facility 18
I-76 from US 30 (Girard Ave) to US 1 (City Ave), Philadelphia County, PA



Summary of Conditions

I-76 (Schuylkill Expy) from US 30 (Girard Ave) to US 1 (City Ave) in the City of Philadelphia is ranked **#8** and **#3** in peak travel time vehicle and volume delay, respectively, and **#2** in both peak planning time vehicle and volume delay. I-76 is an interstate limited access roadway that varies between three to four travel lanes in each direction, and major interchanges are located at US 1 (City Ave), US 1 (Roosevelt Blvd), and US 30 (Girard Ave).

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	82.6
PT PM Peak Vehicle Delay (sec):	261.5
TT PM Peak Volume Delay (hr):	188:03:20
PT PM Peak Volume Delay (hr):	587:51:39
Level of Travel Time Reliability (mi):	3.93
Truck Travel Time Reliability Index (mi):	4.94
Peak Hour Excessive Delay (per mi):	195,571
TDM Forecasted Congestion (mi):	5.82

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: MRP *#204 - I-76 Philadelphia Active Traffic Management*
* FY 2023-26 TIP: MPMS #91490 - Expressway Service Patrol

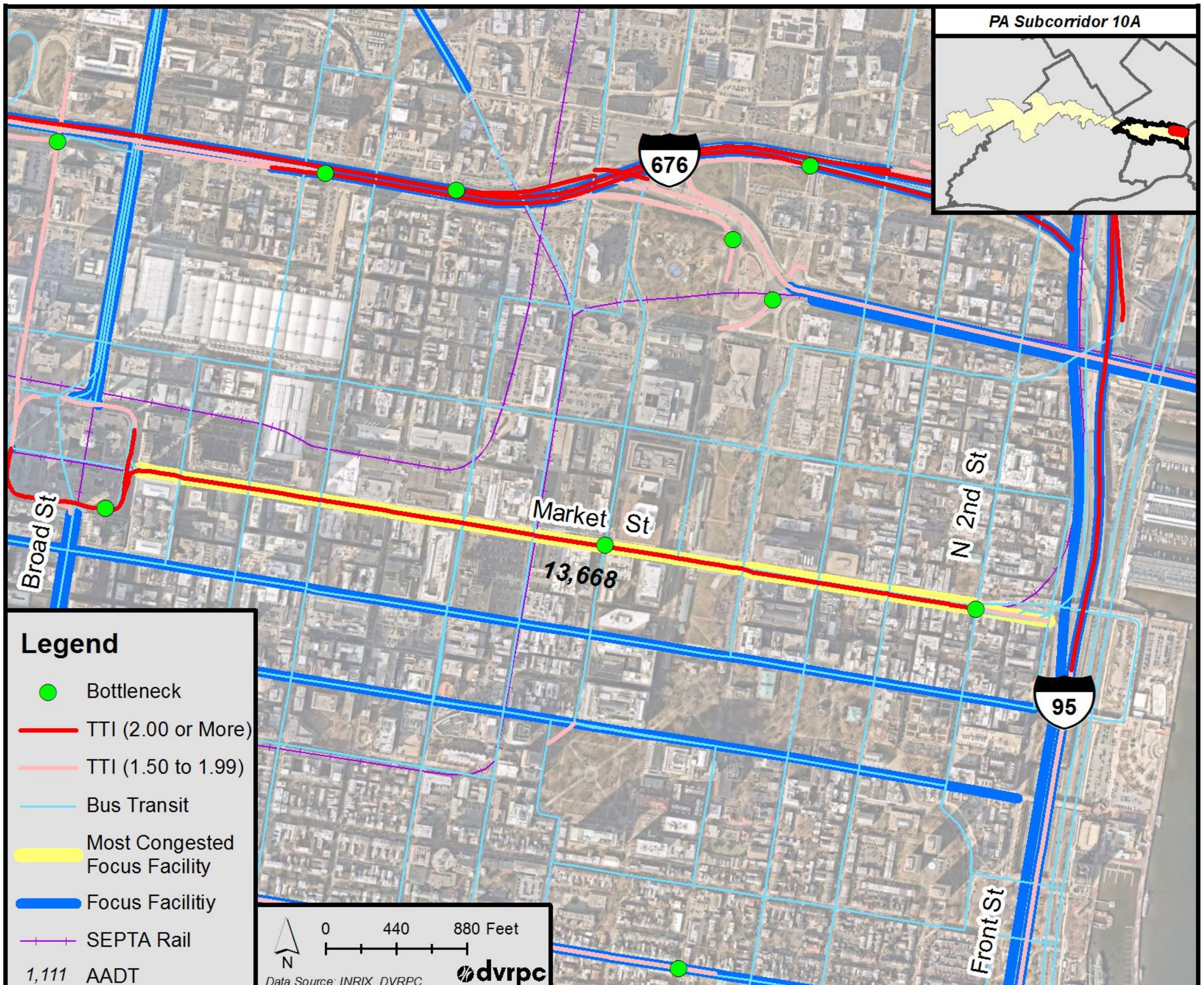
Very Appropriate Strategies

1) *Incident Management*
2) *Integrated Corridor Management (ICM)*
3) *Transit Infrastructure Improvements*
4) *Expanded Parking for Existing Transit Stations (including remote, all modes)*
5) Active Traffic Management and Active Transportation and Demand Management
6) Signal Improvements (at on- and off-ramps)

Additional Factors	
Facility Miles:	5.82
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	2.18
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	187,396
CMP Objectives Score:	9.57

Recently implemented or partially implemented strategies are listed first and italicized

Figure 45: Facility 78
Market St from I-95 (Penn's Landing) to PA 611 (Broad St), Philadelphia County, PA



Summary of Conditions

Market St from I-95 (Penn's Landing) to Broad St in the City of Philadelphia is ranked **#2** and **#22** in peak travel time vehicle and volume delay, respectively, and **#6** and **#45** in peak planning time vehicle and volume delay, respectively. Market St is an undivided principal arterial roadway that generally contains two travel lanes in each direction from 2nd St to Broad St, but separates into one-way, one-lane travel eastbound from 2nd Street to Front Street, and westbound from Penn's Landing Road to 2nd Street. Curb-side parking is available at certain locations along travel lanes. CMP intersection bottlenecks occur at the intersections of 2nd St and 7th St.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	122.5
PT PM Peak Vehicle Delay (sec):	210.6
TT PM Peak Volume Delay (hr):	25:17:01
PT PM Peak Volume Delay (hr):	40:07:54
Level of Travel Time Reliability (mi):	1.44
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	34,979
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2023-26 TIP

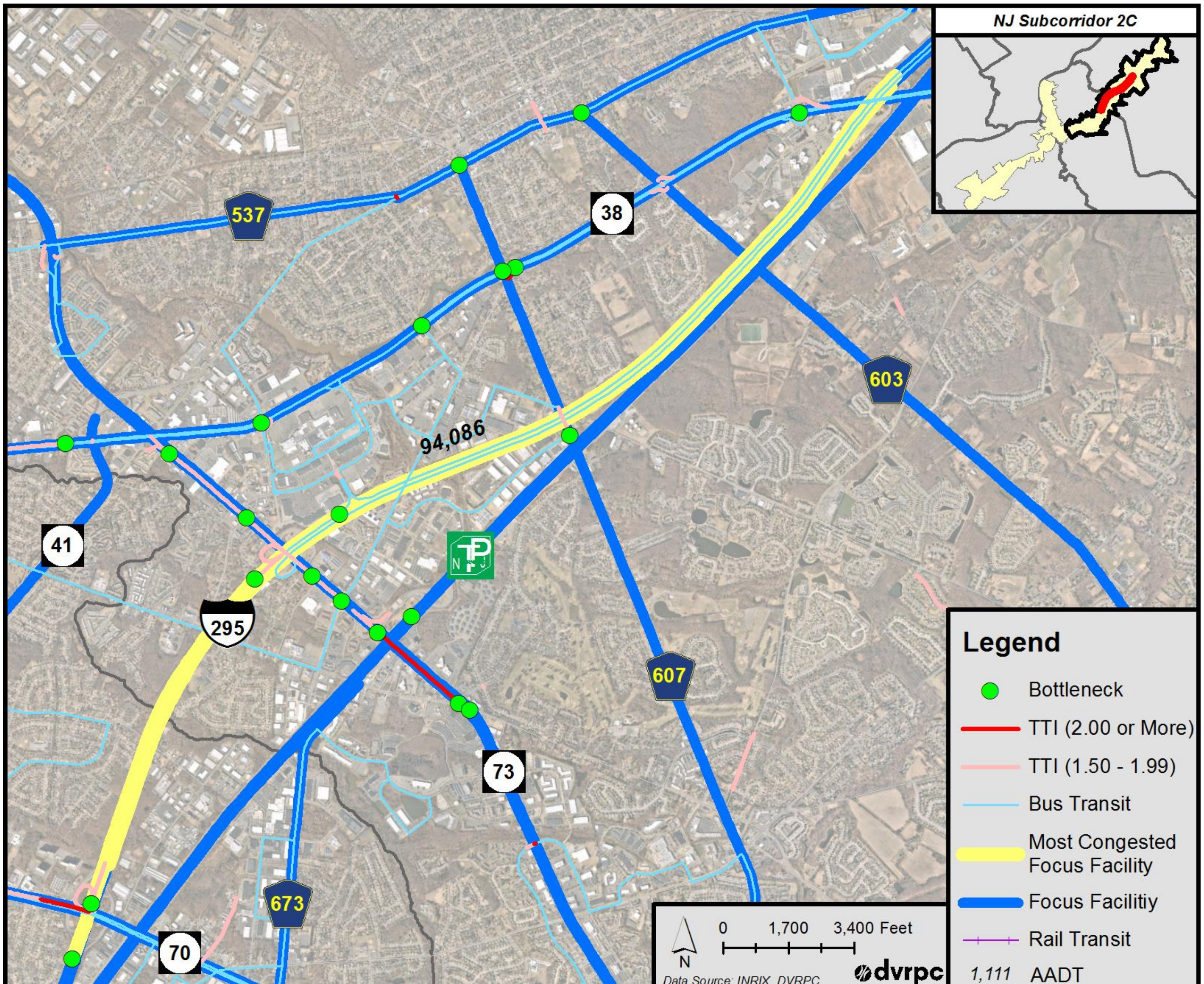
* 2050 LRP: MRP #164 CAP/Waterfront Access; #BO, #BR Concourse Upgrades; *#V Delaware Ave Transit*
* FY 2023-26 TIP: MPMS #106264 - CAP/Waterfront Access

Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Loading and Deliveries
4) Transit-First Policy
5) More Frequent Transit or More Hours of Service
6) Transportation Services for Specific Populations

Additional Factors	
Facility Miles:	2.08
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.25
CMP High Crash Severity (mi):	0.56
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	2
Traffic Signals:	14
Annual Average Daily Traffic (AADT):	13,668
CMP Objectives Score:	9.21

Figure 46: Facility 309
I-295 from NJ 70 (Exit 34) to NJ 38 (Exit 40), Burlington County, NJ



Summary of Conditions

I-295 from NJ 70 to NJ 38 in Burlington County is ranked **#76** and **#15** in peak travel time vehicle and volume delay, respectively, and **#45** and **#5** for peak planning time vehicle and volume delay, respectively. I-295 is an interstate limited access roadway that contains three travel lanes in each direction, plus shoulders in each direction on the left and right sides of the roadway, and includes interchanges at NJ 38, NJ 73, and NJ 70. Various CMP limited access bottlenecks occur along I-295 southbound at the NJ 70 eastbound and westbound on-ramps, NJ 73 southbound on-ramp, and the Nixon Dr on-ramp.

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Park and Ride Lots
4) Major Reconstruction with Minor Capacity Additions
5) Modifications to Existing Transit Routes or Services

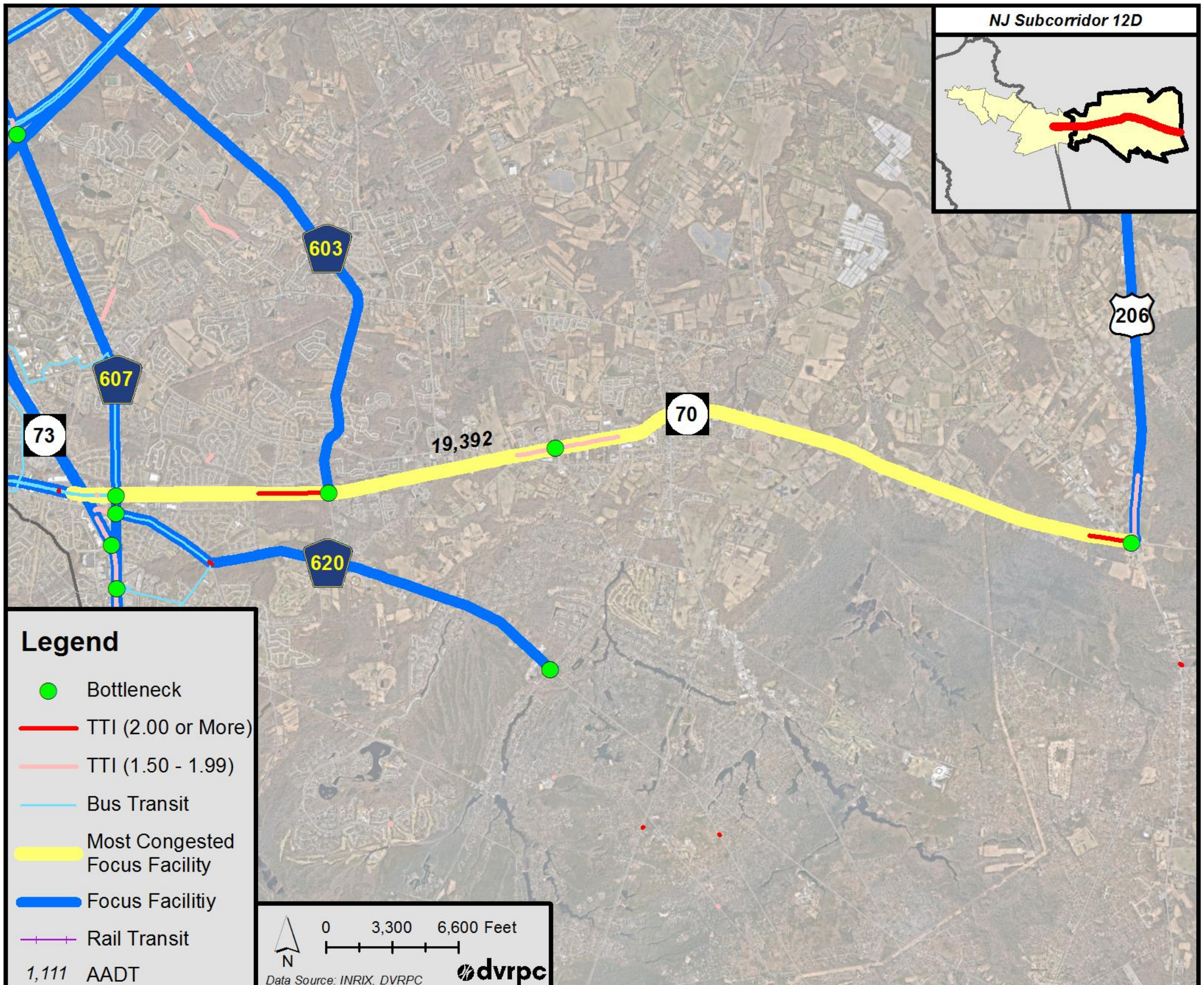
Congestion Measures	
TT PM Peak Vehicle Delay (sec):	8.8
PT PM Peak Vehicle Delay (sec):	48.8
TT PM Peak Volume Delay (hr):	10:35:24
PT PM Peak Volume Delay (hr):	58:25:32
Level of Travel Time Reliability (mi):	0.00
Truck Travel Time Reliability Index (mi):	2.81
Peak Hour Excessive Delay (per mi):	15,910
TDM Forecasted Congestion (mi):	0.00

Additional Factors	
Facility Miles:	11.83
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	94,086
CMP Objectives Score:	4.54

Recently implemented or partially implemented strategies are listed first and italicized

Figure 47: Facility 369

NJ 70 from NJ 73 to US 206, Burlington County, NJ



Summary of Conditions

NJ 70 from NJ 73 to US 206 in Burlington County is ranked **#25** and **#30** in peak travel time vehicle and volume delay, respectively, and **#38** for both peak planning time vehicle and volume delay. NJ 70 is a principal arterial divided roadway with two lanes in each direction from NJ 73 to Elmwood Road, and then undivided with one lane in each direction west to US 206. Bus transit service is provided on a small portion of the corridor from NJ 73 to CR 607. CMP bottlenecks occur along NJ 70 at intersections with CR 607 (Maple Ave), Elmwood Rd, Hartford Rd, and US 206.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	20.97
PT PM Peak Vehicle Delay (sec):	52.5
TT PM Peak Volume Delay (hr):	5:17:59
PT PM Peak Volume Delay (hr):	13:14:26
Level of Travel Time Reliability (mi):	1.38
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	6,581
TDM Forecasted Congestion (mi):	0.74

Planned Improvements on 2050 LRP & FY 2024-27 TIP

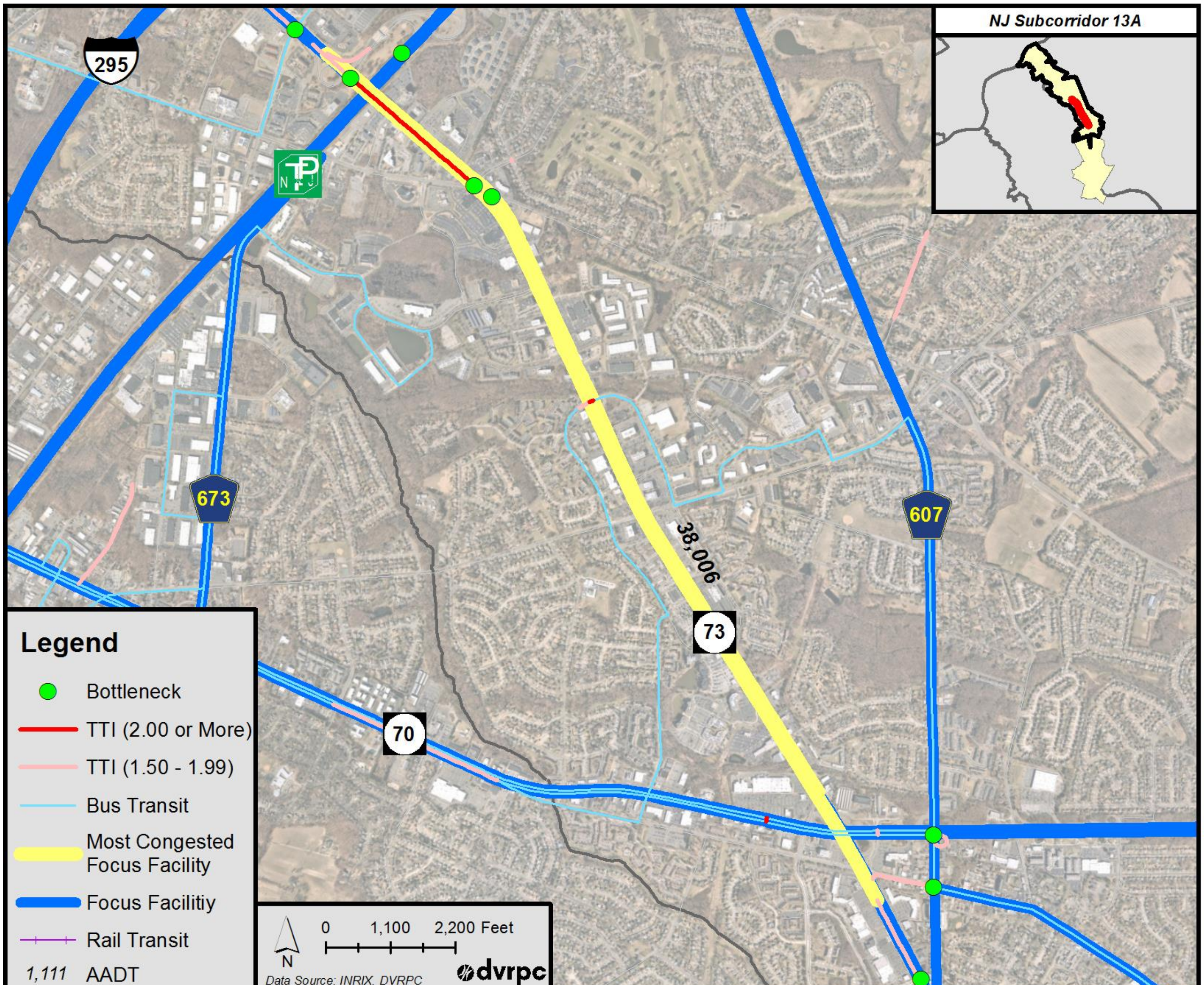
* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Turning Movement Enhancements
4) Transit First Policy
5) Modifications to Existing Transit Routes or Services

Additional Factors	
Facility Miles:	20.40
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	2.45
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	17
Annual Average Daily Traffic (AADT):	19,392
CMP Objectives Score:	2.69

Figure 48: Facility 372
NJ 73 from NJ Turnpike (Exit 4) to NJ 70, Burlington County, NJ



Summary of Conditions

NJ 73 from the NJ Turnpike (Exit 4) to NJ 70 in Burlington County is ranked **#30** and **#11** in peak travel time vehicle and volume delay, respectively, and **#26** and **#15** for peak planning time vehicle and volume delay, respectively. NJ 73 is a divided principal arterial roadway with two lanes in each direction, including wide shoulders. CMP intersection bottlenecks occur along NJ 73 at Church Rd eastbound at Ramblewood Pkwy and Church Rd westbound, and a limited access bottleneck occurs at the New Jersey Turnpike southbound exit to NJ 73 southbound. There is currently no bus transit service on this portion of NJ 73.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	19.36
PT PM Peak Vehicle Delay (sec):	61.6
TT PM Peak Volume Delay (hr):	11:41:26
PT PM Peak Volume Delay (hr):	34:40:53
Level of Travel Time Reliability (mi):	0.00
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	25,302
TDM Forecasted Congestion (mi):	1.90

Planned Improvements on 2050 LRP & FY 2024-27 TIP

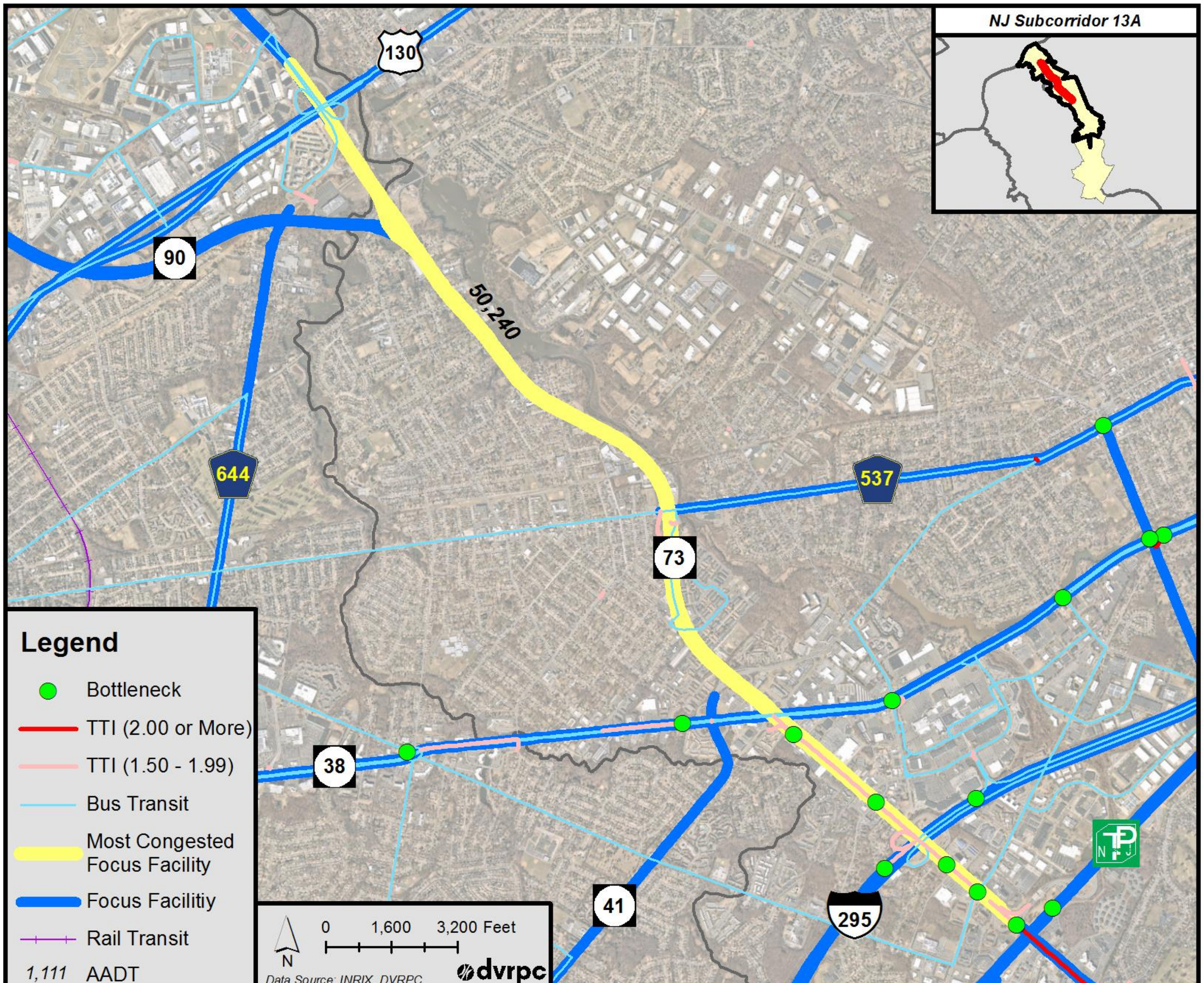
* 2050 LRP: MRP #210 Grade separated interchanges along NJ 73 at Church Rd & Fellowship Rd
* FY 2024-27 TIP: DB #12380 - Route 73, Church Road and Fellowship Road (new capacity)

Very Appropriate Strategies

1) Signal Improvements
2) Modifications to Existing Transit Routes or Services
3) Outreach and Marketing
4) Parking Supply-and-Demand Management
5) Comprehensive Policy Approaches
6) Improve Circulation

Additional Factors	
Facility Miles:	6.07
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.48
Transit Route:	No
Park and Ride:	No
Bottlenecks:	3
Traffic Signals:	7
Annual Average Daily Traffic (AADT):	38,006
CMP Objectives Score:	5.16

Figure 49: Facility 371
NJ 73 from US 130 to NJ Turnpike (Exit 4), Burlington County, NJ



Summary of Conditions

NJ 73 from the NJ Turnpike (Exit 4) to US 130 in Burlington County is ranked **#43** and **#14** in peak travel time vehicle and volume delay, respectively, and **#30** and **#10** for peak planning time vehicle and volume delay, respectively. NJ 73 is a divided principal arterial roadway with generally three lanes of travel in each direction, including wide shoulders at various locations. CMP bottlenecks occur along NJ 73 at the intersections of Collins Rd/Nixon Dr and Fellowship Rd, and limited access bottlenecks occur on NJ 73 southbound at the NJ Turnpike southbound exit, I-295 northbound exit, and NJ 38 eastbound exit. Walking and bicycling improvements are planned as part of DB#18383.

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #210 Grade separated interchanges along NJ 73 at Church Rd & Fellowship Rd
* FY 2024-27 TIP: DB #12380 Route 73, Church Road and Fellowship Road (new capacity); #18383 Route 73, Granite Ave to Route 41

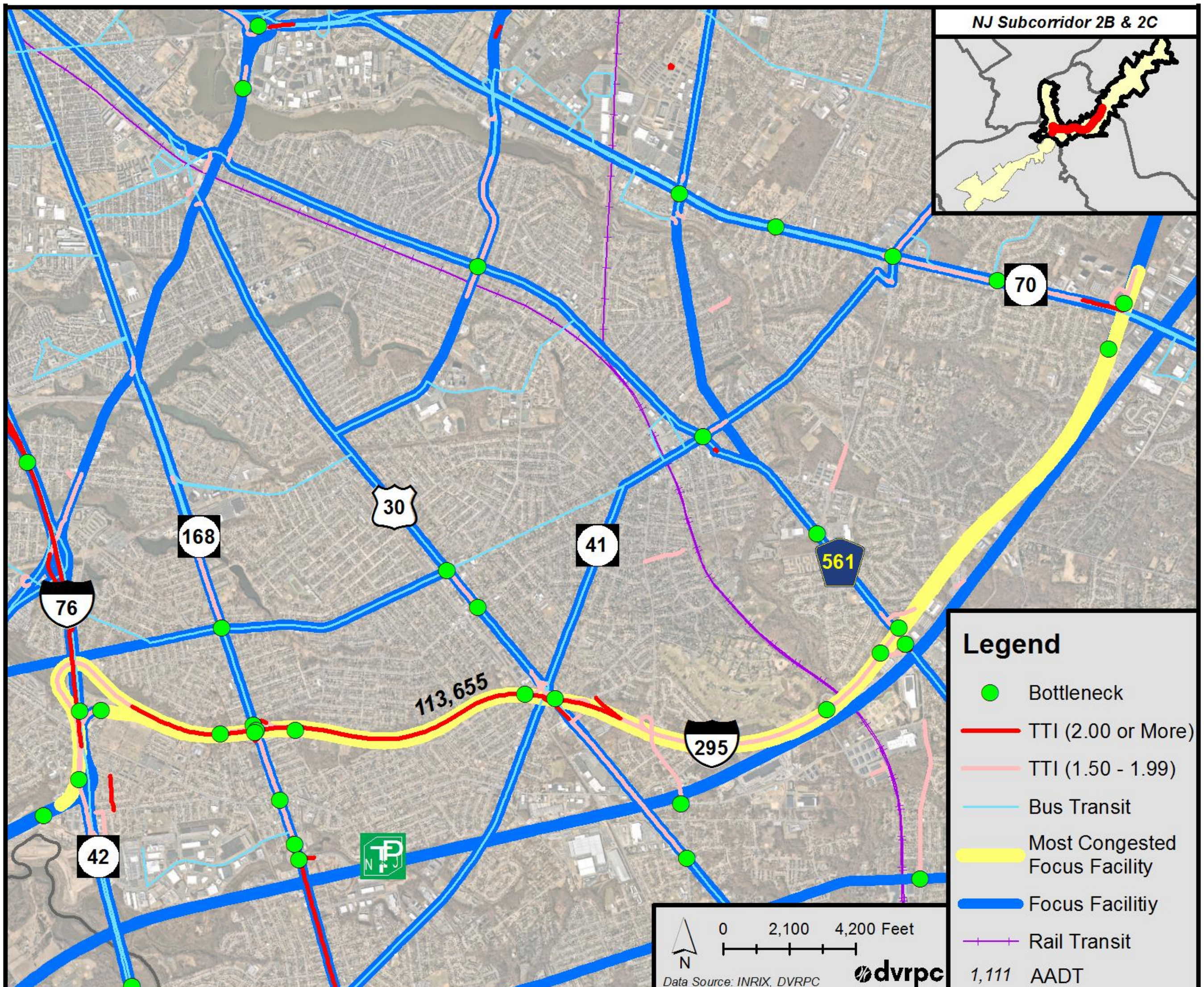
Very Appropriate Strategies

1) Signal Improvements
2) Walking and Bicycling Improvements
3) Modifications to Existing Transit Routes or Services
4) Outreach and Marketing
5) Comprehensive Policy Approaches
6) Improve Circulation

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	14.6
PT PM Peak Vehicle Delay (sec):	60.4
TT PM Peak Volume Delay (hr):	10:36:03
PT PM Peak Volume Delay (hr):	42:56:00
Level of Travel Time Reliability (mi):	0.60
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	5,030
TDM Forecasted Congestion (mi):	2.31

Additional Factors	
Facility Miles:	10.28
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	2.53
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	5
Traffic Signals:	6
Annual Average Daily Traffic (AADT):	50,240
CMP Objectives Score:	4.62

Figure 50: Facility 308
I-295 from NJ 42 to NJ 70, Camden County, NJ



Summary of Conditions

I-295 from NJ 42 (Exit 26) to NJ 70 (Exit 34) in Camden County is ranked **#7** and **#2** in peak travel time vehicle and volume delay, respectively, and **#6** and **#2** in peak planning time vehicle and volume delay, respectively. I-295 is an interstate limited access roadway that contains three travel lanes in each direction with major interchanges at NJ 42, NJ 168, US 30, CR 561 (Haddonfield-Berlin Rd), and NJ 70. Limited access roadway bottlenecks occur at various merge locations onto I-295 and result in traffic congestion.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	31.6
PT PM Peak Vehicle Delay (sec):	93.2
TT PM Peak Volume Delay (hr):	45:46:36
PT PM Peak Volume Delay (hr):	45:46:36
Level of Travel Time Reliability (mi):	4.50
Truck Travel Time Reliability Index (mi):	5.95
Peak Hour Excessive Delay (per mi):	34,520
TDM Forecasted Congestion (mi):	1.35

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #77 - I-295 Direct Connect; *#318 I-295 and NJ 168 interchange*
* FY 2024-27 TIP: DB #355E Route 295/42/I-76 Direct Connect; #X227A2 - Route 168 I-295 Interchange Improvements

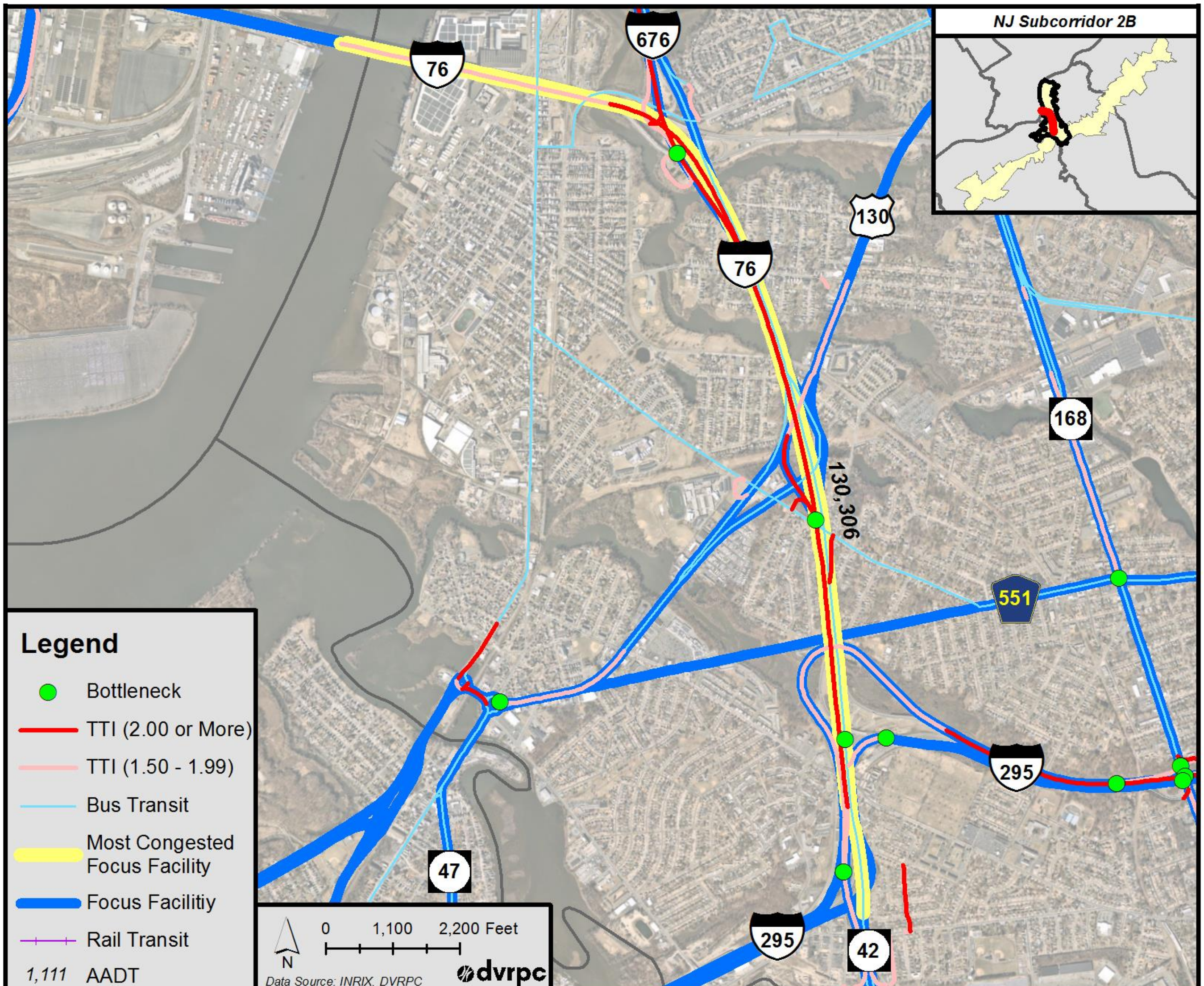
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Integrated Corridor Management (ICM)
4) Park and Ride Lots
5) Modifications to Existing Transit Routes or Services
6) Major Reconstruction with Minor Capacity Additions

Additional Factors	
Facility Miles:	16.38
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	4.55
Transit Route:	No
Park and Ride:	No
Bottlenecks:	12
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	113,655
CMP Objectives Score:	6.08

Recently implemented or partially implemented strategies are listed first and italicized

Figure 51: Facility 328
I-76 from NJ-PA State Line to I-295, Camden County, NJ



Summary of Conditions

I-76 from the NJ-PA State Line to I-295 in Camden County is ranked **#2** and **#1** in peak travel time vehicle and volume delay, respectively, and **#2** and **#1** in peak planning time vehicle and volume delay, respectively. I-76 is an interstate limited access roadway that contains three travel lanes in veach direction from the Walt Whitman Bridge to the I-676 interchange, and then four lanes in each direction from the interchange to I-295. Major interchanges include ones at I-676, US 130, I-295, and NJ 42. Limited access roadway bottlenecks occur along I-76 eastbound at the I-676, US 130 and I-295 southbound on-ramps.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	40.0
PT PM Peak Vehicle Delay (sec):	129.2
TT PM Peak Volume Delay (hr):	66:18:17
PT PM Peak Volume Delay (hr):	205:03:57
Level of Travel Time Reliability (mi):	2.85
Truck Travel Time Reliability Index (mi):	4.41
Peak Hour Excessive Delay (per mi):	22,276
TDM Forecasted Congestion (mi):	1.62

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #77 I-295 Direct Connect; #142 I-76 Reconstruction; *#X - South Jersey BRT*
* FY 2024-27 TIP: DB #11326 Bridge deck replacements; #355E Route 295/42/I-76 Direct Connection (major SOV capacity-adding)

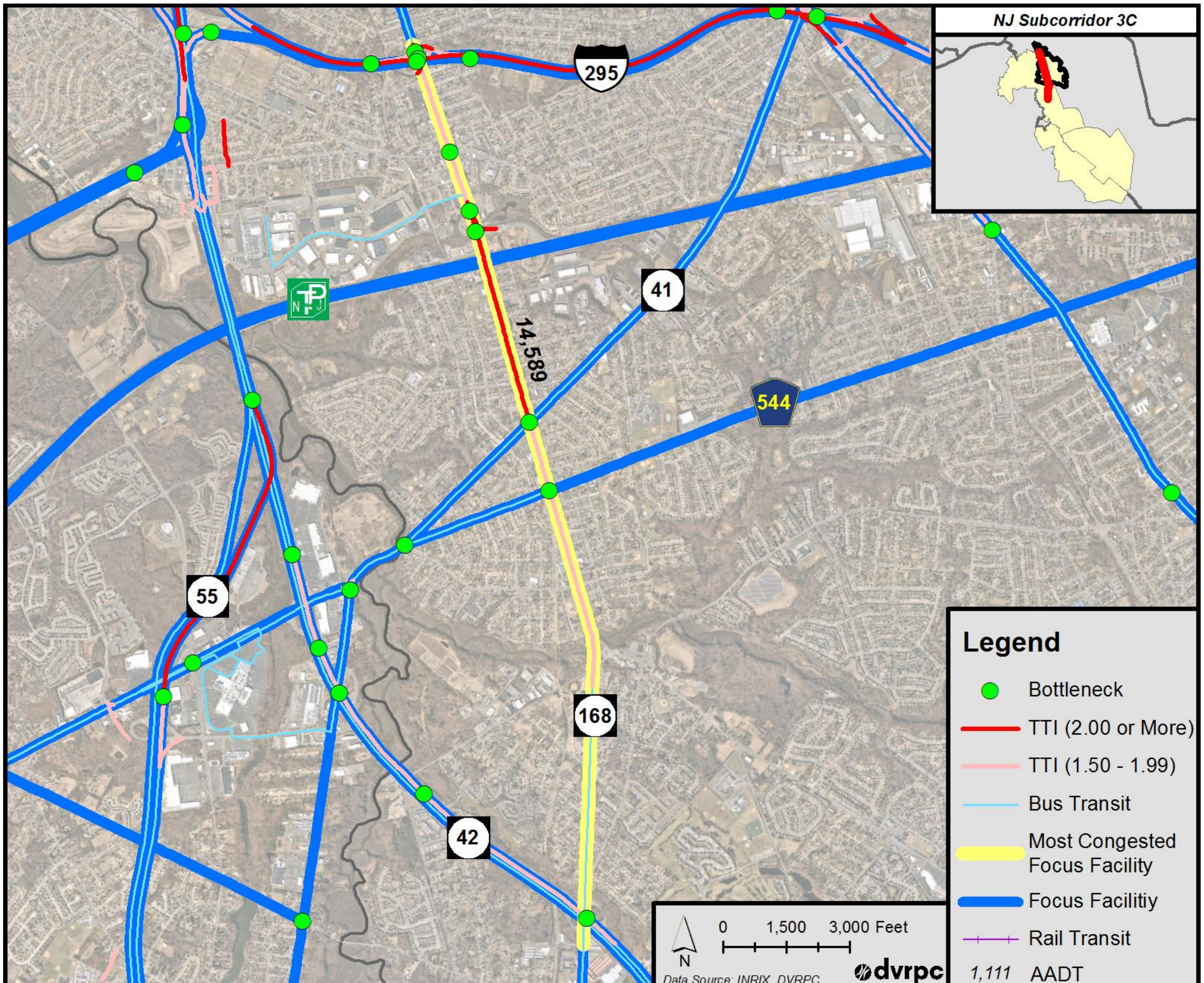
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Integrated Corridor Management (ICM)
4) Modifications to Existing Transit Routes or Services
5) Freight Operations Improvements

Additional Factors	
Facility Miles:	6.87
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	3.21
CMP High Crash Severity (mi):	4.61
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	130,306
CMP Objectives Score:	8.46

Recently implemented or partially implemented strategies are listed first and italicized

Figure 52: Facility 312
NJ 168 (Black Horse Pk) from I-295 to NJ 42, Camden County, NJ



Summary of Conditions

NJ 168 (Black Horse Pk) from I-295 to NJ 42 in Camden County is ranked **#1** and **#13** in peak travel time vehicle and volume delay, respectively, and **#1** and **#17** in peak planning time vehicle and volume delay, respectively. NJ 168 is an undivided principal arterial road wat that contains mostly one travel lane in each direction with a middle turn lane, and dedicated left-turn lanes on major approaches to signalized intersections. The NJ 168 and I-295 junction is being studied to be reconstructed as a Diverging Diamond Interchange to reduce congestion and improve safety (DB #X227A2). Also, an added lane to NJ 168 NB is proposed from the NJ Turnpike to Browning Rd.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	59.6
PT PM Peak Vehicle Delay (sec):	138.7
TT PM Peak Volume Delay (hr):	11:27:02
PT PM Peak Volume Delay (hr):	27:37:55
Level of Travel Time Reliability (mi):	2.52
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	20,167
TDM Forecasted Congestion (mi):	2.06

Planned Improvements on 2050 LRP & FY 2024-27 TIP

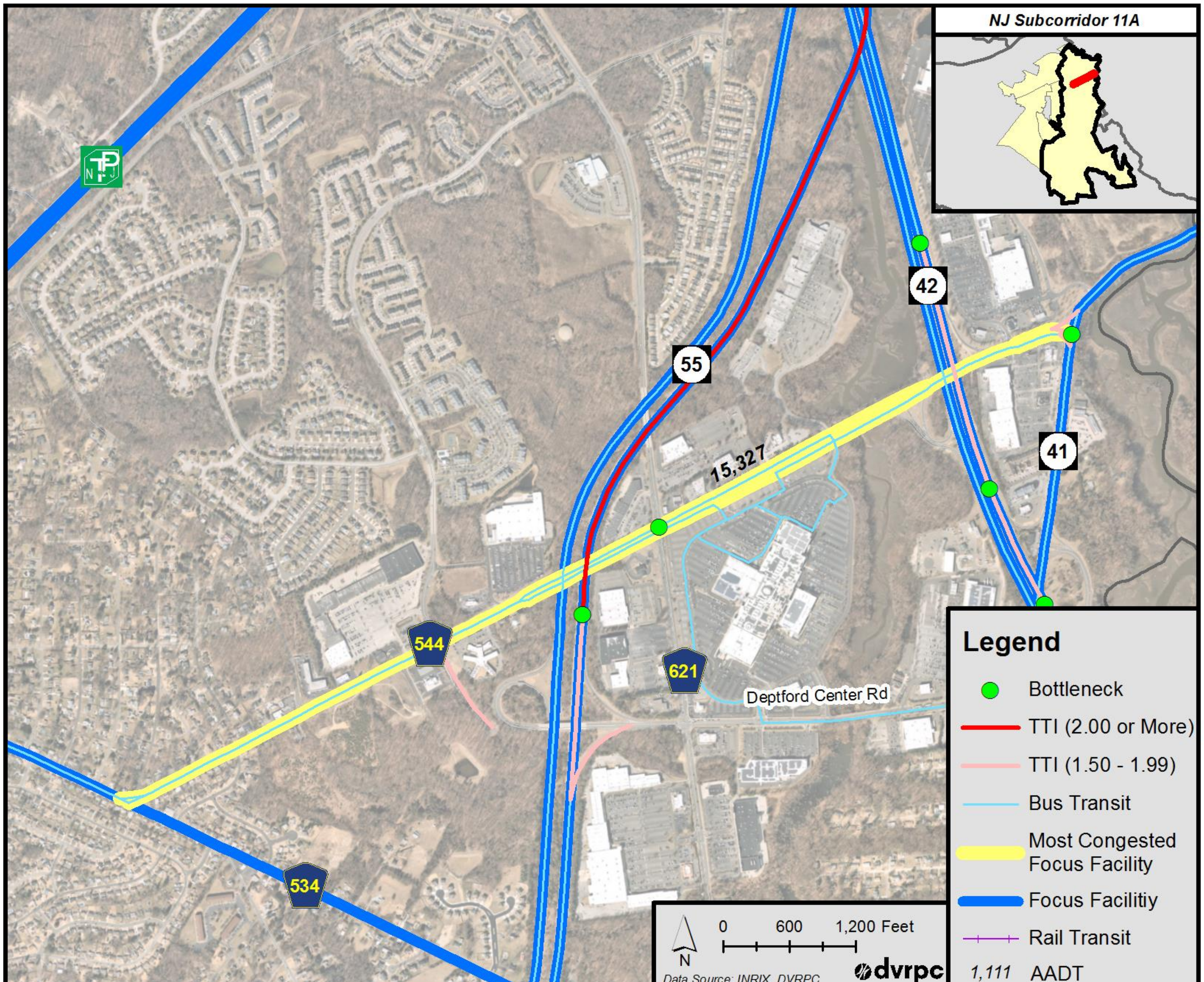
* 2050 LRP: MRP *#318 I-295 and Route 168 Interchange*
* FY 2024-27 TIP: DB #X227A2 Route 168, I-295 Interchange Improvements

Very Appropriate Strategies

1) Signal Improvements
2) Turning Movement Enhancements
3) Context-Sensitive Design
4) Transit Infrastructure Improvements
5) Transit-First Policy
6) Modifications to Existing Transit Routes or Services

Additional Factors	
Facility Miles:	7.97
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.87
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	9
Traffic Signals:	10
Annual Average Daily Traffic (AADT):	14,589
CMP Objectives Score:	6.12

Figure 53: Facility 426
CR 544 from NJ 41 to CR 534, Gloucester County, NJ



Summary of Conditions

CR 544 (Clements Bridge Rd) from CR 534 (Cooper St) to NJ 41 in Gloucester County is ranked **#12** and **#25** in peak travel time vehicle and volume delay, respectively, and **#10** and **#29** in peak planning time vehicle and volume delay, respectively. CR 534 is a principal arterial roadway that is undivided with one travel lane in each direction and a center turn lane west of NJ 55, and divided with two travel lanes in each direction and dedicated left-turns on major approaches to signalized intersections east of NJ 55 to NJ 41. CMP intersection bottlenecks occur along CR 544 at CR 621 (Almonesson Rd) and NJ 41 (Hurffville Rd).

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

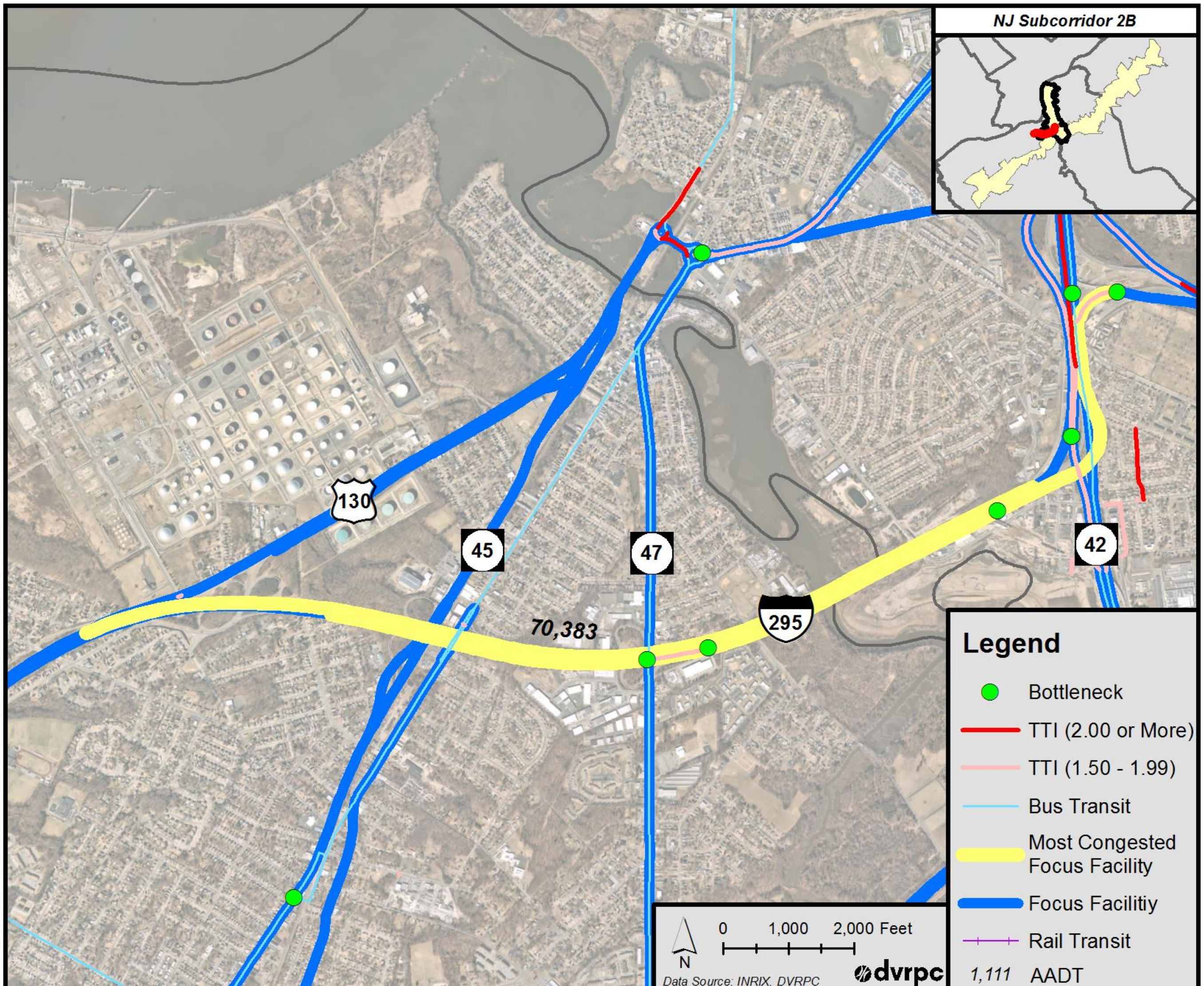
Very Appropriate Strategies

1) Turning Movement Enhancements
2) Signal Improvements
3) Encourage use of Transit Services and TDM Programs
4) Modifications to Existing Transit Routes or Services
5) Transit Infrastructure Improvements

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	26.3
PT PM Peak Vehicle Delay (sec):	78.0
TT PM Peak Volume Delay (hr):	5:46:33
PT PM Peak Volume Delay (hr):	16:40:51
Level of Travel Time Reliability (mi):	0.26
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	21,336
TDM Forecasted Congestion (mi):	0.56

Additional Factors	
Facility Miles:	3.67
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	2.18
CMP High Crash Severity (mi):	0.47
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	2
Traffic Signals:	8
Annual Average Daily Traffic (AADT):	15,327
CMP Objectives Score:	5.02

Figure 54: Facility 307
I-295 from US 130 to NJ 42, Gloucester County, NJ



Summary of Conditions
I-295 from US 130 to NJ 42 (Exit 26) in Gloucester County is ranked **#67** and **#19** in peak travel time vehicle and volume delay, respectively, and **#18** and **#3** in peak planning time vehicle and volume delay, respectively. I-295 is an interstate limited access roadway that contains three travel lanes in each direction with major interchanges at NJ 42, NJ 47, NJ 45, and US 130. I-295 is being reconstructed as part of the Direct Connect TIP FY 2024-27 project (DB#355E) and the "Missing Moves" TIP FY 2022-2025 project (DB#355A), which provides a new connection from I-295 EB to NJ 42 SB, and the NJ 55 NB ramp to NJ 42 WB will be widened to two lanes.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	10.2
PT PM Peak Vehicle Delay (sec):	68.4
TT PM Peak Volume Delay (hr):	9:11:48
PT PM Peak Volume Delay (hr):	65:51:51
Level of Travel Time Reliability (mi):	0.00
Truck Travel Time Reliability Index (mi):	1.56
Peak Hour Excessive Delay (per mi):	13,236
TDM Forecasted Congestion (mi):	0.58

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #77 I-295 Direct Connect; #75 I-295 at NJ 42 Missing Moves
* FY 2024-27 TIP: DB #355E Route 295/42/I-76 Direct Connect, #18313 Route 42 SB, Leaf Avenue Extension to Creek Rd (CR 753)

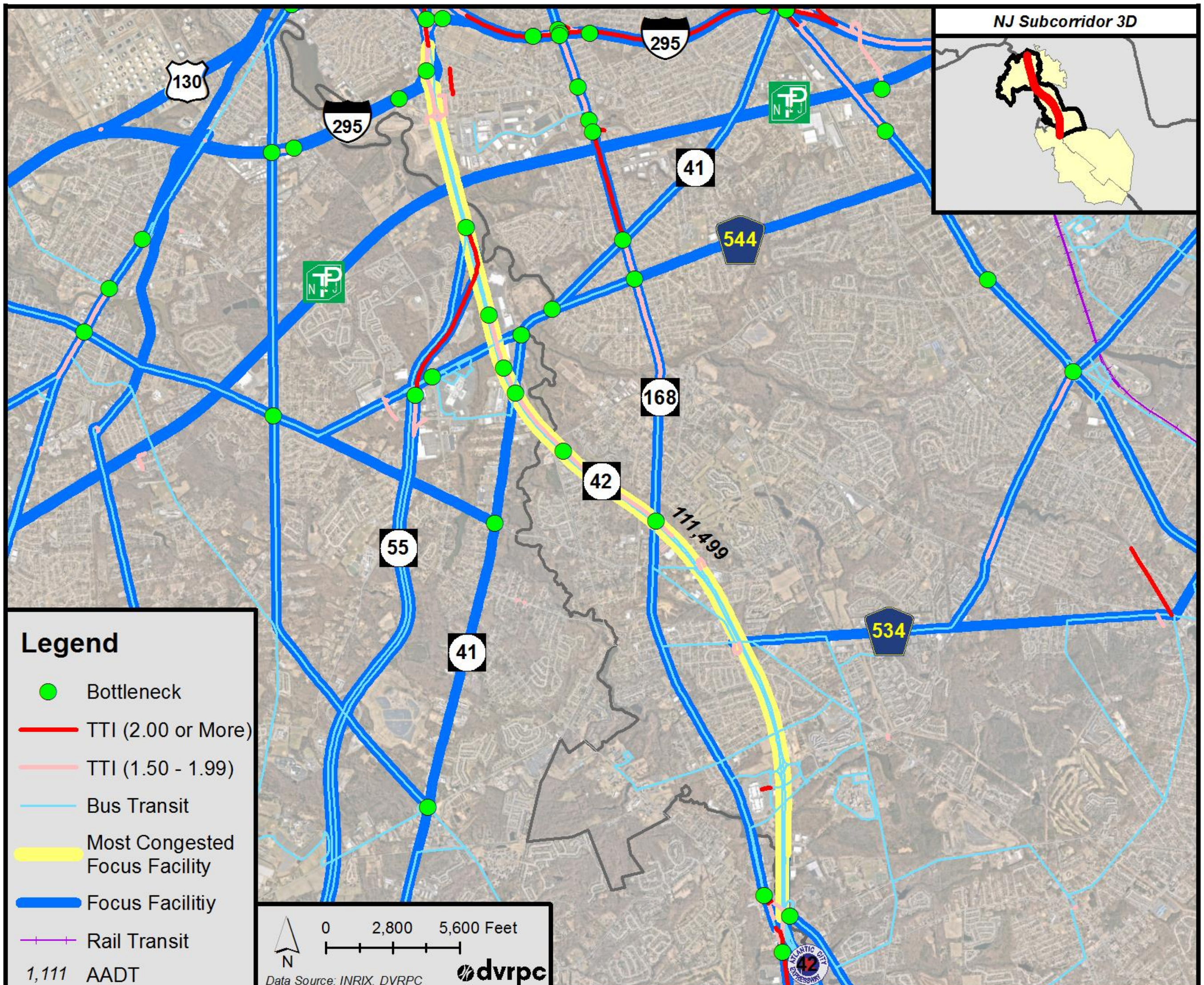
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Integrated Corridor Management (ICM)
4) Park and Ride Lots
5) Modifications to Existing Transit Routes or Services
6) Major Reconstruction with Minor Capacity Additions

Additional Factors	
Facility Miles:	5.79
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.88
CMP High Crash Severity (mi):	0.79
Transit Route:	No
Park and Ride:	No
Bottlenecks:	4
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	70,383
CMP Objectives Score:	5.52

Recently implemented or partially implemented strategies are listed first and italicized

Figure 55: Facility 311
NJ 42 from AC Expressway to I-295, Camden and Gloucester Counties, NJ



Summary of Conditions

NJ 42 from the AC Expressway to I-295 in Camden and Gloucester Counties is ranked **#59** and **#6** in peak travel time vehicle and volume delay, respectively, and **#28** and **#4** in peak planning time vehicle and volume delay, respectively. NJ 42 is a limited access divided roadway with three travel lanes in each direction and numerous on- and off-ramps, including several CMP limited access roadway bottlenecks. Improvements planned for NJ 42 to help mitigate congestion include a new connection from I-295 EB to NJ 42 SB, and widening the on-ramp from NJ 55 NB to NJ 42 WB to two lanes (DB #355A FY 2022-2025). Other improvements include the Direct Connect (DB #11326).

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	27.9
PT PM Peak Vehicle Delay (sec):	60.5
TT PM Peak Volume Delay (hr):	14:00:09
PT PM Peak Volume Delay (hr):	52:38:53
Level of Travel Time Reliability (mi):	0.60
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	8,929
TDM Forecasted Congestion (mi):	1.91

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #75 I-295 at NJ 42 Missing Moves; #77 I-295 Direct Connect; *#X South Jersey BRT*
* FY 2024-27 TIP: DB #11326 Route 295/42/I-76 Direct Connection (major SOV capacity-adding); #18313 Route 42 SB, Leaf Avenue Extension to Creek Rd (CR 753)

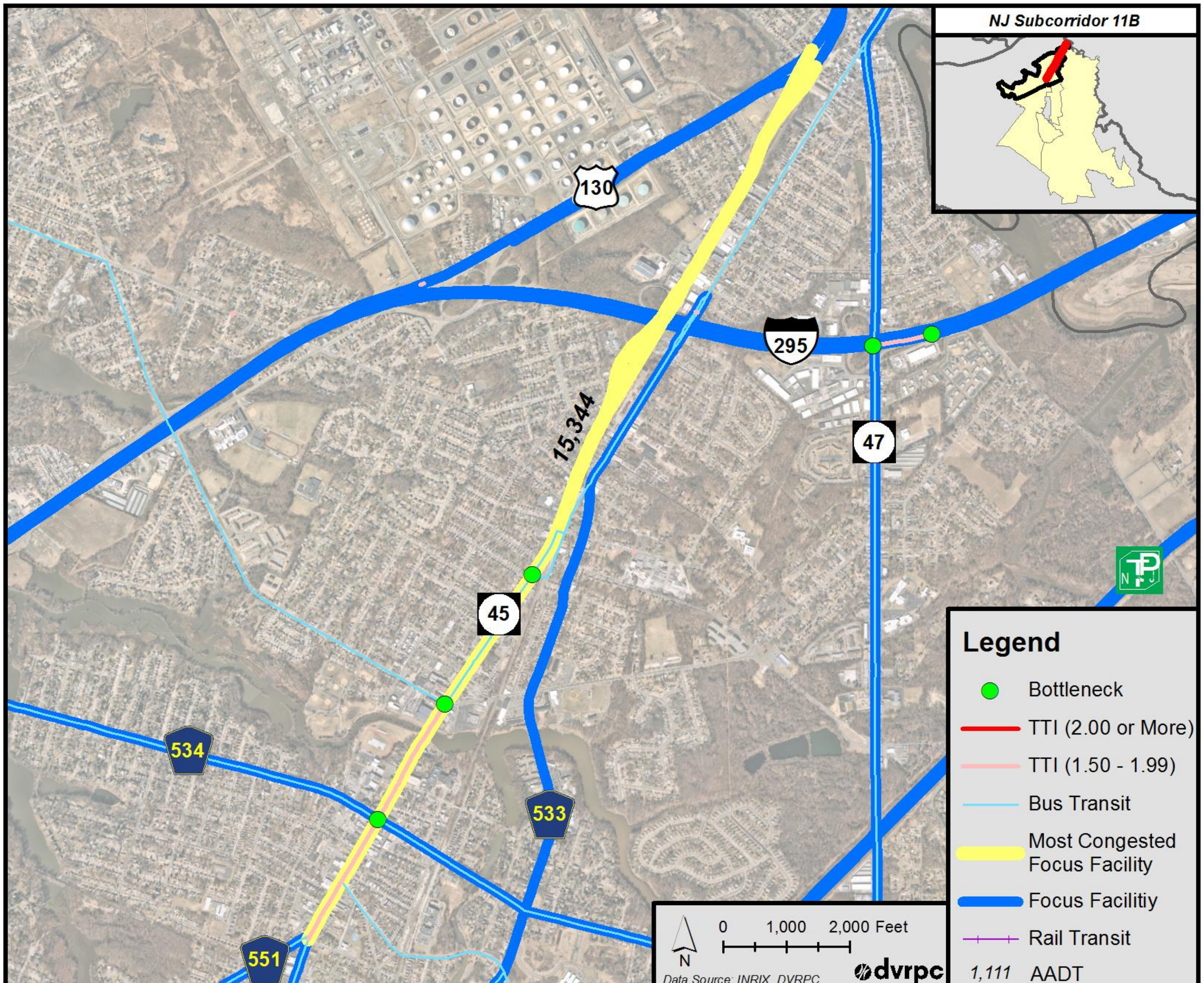
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Transit Infrastructure Improvements
4) Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes
5) Modifications to Existing Transit Routes or Services

Additional Factors	
Facility Miles:	14.78
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	8.63
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	6
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	111,499
CMP Objectives Score:	5.47

Recently implemented or partially implemented strategies are listed first and italicized

Figure 56: Facility 360
NJ 45 from US 130 to CR 551 (Kings Hwy), Gloucester County, NJ



Summary of Conditions

NJ 45 from US 130 to CR 551 (Kings Hwy) in Gloucester County is ranked **#10** and **#32** in peak travel time vehicle and volume delay, respectively, and **#15** and **#42** in peak planning time vehicle and volume delay, respectively. NJ 45 is an undivided principal arterial roadway that contains one travel lane in each direction through Woodbury City, including bike lanes in each lane direction. North of I-295, NJ 45 changes to two lanes in each direction where it then connects to US 130. CMP intersection bottlenecks occur along NJ 45 at CR 534 (Cooper St), CR 644 (Red Bank Ave), and CR 551 (Edith Ave).

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP *#T Glassboro-Camden Line*
* FY 2024-27 TIP: No projects

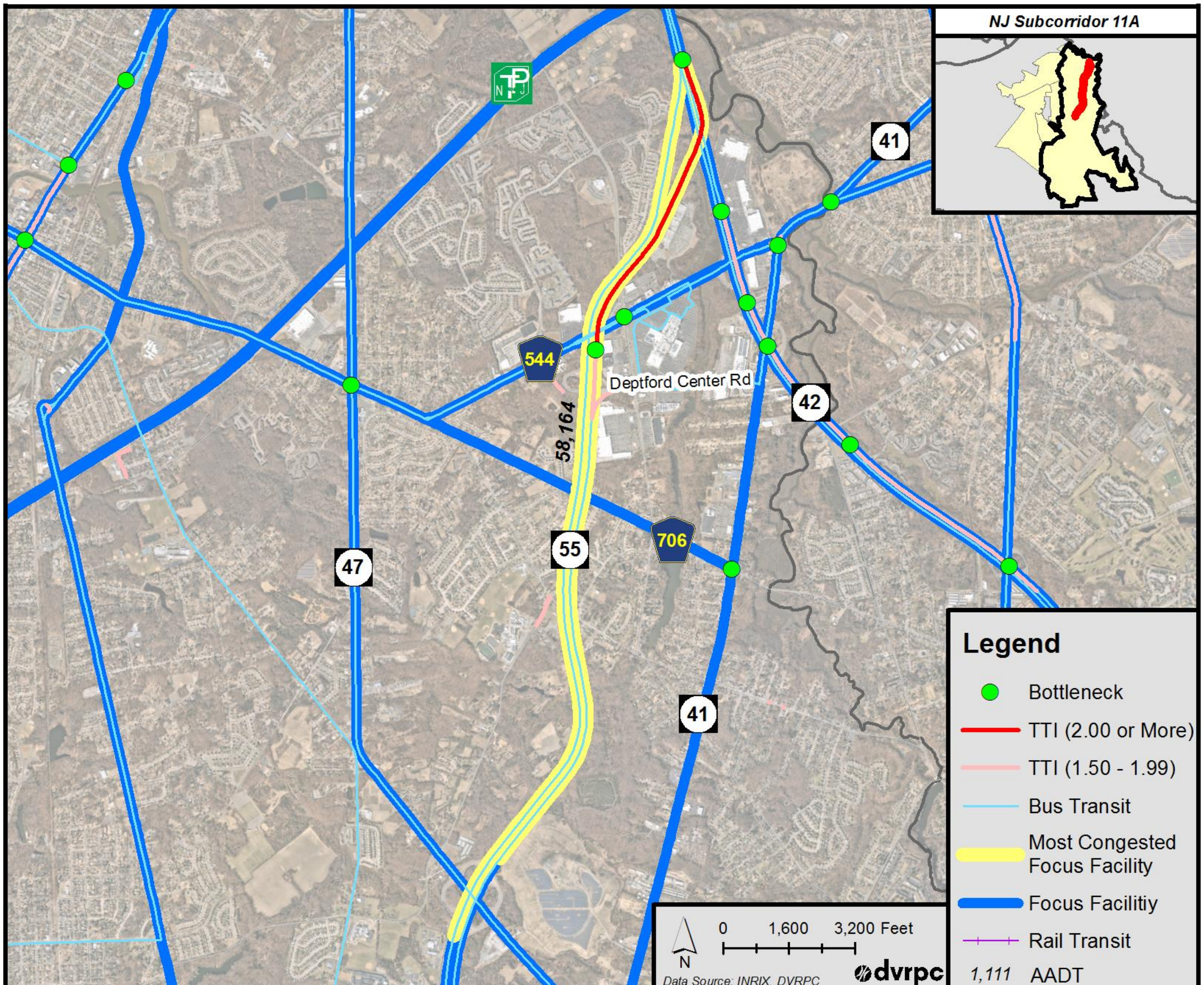
Very Appropriate Strategies

1) Signal Improvements
2) Improve Circulation
3) Economic Redevelopment-Oriented Transportation Policies
4) Transit-Oriented Development (TOD)
5) Modifications to Existing Transit Routes or Services

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	27.9
PT PM Peak Vehicle Delay (sec):	71.1
TT PM Peak Volume Delay (hr):	5:03:54
PT PM Peak Volume Delay (hr):	12:35:30
Level of Travel Time Reliability (mi):	0.52
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	9,033
TDM Forecasted Congestion (mi):	1.53

Additional Factors	
Facility Miles:	6.13
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	1.64
CMP High Crash Severity (mi):	1.64
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	3
Traffic Signals:	10
Annual Average Daily Traffic (AADT):	15,344
CMP Objectives Score:	5.55

Figure 57: Facility 358
NJ 55 from NJ 42 to NJ 47, Gloucester County, NJ



Summary of Conditions

NJ 55 from NJ 47 to NJ 42 in Gloucester County is ranked **#28** and **#8** in peak travel time vehicle and volume delay, respectively, and **#24** and **#12** in peak planning time vehicle and volume delay, respectively. NJ 55 is a divided limited access freeway with two travel lanes in each direction and on- and off-ramps at NJ 47, Deptford Center Rd, and NJ 47. The NJ 55 NB ramp to NJ 42 WB will be widened to two lanes as part of the "Missing Moves" FY 2022-25 TIP project (DB# 355A) , which also provides a new connection from I-295 EB to NJ 42 SB. CMP limited access roadway bottlenecks occur along NJ 55 NB at the Deptford Center Rd on-ramp and the NJ 42 NB merge.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	19.7
PT PM Peak Vehicle Delay (sec):	65.4
TT PM Peak Volume Delay (hr):	12:35:23
PT PM Peak Volume Delay (hr):	39:31:11
Level of Travel Time Reliability (mi):	1.00
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	36,780
TDM Forecasted Congestion (mi):	3.69

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #77 I-295 Direct Connect; *#X South Jersey BRT*
* FY 2024-27 TIP: DB #11326 Route 295/42/I-76 Direct Connection (major SOV capacity-adding)

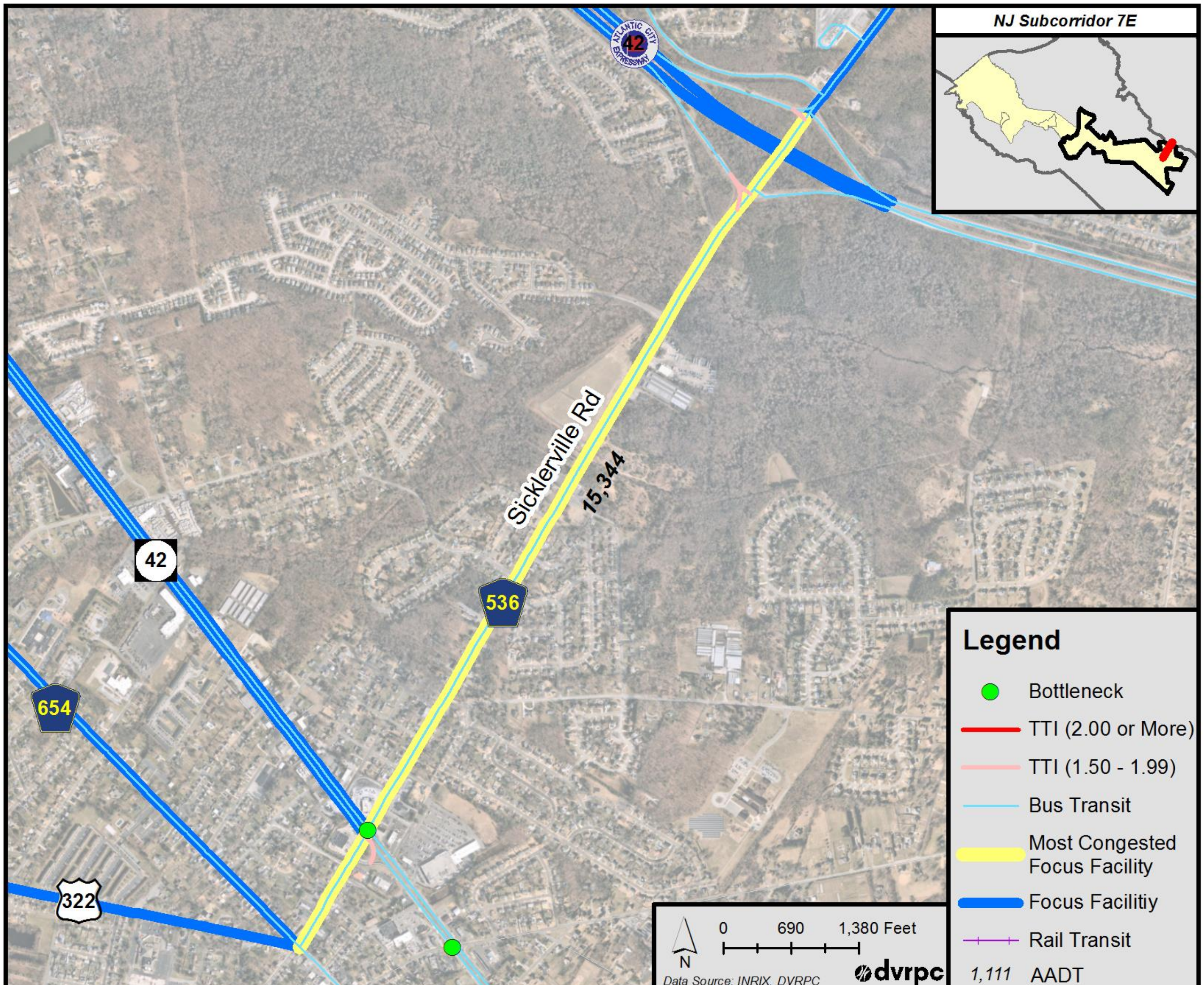
Very Appropriate Strategies

1) *Incident Management*
2) *Intelligent Transportation Systems (ITS)*
3) Transit Infrastructure Improvements
4) Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes
5) Modifications to Existing Transit Routes or Services

Additional Factors	
Facility Miles:	19.65
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	7.25
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	2
Traffic Signals:	n/a
Annual Average Daily Traffic (AADT):	58,164
CMP Objectives Score:	6.18

Recently implemented or partially implemented strategies are listed first and italicized

Figure 58: Facility 428
US 322/CR 536 from CR 536/CR 654 (Main St) to AC Expressway, Gloucester County, NJ



Summary of Conditions

US 322/CR 536 Spur (Sicklerville Rd) from CR 536/CR 654 (Main St) to the AC Expressway in Gloucester County is ranked **#6** and **#24** in peak travel time vehicle and volume delay, respectively, and **#3** and **#23** in peak planning time vehicle and volume delay, respectively. Sicklerville Rd is an undivided principal arterial roadway that contains one travel lane in each direction and passes through the unincorporated community of Williamstown. Major intersections along Sicklerville Rd include US 322, CR 654, and NJ 42, which is also a CMP bottleneck. Sicklerville Rd also includes intersections at the AC Expressway interchange on- and off-ramps.

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP *#X South Jersey BRT*
* FY 2024-27 TIP: No projects

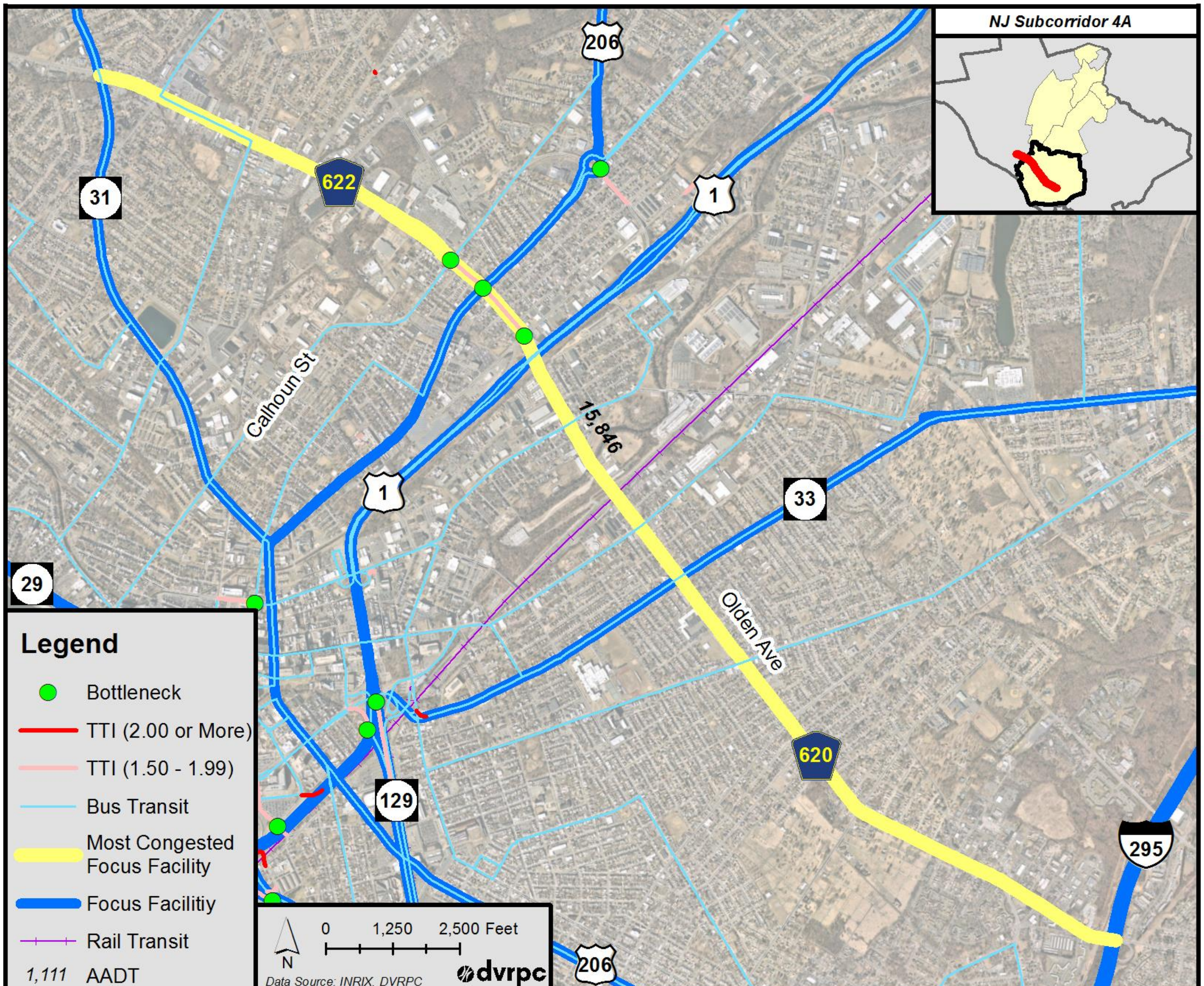
Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Turning Movement Enhancements
4) Improve Circulation

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	32.4
PT PM Peak Vehicle Delay (sec):	109.2
TT PM Peak Volume Delay (hr):	5:53:11
PT PM Peak Volume Delay (hr):	20:09:03
Level of Travel Time Reliability (mi):	0.49
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	11,246
TDM Forecasted Congestion (mi):	2.40

Additional Factors	
Facility Miles:	3.75
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Park and Ride:	Yes
Bottlenecks:	1
Traffic Signals:	5
Annual Average Daily Traffic (AADT):	15,344
CMP Objectives Score:	4.99

Figure 59: Facility 407
CR 622/CR 620 (Olden Ave) from I-295 to NJ 31, Mercer County, NJ



Summary of Conditions

CR 622/CR 620 (Olden Ave) from I-295 to NJ 31 in Mercer County is ranked **#4** and **#22** in peak travel time vehicle and volume delay, respectively, and **#8** and **#27** in peak planning time vehicle and volume delay, respectively. Olden Ave is an undivided minor arterial roadway containing one travel lane in each direction from I-295 to US 206/US 1 Bus, and then two travel lanes in each direction and a center turn lane to NJ 31. CMP intersection bottlenecks occur along Olden Ave at US 1 (Princeton Ave), Brunswick Ave, and New York Ave. Bus service is provided between Parkside Ave and Prospect St, less than one-half mile.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	34.2
PT PM Peak Vehicle Delay (sec):	87.4
TT PM Peak Volume Delay (hr):	6:47:16
PT PM Peak Volume Delay (hr):	17:10:34
Level of Travel Time Reliability (mi):	n/a
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	n/a
TDM Forecasted Congestion (mi):	1.75

Planned Improvements on 2050 LRP & FY 2024-27 TIP

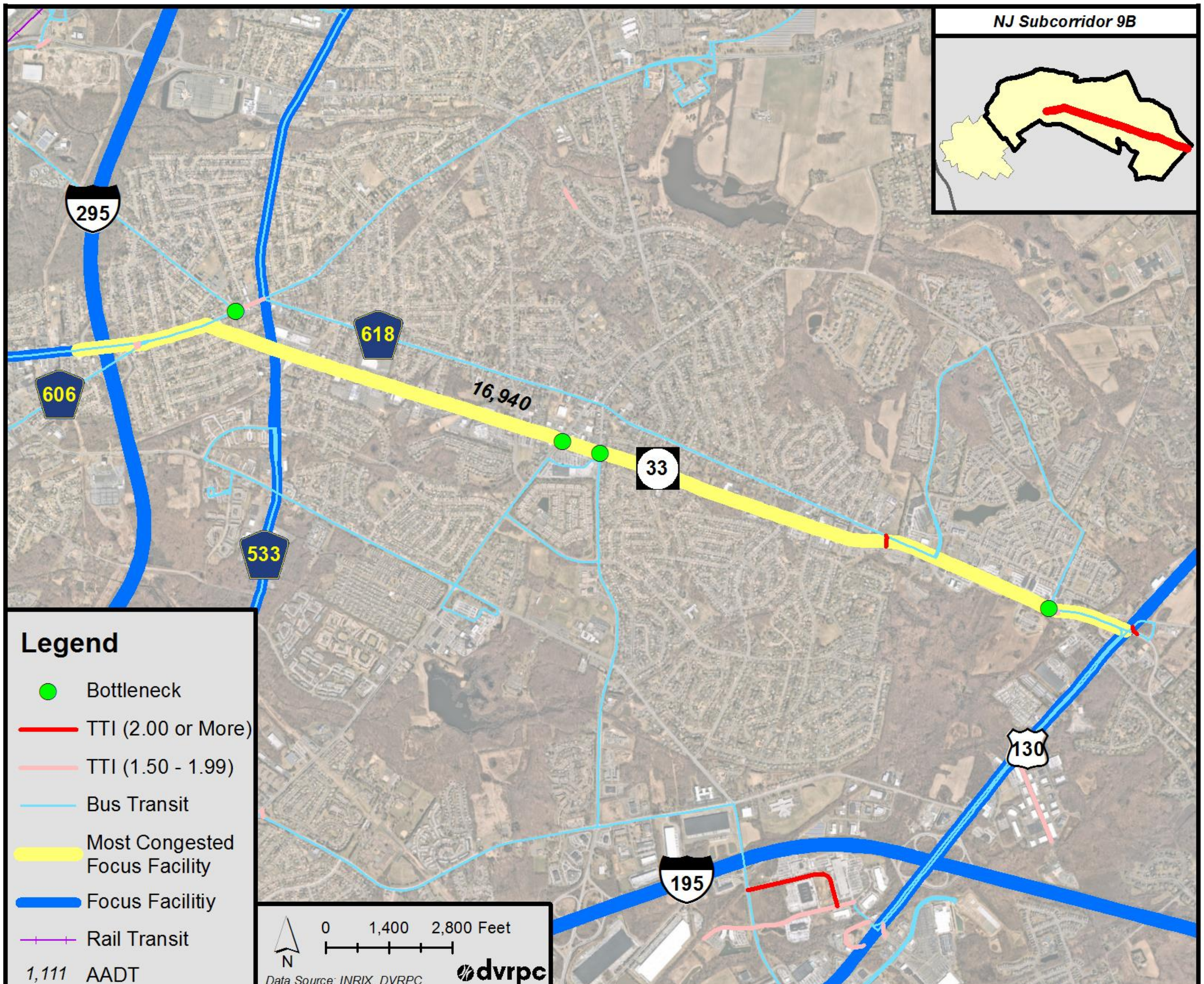
* 2050 LRP: No projects
* FY 2024-27 TIP: DB #17412 N Olden Ave (CR 622), Bridge over Amtrak; #D2014 CR 622 (N Olden Ave) from NJ 31 to New York Ave, safety, traffic operations, and mobility improvements

Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Improve Circulation
4) Economic Redevelopment-Oriented Transportation Policies
5) Modifications to Existing Transit Routes or Services
6) Bicycle and Pedestrian Improvements

Additional Factors	
Facility Miles:	9.75
National Highway System (NHS):	No
CMP High Crash Frequency (mi):	1.03
CMP High Crash Severity (mi):	0.75
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	3
Traffic Signals:	15
Annual Average Daily Traffic (AADT):	15,846
CMP Objectives Score:	4.37

Figure 60: Facility 351
NJ 33 from I-295 to US 130, Mercer County, NJ



Summary of Conditions
NJ 33 from I-295 to US 130 in Mercer County is ranked **#13** and **#29** in peak travel time vehicle and volume delay, respectively, and **#25** and **#29** in peak planning time vehicle and volume delay, respectively. NJ 33 is a principal arterial roadway that contains one travel lane in each direction with a center turn lane, and dedicated left and right turn lanes on major approaches to signalized intersections. Minor changes to ramp entrances on Hamilton Ave to I-295 NB might significantly reduce congestion at Hamilton 5-Points and on Nottingham between East State and 5-Points. CMP intersection bottlenecks occur at CR 526, and Yardville and Whitehorse Hamilton Square roads.

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	26.2
PT PM Peak Vehicle Delay (sec):	63.1
TT PM Peak Volume Delay (hr):	5:33:06
PT PM Peak Volume Delay (hr):	13:09:05
Level of Travel Time Reliability (mi):	0.00
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	16,457
TDM Forecasted Congestion (mi):	0.56

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

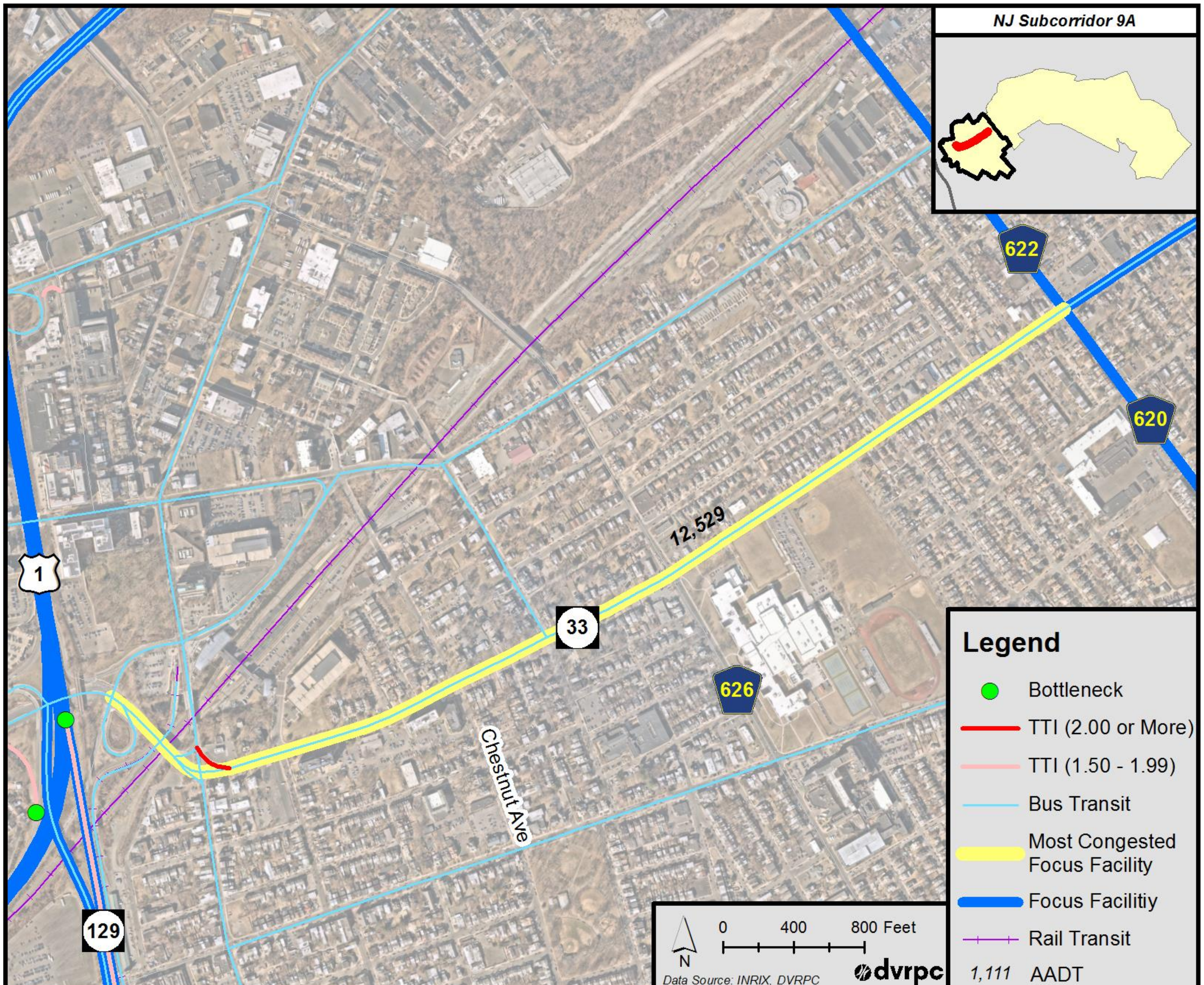
1) *Turning Movement Enhancements*
2) Signal Improvements
3) Improve Circulation
4) Walking and Bicycling Improvements
5) Transit Infrastructure Improvements

Additional Factors	
Facility Miles:	9.24
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.07
CMP High Crash Severity (mi):	0.26
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	3
Traffic Signals:	15
Annual Average Daily Traffic (AADT):	16,940
CMP Objectives Score:	4.30

Recently implemented or partially implemented strategies are listed first and italicized

Figure 61: Facility 349

NJ 33 (Greenwood Ave) from US 1 to CR 622 (Olden Ave), Mercer County, NJ



Summary of Conditions

NJ 33 (Greenwood Ave) from US 1 to CR 622 (Olden Ave) in Mercer County is ranked **#15** and **#40** in peak travel time vehicle and volume delay, respectively, and **#12** and **#45** in peak planning time vehicle and volume delay, respectively. NJ 33 is an undivided principal arterial roadway that contains two travel lanes in each direction for a short distance from US 1 to Chestnut Ave and then one lane in each direction to CR 622. Major signalized intersections occur along NJ 33 at Barlow St, CR 626 (Chambers St), and CR 622 (Olden Ave).

Congestion Measures	
TT PM Peak Vehicle Delay (sec):	25.5
PT PM Peak Vehicle Delay (sec):	76.9
TT PM Peak Volume Delay (hr):	3:59:00
PT PM Peak Volume Delay (hr):	12:00:19
Level of Travel Time Reliability (mi):	0.00
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	8,463
TDM Forecasted Congestion (mi):	0.21

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #308 Trenton Station Area Access; *#S US 1 Bus Rapid Transit*
* FY 2024-27 TIP: DB #D2023 Circulation Improvements around Trenton transit center

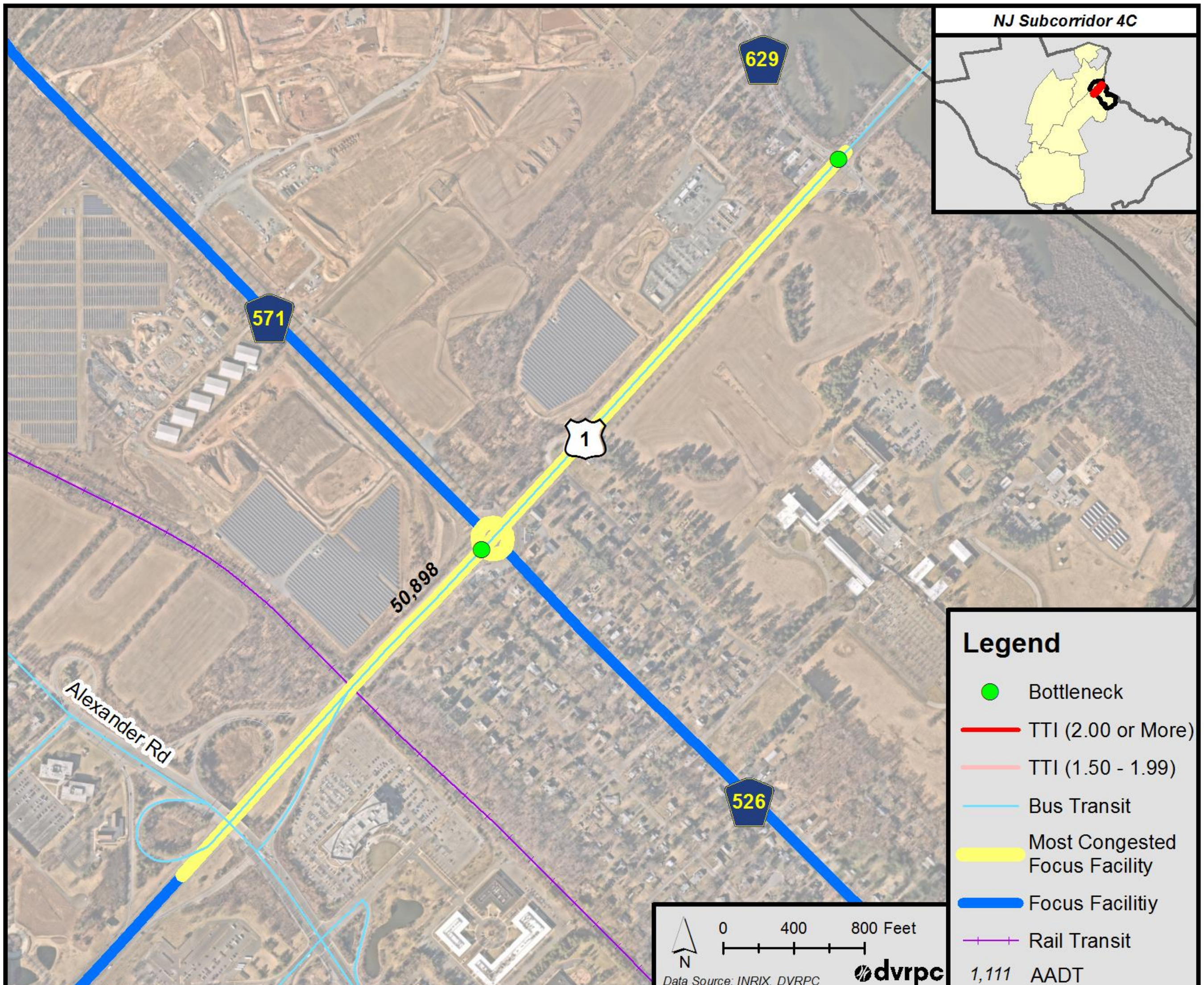
Very Appropriate Strategies

1) Signal Improvements
2) Circulation Improvements
3) Transit Infrastructure Improvements
4) Transit-Oriented Development (TOD)
5) Walking and Bicycling Improvements
6) Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes

Additional Factors	
Facility Miles:	2.37
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.18
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	0
Traffic Signals:	8
Annual Average Daily Traffic (AADT):	12,529
CMP Objectives Score:	6.33

Figure 62: Facility 318

US 1 from Alexander Rd to CR 629 (Harrison St), Mercer County, NJ



Summary of Conditions
US 1 from Alexander Rd to CR 629 (Harrison St) in Mercer County is ranked **#33** and **#10** in peak travel time vehicle and volume delay, respectively, and **#13** in both peak planning time vehicle and volume delay. Vehicle delays are higher in the AM peak than the PM peak indicating that strategies to mitigate mobility and reliability should include morning commute traffic patterns. US 1 is a divided principal arterial roadway that contains three travel lanes in each direction, and CMP intersection bottlenecks occur at CR 571 (Washington Rd) and CR 629.

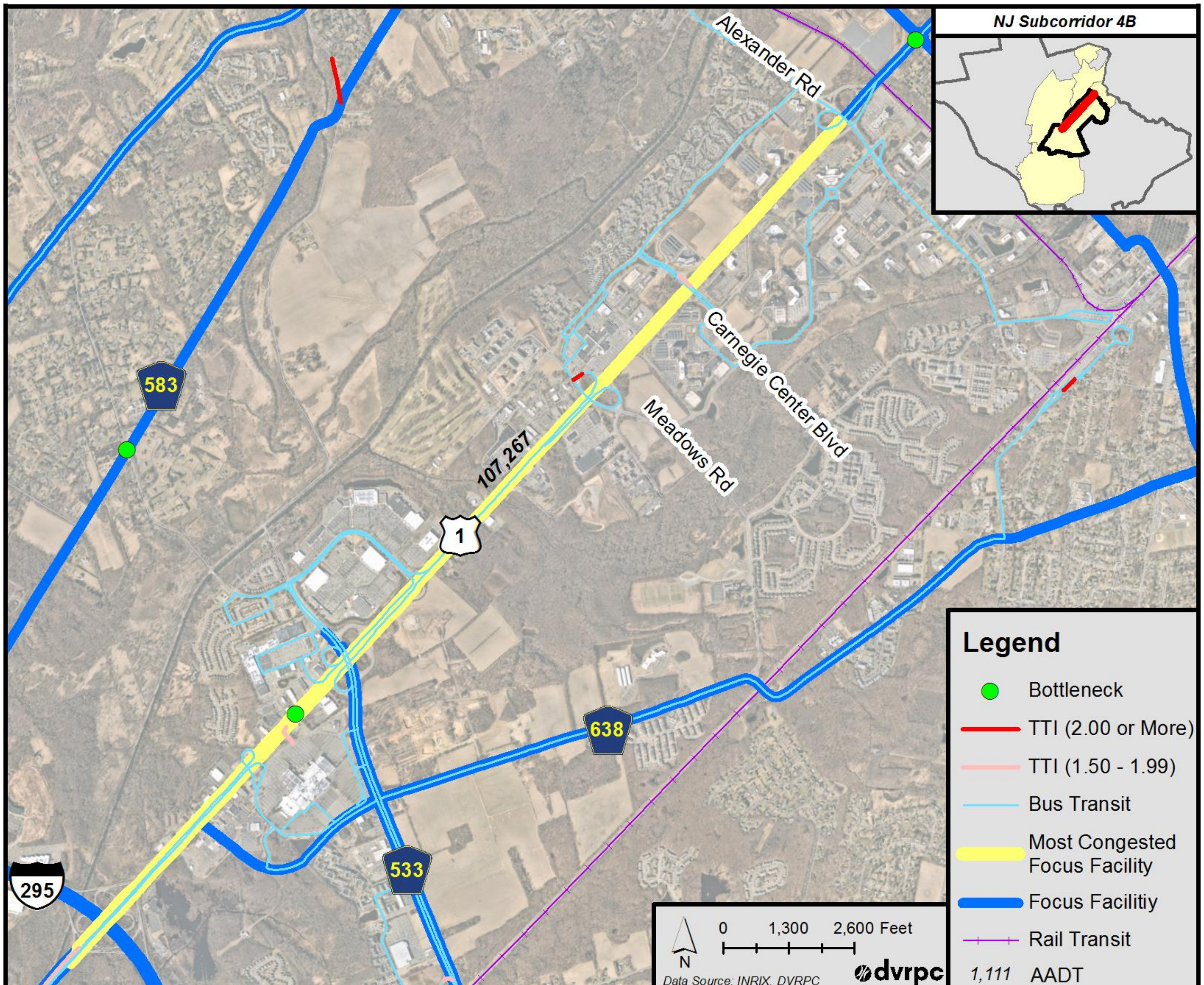
Congestion Measures	
TT PM Peak Vehicle Delay (sec):	18.9
PT PM Peak Vehicle Delay (sec):	76.4
TT PM Peak Volume Delay (hr):	11:45:32
PT PM Peak Volume Delay (hr):	38:21:17
Level of Travel Time Reliability (mi):	0.10
Truck Travel Time Reliability Index (mi):	n/a
Peak Hour Excessive Delay (per mi):	0
TDM Forecasted Congestion (mi):	0.65

Planned Improvements on 2050 LRP & FY 2024-27 TIP
* 2050 LRP: MRP *#S US 1 Bus Rapid Transit*
* FY 2024-27 TIP: DB #17419 Route 1, Alexander Road to Mapleton Rd, increase travel lanes from 3 to 4 lanes per direction

Very Appropriate Strategies
1) Signal Improvements
2) Transit Infrastructure Improvements
3) Encourage Use of Fewer Cars
4) Comprehensive Policy Approaches
5) Walking and Bicycling Improvements
6) Major Reconstruction with Minor Capacity Additions

Additional Factors	
Facility Miles:	2.16
National Highway System (NHS):	Yes
CMP High Crash Frequency (mi):	0.05
CMP High Crash Severity (mi):	1.73
Transit Route:	Yes
Park and Ride:	No
Bottlenecks:	2
Traffic Signals:	3
Annual Average Daily Traffic (AADT):	50,898
CMP Objectives Score:	5.65

Figure 63: Facility 317
US 1 from I-295 to Alexander Rd, Mercer County, NJ



Summary of Conditions	Congestion Measures	
US 1 from the I-295 interchange to Alexander Rd in Mercer County is ranked **#81** and **#18** in peak travel time vehicle and volume delay, respectively, and **#75** and **#8** in peak planning time vehicle and volume delay, respectively. US 1 is a divided principal arterial roadway that contains mostly three travel lanes in each direction with one signalized intersection at Carnegie Center Blvd, and on- and off-ramps at I-295, CR 533 (Quakerbridge Rd), Meadow Rd, and Alexander Rd. A CMP limited access roadway bottleneck occurs on US 1 southbound at the CR 533 (Quakerbridge Rd) on-ramps.	TT PM Peak Vehicle Delay (sec):	7.1
	PT PM Peak Vehicle Delay (sec):	33.8
	TT PM Peak Volume Delay (hr):	9:28:54
	PT PM Peak Volume Delay (hr):	45:39:34
	Level of Travel Time Reliability (mi):	0.00
	Truck Travel Time Reliability Index (mi):	n/a
	Peak Hour Excessive Delay (per mi):	2,949
	TDM Forecasted Congestion (mi):	4.21
Planned Improvements on 2050 LRP & FY 2024-27 TIP	**Additional Factors**	
* 2050 LRP: MRP *#S US 1 Bus Rapid Transit*	Facility Miles:	8.44
* FY 2024-27 TIP: No projects	National Highway System (NHS):	Yes
	CMP High Crash Frequency (mi):	0.00
Very Appropriate Strategies	CMP High Crash Severity (mi):	0.81
1) Signal Improvements	Transit Route:	Yes
2) Transit Infrastructure Improvements	Park and Ride:	No
3) Encourage Use of Fewer Cars	Bottlenecks:	1
4) Comprehensive Policy Approaches	Traffic Signals:	1
5) Walking and Bicycling Improvements	Annual Average Daily Traffic (AADT):	107,267
6) Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes	CMP Objectives Score:	4.51

4.3 Selecting Focus Intersection Bottlenecks

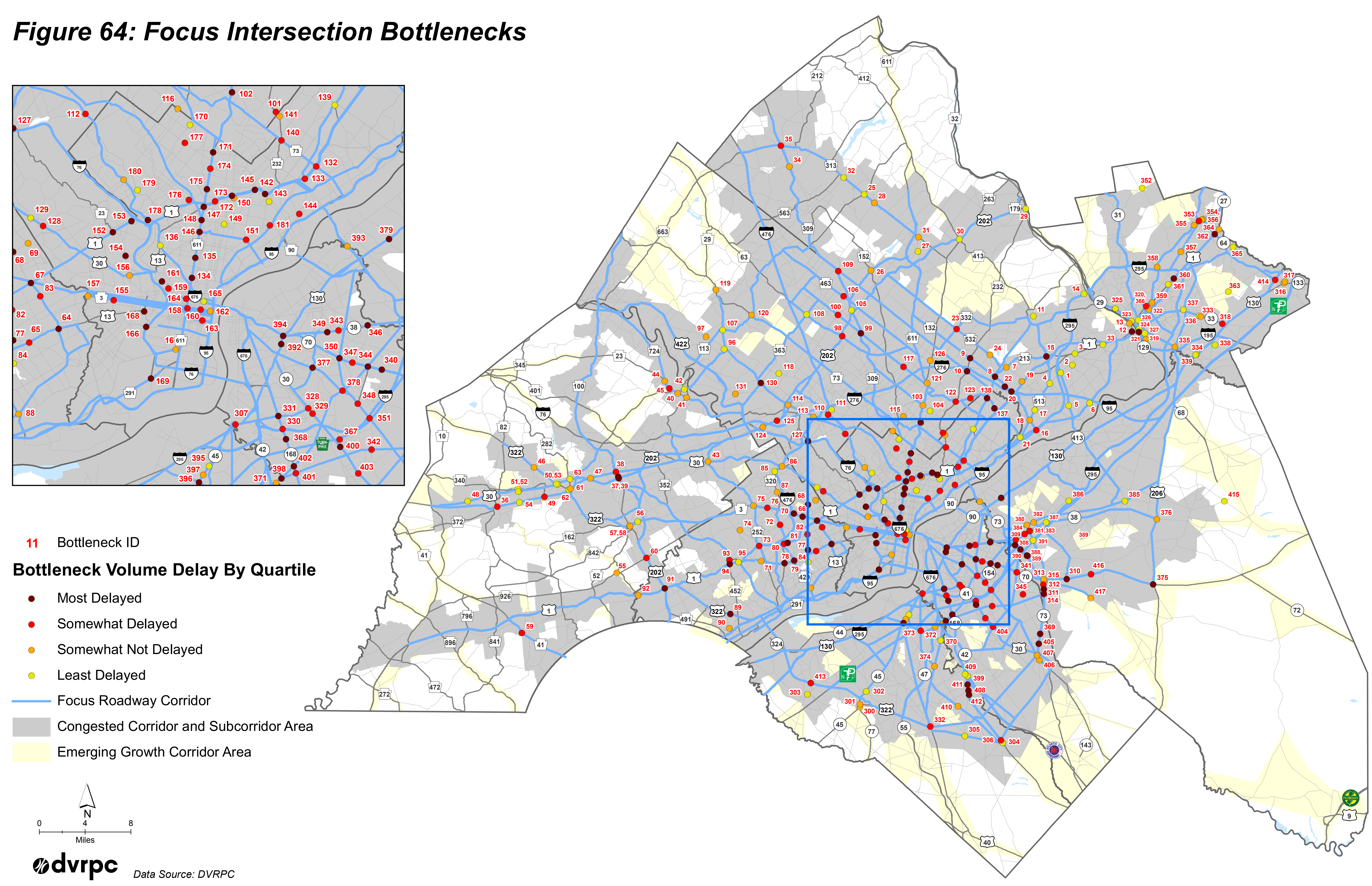
Some Focus Roadway Corridor Facilities may not indicate significant levels of congestion, but one or two intersections along the facility may experience reduced mobility and result in a bottleneck. The focus of the bottleneck analysis is along arterials and other non-controlled access roadway facilities, typically occurring at signalized intersections. Limited Access Roadway Bottlenecks are reviewed as part of a separate analysis (see Chapter 4, section 5).

Focus Intersection Bottlenecks have at least one roadway segment approach to an intersection with a peak hour TTI greater than 1.50 or a PTI greater than 3.00 and high peak hour vehicle and volume delays. Intersections with more than one segment approach with high peak hour delays were given added weight to be included as a Focus Intersection Bottleneck. The CATT Lab *PDA Bottleneck Ranking Tool* was used to help in these efforts, but a manual process of identifying segments with the highest delays was applied to derive the final list of bottlenecks analyzed separately for each county. For each bottleneck, peak travel time vehicle and volume delays are summarized for all approach segments that touch the intersection and any other trailing adjacent segments with a TTI of 1.40 or more, or until another bottleneck is encountered. A total of 299 Focus Intersection Bottlenecks were identified: 181 in Pennsylvania and 118 in New Jersey. Figure 64 maps these bottlenecks, which are symbolized by volume delay in quartiles separately for the Pennsylvania and New Jersey subregions. Brown locations are the most delayed and yellow the least delayed. The bottleneck mapping label identifier can be cross-referenced with Tables 9 and 10 to identify more detailed delay and ranking information for each bottleneck.

Tables 9 and 10 contain a list of bottlenecks in the Pennsylvania and New Jersey portions of the DVRPC region sorted by county and intersection name. They are ranked by both peak average travel time vehicle and volume delay with a rank of 1 being the most delayed. Most bottlenecks are more delayed during the PM peak hour, but there are a few that are more delayed during the AM peak hour, which are indicated in the "AM/PM Highest Delay" column and highlighted in gray. Vehicle and volume delays are measured in seconds and hours, respectively. The delay rankings are color coded by quartiles from the highest to lowest delay, with brown being the most delayed and yellow the least. The number of intersection legs included in the peak hour calculation is listed for each intersection, since some leg approaches are omitted from the analysis because they do not contain traffic volumes or travel time data, and as a result may significantly under-represent congestion. Also, the peak hour volume for all leg approaches is totaled and listed for each intersection. The CMP Objective Measure scores for all segments that are part of the bottleneck are averaged and ranked, and listed for each bottleneck.

The Focus Intersection Bottlenecks should be considered in DVRPC corridor and other planning studies, PennDOT programs like Green Light-Go, before-and-after performance evaluations, and could be added to the *Plan-TIP Project Evaluation Criteria*. Bottleneck strategies will need to be weighed against regional priorities and the region's extreme funding constraint.

Figure 64: Focus Intersection Bottlenecks



Data Source: DVRPC

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Table 9:

Focus Intersection Bottlenecks in the Pennsylvania Portion of the DVRPC Region: Peak Travel Time Vehicle and Volume Delay (Sorted by County and Intersection Name)

				Peak Hour Vehicle Delay (sec)					Peak Hour Volume Delay (hh:mm:ss)								
MAP ID	Intersection Name	Municipality*	County	AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Rank	Intersection Legs Included in Delay	Peak Hour Volume	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
19	Bristol Rd @ Old Lincoln Hwy	Bensalem Township	Bucks	15.2	50.8	50.8	PM	137	128	4/4	3,171	2:35:37	11:17:58	11:17:58	PM	5.44	124
24	Bustleton Pk @ Bristol Rd	Northampton Township	Bucks	28.8	83.2	83.2	PM	81	101	4/4	1,660	3:46:18	15:27:40	15:27:40	PM	2.90	166
13	Calhoun St @ River Rd	Morrisville Borough	Bucks	9.5	45.4	45.4	PM	144	112	4/4	2,173	1:47:35	13:08:20	13:08:20	PM	6.46	97
14	I-295 On-/Off-Ramp @ Taylorsville Rd	Lower Makefield Township	Bucks	5.6	6.3	6.3	PM	180	179	3/3	1,232	0:26:03	0:42:44	0:42:44	PM	1.97	178
5	I-95 @ PA 413 (Veterans Hwy)	Bristol Township	Bucks	9.5	14.5	14.5	PM	176	169	3/3	4,039	2:43:24	5:19:16	5:19:16	PM	4.80	143
16	I-95 NB On-/Off-Ramp @ PA 132 (Street Rd)	Bensalem Township	Bucks	38.9	68.0	68.0	PM	108	84	3/3	2,562	8:13:57	18:44:44	18:44:44	PM	8.69	24
6	I-95 On-/Off-Ramp @ US 13 (Bristol Pk)	Bristol Township	Bucks	11.1	24.1	24.1	PM	170	166	3/3	3,148	2:09:31	6:00:16	6:00:16	PM	6.16	105
33	Lincoln Hwy @ New Tyburn Rd	Falls Township	Bucks	5.3	13.9	13.9	PM	177	175	4/4	2,985	0:46:00	2:41:29	2:41:29	PM	4.19	149
20	PA 132 (Street Rd) @ Old Lincoln Hwy	Bensalem Township	Bucks	42.4	99.9	99.9	PM	55	16	4/4	5,690	17:34:06	52:28:24	52:28:24	PM	8.01	45
9	PA 132 (Street Rd) @ PA 232	Upper Southampton Township	Bucks	56.6	125.5	125.5	PM	29	43	4/4	3,982	9:57:09	31:20:48	31:20:48	PM	6.33	101
8	PA 132 (Street Rd) @ PA 532 (Bustleton Pk)	Lower Southampton Township	Bucks	74.0	146.3	146.3	PM	17	19	4/4	5,714	19:20:59	51:23:44	51:23:44	PM	6.70	92
22	PA 132 (Street Rd) @ Trevose Rd	Bensalem Township	Bucks	21.9	54.7	54.7	PM	128	35	4/4	5,814	11:49:55	34:21:50	34:21:50	PM	8.32	39
29	PA 179 (Bridge St) @ PA 32 (Main St)	New Hope Borough	Bucks	28.0	41.5	41.5	PM	149	174	3/4	761	1:49:51	2:59:49	2:59:49	PM	2.22	176
7	PA 213 (Bridgetown Pk) @ Bristol Rd	Lower Southampton Township	Bucks	45.5	91.5	91.5	PM	70	110	3/3	1,688	5:11:55	13:32:58	13:32:58	PM	4.52	146
10	PA 232 (Huntingdon Pk) @ County Line Rd	Upper Southampton Township	Bucks	67.7	170.7	170.7	PM	10	21	4/4	3,668	14:48:54	48:11:30	48:11:30	PM	5.77	117
34	PA 309 @ Tollgate Rd	Richland Township	Bucks	13.0	29.7	29.7	PM	165	116	4/4	4,256	2:34:50	12:48:50	12:48:50	PM	2.46	174
32	PA 313 (Dublin Pk) @ 5th St	East Rockhill Township	Bucks	25.4	27.0	27.0	PM	169	171	4/4	1,668	2:26:55	4:11:20	4:11:20	PM	0.91	181
25	PA 313 (Dublin Pk) @ PA 113 (Souderton Rd)	Bedminster Township	Bucks	33.5	36.3	36.3	PM	160	168	4/4	1,300	4:05:24	5:24:05	5:24:05	PM	1.33	180
28	PA 313 (Main St) @ Elephant Rd/Middle St	Dublin Borough	Bucks	44.8	66.5	66.5	PM	111	126	4/4	1,519	5:36:58	11:22:20	11:22:20	PM	2.60	171
31	PA 313 (Swamp Rd) @ N Easton Rd	Buckingham Township	Bucks	39.2	74.4	74.4	PM	98	118	4/4	2,458	5:25:05	12:45:44	12:45:44	PM	5.43	125
12	PA 32 (Bridge St) @ Pennsylvania Ave	Morrisville Borough	Bucks	34.0	123.2	123.2	PM	34	32	3/4	1,462	7:07:37	35:13:29	35:13:29	PM	6.74	91
23	PA 332 (Jacksonville Rd) @ Bristol Rd	Northampton Township	Bucks	51.5	104.3	104.3	PM	49	75	4/4	2,779	8:53:59	22:10:18	22:10:18	PM	4.14	151
15	PA 413 (Pine St) @ PA 213 (Maple Ave)	Langhorne Borough	Bucks	62.4	155.3	155.3	PM	15	42	4/4	2,200	9:44:34	32:19:35	32:19:35	PM	7.42	66
1	PA 413 @ Trenton Rd	Middletown Township	Bucks	13.7	49.3	49.3	PM	139	152	4/4	2,675	2:08:42	9:10:08	9:10:08	PM	5.37	129
18	PA 513 (Hulmesville Rd) @ PA 132 (Street Rd)	Bensalem Township	Bucks	26.7	42.9	42.9	PM	148	135	4/4	4,236	4:08:25	10:33:05	10:33:05	PM	3.81	157
4	PA 513 (Neshaminy St) @ Trenton Ave	Hulmeville Borough	Bucks	15.7	39.2	39.2	PM	156	165	3/4	1,753	2:07:39	6:15:18	6:15:18	PM	3.71	159
17	PA 513 @ Byberry Rd	Bensalem Township	Bucks	16.0	27.2	27.2	PM	167	170	4/4	2,057	2:07:51	4:31:52	4:31:52	PM	3.06	164
11	PA 532 (Sycamore St) @ Richboro Rd	Newtown Township	Bucks	11.7	18.4	18.4	PM	172	177	4/4	1,286	0:52:49	1:46:02	1:46:02	PM	3.18	163
35	PA 663 (Broad St) @ PA 309	Quakertown Borough	Bucks	20.9	61.6	61.6	PM	116	69	4/4	5,086	6:29:00	24:34:14	24:34:14	PM	6.21	104
3	US 1 (Lincoln Hwy) @ Oxford Valley Rd	Middletown Township	Bucks	3.2	35.6	35.6	PM	162	142	4/4	4,492	0:44:03	9:44:51	9:44:51	PM	5.16	136
21	US 13 (Bristol Pk) @ PA 63 (Woodhaven Rd)	Bensalem Township	Bucks	32.7	45.2	45.2	PM	145	146	3/3	1,906	5:15:54	9:25:59	9:25:59	PM	7.49	64
27	US 202 (State St) @ Main St	Doylestown Borough	Bucks	19.8	40.1	40.1	PM	153	148	3/3	1,251	2:14:44	5:49:46	9:18:20	PM	8.34	38
26	US 202 @ PA 152 (Main St)	Chalfont Borough	Bucks	36.6	62.7	62.7	PM	115	125	3/3	2,253	5:31:05	11:41:27	11:41:27	PM	7.14	74
30	US 202 @ PA 413 (Durham Rd)	Buckingham Township	Bucks	18.4	12.6	18.4	AM	173	176	4/4	1,493	1:53:12	1:30:11	1:53:12	AM	2.80	169
2	Woodbourne Rd @ Bristol Oxford Valley Rd	Middletown Township	Bucks	4.3	39.6	39.6	PM	155	153	4/4	2,636	0:31:30	8:59:51	8:59:51	PM	2.50	173
39	PA 100 @ Howard Rd	West Whiteland Township	Chester	31.4	90.7	90.7	PM	71	11	3/4	5,652	15:46:39	59:16:54	59:16:54	PM	8.18	40
38	PA 100 @ US 30 Bus (Lincoln Hwy)	West Whiteland Township	Chester	21.2	58.4	58.4	PM	120	62	4/4	5,616	9:04:44	25:59:29	25:59:29	PM	6.59	95
37	PA 100 @ US 30 Bypass WB Off-Ramp	West Whiteland Township	Chester	25.4	66.6	66.6	PM	110	27	3/3	5,095	12:12:24	39:21:37	39:21:37	PM	7.94	48
42	PA 113 (Bridge St) @ Main St	Phoenixville Borough	Chester	24.1	65.2	65.2	PM	113	160	3/4	1,256	2:19:16	7:50:45	7:50:45	PM	7.30	71
41	PA 23 (Nutt Rd) @ PA 29 (Manavon St)	Phoenixville Borough	Chester	82.3	83.5	83.5	PM	80	121	4/4	1,543	8:56:01	12:25:19	12:25:19	PM	5.20	134
40	PA 23 (Nutt Rd) @ PA 113 (Bridge St)	Phoenixville Borough	Chester	46.8	78.8	78.8	PM	85	103	4/5	2,578	7:17:01	15:02:52	15:02:52	PM	4.81	141
45	PA 23 (Nutt Rd) @ Township Line Rd	East Pikeland Township	Chester	56.2	95.8	95.8	PM	61	74	2/3	1,547	10:06:32	22:27:22	22:27:22	PM	5.86	115
56	PA 3 (Market St) @ Westtown Rd	West Goshen Township	Chester	0.0	2.4	2.4	PM	181	180	4/4	2,505	0:00:00	0:42:28	0:42:28	PM	3.20	162
52	PA 340 (Kings Hwy) @ Reeceville Rd	Caln Township	Chester	24.1	40.6	40.6	PM	151	167	4/4	1,334	2:51:38	6:00:09	6:00:09	PM	2.56	172
59	PA 41 @ Baltimore Pk	Avondale Borough	Chester	69.2	131.3	131.3	PM	23	64	3/3	1,736	10:56:37	25:45:18	25:45:18	PM	4.45	147
44	PA 724 (Schuylkill Rd) @ PA 23 (Ridge Rd)	East Pikeland Township	Chester	41.6	54.0	54.0	PM	131	133	3/4	1,698	6:10:12	10:45:40	10:45:40	PM	4.07	154
55	PA 926 (Street Rd) @ Pocopson Rd	Pocopson Township	Chester	29.3	78.0	78.0	PM	87	132	4/4	1,008	2:57:55	10:50:34	10:50:34	PM	2.73	170
60	US 202 (Wilmington Pk) @ PA 926 (Street Rd)	Thornbury Township	Chester	21.2	40.4	40.4	PM	152	79	4/4	4,811	7:19:08	20:50:43	20:50:43	PM	2.92	165
43	US 30 (Lancaster Ave) @ PA 252 (Leopard Rd)	Tredyffrin Township	Chester	49.1	51.7	51.7	PM	134	130	4/4	2,705	8:11:53	11:12:56	11:12:56	PM	6.27	102
54	US 30 Bus (Lincoln Hwy) @ Caln Rd	Caln Township	Chester	16.8	54.8	54.8	PM	127	139	4/4	1,932	2:25:23	10:09:50	10:09:50	PM	6.75	90
49	US 30 Bus (Lincoln Hwy) @ PA 340 (Bondsville Rd)	Caln Township	Chester	23.4	104.0	104.0	PM	51	81	4/4	2,323	3:43:23	19:44:20	19:44:20	PM	5.82	116
36	US 30 Bus (Lincoln Hwy) @ PA 82 (1st Ave)	Coatesville City	Chester	35.6	180.7	180.7	PM	9	47	4/4	2,355	4:41:16	30:02:15	30:02:15	PM	7.75	52

Table 9
Continued

				Peak Hour Vehicle Delay (sec)						Peak Hour Volume Delay (hh:mm:ss)							
MAP ID	Intersection Name	Municipality*	County	AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Rank	Intersection Legs Included in Delay	Peak Hour Volume	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
51	US 30 Bypass On-Ramp @ Reeceville Rd	Caln Township	Chester	16.9	23.1	23.1	PM	171	172	3/3	1,490	1:59:41	3:46:20	3:46:20	PM	4.07	154
53	US 30 Bypass On-/Off-Ramp @ US 322	Caln Township	Chester	57.9	13.8	57.9	AM	123	159	3/3	1,230	8:14:20	1:45:29	8:14:20	AM	6.01	108
50	US 30 Bypass On-/Off-Ramp @ US 322	Caln Township	Chester	76.4	18.9	76.4	AM	91	156	3/3	1,274	8:33:04	2:22:57	8:33:04	AM	6.91	85
48	US 30 Bypass WB Off-Ramp @ Airport Rd	Valley Township	Chester	7.6	9.2	9.2	PM	179	178	3/3	1,104	0:37:52	1:05:22	1:05:22	PM	2.37	175
47	US 30 Bypass WB Off-Ramp @ Lancaster Ave	East Caln Township	Chester	20.3	58.2	58.2	PM	122	109	3/4	2,458	3:38:36	13:43:30	13:43:30	PM	5.99	109
63	US 30 Bypass WB Off-Ramp @ Norwood Rd	Downingtown Borough	Chester	9.3	8.8	9.3	AM	178	181	3/3	438	0:20:15	0:33:05	0:33:05	PM	2.07	177
58	US 322 (High St) @ Gay St	West Chester Borough	Chester	8.6	15.8	15.8	PM	175	173	3/3	2,840	1:13:51	3:33:19	3:33:19	PM	9.10	15
57	US 322 (High St) @ PA 3 (Market St)	West Chester Borough	Chester	33.8	68.4	68.4	PM	107	122	3/4	2,064	4:28:18	12:10:38	12:10:38	PM	9.71	6
46	US 322 @ Hopewell Rd/Bondsville Rd	East Brandywine Township	Chester	43.1	76.5	76.5	PM	90	106	4/4	1,684	6:12:15	14:21:16	14:21:16	PM	2.87	167
62	US 322 @ US 30 Bus (Lancaster Ave)	Downingtown Borough	Chester	36.9	36.3	36.9	AM	159	164	3/3	1,558	4:42:33	6:36:16	6:36:16	PM	8.07	44
61	US 322 @ US 30 Business	Downingtown Borough	Chester	27.7	63.2	63.2	PM	114	127	3/3	2,041	4:06:47	11:21:21	11:21:21	PM	8.86	22
64	Baltimore Ave @ Lansdowne Ave	Lansdowne Borough	Delaware	66.2	190.1	190.1	PM	7	30	4/4	2,982	10:09:47	37:38:39	37:38:39	PM	7.74	53
71	Baltimore Ave @ Monroe St	Media Borough	Delaware	71.2	90.4	90.4	PM	73	91	4/4	1,470	10:48:51	17:31:44	17:31:44	PM	7.20	73
65	Baltimore Ave @ Springfield Rd	Clifton Heights Borough	Delaware	39.8	93.8	93.8	PM	65	88	4/4	2,708	5:52:56	18:00:52	18:00:52	PM	7.54	60
74	Bishop Hollow Rd @ Providence Rd	Upper Providence Township	Delaware	45.9	91.7	91.7	PM	69	123	4/4	1,481	4:17:36	12:04:31	12:04:31	PM	1.70	179
85	Conestoga Rd @ Radnor Chester Rd	Radnor Township	Delaware	59.5	72.8	72.8	PM	101	157	4/4	1,514	5:27:10	8:30:56	8:30:56	PM	5.20	134
68	Darby Rd @ Eagle Rd	Haverford Township	Delaware	141.2	183.7	183.7	PM	8	34	4/4	2,736	22:05:51	34:28:23	34:28:23	PM	5.94	112
69	Haverford Rd @ Wynnewood Rd	Haverford Township	Delaware	114.7	82.5	114.7	AM	40	100	4/4	2,269	15:38:14	15:04:56	15:38:14	AM	5.35	130
86	I-476 NB On-Ramp @ US 30 (Lancaster Ave)	Radnor Township	Delaware	22.4	39.0	39.0	PM	157	120	2/3	2,263	5:31:45	12:25:21	12:25:21	PM	7.29	72
83	Lansdowne Ave @ State Rd	Upper Darby Township	Delaware	62.5	104.5	104.5	PM	47	60	4/4	3,446	12:03:02	26:21:22	26:21:22	PM	6.86	88
90	Meeting House Rd @ Chichester Ave	Upper Chichester Township	Delaware	45.9	89.7	89.7	PM	75	98	4/4	2,229	6:09:33	16:08:57	16:08:57	PM	5.03	139
66	PA 3 (West Chester Pk) @ Eagle Rd	Haverford Township	Delaware	96.8	121.2	121.2	PM	35	20	4/4	3,722	20:35:07	49:36:47	49:36:47	PM	7.03	77
70	PA 3 (West Chester Pk) @ Lawrence Rd	Haverford Township	Delaware	37.9	74.7	74.7	PM	97	45	3/3	5,043	10:11:44	31:04:22	31:04:22	PM	6.96	81
76	PA 3 (West Chester Pk) @ Media Line Rd	Newtown Township	Delaware	84.7	103.3	103.3	PM	53	55	4/4	2,573	13:56:50	27:55:40	27:55:40	PM	6.36	100
75	PA 3 (West Chester Pk) @ PA 252 (Newtown Rd)	Newtown Township	Delaware	32.3	37.9	37.9	PM	158	108	4/4	4,931	8:55:27	14:11:11	14:11:11	PM	6.08	107
72	PA 320 (Sproul Rd) @ Lawrence Rd	Marple Township	Delaware	56.4	60.8	60.8	PM	118	83	3/3	3,838	13:44:55	18:48:56	18:48:56	PM	4.14	151
78	PA 320 (Sproul Rd)/Cedar Ln @ Baltimore Pk	Springfield Township	Delaware	55.5	107.3	107.3	PM	44	38	4/4	3,084	14:11:41	33:32:33	33:32:33	PM	8.64	27
93	PA 352 (Middletown Rd) @ PA 452 (Pennell Rd)	Middletown Township	Delaware	37.1	131.2	131.2	PM	24	61	4/4	2,423	5:43:58	26:20:18	26:20:18	PM	6.23	103
79	PA 420 (Woodlawn Ave) @ Baltimore Pk	Springfield Township	Delaware	75.4	167.4	167.4	PM	12	12	4/4	4,299	17:39:08	58:17:42	58:17:42	PM	7.03	77
84	Providence Rd @ South Ave	Upper Darby Township	Delaware	18.4	45.4	45.4	PM	143	158	4/4	2,031	2:47:40	8:27:31	8:27:31	PM	5.54	123
77	Springfield Rd @ Bishop Ave	Springfield Township	Delaware	129.7	273.9	273.9	PM	3	9	4/4	3,449	23:22:58	65:23:17	65:23:17	PM	8.66	26
87	Sprowl Rd @ S Bryn Mawr Ave	Radnor Township	Delaware	69.6	94.3	94.3	PM	64	114	4/4	2,046	7:44:48	13:01:11	13:01:11	PM	2.86	168
82	State Rd @ Burmont Rd	Upper Darby Township	Delaware	80.9	133.7	133.7	PM	22	67	3/3	2,042	11:44:02	25:16:13	25:16:13	PM	7.01	79
92	US 1 (Baltimore Pk) @ Creek Rd	Chadds Ford Township	Delaware	23.2	47.6	47.6	PM	142	95	3/3	2,949	6:17:09	16:33:16	16:33:16	PM	4.77	144
95	US 1 (Baltimore Pk) @ PA 352 (New Middletown Rd)	Middletown Township	Delaware	33.0	43.4	43.4	PM	146	145	2/2	1,499	5:04:23	9:38:41	9:38:41	PM	6.46	97
94	US 1 (Baltimore Pk) @ PA 452 (Pennell Rd)	Middletown Township	Delaware	57.7	116.1	116.1	PM	38	37	4/4	3,847	11:13:10	33:33:01	33:33:01	PM	6.94	82
81	US 1 (Media Bypass) NB On-/Off-Ramp @ Sprowl Rd	Springfield Township	Delaware	34.9	93.7	93.7	PM	66	57	4/4	3,766	7:49:34	27:46:22	27:46:22	PM	7.63	59
80	US 1 (State Rd) @ Springfield Rd	Springfield Township	Delaware	206.7	341.4	341.4	PM	2	2	4/4	3,825	42:33:24	94:18:44	94:18:44	PM	9.43	10
67	US 1 (Township Line Rd) @ Landowne Ave/Darby Rd	Haverford Township	Delaware	92.6	145.6	145.6	PM	19	18	4/4	4,505	22:50:55	51:47:11	51:47:11	PM	8.44	33
73	US 1 Media Bypass @ PA 252 (Providence Rd)	Upper Providence Township	Delaware	35.8	79.8	79.8	PM	84	71	3/3	2,231	7:00:39	22:50:00	22:50:00	PM	7.12	75
88	US 13 (Chester Pk) @ PA 420 (Lincoln Ave)	Prospect Park Borough	Delaware	16.3	32.2	32.2	PM	163	119	4/4	4,655	3:30:12	12:29:32	12:29:32	PM	7.99	46
91	US 202 (Wilmington Pk) @ US 1 (Baltimore Pk)	Chadds Ford Township	Delaware	63.1	108.7	108.7	PM	43	13	4/4	7,216	24:59:07	55:57:54	55:57:54	PM	5.71	119
89	US 322 @ Bethel Ave/Cherry Tree Rd	Upper Chichester Township	Delaware	254.8	401.1	401.1	PM	1	1	4/4	2,859	66:56:44	128:09:36	128:09:36	PM	7.94	48
111	Butler Pk @ Flourtown Rd/Plymouth Rd	Whitemarsh Township	Montgomery	34.2	55.5	55.5	PM	126	163	4/4	1,866	3:02:05	6:41:31	6:41:31	PM	3.77	158
116	Cheltenham Ave @ Wadsworth Ave	Cheltenham Township	Montgomery	26.1	68.7	68.7	PM	106	134	4/4	2,391	3:23:22	10:40:50	10:40:50	PM	5.65	121
115	Easton Rd @ Glenside Ave	Cheltenham Township	Montgomery	59.3	115.2	115.2	PM	39	93	4/4	1,686	6:49:53	16:57:30	16:57:30	PM	5.34	131
131	Egypt Rd & Pawlings Rd	Lower Providence Township	Montgomery	36.2	70.2	70.2	PM	105	113	4/4	2,554	5:29:14	13:07:38	13:07:38	PM	4.84	140
118	Germantown Pk @ Burnside Ave	East Norriton Township	Montgomery	34.9	51.1	51.1	PM	135	147	3/3	1,785	4:29:29	9:23:34	9:23:34	PM	3.57	160
110	Germantown Pk @ Butler Pk	Whitemarsh Township	Montgomery	42.3	109.6	109.6	PM	42	51	3/3	2,021	8:46:26	29:20:02	29:20:02	PM	5.59	122
127	PA 23 (Front St) @ Matsonford Rd/Fayette St	West Conshohocken Borough	Montgomery	100.9	126.5	126.5	PM	27	33	4/4	3,790	23:40:23	35:13:03	35:13:03	PM	8.92	20
101	PA 232 (Huntingdon Pk) @ Church Rd	Rockledge Borough	Montgomery	21.4	103.8	103.8	PM	52	50	3/3	2,524	4:27:16	29:29:50	29:29:50	PM	8.63	28
122	PA 232 (Huntingdon Pk) @ PA 63 (Welsh Rd)/Philmont Ave	Lower Moreland Township	Montgomery	77.0	100.6	100.6	PM	54	65	4/4	4,469	14:04:28	25:36:15	25:36:15	PM	7.38	68

Table 9
Continued

MAP ID	Intersection Name	Municipality*	County	Peak Hour Vehicle Delay (sec): AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Peak Hour Volume Delay (hh:mm:ss): Rank	Intersection Legs Included in Delay	Peak Hour Volume	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
126	PA 263 (S York Rd) @ Horsham Rd	Hatboro Borough	Montgomery	27.1	61.3	61.3	PM	117	111	3/3	2,078	4:21:38	13:08:26	13:08:26	PM	5.96	111
96	PA 29 (2nd Ave) @ E Main St	Collegeville Borough	Montgomery	25.5	51.0	51.0	PM	136	143	4/4	2,903	3:55:28	9:42:26	9:42:26	PM	5.27	133
107	PA 29 (Gravel Pk) @ PA 113 (Bridge Rd)	Perkiomen Township	Montgomery	80.4	73.1	80.4	AM	83	140	4/4	1,939	8:38:01	10:00:17	10:00:17	PM	5.29	132
109	PA 309 @ Line Lexington Rd	Hatfield Township	Montgomery	26.4	76.3	76.3	PM	92	78	4/4	4,276	6:07:00	21:40:05	21:40:05	PM	4.44	148
99	PA 309 @ PA 63 (Welsh Rd)	Lower Gwynedd Township	Montgomery	19.2	52.0	52.0	PM	133	40	4/4	5,983	7:59:14	32:57:31	32:57:31	PM	6.59	95
130	PA 363 (Trooper Rd) @ Ridge Pk	Lower Providence Township	Montgomery	85.8	191.6	191.6	PM	6	28	4/4	2,768	11:48:34	38:07:30	38:07:30	PM	6.15	106
108	PA 363 (Valley Forge Rd) @ Sumneytown Pk	Towamencin Township	Montgomery	40.5	40.8	40.8	PM	150	161	4/4	2,614	5:50:46	7:48:55	7:48:55	PM	5.04	138
106	PA 463 (Cowpath Rd) @ Broad St	Montgomery Township	Montgomery	38.0	84.1	84.1	PM	79	90	3/3	1,769	6:13:34	17:44:01	17:44:01	PM	5.90	113
121	PA 611 (Old York Rd) @ Davisville Rd	Upper Moreland Township	Montgomery	33.5	43.4	43.4	PM	147	92	4/4	3,793	10:26:45	16:58:10	16:58:10	PM	6.39	99
103	PA 611 (Old York Rd) @ Susquehanna Rd	Abington Township	Montgomery	29.0	57.1	57.1	PM	125	94	4/4	3,773	5:42:12	16:44:28	16:44:28	PM	5.98	110
102	PA 611 (Old York Rd) @ Washington Ln	Abington Township	Montgomery	51.5	163.4	163.4	PM	13	23	4/4	2,864	10:49:58	46:33:37	46:33:37	PM	8.43	34
100	PA 63 (Welsh Rd) @ E Main St/N Wales Rd	Lansdale Borough	Montgomery	34.7	104.4	104.4	PM	48	82	4/4	2,532	4:43:19	18:59:04	18:59:04	PM	5.43	125
117	PA 63 (Welsh Rd) @ Village Rd	Upper Dublin Township	Montgomery	61.3	85.4	85.4	PM	77	80	4/4	1,345	9:13:47	20:19:36	20:19:36	PM	5.39	128
119	PA 73 (Main St) @ Park Ave	Schwenksville Borough	Montgomery	40.5	78.8	78.8	PM	86	124	4/4	1,546	4:40:28	11:49:24	11:49:24	PM	3.51	161
120	PA 73 (Skippack Pk) @ PA 113 (Bridge Rd)	Skippack Township	Montgomery	36.0	90.5	90.5	PM	72	99	4/4	2,127	4:36:36	15:44:29	15:44:29	PM	4.10	153
123	Philmont Ave @ Pine Rd	Lower Moreland Township	Montgomery	52.1	146.0	146.0	PM	18	66	6/6	2,530	7:18:52	25:35:51	25:35:51	PM	5.76	118
113	Ridge Pk @ Alan Wood Rd	Plymouth Township	Montgomery	34.6	39.9	39.9	PM	154	136	4/4	3,878	6:31:33	10:22:12	10:22:12	PM	5.71	119
112	Ridge Pk @ Barren Hill Rd	Whitemarsh Township	Montgomery	19.4	75.4	75.4	PM	94	86	3/3	2,563	3:51:41	18:22:27	18:22:27	PM	4.81	141
97	Ridge Pk/W Main St @ W 7th Ave	Trappe Borough	Montgomery	31.1	72.5	72.5	PM	103	115	3/3	1,669	4:30:49	12:56:04	12:56:04	PM	4.74	145
104	Susquehanna Rd @ Washington Ln	Abington Township	Montgomery	44.9	84.1	84.1	PM	78	137	3/3	1,077	3:56:31	10:20:11	10:20:11	PM	5.05	137
114	Swede St @ Main St	Norristown Borough	Montgomery	32.2	59.2	59.2	PM	119	131	3/3	1,883	4:36:52	11:00:12	11:00:12	PM	9.06	17
125	US 202 (Dekalb Pk) @ Henderson Rd	Upper Merion Township	Montgomery	23.0	54.7	54.7	PM	129	76	4/4	4,920	7:00:27	22:10:07	22:10:07	PM	8.18	40
105	US 202 (Dekalb Pk) @ PA 309	Montgomery Township	Montgomery	4.7	27.0	27.0	PM	168	144	4/4	3,963	1:29:53	9:40:21	9:40:21	PM	3.93	156
124	US 202 (W Dekalb Pk) @ Mall Blvd	Upper Merion Township	Montgomery	7.2	29.4	29.4	PM	166	105	3/4	3,821	3:07:02	14:21:21	14:21:21	PM	6.86	88
98	US 202 @ Sumneytown Pk	Lower Gwynedd Township	Montgomery	71.6	116.5	116.5	PM	37	58	4/4	3,282	12:50:30	27:40:22	27:40:22	PM	7.53	61
128	US 30 (Lancaster Ave) @ Church Rd	Lower Merion Township	Montgomery	38.3	75.9	75.9	PM	93	73	4/4	2,782	8:45:24	22:32:42	22:32:42	PM	6.87	87
129	US 30 (Lancaster Ave) @ Woodside Rd	Lower Merion Township	Montgomery	26.8	35.8	35.8	PM	161	149	3/3	1,937	5:32:51	9:16:56	9:16:56	PM	7.09	76
151	Allegheny Ave @ Kensington Ave	North	Philadelphia	45.0	207.6	207.6	PM	5	49	4/4	2,307	5:40:47	29:43:07	29:43:07	PM	7.97	47
154	Belmont Ave @ Montgomery Dr	West Park	Philadelphia	105.6	102.5	105.6	AM	46	29	4/4	2,950	30:06:09	38:04:02	38:04:02	PM	6.92	84
137	Byberry Rd @ Evans Rd	Upper Far Northeast	Philadelphia	48.5	123.6	123.6	PM	32	39	3/3	2,420	9:08:57	33:24:10	33:24:10	PM	5.87	114
143	Castor Ave @ Adams Ave	Lower Northeast	Philadelphia	15.3	54.4	54.4	PM	130	138	2/2	1,365	2:14:04	10:19:10	10:19:10	PM	6.99	80
157	Cobbs Creek Pkwy @ PA 3 (Walnut St)	West	Philadelphia	27.4	52.3	52.3	PM	132	104	3/3	2,853	6:27:16	14:58:26	14:58:26	PM	7.74	53
150	Front St @ Rising Sun Ave	North	Philadelphia	22.8	89.9	89.9	PM	74	107	4/4	1,872	2:43:00	14:18:14	14:18:14	PM	8.18	40
156	Girard Ave and Belmont Ave	West	Philadelphia	35.0	72.8	72.8	PM	102	117	4/4	2,273	5:06:37	12:48:38	12:48:38	PM	9.43	10
166	Grays Ferry Ave @ 34th St	South	Philadelphia	83.9	123.8	123.8	PM	31	14	4/4	3,799	22:21:40	54:40:40	54:40:40	PM	9.57	8
144	Harbison/Aramingo Ave @ Torresdale Ave	Lower Northeast	Philadelphia	42.9	94.5	94.5	PM	63	56	4/4	3,462	11:40:03	27:49:26	27:49:26	PM	7.69	57
179	Henry Ave @ Walnut Ln	Lower Northwest	Philadelphia	19.5	31.1	31.1	PM	164	151	4/4	3,935	4:38:38	9:13:25	9:13:25	PM	7.53	61
165	I-676 (Vine St Expr) EB Off-Ramp @ 8th St	Central	Philadelphia	6.3	18.3	18.3	PM	174	154	2/2	2,876	2:13:01	8:47:19	8:47:19	PM	9.16	14
164	I-676 (Vine St Expr) EB Off-Ramp @ S 15th St	Central	Philadelphia	30.3	73.2	73.2	PM	99	89	2/2	2,778	5:56:32	17:48:12	17:48:12	PM	10.68	1
159	Kelly Dr @ Ben Franklin Pkwy	Central	Philadelphia	50.1	104.1	104.1	PM	50	48	2/2	1,929	15:09:22	29:44:10	29:44:10	PM	8.67	25
178	Kelly Dr @ Falls Bridge	Lower Northwest	Philadelphia	30.1	99.3	99.3	PM	56	24	4/4	5,232	10:53:18	42:40:06	42:40:06	PM	10.30	2
161	Kelly Dr @ Sedgely Dr	Central	Philadelphia	85.9	88.4	88.4	PM	76	41	4/4	3,007	24:45:29	32:48:02	32:48:02	PM	8.17	43
170	Limekiln Pk @ E Upsal St	Upper North	Philadelphia	14.9	57.2	57.2	PM	124	162	4/4	1,799	1:26:40	7:07:00	7:07:00	PM	4.17	150
162	Market St @ 2nd St	Central	Philadelphia	55.7	76.9	76.9	PM	89	102	2/2	1,063	8:31:33	15:14:06	15:14:06	PM	9.48	9
160	Market St @ 7th St	Central	Philadelphia	86.6	125.7	125.7	PM	28	53	3/3	1,113	15:38:23	28:10:09	28:10:09	PM	9.77	4
141	PA 232 (Oxford Ave) @ Pine Rd	Central Northeast	Philadelphia	20.9	48.4	48.4	PM	140	129	4/4	2,529	2:57:44	11:13:10	11:13:10	PM	8.35	36
169	PA 291 @ Penrose Ave	Lower South	Philadelphia	27.7	58.2	58.2	PM	121	31	4/4	7,027	14:53:07	36:38:38	36:38:38	PM	8.52	29
138	PA 532 (Bustleton Ave) @ Byberry Rd	Upper Far Northeast	Philadelphia	100.6	242.0	242.0	PM	4	5	4/4	4,657	20:56:17	77:45:59	77:45:59	PM	7.68	58
139	PA 532 (Welsh Rd) @ Bustleton Ave	Upper Far Northeast	Philadelphia	24.2	50.0	50.0	PM	138	155	4/4	3,033	3:38:38	8:36:42	8:36:42	PM	7.36	69
171	PA 611 (Broad St) @ 66th Ave	Upper North	Philadelphia	56.7	82.3	82.3	PM	82	44	4/4	3,474	17:01:35	31:05:37	31:05:37	PM	6.93	83
146	PA 611 (Broad St) @ Allegheny Ave	North	Philadelphia	68.4	155.5	155.5	PM	14	6	4/4	4,787	23:35:49	70:55:49	70:55:49	PM	9.00	18
135	PA 611 (Broad St) @ Diamond St	Lower North	Philadelphia	56.9	129.0	129.0	PM	25	8	4/4	3,055	21:57:27	66:15:25	66:15:25	PM	8.45	32

Table 9
Continued

MAP ID	Intersection Name	Municipality*	County	Peak Hour Vehicle Delay (sec) AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Peak Hour Volume Delay (hh:mm:ss) Rank	Intersection Legs Included in Delay	Peak Hour Volume	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
148	PA 611 (Broad St) @ Erie Ave	North	Philadelphia	71.9	120.8	120.8	PM	36	22	4/4	3,779	23:33:41	47:28:59	47:28:59	PM	9.76	5
134	PA 611 (Broad St) @ Girard Ave	Lower North	Philadelphia	33.4	106.1	106.1	PM	45	25	4/4	3,962	8:59:48	40:55:26	40:55:26	PM	8.35	36
174	PA 611 (Broad St) @ Old York Rd	Upper North	Philadelphia	75.2	72.3	75.2	AM	95	54	3/3	5,594	22:48:49	28:02:51	28:02:51	PM	8.82	23
158	PA 611 (Broad St) @ S Juniper St/Penn Sq	Central	Philadelphia	68.4	71.7	71.7	PM	104	52	2/2	2,024	22:18:07	28:27:16	28:27:16	PM	9.42	12
147	PA 611 (Broad St) @ US 13 (Hunting Park Ave)	North	Philadelphia	61.8	127.7	127.7	PM	26	15	4/4	6,257	22:31:19	53:09:18	53:09:18	PM	8.88	21
175	PA 611 (Broad St) @ Windrim Ave	Upper North	Philadelphia	55.7	95.0	95.0	PM	62	26	4/4	3,278	18:44:28	39:47:03	39:47:03	PM	7.72	55
140	PA 73 (Cottman Ave) @ PA 232 (Oxford Ave)	Central Northeast	Philadelphia	34.4	112.7	112.7	PM	41	59	4/4	2,837	6:32:43	27:18:46	27:18:46	PM	8.52	29
132	PA 73 (Cottman Ave) @ US 1 (E Roosevelt Blvd)	North Delaware	Philadelphia	27.1	73.2	73.2	PM	100	70	3/3	4,192	6:52:59	23:54:38	23:54:38	PM	7.83	50
167	Passyunk Ave @ Snyder Ave	South	Philadelphia	59.2	97.9	97.9	PM	59	96	3/3	1,220	7:40:24	16:26:01	16:26:01	PM	8.42	35
163	Pine St @ S 5th St	Central	Philadelphia	32.6	96.2	96.2	PM	60	85	2/2	1,109	4:52:39	18:27:02	18:27:02	PM	6.90	86
180	Ridge Ave @ Leverington Ave	Lower Northwest	Philadelphia	58.4	98.9	98.9	PM	57	97	4/4	1,231	7:43:10	16:24:37	16:24:37	PM	5.43	125
136	Ridge Ave @ US 13 (33rd St)	Lower North	Philadelphia	38.4	75.2	75.2	PM	96	150	4/4	3,369	4:06:46	9:16:24	9:16:24	PM	6.67	93
176	Roberts Ave @ Wayne Ave	Upper Northwest	Philadelphia	47.8	141.5	141.5	PM	20	63	4/4	2,399	7:01:20	25:45:19	25:45:19	PM	7.39	67
142	Roosevelt Blvd Frontage N @ Adams Ave	Lower Northeast	Philadelphia	21.6	123.3	123.3	PM	33	7	3/3	3,844	7:35:52	67:48:11	67:48:11	PM	9.39	13
149	Sedgley Ave @ Erie Ave	North	Philadelphia	24.9	67.8	67.8	PM	109	141	3/3	2,363	3:58:27	9:50:39	9:50:39	PM	7.33	70
177	Stenton Ave @ Washington Ln	Upper Northwest	Philadelphia	63.0	124.3	124.3	PM	30	72	4/4	2,467	8:59:20	22:43:53	22:43:53	PM	7.72	55
181	Torresdale Ave @ E Hunting Park Ave	River Wards	Philadelphia	60.8	139.9	139.9	PM	21	68	4/4	1,739	8:29:01	24:59:25	24:59:25	PM	6.64	94
168	University Ave @ US 13 (Baltimore Ave)	University - Southwest	Philadelphia	92.6	59.4	92.6	AM	68	36	3/3	2,458	33:55:09	30:30:33	33:55:09	AM	9.97	3
152	US 1 (City Ave) @ PA 23 (Conshohocken State Rd)	West Park	Philadelphia	85.6	169.1	169.1	PM	11	3	4/4	5,040	35:41:46	87:56:33	87:56:33	PM	8.49	31
153	US 1 (City Ave) @ Presidential Blvd	West Park	Philadelphia	81.8	146.5	146.5	PM	16	4	4/4	7,216	39:54:05	86:52:35	86:52:35	PM	8.93	19
133	US 1 (E Roosevelt Blvd) @ Harbison Ave	North Delaware	Philadelphia	19.4	47.7	47.7	PM	141	87	3/3	3,370	6:32:25	18:14:11	18:14:11	PM	7.44	65
173	US 1 (E Roosevelt Blvd) @ Mascher St	Upper North	Philadelphia	24.8	98.2	98.2	PM	58	10	3/3	5,558	12:11:35	63:49:09	63:49:09	PM	9.10	15
145	US 1 (E Roosevelt Blvd) @ Whitaker Ave	Lower Northeast	Philadelphia	8.1	77.9	77.9	PM	88	17	2/2	2,691	3:51:04	52:24:22	52:24:22	PM	9.59	7
172	US 1 (W Roosevelt Blvd) @ 9th St	Upper North	Philadelphia	65.2	41.8	65.2	AM	112	46	4/4	4,211	30:12:58	23:30:07	30:12:58	AM	7.51	63
155	Walnut St @ 52nd St	West	Philadelphia	17.5	93.1	93.1	PM	67	77	4/4	3,630	3:29:51	21:54:53	21:54:53	PM	7.80	51

Most Delayed
Somewhat Delayed
Somewhat Not Delayed
Least Delayed

AM Delay

* *Municipality in Philadelphia County represents the Philadelphia City Planning Commission Planning District*

Source: DVRPC analysis of 2021 INRIX data

Table 10:

Focus Intersection Bottlenecks in the New Jersey Portion of the DVRPC Region: Peak Travel Time Vehicle and Volume Delay (Sorted by County and Intersection Name)

				Peak Hour Vehicle Delay (sec)					Peak Hour Volume Delay (hh:mm:ss)								
MAP ID	Intersection Name	Municipality	County	AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Rank	Intersection Legs Included in Delay	Peak Hour Volume	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
382	CR 537 (Main St) @ Mt Laurel Rd	Moorestown Township	Burlington	49.8	59.3	59.3	PM	34	68	3/3	1,259	5:09:31	7:52:45	7:52:45	PM	3.69	96
385	CR 537 (Washington St) @ High St	Mount Holly Township	Burlington	5.4	11.6	11.6	PM	115	112	3/4	1,177	0:29:09	1:18:48	1:18:48	PM	5.08	66
380	CR 607 (Church St) @ CR 537 (Main St)	Moorestown Township	Burlington	47.8	58.0	58.0	PM	37	74	4/4	1,707	4:40:18	7:23:38	7:23:38	PM	4.93	71
391	CR 607 (Church St) @ Gaither Dr	Mount Laurel Township	Burlington	8.1	13.9	13.9	PM	112	106	3/3	1,519	0:52:11	2:16:15	2:16:15	PM	3.12	106
315	CR 607 (Maple Ave) @ Main St	Evesham Township	Burlington	7.4	28.1	28.1	PM	96	100	4/4	1,821	0:42:12	3:31:49	3:31:49	PM	4.11	84
417	CR 620 (Tuckerton Rd) @ CR 623 (Taunton Rd)	Medford Township	Burlington	31.6	56.2	56.2	PM	41	87	4/4	1,492	2:14:28	5:28:01	5:28:01	PM	2.22	115
415	CR 630 (Pointville Rd) @ CR 699 (Juliustown Rd)	Wrightstown Borough	Burlington	69.7	63.4	69.7	AM	27	105	4/4	628	2:09:40	2:23:02	2:23:02	PM	3.34	101
386	CR 636 (Creek Rd) @ Centerton Rd	Mount Laurel Township	Burlington	10.6	9.3	10.6	AM	116	115	4/4	1,083	0:48:23	0:57:33	0:57:33	PM	3.52	100
383	NJ 38 @ CR 607 (Church St)	Moorestown Township	Burlington	16.8	37.2	37.2	PM	73	60	4/4	3,807	3:20:43	9:27:29	9:27:29	PM	4.80	75
309	NJ 38 @ CR 608 (Lenola Rd)	Maple Shade Township	Burlington	3.1	22.6	22.6	PM	104	55	4/4	4,059	1:03:59	10:13:37	10:13:37	PM	4.19	81
387	NJ 38 @ CR 615 (Marter Ave)	Mount Laurel Township	Burlington	4.9	13.4	13.4	PM	113	92	4/4	3,564	1:23:22	4:56:16	4:56:16	PM	4.86	74
381	NJ 38 @ Fellowship Rd	Moorestown Township	Burlington	4.3	15.4	15.4	PM	111	88	2/3	3,099	0:57:34	5:25:09	5:25:09	PM	5.36	58
384	NJ 38 @ Pleasant Valley Ave	Moorestown Township	Burlington	9.9	28.3	28.3	PM	95	43	4/4	3,372	3:06:15	11:39:40	11:39:40	PM	5.33	59
313	NJ 70 @ CR 607 (Maple Ave)	Evesham Township	Burlington	10.0	27.8	27.8	PM	97	75	4/4	3,476	2:17:46	7:14:47	7:14:47	PM	3.27	103
310	NJ 70 @ Elmwood Rd	Evesham Township	Burlington	44.6	109.1	109.1	PM	9	10	4/4	2,544	9:22:34	31:00:17	31:00:17	PM	3.24	104
416	NJ 70 @ Hartford Rd	Medford Township	Burlington	32.9	55.1	55.1	PM	43	39	4/4	2,228	5:44:41	11:58:16	11:58:16	PM	3.82	91
311	NJ 73 @ Brick Rd	Evesham Township	Burlington	19.0	59.9	59.9	PM	33	12	4/4	4,536	6:33:28	28:57:32	28:57:32	PM	5.91	45
312	NJ 73 @ Centre Blvd/Marlton Center Blvd	Evesham Township	Burlington	5.2	31.2	31.2	PM	87	35	4/4	3,586	1:54:28	13:24:06	13:24:06	PM	6.55	27
389	NJ 73 @ Church Rd	Mount Laurel Township	Burlington	9.7	37.0	37.0	PM	74	34	3/3	3,536	2:05:36	13:33:13	13:33:13	PM	5.48	54
314	NJ 73 @ CR 544 (Evesham Rd)	Evesham Township	Burlington	19.7	56.3	56.3	PM	39	14	4/4	4,749	7:00:14	27:17:14	27:17:14	PM	6.24	36
388	NJ 73 @ CR 616 (Church Rd)/Ramblewood Pkwy	Mount Laurel Township	Burlington	21.7	80.5	80.5	PM	17	2	4/4	4,809	10:52:38	54:47:50	54:47:50	PM	6.57	26
390	NJ 73 @ Fellowship Rd	Mount Laurel Township	Burlington	9.3	43.4	43.4	PM	59	11	4/4	6,625	5:28:59	30:53:37	30:53:37	PM	6.02	43
308	NJ 73 @ Waverly Ave/Willow Rd	Maple Shade Township	Burlington	3.0	53.9	53.9	PM	46	6	4/4	5,479	1:43:07	40:26:09	40:26:09	PM	6.63	23
379	US 130 @ CR 603 (Riverton Rd)	Cinnaminson Township	Burlington	23.2	45.9	45.9	PM	54	23	3/3	3,885	5:25:02	19:55:40	19:55:40	PM	5.32	61
376	US 206 @ NJ 38	Southampton Township	Burlington	13.6	41.6	41.6	PM	66	73	4/4	2,867	1:49:27	7:25:11	7:25:11	PM	3.30	102
375	US 206 @ NJ 70	Southampton Township	Burlington	34.7	114.2	114.2	PM	6	21	4/4	2,573	4:43:32	21:28:19	21:28:19	PM	3.21	105
399	AC Expressway @ CR 705 (Sicklerville Rd)	Gloucester Township	Camden	7.0	25.6	25.6	PM	99	109	3/3	1,409	0:39:27	1:59:19	1:59:19	PM	6.39	28
342	CR 544 (Evesham Rd) @ CR 670 (Burnt Mill Rd)	Cherry Hill Township	Camden	25.4	75.9	75.9	PM	21	36	4/4	2,143	3:13:22	13:15:33	13:15:33	PM	5.51	52
377	CR 561 (Haddon Ave) @ CR 636 (Cuthbert Blvd)	Collingswood Borough	Camden	34.6	118.7	118.7	PM	4	17	4/4	2,297	5:54:25	24:39:12	24:39:12	PM	6.24	36
378	CR 561 (Haddon Ave) @ Kings Hwy	Haddonfield Borough	Camden	38.3	84.1	84.1	PM	15	48	4/4	1,881	3:51:30	10:55:55	10:55:55	PM	6.33	31
367	CR 639 (Warwick Rd) @ CR 667 (Oak Ave)	Lawnside Borough	Camden	12.9	79.9	79.9	PM	18	50	3/3	1,495	1:38:56	10:50:01	10:50:01	PM	6.64	21
345	CR 671 (Kresson Rd) @ CR 675 (Cropwell Rd)	Cherry Hill Township	Camden	23.4	65.9	65.9	PM	30	61	4/4	1,553	1:57:13	9:09:24	9:09:24	PM	2.86	110
351	I-295 EB @ CR 561 (Haddonfield-Berlin Rd)	Cherry Hill Township	Camden	21.5	33.9	33.9	PM	84	37	3/3	3,793	6:05:44	13:08:23	13:08:23	PM	7.78	6
330	I-295 WB On-/Off-Ramp @ NJ 168 (Black Horse Pk)	Haddon Heights Borough	Camden	45.1	73.8	73.8	PM	22	32	3/3	2,191	7:15:10	14:41:48	14:41:48	PM	7.04	13
348	NJ 154 (Brace Rd) @ CR 561 (Haddonfield-Berlin Rd)	Cherry Hill Township	Camden	14.7	67.5	67.5	PM	29	49	3/3	2,385	1:59:55	10:52:57	10:52:57	PM	5.33	59
401	NJ 168 (Black Horse Pk) @ CR 544 (Evesham Rd)	Runnemede Borough	Camden	34.5	78.4	78.4	PM	20	42	4/4	2,107	4:01:36	11:40:46	11:40:46	PM	5.81	48
331	NJ 168 (Black Horse Pk) @ CR 551 (W Kings Hwy)	Mount Ephraim Borough	Camden	28.9	96.5	96.5	PM	10	24	4/4	2,331	4:04:27	19:20:24	19:20:24	PM	6.59	25
368	NJ 168 (Black Horse Pk) @ CR 659 (Browning Rd)	Bellmawr Borough	Camden	34.3	86.0	86.0	PM	14	26	4/4	2,372	5:35:40	18:55:22	18:55:22	PM	5.43	57
402	NJ 168 (Black Horse Pk) @ NJ 41 (Clements Bridge Rd)	Runnemede Borough	Camden	56.2	223.6	223.6	PM	1	4	4/4	2,612	8:28:26	44:34:58	44:34:58	PM	7.03	15
349	NJ 38 (Kaighns Ave) @ Longwood Ave	Cherry Hill Township	Camden	8.9	48.5	48.5	PM	49	15	4/4	4,042	1:50:40	26:20:08	26:20:08	PM	6.71	20
346	NJ 38 @ CR 616 (Church Rd)	Cherry Hill Township	Camden	27.4	73.1	73.1	PM	24	25	5/5	4,645	4:12:39	19:15:42	19:15:42	PM	3.84	90
343	NJ 38 @ CR 626 (Chapel Ave)	Cherry Hill Township	Camden	4.1	26.8	26.8	PM	98	40	4/4	4,394	1:46:08	11:50:23	11:50:23	PM	6.20	38
398	NJ 41 (Clements Bridge Rd) @ CR 544 (Evesham Rd)	Gloucester Township	Camden	12.4	71.2	71.2	PM	26	28	4/4	2,676	2:39:54	16:53:59	16:53:59	PM	6.32	32
340	NJ 70 @ Chelton Pkwy/West Gate Dr	Cherry Hill Township	Camden	45.0	118.6	118.6	PM	5	1	4/4	4,775	23:35:41	78:10:15	78:10:15	PM	8.42	4
347	NJ 70 @ CR 627 (Cooper Landing Rd)	Cherry Hill Township	Camden	5.3	23.6	23.6	PM	102	46	3/3	4,704	1:33:19	11:17:40	11:17:40	PM	3.65	97
350	NJ 70 @ CR 644 (Haddonfield Rd)	Cherry Hill Township	Camden	13.3	43.0	43.0	PM	63	22	4/4	6,935	5:18:05	20:55:57	20:55:57	PM	6.20	38
341	NJ 70 @ CR 673 (Springdale Rd)	Cherry Hill Township	Camden	13.5	23.3	23.3	PM	103	45	4/4	6,305	5:34:22	11:32:37	11:32:37	PM	5.48	54
344	NJ 70 @ NJ 41 (Kings Hwy)	Cherry Hill Township	Camden	22.4	54.3	54.3	PM	45	16	4/4	6,348	8:36:57	26:06:43	26:06:43	PM	6.64	21
369	NJ 73 @ CR 675 (Cooper Rd)	Voorhees Township	Camden	26.8	119.1	119.1	PM	3	8	4/4	3,278	6:36:34	37:04:56	37:04:56	PM	3.89	88
405	NJ 73 @ Franklin Ave	Berlin Township	Camden	4.3	43.4	43.4	PM	60	29	3/3	2,672	1:12:14	15:29:16	15:29:16	PM	4.91	72
393	NJ 73 @ Hylton Rd	Pennsauken Township	Camden	7.2	18.5	18.5	PM	109	72	4/4	4,080	0:47:39	7:32:13	7:32:13	PM	5.06	67
394	US 130 (Crescent Blvd) @ NJ 38 (Kaighns Ave)	Pennsauken Township	Camden	6.1	34.3	34.3	PM	83	20	3/3	5,389	2:41:04	22:06:00	22:06:00	PM	8.57	3

Table 10
Continued

MAP ID	Intersection Name	Municipality	County	Peak Hour Vehicle Delay (sec)					Peak Hour Volume Delay (hh:mm:ss)							CMP Obj. Score	CMP Obj. Score Rank
				AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Rank	Intersection Legs Included in Delay	Peak Hour Volume	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay		
307	US 130 (Crescent Blvd) @ NJ 47 (Broadway)	Brooklawn Borough	Camden	16.3	55.7	55.7	PM	42	38	4/4	2,555	2:23:51	12:46:18	12:46:18	PM	6.01	44
392	US 130 @ CR 628 (Park Dr)	Pennsauken Township	Camden	17.8	73.5	73.5	PM	23	9	4/4	5,749	9:45:50	36:51:54	36:51:54	PM	6.89	18
329	US 30 (White Horse Pk) @ CR 656 (Station Ave)	Haddon Heights Borough	Camden	40.3	57.1	57.1	PM	38	41	4/4	1,977	6:10:53	11:42:22	11:42:22	PM	5.87	46
403	US 30 (White Horse Pk) @ Carlton Ave	Somerdale Borough	Camden	16.3	58.9	58.9	PM	35	52	4/4	3,308	2:17:50	10:48:25	10:48:25	PM	6.29	33
406	US 30 (White Horse Pk) @ CR 534 (Jackson Rd)	Berlin Borough	Camden	16.3	37.3	37.3	PM	72	67	3/3	1,613	2:30:16	7:54:28	7:54:28	PM	6.39	28
328	US 30 (White Horse Pk) @ CR 653 (Kings Hwy)	Audubon Borough	Camden	34.3	56.3	56.3	PM	40	58	4/4	2,294	4:41:44	9:57:45	9:57:45	PM	5.67	51
400	US 30 (White Horse Pk) @ CR 669 (Warwick Rd)	Magnolia Borough	Camden	42.0	94.2	94.2	PM	11	7	4/4	4,108	12:25:21	38:10:04	38:10:04	PM	7.59	8
404	US 30 (White Horse Pk) @ CR 673 (Laurel Rd)	Stratford Borough	Camden	55.6	58.9	58.9	PM	36	33	4/4	4,118	9:09:05	14:24:19	14:24:19	PM	6.27	34
407	US 30 (White Horse Pk) @ CR 689 (Cross Keys Rd)	Berlin Borough	Camden	18.0	35.5	35.5	PM	77	66	4/4	3,327	3:10:04	7:56:05	7:56:05	PM	5.44	56
372	CR 544 (Clements Bridge Rd) @ CR 621 (Almonesson Rd)	Deptford Township	Gloucester	0.0	34.8	34.8	PM	79	84	4/4	1,828	0:00:00	5:34:58	5:34:58	PM	4.31	80
303	CR 551 (Kings Hwy) @ CR 666 (Franklin St)	Swedesboro Borough	Gloucester	25.8	43.1	43.1	PM	62	95	4/4	1,157	1:50:12	4:29:40	4:29:40	PM	3.71	94
410	CR 630 (Egg Harbor Rd) @ CR 654 (Hurffville-Crosskeys Rd)	Washington Township	Gloucester	26.1	47.2	47.2	PM	50	89	3/3	1,810	2:03:45	5:09:00	5:09:00	PM	4.64	76
409	NJ 168 (Black Horse Pk) @ CR 705 (Sicklerville Rd)	Washington Township	Gloucester	14.1	44.6	44.6	PM	58	101	4/4	1,127	0:50:48	3:11:16	3:11:16	PM	5.74	50
373	NJ 27 (Delsea Dr) @ CR 534 (Cooper St)	Deptford Township	Gloucester	13.9	44.7	44.7	PM	56	56	4/4	3,437	2:18:23	10:13:01	10:13:01	PM	4.34	79
374	NJ 27 (Delsea Dr) @ CR 603 (Blackwood Barnsboro Rd)	Deptford Township	Gloucester	13.6	46.3	46.3	PM	52	69	4/4	2,321	1:39:15	7:50:20	7:50:20	PM	3.65	97
370	NJ 41 (Hurffville Rd) @ Cooper St	Deptford Township	Gloucester	13.4	30.0	30.0	PM	92	94	4/4	1,887	1:29:56	4:30:24	4:30:24	PM	1.78	117
371	NJ 41 (Hurffville Rd) @ CR 544 (Clements Bridge Rd)	Deptford Township	Gloucester	3.0	29.7	29.7	PM	93	62	3/3	3,260	0:44:49	9:02:06	9:02:06	PM	5.76	49
408	NJ 42 (Black Horse Pk) @ CR 639 (Ganttown Rd)	Washington Township	Gloucester	18.4	87.5	87.5	PM	13	5	3/4	4,443	7:23:19	41:23:46	41:23:46	PM	5.21	62
411	NJ 42 (Black Horse Pk) @ CR 651 (Greentree Rd)	Washington Township	Gloucester	35.2	112.8	112.8	PM	8	3	4/4	4,776	11:21:10	50:51:26	50:51:26	PM	6.26	35
412	NJ 42 (Black Horse Pk) @ CR 655 (Fries Mill Rd)	Washington Township	Gloucester	6.6	44.7	44.7	PM	57	18	3/3	4,242	2:48:39	23:37:22	23:37:22	PM	4.07	85
301	NJ 45 (Bridgeton Pk) @ CR 322 (Mullica Rd)	Harrison Township	Gloucester	17.3	34.6	34.6	PM	82	77	3/3	2,137	2:35:21	6:45:45	6:45:45	PM	3.10	107
396	NJ 45 (Broad St) @ CR 534 (Cooper St)	Woodbury City	Gloucester	48.0	112.8	112.8	PM	7	19	4/4	2,923	7:32:33	22:51:24	22:51:24	PM	8.62	2
395	NJ 45 (Broad St) @ CR 551 (Edith Ave)	Woodbury City	Gloucester	18.5	28.6	28.6	PM	94	98	3/3	1,532	2:02:55	4:03:52	4:03:52	PM	5.09	65
397	NJ 45 (Broad St) @ CR 644 (Red Bank Ave)	Woodbury City	Gloucester	30.3	47.0	47.0	PM	51	64	4/4	2,110	4:12:30	8:20:42	8:20:42	PM	6.61	24
302	NJ 45 (Main St) @ CR 603 (Breakneck Rd)	Harrison Township	Gloucester	19.5	30.5	30.5	PM	91	99	3/4	1,491	1:59:10	3:56:25	3:56:25	PM	4.14	82
300	NJ 45 (Woodstown Rd) @ NJ 27 (Bridgeton Pk)	Harrison Township	Gloucester	19.6	40.1	40.1	PM	68	82	3/3	1,251	2:11:46	5:58:39	5:58:39	PM	2.56	112
306	US 322 (Sicklerville Rd) @ NJ 42 (Black Horse Pk)	Monroe Township	Gloucester	18.6	49.5	49.5	PM	48	54	4/4	3,099	3:12:44	10:34:34	10:34:34	PM	4.96	69
304	US 322 @ CR 536 (New Brooklyn Rd)	Monroe Township	Gloucester	3.7	8.8	8.8	PM	118	108	4/4	2,478	0:35:28	2:02:58	2:02:58	PM	4.02	86
413	US 322 @ CR 653 (Paulsboro Rd)	Woolwich Township	Gloucester	22.6	45.6	45.6	PM	55	59	4/4	1,577	3:03:34	9:36:57	9:36:57	PM	3.98	87
305	US 322 @ CR 655 (Fries Mill Rd)	Monroe Township	Gloucester	12.8	38.7	38.7	PM	69	111	4/4	829	0:36:55	1:53:00	1:53:00	PM	2.19	116
332	US 322 @ NJ 47 (Delsea Dr)	Glassboro Borough	Gloucester	31.0	79.7	79.7	PM	19	31	3/3	1,645	3:42:26	14:43:54	14:43:54	PM	8.13	5
326	Bank St @ N Warren St	Trenton City	Mercer	6.0	17.8	17.8	PM	110	116	3/4	1,114	0:13:12	0:28:57	0:28:57	PM	7.04	13
324	Bridge St @ N Warren St	Trenton City	Mercer	5.8	31.3	31.3	PM	86	104	3/3	955	0:24:26	2:23:02	2:23:02	PM	6.34	30
359	Brunswick Circle @ Strawberry St	Lawrence Township	Mercer	25.0	43.4	43.4	PM	61	76	5/5	2,571	2:59:22	6:52:25	6:52:25	PM	5.50	53
323	Calhoun St @ Calhoun St Bridge	Trenton City	Mercer	18.5	82.4	82.4	PM	16	51	3/3	1,557	3:17:37	10:48:48	10:48:48	PM	7.06	12
352	CR 518 (Broad St) @ Princeton Ave	Hopewell Borough	Mercer	19.1	17.8	19.1	AM	108	110	3/3	1,110	1:36:32	1:58:27	1:58:27	PM	2.26	114
363	CR 535 (Old Trenton Rd) @ CR 641 (Windsor Rd)	West Windsor Township	Mercer	16.3	38.7	38.7	PM	70	93	4/4	1,341	1:41:44	4:53:37	4:53:37	PM	1.34	118
337	CR 535 (State St Ext) @ CR 652 (Nottingham Way)	Hamilton Township	Mercer	14.3	23.7	23.7	PM	101	102	3/3	1,367	1:26:17	3:02:29	3:02:29	PM	5.02	68
365	CR 615 (Cranbury Rd) @ CR 638 (Clarksville Rd)	West Windsor Township	Mercer	22.3	12.0	22.3	AM	105	107	3/3	1,096	2:06:52	1:17:22	2:06:52	AM	5.13	63
320	CR 622 (Olden Ave) @ Brunswick Ave	Trenton City	Mercer	14.5	36.5	36.5	PM	75	80	4/4	1,825	1:54:42	6:22:32	6:22:32	PM	7.60	7
322	CR 622 (Olden Ave) @ New York Ave	Trenton City	Mercer	27.3	46.0	46.0	PM	53	65	4/4	2,221	3:34:15	8:05:05	8:05:05	PM	6.91	17
338	Edgebrook Rd @ Uncle Petes Rd	Hamilton Township	Mercer	128.1	3.9	128.1	AM	2	114	3/3	148	0:58:03	0:03:04	0:58:03	AM	2.86	110
319	NJ 129 @ CR 650 (Lalor St)	Trenton City	Mercer	10.5	34.7	34.7	PM	81	63	4/4	3,399	2:24:06	8:51:13	8:51:13	PM	6.81	19
334	NJ 156 @ CR 524 (Yardville Allentown Rd)	Hamilton Township	Mercer	10.4	6.4	10.4	AM	117	117	4/4	917	0:25:58	0:28:32	0:28:32	PM	4.51	77
339	NJ 156 @ CR 672 (S Broad St)	Hamilton Township	Mercer	13.1	4.3	13.1	AM	114	118	4/4	800	0:24:36	0:16:33	0:24:36	AM	4.88	73
354	NJ 27 (Nassau St) @ CR 526 (Washington Rd)	Princeton	Mercer	37.5	61.3	61.3	PM	32	70	4/4	1,671	3:46:26	7:38:10	7:38:10	PM	7.23	10
356	NJ 27 (Nassau St) @ Witherspoon St	Princeton	Mercer	21.5	34.7	34.7	PM	80	78	2/3	1,399	3:14:52	6:44:12	6:44:12	PM	10.18	1
327	NJ 29 @ Cass St	Trenton City	Mercer	11.2	20.6	20.6	PM	107	96	4/4	2,614	2:13:17	4:19:56	4:19:56	PM	7.13	11
325	NJ 29 @ CR 579 (Sullivan Way)	Trenton City	Mercer	30.8	22.2	30.8	AM	89	103	3/3	1,233	2:17:22	2:43:10	2:43:10	PM	3.77	92
321	NJ 29 @ S Warren St	Trenton City	Mercer	31.3	42.4	42.4	PM	64	30	3/4	4,353	7:10:14	15:05:00	15:05:00	PM	7.54	9
318	NJ 33 @ CR 526 (Robbinsville Edinburg Rd)	Robbinsville Township	Mercer	21.9	71.8	71.8	PM	25	53	3/3	1,714	3:01:34	10:38:52	10:38:52	PM	4.95	70
316	NJ 33 @ CR 539 (Main St)	Hightstown Borough	Mercer	15.4	35.7	35.7	PM	76	79	3/3	2,020	2:13:59	6:41:04	6:41:04	PM	4.13	83

Table 10
Continued

MAP ID	Intersection Name	Municipality	County	Peak Hour Vehicle Delay (sec): AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Peak Hour Volume Delay (hh:mm:ss): Rank	Intersection Legs Included in Delay	Peak Hour Volume	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
317	NJ 33 @ CR 539 (Main St)	Hightstown Borough	Mercer	16.8	41.4	41.4	PM	67	83	3/3	1,593	1:58:28	5:58:16	5:58:16	PM	3.75	93
336	NJ 33 @ Whitehorse Hamilton Square Rd	Hamilton Township	Mercer	13.2	30.9	30.9	PM	88	97	4/4	1,851	1:23:52	4:04:14	4:04:14	PM	3.70	95
333	NJ 33 @ Yardville Hamilton Square Rd	Hamilton Township	Mercer	16.2	32.6	32.6	PM	85	81	4/4	2,404	1:59:34	6:07:39	6:07:39	PM	2.96	108
357	Princeton Pk @ Province Line Rd	Lawrence Township	Mercer	22.5	30.6	30.6	PM	90	91	4/4	2,225	3:07:15	4:58:09	4:58:09	PM	2.33	113
360	US 1 (Brunswick Pk) @ CR 546 (Franklins Corner Rd)	Lawrence Township	Mercer	18.5	55.0	55.0	PM	44	13	4/4	5,208	4:29:24	27:22:05	27:22:05	PM	6.18	40
364	US 1 (Brunswick Pk) @ CR 571 (Washington Rd)	West Windsor Township	Mercer	37.7	42.3	42.3	PM	65	27	4/4	5,882	14:26:09	18:43:41	18:43:41	PM	6.14	41
362	US 1 (Brunswick Pk) @ Lower Harrison St	West Windsor Township	Mercer	20.9	17.3	20.9	AM	106	71	3/4	2,756	7:26:51	7:34:09	7:34:09	PM	5.13	63
366	US 1 (Princeton Ave) @ CR 622 (Olden Ave)	Ewing Township	Mercer	19.8	50.5	50.5	PM	47	57	4/4	2,649	2:21:31	10:06:48	10:06:48	PM	5.82	47
361	US 1 Bus (Brunswick Pk) @ Allen Ln	Lawrence Township	Mercer	93.8	11.4	93.8	AM	12	113	2/2	835	0:59:17	0:27:34	0:59:17	AM	3.56	99
414	US 130 @ CR 571 (Princeton Hightstown Rd)	East Windsor Township	Mercer	7.1	37.5	37.5	PM	71	47	4/4	3,255	1:14:03	11:10:13	11:10:13	PM	2.95	109
335	US 206 (Broad St) @ CR 533 (White Horse Ave)	Hamilton Township	Mercer	11.0	24.4	24.4	PM	100	90	4/4	3,295	1:50:50	5:01:46	5:01:46	PM	4.48	78
353	US 206 (Stockton St) @ Bayard Ln	Princeton	Mercer	61.3	64.7	64.7	PM	31	44	3/3	1,917	8:33:48	11:37:47	11:37:47	PM	6.97	16
355	US 206 (Stockton St) @ CR 604 (Elm Rd)	Princeton	Mercer	68.1	54.1	68.1	AM	28	85	2/3	1,023	4:55:14	5:34:44	5:34:44	PM	6.09	42
358	US 206 @ CR 546 (Franklin Corner Rd)	Lawrence Township	Mercer	29.4	34.9	34.9	PM	78	86	4/4	2,012	3:33:40	5:31:23	5:31:23	PM	3.88	89

Most Delayed
Somewhat Delayed
Somewhat Not Delayed
Least Delayed

AM Delay

Source: DVRPC analysis of 2021 INRIX data

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4.4 Most Congested Focus Intersection Bottlenecks

The top two Focus Intersection Bottlenecks with the highest peak hour vehicle and volume delays were identified separately for each county in the DVRPC region. Some bottlenecks were in the top two for both delay measures, which reduced the total number of bottlenecks for a county. The final analysis identified 33 Most Congested Focus Intersection Bottlenecks in the region, with 19 in the Pennsylvania subregion and 14 in the New Jersey subregion, respectively (see Table 11). These bottlenecks are listed in ascending order by county and intersection name with the associated map identifier, and the municipality and county in which they are located. Similar to the Most Congested Focus Roadway Corridor Facilities, the most congested bottlenecks are limited due to the importance of targeting locations with the most traffic congestion and funding availability. Some of these locations are programmed on the Pennsylvania TIP (FY 2023–2026) and New Jersey TIP (FY 2024–2027), and others are on the DVRPC's *Connection 2050* Long-Range Plan programming list. Bottlenecks not identified as the most congested should still be considered for improvements, but weighed against other regional priorities and the region's extreme funding constraint.

Focus Intersection Bottleneck Summaries

The following pages include a map profile summary of each of the Most Congested Focus Intersection Bottlenecks in the order listed in Table 11, along with a map title indicating the bottleneck map identifier and name. Each map profile summary page provides the following information:

Main Map
Shows the location of the Most Congested Focus Intersection Bottleneck, nearby bottlenecks and Focus Roadway Corridor Facilities, traffic volumes approaching the bottleneck (labeled in black), nearby traffic signals, nearby bus and passenger rail routes, and road segments that show high congestion indicated by the TTI measure (labeled in red).

Summary of Conditions
Provides information on delay measure rankings within each state with rankings for the Most Congested Focus Intersection Bottlenecks out of the 181 bottlenecks in Pennsylvania and 118 in New Jersey (see Chapter 4, section 3). This section also identifies intersection characteristics such as FHWA functional classification and which approach experiences the most congestion.

Congestion Measures
Lists the congestion performance measures that exist for each Congested Focus Intersection Bottleneck. The average travel time (TT) vehicle delay is measured in seconds during the AM and PM peak periods using INRIX travel time data, with higher values indicating more vehicle delay. The peak hour volume delay measure is derived from the travel time delay and PennDOT, NJDOT, and DVRPC collected traffic volume counts, with higher values indicating more volume delay. LOTTR and PHED are PM3 measures that are only available on NHS roadways and represent the length of roadway miles that exists along the facility. The PHED measure only includes roadways within the Philadelphia, PA-NJ-DE-MD or Trenton, NJ UZAs. The TDM Forecasted Congestion measure represents the length of roadway miles the regional travel demand model forecasts V/C greater than or equal to 0.85 in 2050, which is considered high anticipated congestion.

Planned Improvements on the Long-Range Plan and TIP
Indicates existing projects at the bottleneck that are programmed on the Pennsylvania TIP (FY 2023–2026), New Jersey TIP (FY 2024–2027), and the DVRPC Long-Range Plan (*Connections 2050*). Long-

Range Plan projects indicated with a letter designate transit projects, and ones with a number designate road projects. Those italicized indicate unfunded aspirational projects, and un-italicized projects are in the fiscally constrained funded plan.

Very Appropriate Strategies
Indicates the most appropriate strategies to mitigate congestion for the intersection bottleneck, which might be different than the strategies for the subcorridor area the intersection bottleneck is within. Recently implemented or partially implemented strategies are listed first and italicized.

Additional Factors
Provides additional information about the bottleneck location that may affect mitigation strategies, and investment decisions. This includes AADT approach volumes to the intersection, number of intersection legs included in delay calculations, whether the bottleneck is on the NHS, along a bus or passenger rail route, part of a CMP Congested Corridor and Subcorridor Area, part of a Focus Roadway Corridor Facility, and the miles of CMP high crash frequency and severity. It also indicates the traffic signal type (coordinated, adaptive, isolated, or pre-timed). Coordinated signals involve a system of multiple traffic signals along a corridor or within a network that are synchronized with each other. Adaptive signals are a special type of coordinated system, which continuously monitors traffic conditions using sensors and cameras and automatically adjusts signal timing in real-time to optimize traffic flow. An isolated traffic signal operates independently of other signals, responding to the traffic conditions at its specific intersection, and pre-timed signals follow a predetermined fixed timing plan that is set in advance and does not change dynamically. Finally, the additional factors indicate the CMP Objective Measures score, which is the same value listed in Tables 9 and 10. The score is the average score of all roadway segments that make up the delay calculation for the intersection bottleneck, and higher scores mean more CMP objectives are met.

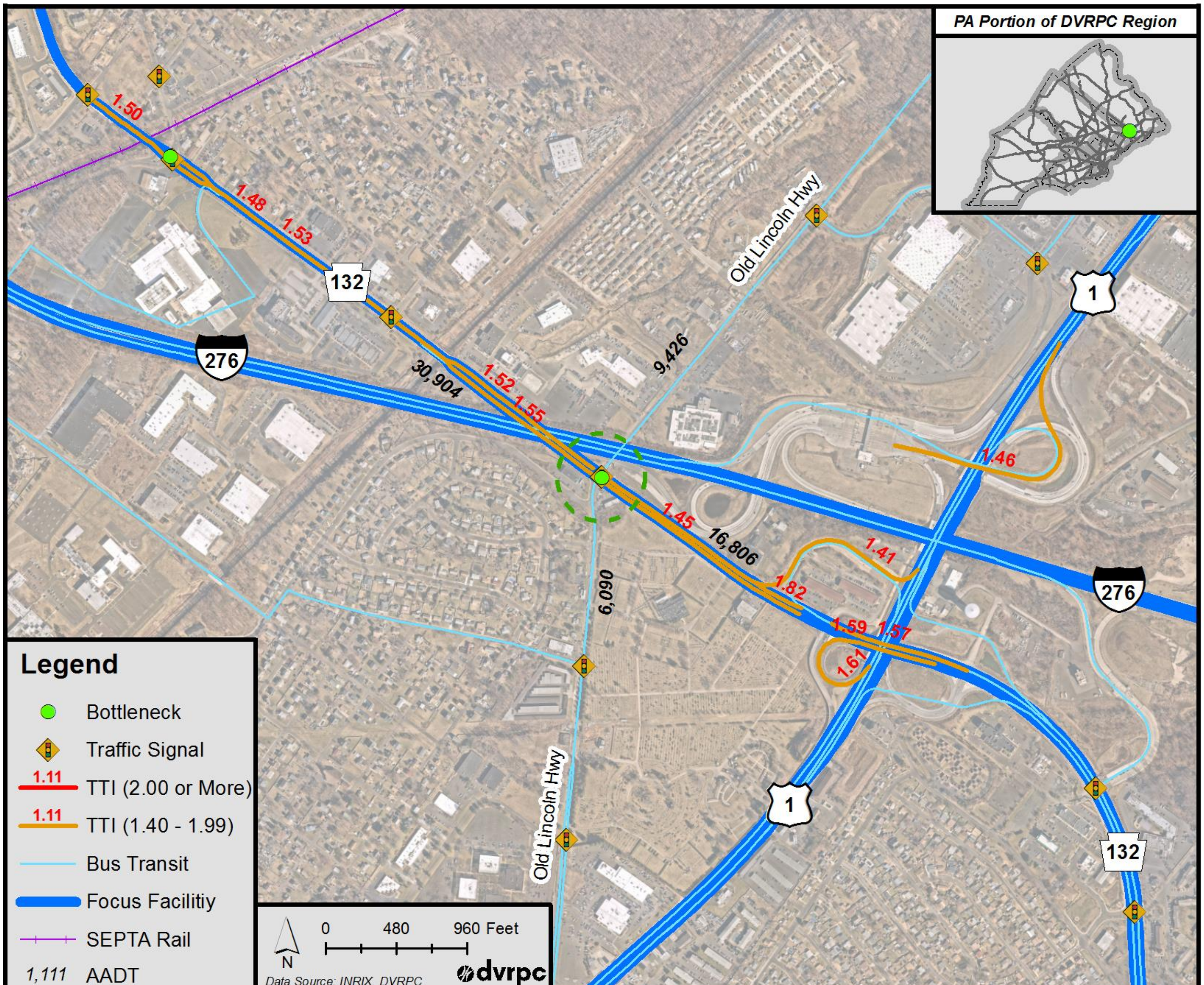
Table 11: Most Congested Focus Intersection Bottlenecks

Map ID	Intersection Name	Municipality	County
Pennsylvania			
20	PA 132 (Street Rd) @ Old Lincoln Hwy	Bensalem Township	Bucks
8	PA 132 (Street Rd) @ PA 532 (Bustleton Pk)	Lower Southampton Township	Bucks
10	PA 232 (Huntingdon Pk) @ County Line Rd	Upper Southampton Township	Bucks
15	PA 413 (Pine St) @ PA 213 (Maple Ave)	Langhorne Borough	Bucks
39	PA 100 @ Howard Rd	West Whiteland Township	Chester
37	PA 100 @ US 30 Bypass WB Off Ramp	West Whiteland Township	Chester
59	PA 41 @ Baltimore Pk	Avondale Borough	Chester
36	US 30 Bus (Lincoln Hwy) @ PA 82 (1st Ave)	Coatesville City	Chester
77	Springfield Rd @ Bishop Ave	Springfield Township	Delaware
80	US 1 (State Rd) @ Springfield Rd	Springfield Township	Delaware
89	US 322 (Conchester Hwy) @ Bethel Ave/Cherry Tree Rd	Upper Chichester Township	Delaware
127	PA 23 (Front St) @ Matsonford Rd/Fayette St	West Conshohocken Borough	Montgomery
130	PA 363 (Trooper Rd) @ Ridge Pk	Lower Providence Township	Montgomery
102	PA 611 (Old York Rd) @ Washington Ln	Abington Township	Montgomery
123	Philmont Ave @ Pine Rd	Lower Moreland Township	Montgomery
152	US 1 (City Ave) @ PA 23 (Conshohocken State Rd)	Lower Merion Township, West Park	Montgomery, Philadelphia
153	US 1 (City Ave) @ Presidential Blvd	Lower Merion Township, West Park	Montgomery, Philadelphia
151	Allegheny Ave @ Kensington Ave	North	Philadelphia
138	PA 532 (Bustleton Ave) @ Byberry Rd	Upper Far Northeast	Philadelphia
New Jersey			
375	US 206 @ NJ 70	Southampton Township	Burlington
310	NJ 70 @ Elmwood Rd	Evesham Township	Burlington
388	NJ 73 @ Church Rd/Ramblewood Pkwy	Mount Laurel Township	Burlington
308	NJ 73 @ Waverly Ave/Willow Rd	Maple Shade Township	Burlington
402	NJ 168 (Black Horse Pk) @ NJ 41 (Clements Bridge Rd)	Runnemede Borough	Camden
369	NJ 73 @ CR 675 (Cooper Rd)	Voorhees Township	Camden
340	NJ 70 @ Chelton Pkwy/West Gate Dr	Cherry Hill Township	Camden
396	NJ 45 (Broad St) @ CR 534 (Cooper St)	Woodbury City	Gloucester
411	NJ 42 (Black Horse Pk) @ CR 651 (Greentree Rd)	Washington Township	Gloucester
408	NJ 42 (Black Horse Pk) @ CR 639 (Ganttown Rd)	Washington Township	Gloucester
361	US 1 Bus (Brunswick Pk) @ Allen Ln	Lawrence Township	Mercer
318	NJ 33 @ CR 526 (Robbinsville Edinburg Rd)	Robbinsville Township	Mercer
360	US 1 (Brunswick Pk) @ CR 546 (Franklins Corner Rd)	Lawrence Township	Mercer
364	US 1 (Brunswick Pk) @ CR 571 (Washington Rd)	West Windsor Township	Mercer

Source: DVRPC, 2023

Figure 65: Bottleneck 20

PA 132 (Street Rd) @ Old Lincoln Hwy, Bensalem Twp, Bucks County, PA



Summary of Conditions	
The signalized intersection at PA 132 (Street Rd) and Old Lincoln Hwy in Bensalem Township, Bucks County includes four roadway approaches and is ranked **#55** and **#16** in peak travel time vehicle and volume delay, respectively. PA 132 is classified as a principal arterial roadway and Old Lincoln Highway as collector and the traffic signal is part of an adaptive system that runs along both PA 132 and Old Lincoln Hwy. The majority of the traffic congestion is on PA 132 in both the eastbound and westbound approaches to the intersection.	

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	42.4
TT PM Peak Vehicle Delay (sec):	99.9
TT AM Peak Volume Delay (hr):	17:34:06
TT PM Peak Volume Delay (hr):	52:28:24
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	91,838
TDM Forecasted Congestion (mi):	0.69

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

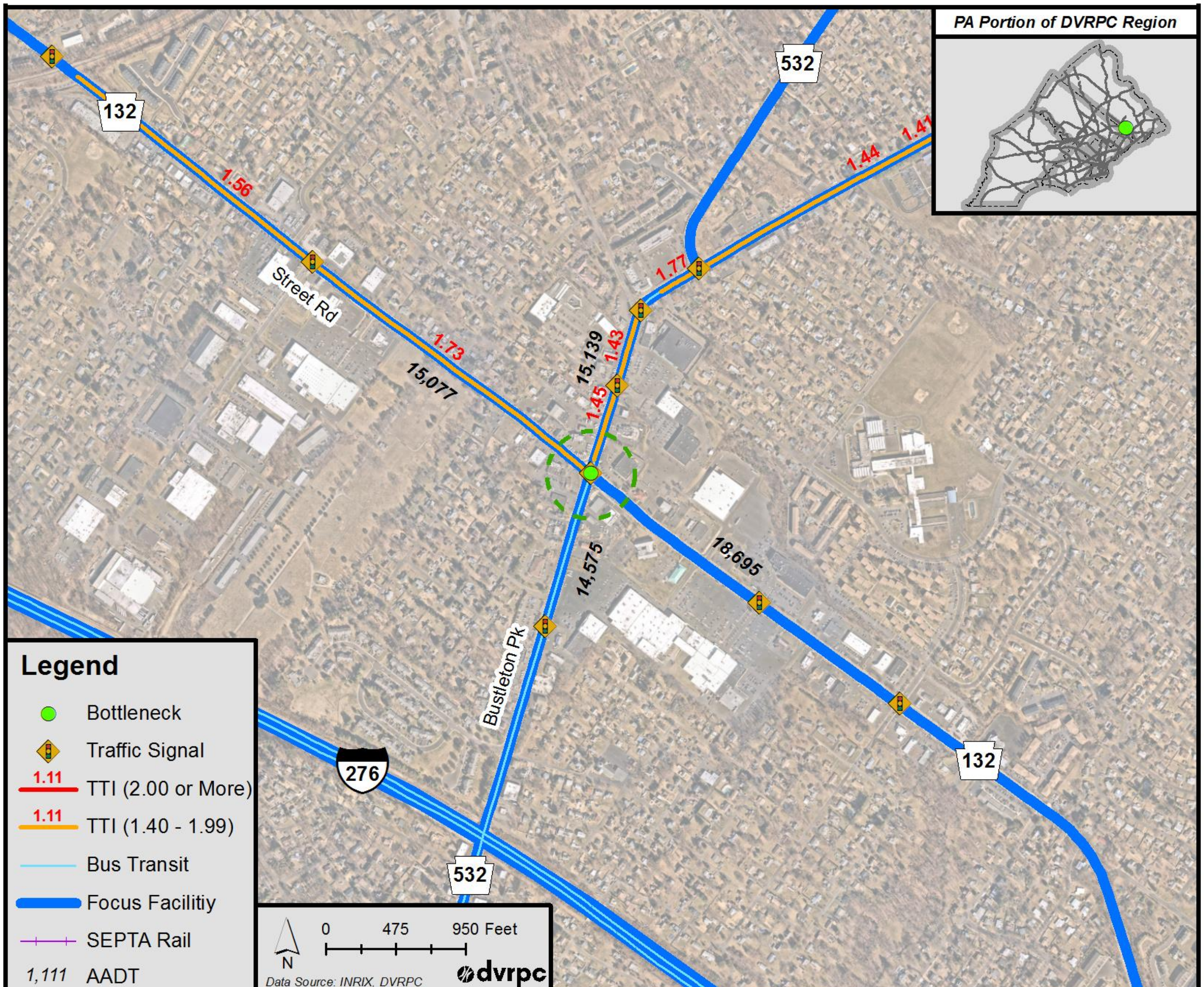
Very Appropriate Strategies

1) *Signal Improvements*
2) Turning Movement Enhancements
3) Transit Infrastructure Improvements
4) Modifications to Existing Transit Routes or Services
5) Walking and Bicycling Improvements

Additional Factors	
Peak Hour Approach Volume:	5,690
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Adaptive
Focus Roadway Facility:	90
Corridor and Subcorridor Area:	5I; 12A
CMP Objectives Score:	8.01

Recently implemented or partially implemented strategies are listed first and italicized

Figure 66: Bottleneck 8
PA 132 (Street Rd) @ PA 532 (Bustleton Pk), Lower Southampton Twp, Bucks County, PA



Summary of Conditions

The signalized intersection at PA 132 (Street Rd) and PA 532 (Bustleton Pk) in Lower Southampton Township, Bucks County includes four roadway approaches and is ranked **#16** and **#19** in peak travel time vehicle and volume delay, respectively. Both PA 132 and PA 532 are classified as principal arterial roadways and each are part of an adaptive signaling system that extends along PA 132 south of the intersection and along PA 532 north of the intersection to PA 213 (Bridgetown Pk). PA 132 southbound and PA 532 southbound approaches to the intersection indicate the highest congestion.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	74.0
TT PM Peak Vehicle Delay (sec):	146.3
TT AM Peak Volume Delay (hr):	19:20:59
TT PM Peak Volume Delay (hr):	51:23:44
Level of Travel Time Reliability (mi):	0.05
Peak Hour Excessive Delay (per mi):	34,200
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

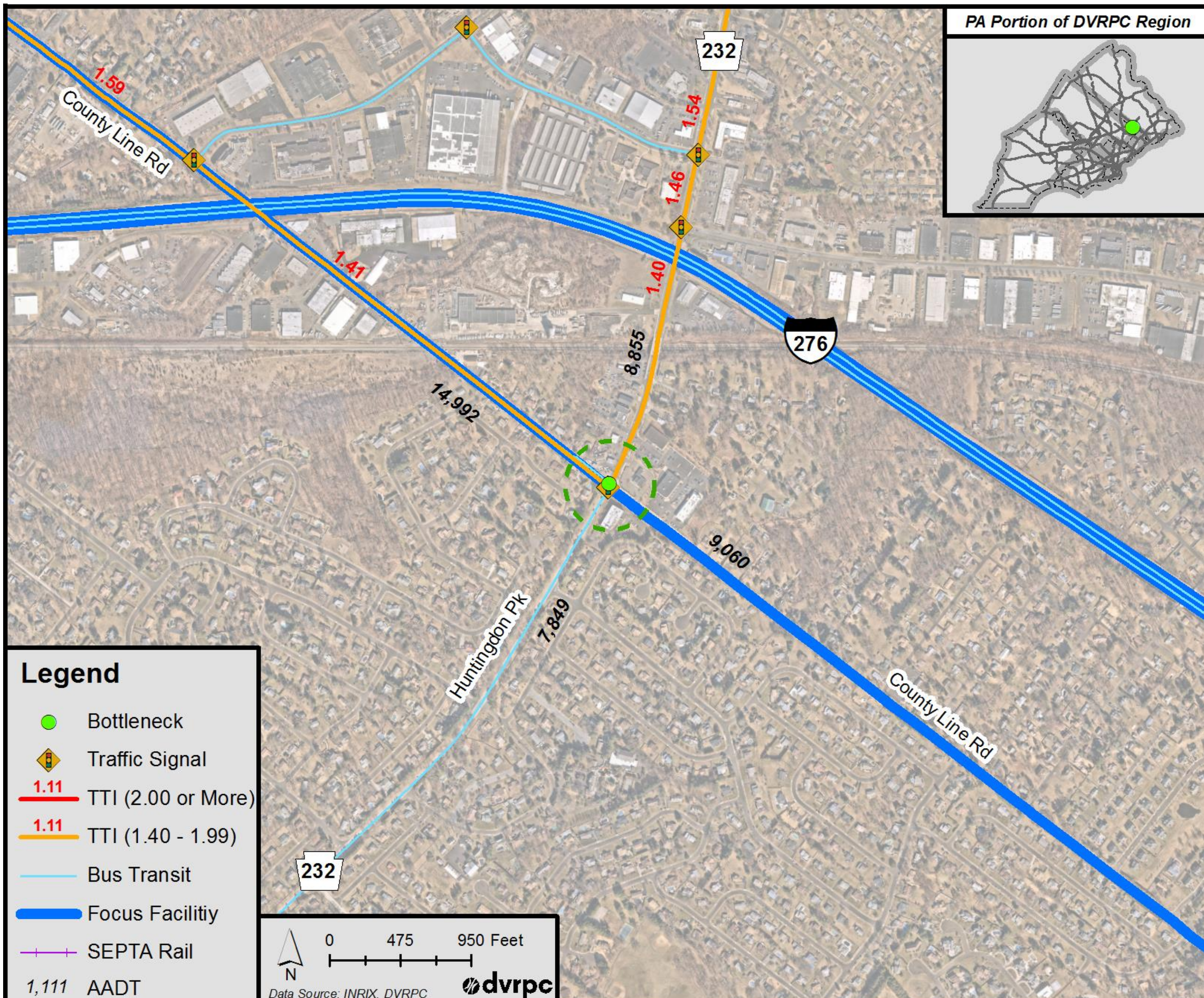
Very Appropriate Strategies

1) *Signal Improvements*
2) Transit Infrastructure Improvements
3) Turning Movement Enhancements
4) Modifications to Existing Transit Routes or Services
5) Walking and Bicycling Improvements

Additional Factors	
Peak Hour Approach Volume:	5,714
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.77
Transit Route:	Yes
Traffic Signal Type:	Adaptive
Focus Roadway Facility:	90; 173; 200
Corridor and Subcorridor Area:	12A
CMP Objectives Score:	6.70

Recently implemented or partially implemented strategies are listed first and italicized

Figure 67: Bottleneck 10
PA 232 (Huntingdon Pk) @ County Line Rd, Upper Southampton Twp, Bucks and Montgomery Counties, PA

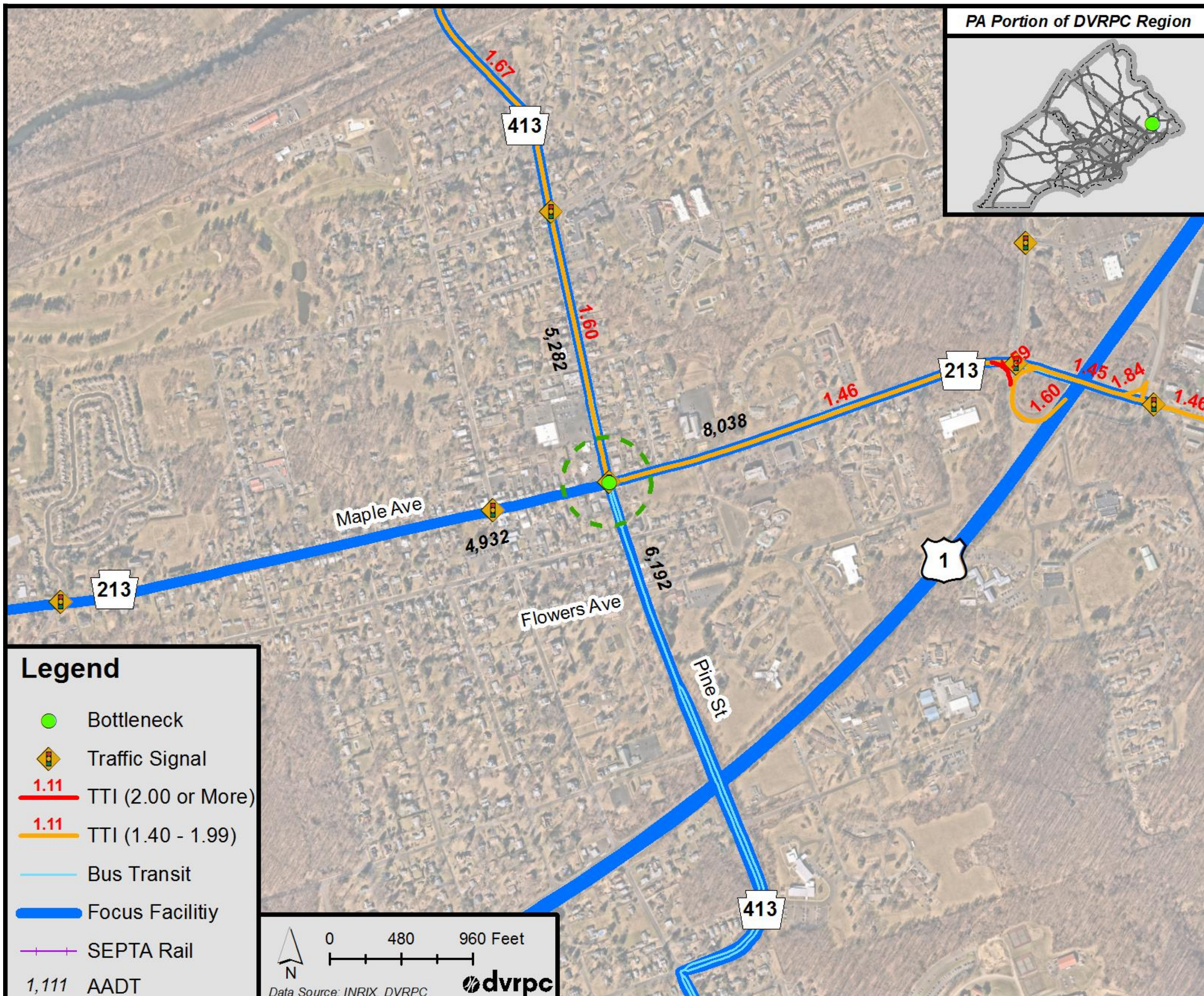


Summary of Conditions	Congestion Measures	
The signalized intersection at PA 232 (Huntingdon Rd) and County Line Rd in Bucks and Montgomery Counties includes four roadway approaches and is ranked **#10** and **#21** in peak travel time vehicle and volume delay, respectively. Both PA 232 and County Line Rd are classified as principal arterial roadways, and PA 232 is part of an adaptive signaling systems north of the intersection. PA 232 southbound and County Line Rd southbound approaches to the intersection indicate the highest congestion.	TT AM Peak Vehicle Delay (sec):	67.7
	TT PM Peak Vehicle Delay (sec):	170.7
	TT AM Peak Volume Delay (hr):	14:48:54
	TT PM Peak Volume Delay (hr):	48:11:30
	Level of Travel Time Reliability (mi):	1.13
	Peak Hour Excessive Delay (per mi):	13,223
	TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2023-26 TIP	Additional Factors	
* 2050 LRP: No projects	Peak Hour Approach Volume:	3,668
* FY 2023-26 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.00
1) *Signal Improvements*	CMP High Crash Severity (mi):	0.66
2) Turning Movement Enhancements	Transit Route:	Yes
3) Transit Infrastructure Improvements	Traffic Signal Type:	Adaptive
4) County and Local Road Connectivity	Focus Roadway Facility:	95
	Corridor and Subcorridor Area:	1A; 12A
	CMP Objectives Score:	5.77

Recently implemented or partially implemented strategies are listed first and italicized

Figure 68: Bottleneck 15
PA 413 (Pine St) @ PA 213 (Maple Ave), Langhorne Borough, Bucks County, PA



Summary of Conditions

The signalized intersection at PA 413 (Pine St) and PA 213 (Maple Ave) in Langhorne Borough, Bucks County has four roadway approaches and is ranked **#15** and **#42** in peak travel time vehicle and volume delay, respectively. PA 413 is classified as a principal arterial and PA 213 as a minor arterial. Just south of the intersection, PA 413 is being reconstructed as part of MPMS #93446 Route 1 Improvement Frontage Corridor, including a proposed new interchange at US 1, additional lanes in each direction at US 1, and a northbound lane from US 1 to Flowers Avenue. PA 413 southbound and PA 213 westbound approaches to the intersection indicate the highest congestion.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	62.4
TT PM Peak Vehicle Delay (sec):	155.3
TT AM Peak Volume Delay (hr):	9:44:34
TT PM Peak Volume Delay (hr):	32:19:35
Level of Travel Time Reliability (mi):	1.13
Peak Hour Excessive Delay (per mi):	37,215
TDM Forecasted Congestion (mi):	1.27

Planned Improvements on 2050 LRP & FY 2023-26 TIP

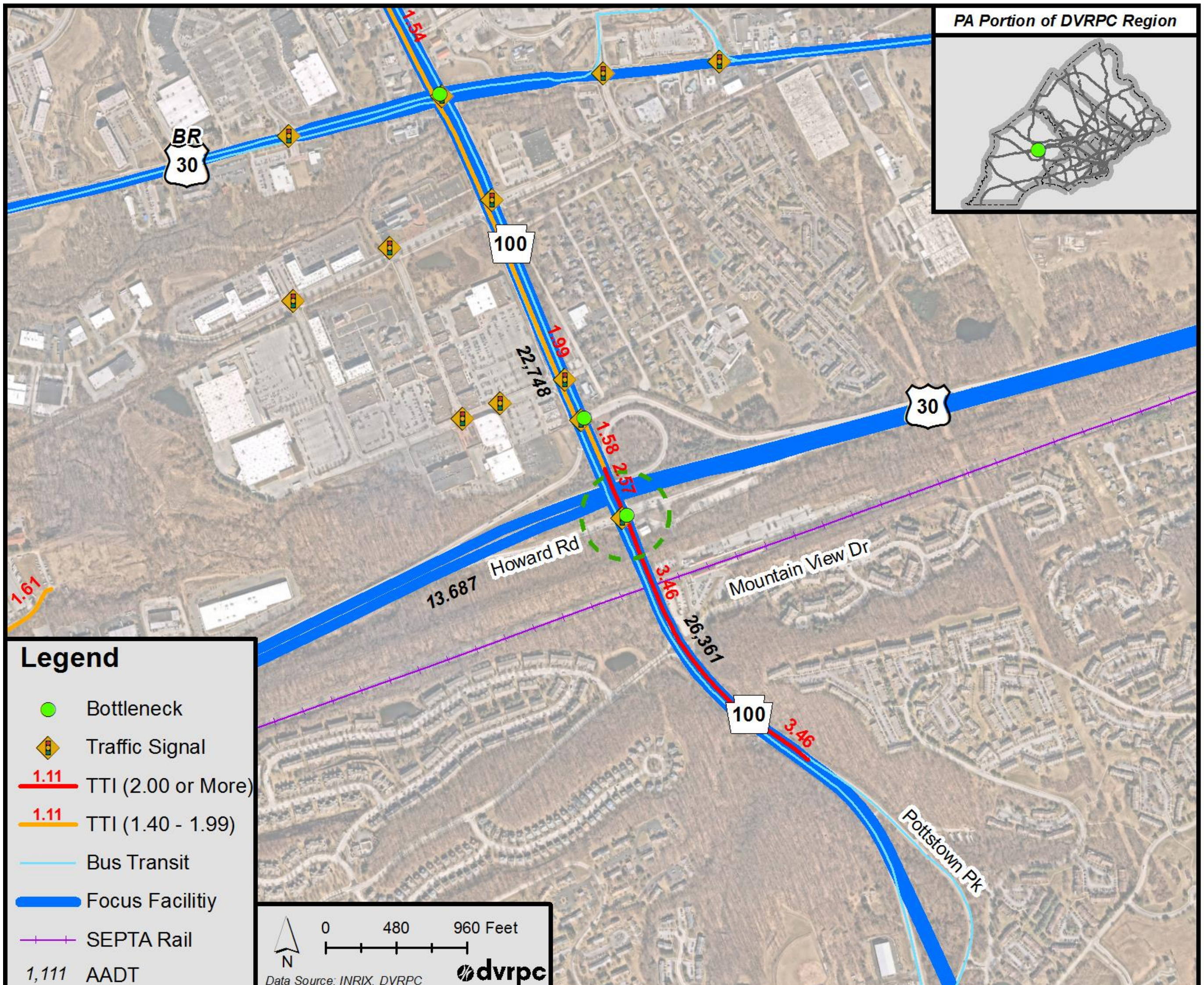
* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Modifications to Existing Transit Routes or Services
4) Express Transit Routes or Stop Consolidation

Additional Factors	
Peak Hour Approach Volume:	2,200
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.51
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	145; 173
Corridor and Subcorridor Area:	5I
CMP Objectives Score:	7.42

Figure 69: Bottleneck 39
PA 100 @ Howard Rd, West Whiteland Twp, Chester County, PA



Summary of Conditions

The signalized intersection at PA 100 and Howard Rd in West Whiteland Township, Chester County includes four roadway approaches and is ranked **#71** and **#11** in peak travel time vehicle and volume delay, respectively. Both PA 100 and Howard Rd are classified as expressways, although Howard Rd functions as an on- and off-ramp for US 30 Bypass eastbound, and provides access to the Exton rail station and parking lot. TIP Project MPMS #118025 is proposed to mitigate this bottleneck with the addition of a northbound through-lane from Pottstown Pk to the on- and off-ramps at Howard Rd.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	31.4
TT PM Peak Vehicle Delay (sec):	90.7
TT AM Peak Volume Delay (hr):	15:46:39
TT PM Peak Volume Delay (hr):	59:16:54
Level of Travel Time Reliability (mi):	0.40
Peak Hour Excessive Delay (per mi):	70,554
TDM Forecasted Congestion (mi):	0.44

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: #217 PA 100 Northbound at Exton Station; *#AG Exton Station, contruct parking garage*
* FY 2023-26 TIP: MPMS #118025 PA 100 Northbound at Exton Station; #93588 Exton Station Transit Improvements

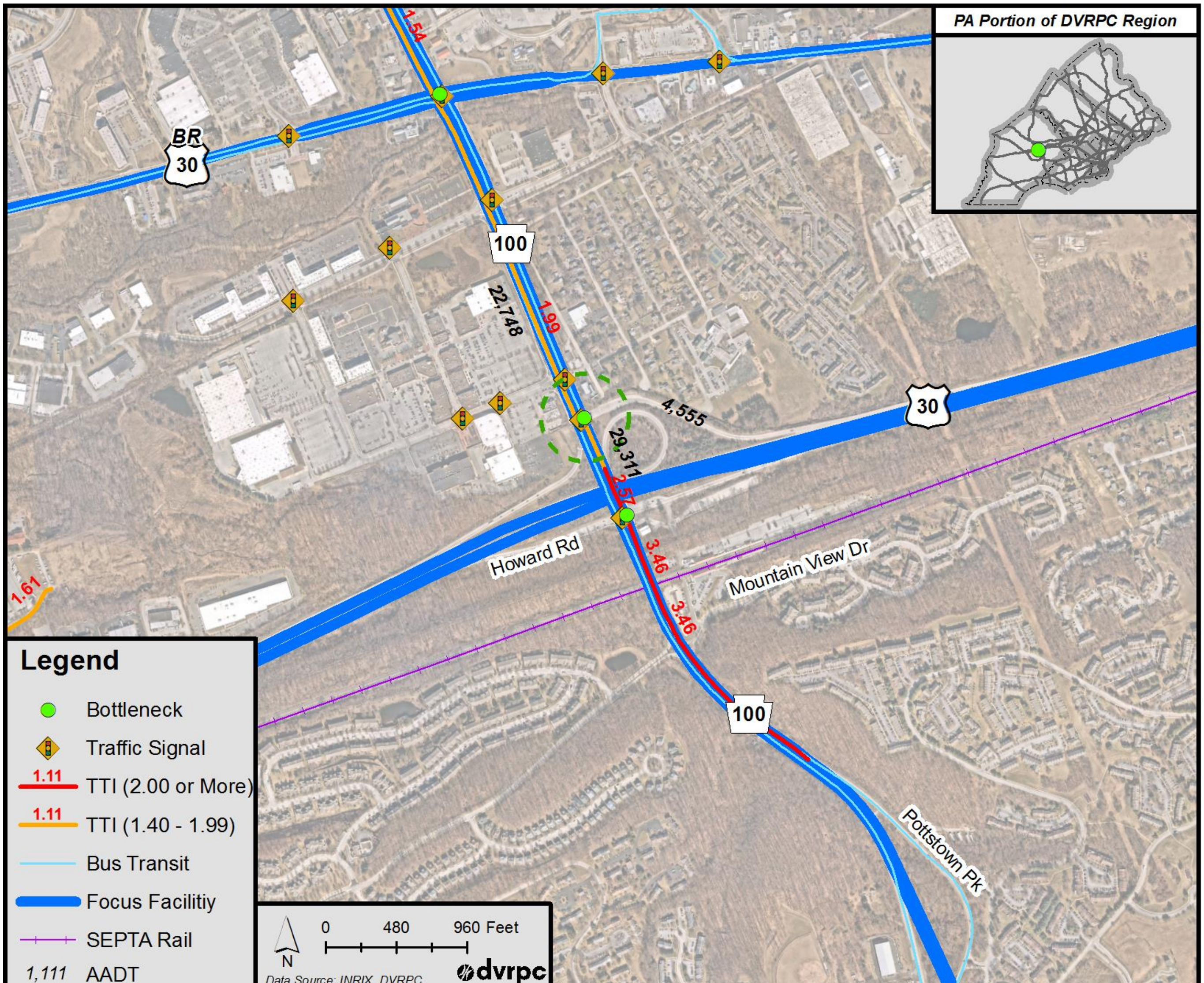
Very Appropriate Strategies

1) *Transit Infrastructure Improvements*
2) Signal Improvements
3) Bottleneck Removal of a Limited Scale for Cars and Trucks
4) Modifications to Existing Transit Routes or Services

Additional Factors	
Peak Hour Approach Volume:	5,652
Intersection Legs Included in Delay:	3/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	55; 115
Corridor and Subcorridor Area:	7E; 8B; 8C
CMP Objectives Score:	8.18

Recently implemented or partially implemented strategies are listed first and italicized

Figure 70: Bottleneck 37
PA 100 @ US 30 Bypass WB Off-Ramp, West Whiteland Twp, Chester County, PA



Summary of Conditions

The signalized intersection at PA 100 and the US 30 Bypass westbound ramp in West Whiteland Township, Chester County includes three roadway approaches and is ranked **#110** and **#27** in peak travel time vehicle and volume delay, respectively. PA 100 is classified as a principal arterial north of the intersection and an expressway to the south, and the US 30 Bypass westbound ramp as an expressway. TIP project MPMS #118025 is proposed to mitigate this bottleneck by the addition of a northbound through-lane from Pottstown Pk to the US 30 Bypass westbound on- and off-ramps. The PA 100 northbound approach to the intersection indicates the highest congestion.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	25.4
TT PM Peak Vehicle Delay (sec):	66.6
TT AM Peak Volume Delay (hr):	12:12:24
TT PM Peak Volume Delay (hr):	39:21:37
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	33,765
TDM Forecasted Congestion (mi):	0.46

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: #217 PA 100 Northbound at Exton Station
* FY 2023-26 TIP: MPMS #118025 PA 100 Northbound at Exton Station

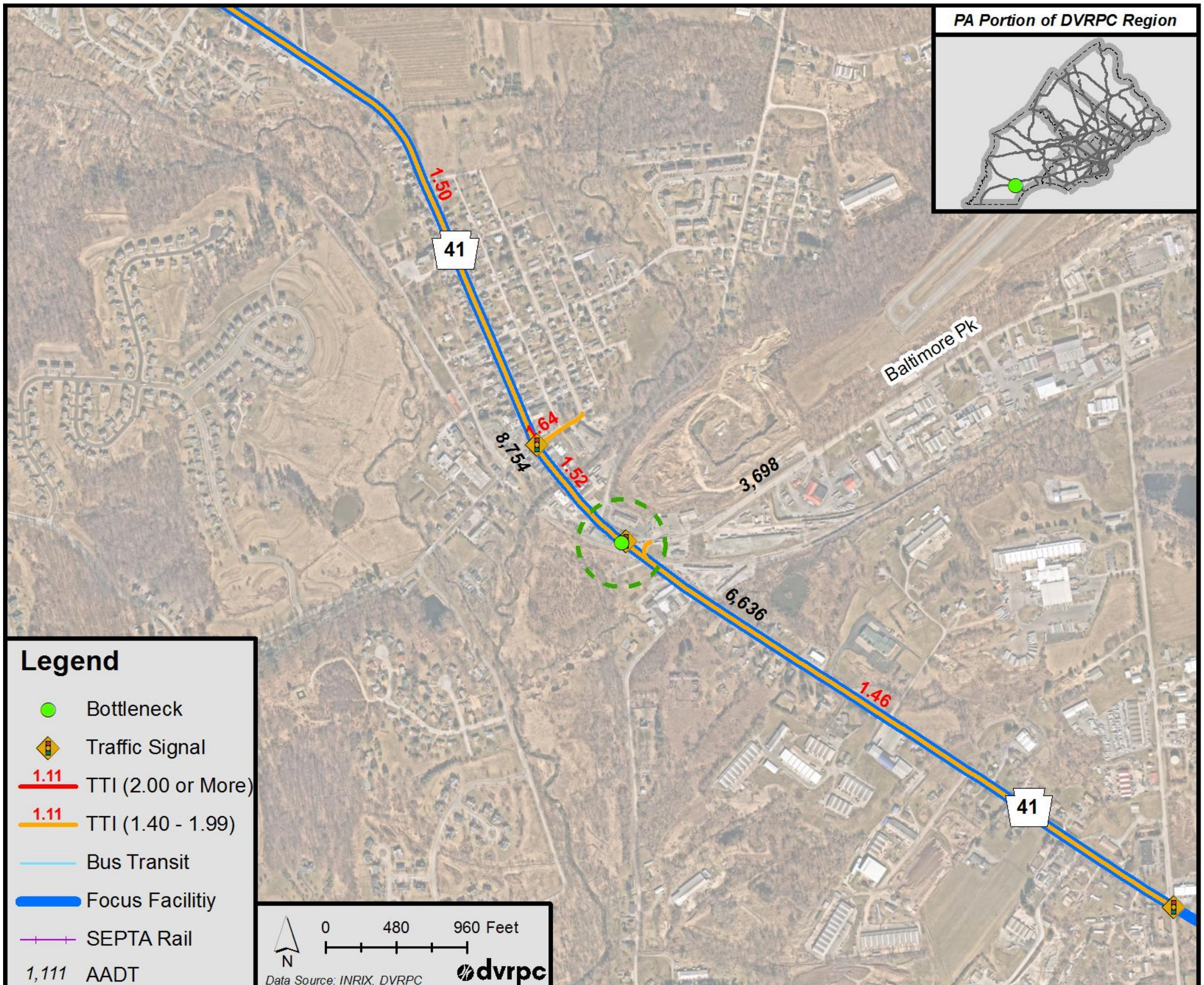
Very Appropriate Strategies

1) *Transit Infrastructure Improvements*
2) Signal Improvements
3) Bottleneck Removal of a Limited Scale for Cars and Trucks
4) Modifications to Existing Transit Routes or Services

Additional Factors	
Peak Hour Approach Volume:	5,095
Intersection Legs Included in Delay:	3/3
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	55; 115
Corridor and Subcorridor Area:	7E; 8C
CMP Objectives Score:	7.94

Recently implemented or partially implemented strategies are listed first and italicized

Figure 71: Bottleneck 59
PA 41 @ Baltimore Pk, Avondale Borough, Chester County, PA



Summary of Conditions

The signalized intersection at PA 41 and Baltimore Pk in Avondale Borough, Chester County includes three roadway approaches and is ranked **#23** and **#64** in peak travel time vehicle and volume delay, respectively. PA 41 is classified as a principal arterial and Baltimore Pk as a minor arterial. The PA 41 southbound approach to the intersection indicates the most congestion.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	69.2
TT PM Peak Vehicle Delay (sec):	131.3
TT AM Peak Volume Delay (hr):	10:56:37
TT PM Peak Volume Delay (hr):	25:45:18
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	37,414
TDM Forecasted Congestion (mi):	0.17

Planned Improvements on 2050 LRP & FY 2023-26 TIP

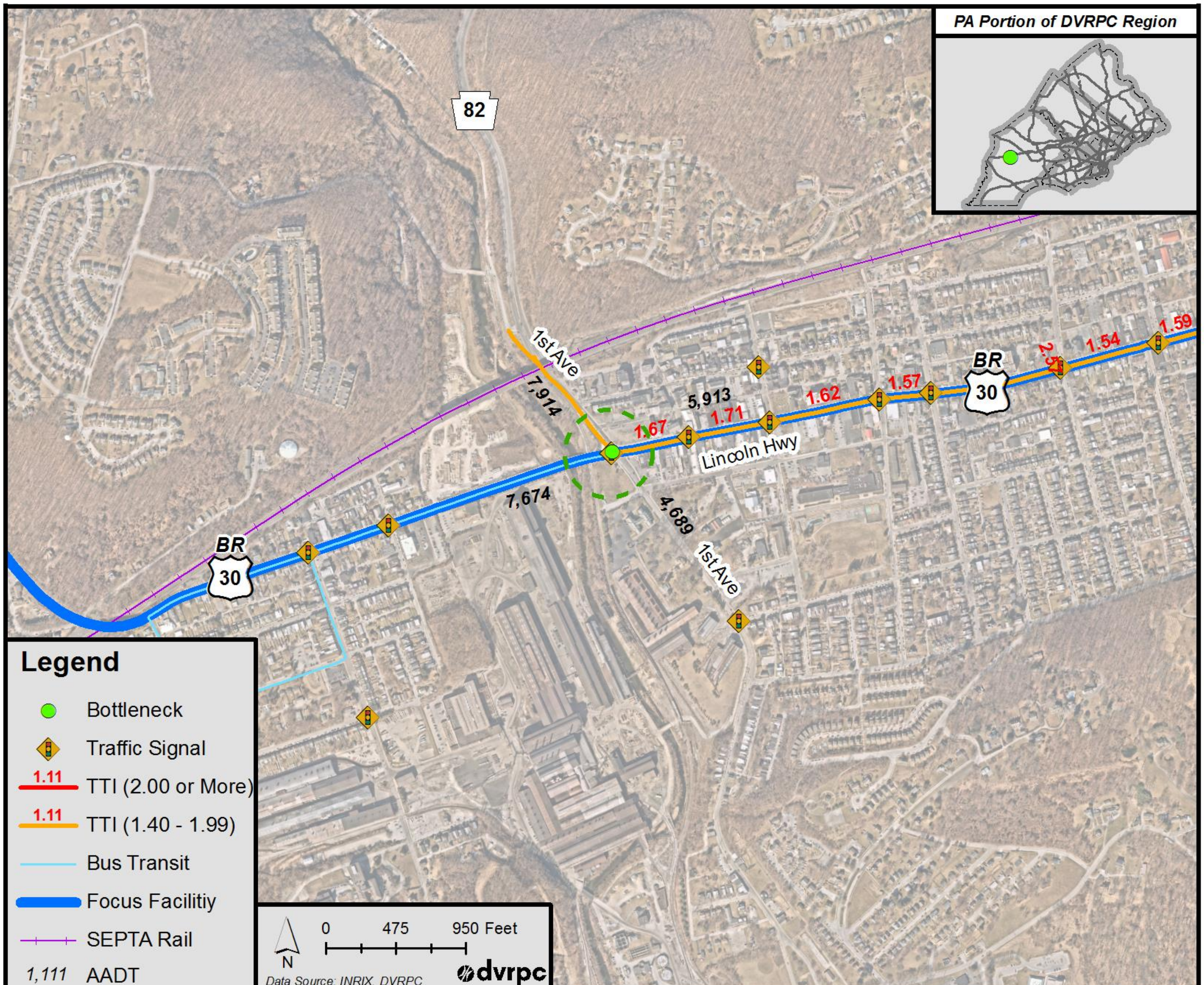
* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Turning Movement Enhancements
3) Pedestrian and Bicycle Improvements

Additional Factors	
Peak Hour Approach Volume:	1,736
Intersection Legs Included in Delay:	3/3
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	No
Traffic Signal Type:	Isolated
Focus Roadway Facility:	142
Corridor and Subcorridor Area:	17A
CMP Objectives Score:	4.45

Figure 72: Bottleneck 36
US 30 Bus (Lincoln Hwy) @ PA 82 (1st Ave), Coatesville City, Chester County, PA



Summary of Conditions

The signalized intersection at US 30 Business (Lincoln Hwy) and PA 82 (1st Ave) in Coatesville City, Chester County includes four roadway approaches and is ranked **#9** and **#47** in peak travel time vehicle and volume delay, respectively. Both US 30 Business and PA 82 are classified as principal arterial roadways. The US 30 Business westbound approach to the intersection indicates the most congestion. Prior improvements included ITS treatments as part of MPMS #64479.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	35.6
TT PM Peak Vehicle Delay (sec):	180.7
TT AM Peak Volume Delay (hr):	4:41:16
TT PM Peak Volume Delay (hr):	30:02:15
Level of Travel Time Reliability (mi):	1.99
Peak Hour Excessive Delay (per mi):	143,288
TDM Forecasted Congestion (mi):	0.30

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: *#AG Atglen Regional Rail Line Extension*
* FY 2023-26 TIP: No projects

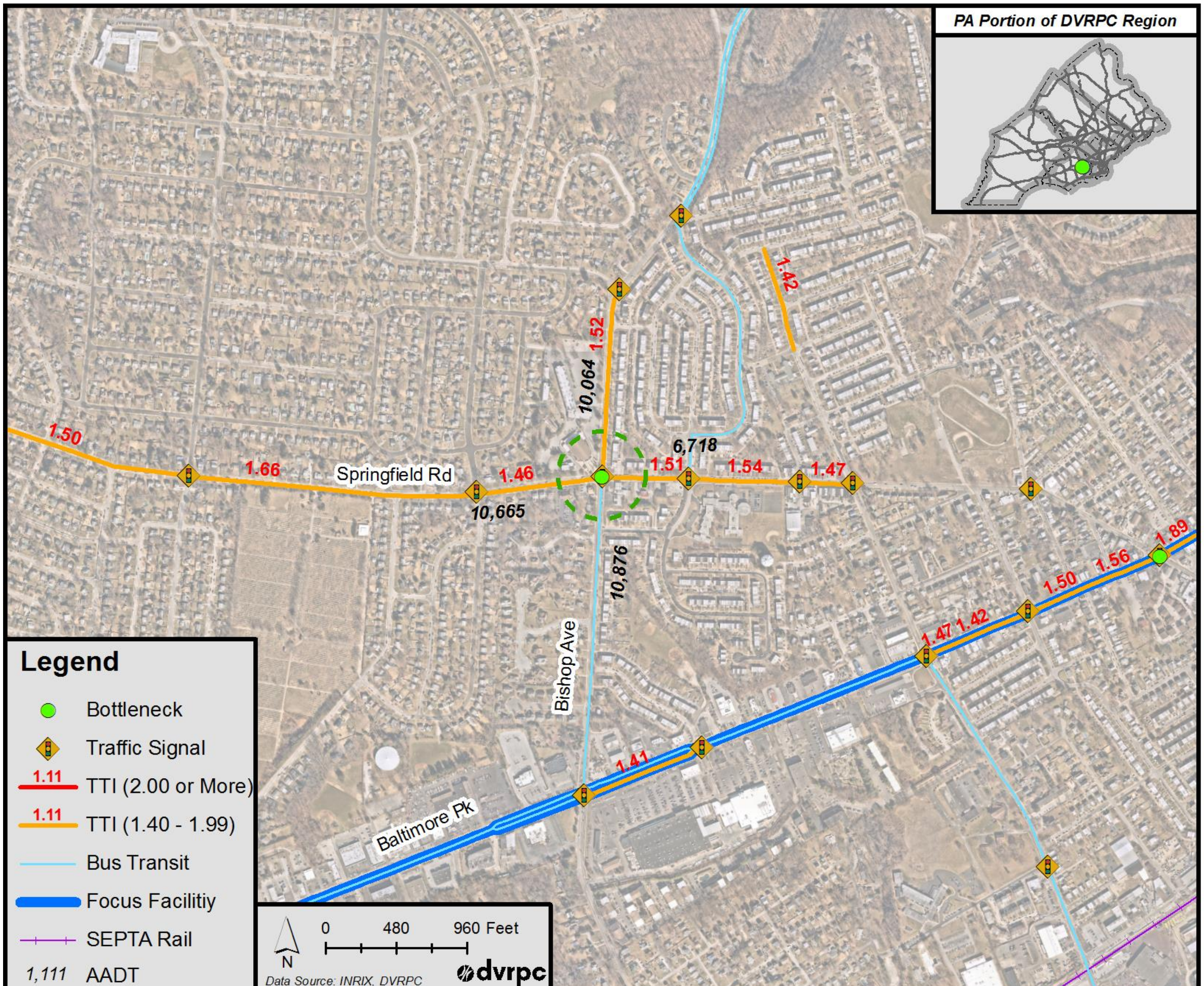
Very Appropriate Strategies

1) *Intelligent Transportation Systems (ITS)*
2) Signal Improvements
3) Turning Movement Enhancements
4) Modifications to Existing Transit Routes or Services
5) Transit Infrastructure Improvements
6) Pedestrian and Bicycle Improvements

Additional Factors	
Peak Hour Approach Volume:	2,355
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	63
Corridor and Subcorridor Area:	7F
CMP Objectives Score:	7.75

Recently implemented or partially implemented strategies are listed first and italicized

Figure 73: Bottleneck 77
Springfield Rd @ Bishop Ave, Springfield Twp, Delaware County, PA



Summary of Conditions

The signalized intersection at Springfield Rd and Bishop Ave in Springfield Township, Delaware County includes four roadway approaches and is ranked #3 and #9 in peak travel time vehicle and volume delay, respectively. Springfield Rd and Bishop Ave are both classified as principal arterial roadways. The TIP project MPMS #84457 was recently completed, which included multiple traffic signal retiming's along Baltimore Pk just south of this intersection at Bishop Ave and Springfield Rd.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	129.7
TT PM Peak Vehicle Delay (sec):	273.9
TT AM Peak Volume Delay (hr):	23:22:58
TT PM Peak Volume Delay (hr):	65:23:17
Level of Travel Time Reliability (mi):	0.66
Peak Hour Excessive Delay (per mi):	81,058
TDM Forecasted Congestion (mi):	0.93

Planned Improvements on 2050 LRP & FY 2023-26 TIP

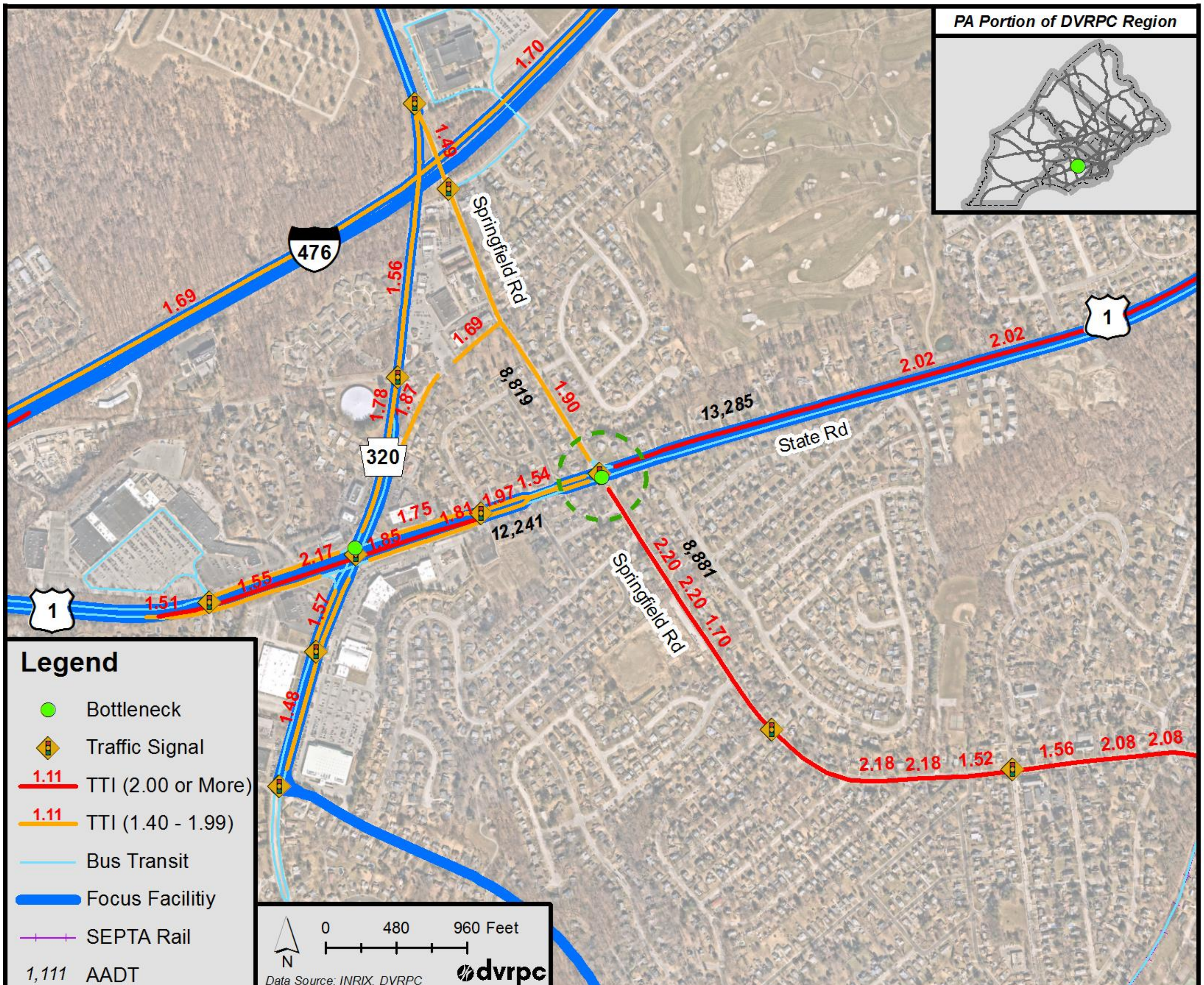
* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Turning Movement Enhancements
3) Placemaking for Non-Motorized Transportation
4) Modifications to Existing Transit Routes or Services
5) Transit Infrastructure Improvements
6) Pedestrian and Bicycle Improvements

Additional Factors	
Peak Hour Approach Volume:	3,449
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.84
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	38
Corridor and Subcorridor Area:	5C; 5E
CMP Objectives Score:	8.66

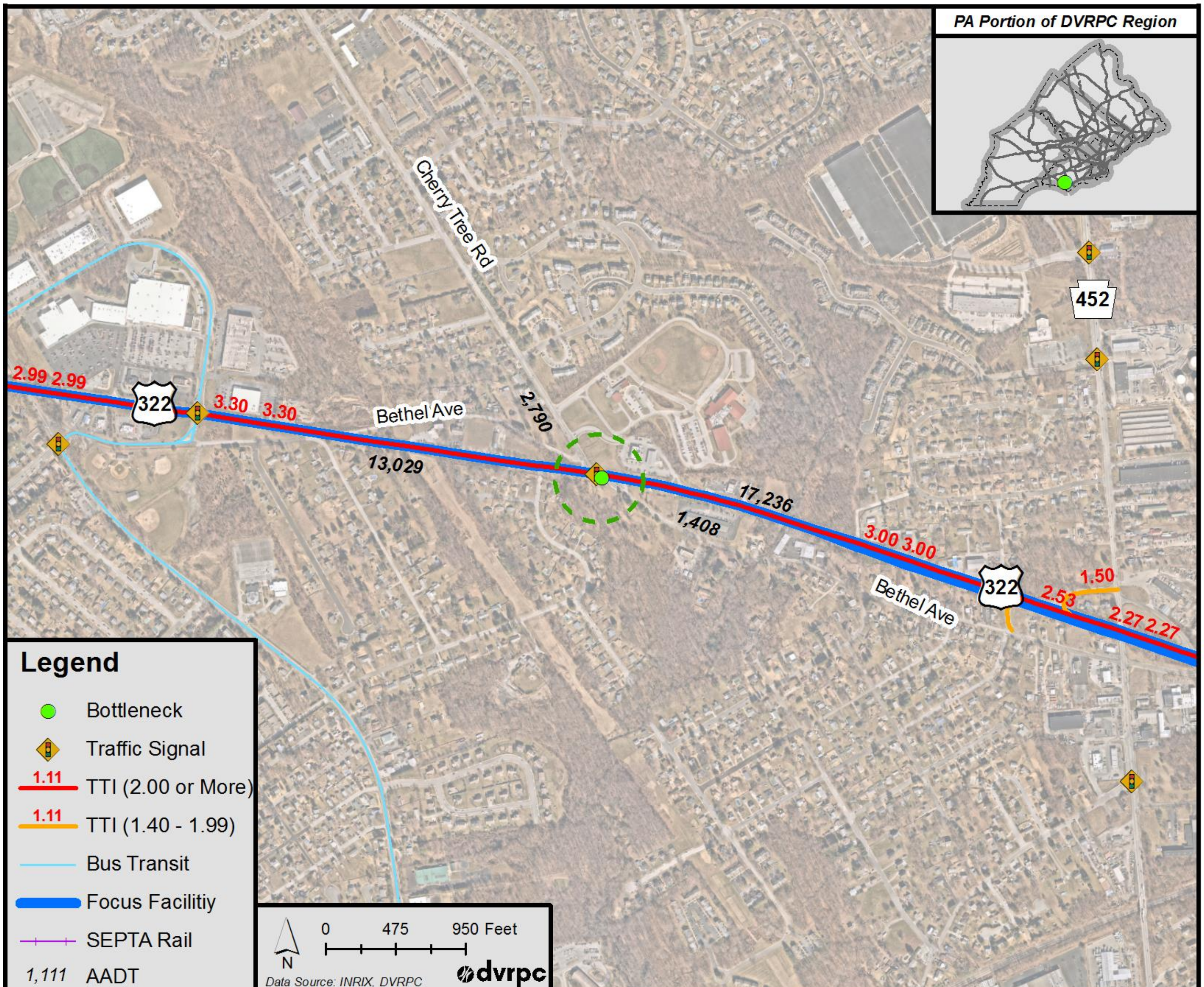
Figure 74: Bottleneck 80
US 1 (State Rd) @ Springfield Rd, Springfield Twp, Delaware County, PA



Summary of Conditions	**Congestion Measures**	
The signalized intersection at US 1 (State Rd) and Springfield Rd in Springfield Township, Delaware County includes four roadway approaches and is ranked **#2** in both peak travel time vehicle and volume delay. US 1 and Springfield Rd are classified as principal arterial roadways. The TIP project MPMS #114112 Media Bypass ITS is programmed to help reduce congestion and improve traffic flow along the Route 1 corridor, including the intersection with Springfield Rd.	TT AM Peak Vehicle Delay (sec):	206.7
	TT PM Peak Vehicle Delay (sec):	341.4
	TT AM Peak Volume Delay (hr):	42:33:24
	TT PM Peak Volume Delay (hr):	94:18:44
	Level of Travel Time Reliability (mi):	3.47
	Peak Hour Excessive Delay (per mi):	65,240
	TDM Forecasted Congestion (mi):	1.30
Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: No projects	Peak Hour Approach Volume:	3,825
* FY 2023-26 TIP: MPMS #114112 Media Bypass ITS	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.53
1) *Signal Improvements*	CMP High Crash Severity (mi):	0.59
2) Turning Movement Enhancements	Transit Route:	Yes
3) Intelligent Transportation Systems (ITS)	Traffic Signal Type:	Coordinated
4) Placemaking for Non-Motorized Transportation	Focus Roadway Facility:	38
5) Park and Ride Lots	Corridor and Subcorridor Area:	5C
6) Transit Infrastructure Improvements	CMP Objectives Score:	9.44

Recently implemented or partially implemented strategies are listed first and italicized

Figure 75: Bottleneck 89
US 322 (Conchester Hwy) @ Bethel Ave/Cherry Tree Rd, Upper Chichester Twp, Delaware County, PA



Summary of Conditions

The signalized intersection at US 322 (Conchester Hwy) and Bethel Ave/Cherry Tree Rd in Upper Chichester Township, Delaware County includes four roadway approaches and is ranked **#1** in both peak travel time vehicle and volume delay. US 322 is classified as a principal arterial roadway and Bethel Ave/Cherry Tree Rd as a collector. The US 322 and eastbound and westbound approaches to the intersection experience the most delay. The TIP project MPMS #114034 is proposing to reconstruct the intersection, including realigning Bethel Ave and Cherry Tree Rd with US 322.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	254.8
TT PM Peak Vehicle Delay (sec):	401.1
TT AM Peak Volume Delay (hr):	66:56:44
TT PM Peak Volume Delay (hr):	128:09:36
Level of Travel Time Reliability (mi):	2.57
Peak Hour Excessive Delay (per mi):	119,119
TDM Forecasted Congestion (mi):	0.52

Planned Improvements on 2050 LRP & FY 2023-26 TIP

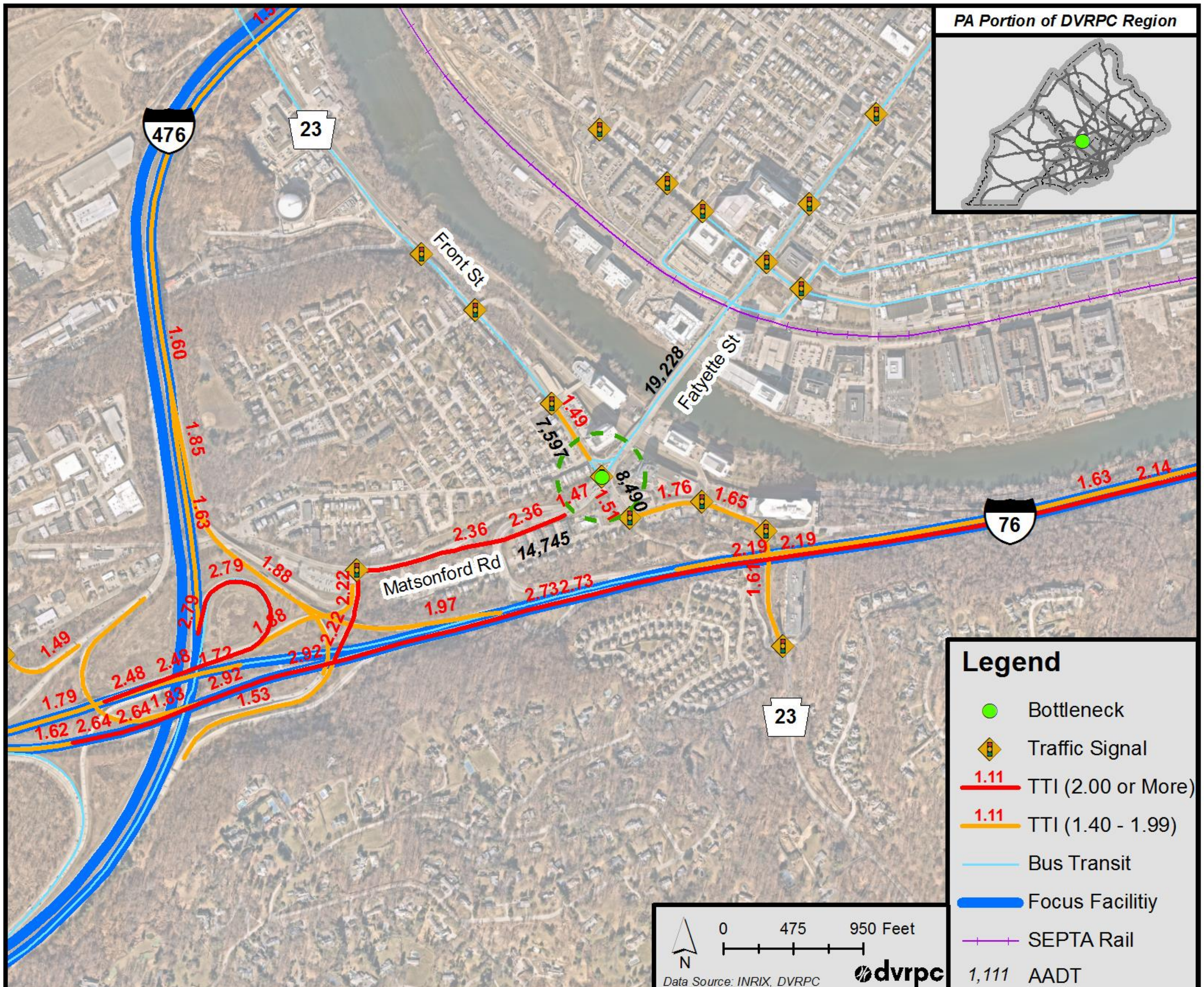
* 2050 LRP: #107 US 322 widening from Clayton Park Drive to I-95
* FY 2023-26 TIP: MPMS #114034 US 322: Chelsea Parkway to Market St. Interchange (Section 103)

Very Appropriate Strategies

1) Signal Improvements
2) Turning Movement Enhancements
3) Intelligent Transportation Systems (ITS)
4) Walking and Bicycling Improvements
5) Encourage Use of Transit Services and TDM Programs

Additional Factors	
Peak Hour Approach Volume:	2,859
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	1.65
Transit Route:	No
Traffic Signal Type:	Isolated
Focus Roadway Facility:	60
Corridor and Subcorridor Area:	8A
CMP Objectives Score:	8.03

Figure 76: Bottleneck 127
PA 23 (Front St) @ Matsonford Rd/Fayette St, West Conshohocken Borough, Montgomery County, PA



Summary of Conditions

The signalized intersection at PA 23 (Front St) and Matsonford Rd/Fayette St in West Conshohocken Borough, Montgomery County includes four roadway approaches and is ranked **#6** and **#28** in peak travel time vehicle and volume delay, respectively. Matsonford Rd and Fayette Rd are classified as principal arterials and PA 23 (Front St) as a minor arterial. The Matsonford eastbound approach to the intersection experiences the most delay. Prior improvements included ITS treatments as part of MPMS #62616.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	100.9
TT PM Peak Vehicle Delay (sec):	126.5
TT AM Peak Volume Delay (hr):	23:40:23
TT PM Peak Volume Delay (hr):	35:13:03
Level of Travel Time Reliability (mi):	0.40
Peak Hour Excessive Delay (per mi):	12,504
TDM Forecasted Congestion (mi):	0.84

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: #107 I-76 at PA 23 Matsonford Rd, Roadway Operational Improvements
* FY 2023-26 TIP: No projects

Very Appropriate Strategies

1) *Intelligent Transportation Systems (ITS)*
2) Transit Infrastructure Improvements
3) Turning Movement Enhancements
4) Modifications to Existing Transit Routes or Services
5) Walking and Bicycling Improvements

Additional Factors	
Peak Hour Approach Volume:	3,790
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.24
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Adaptive
Focus Roadway Facility:	None
Corridor and Subcorridor Area:	2B; 3C
CMP Objectives Score:	8.92

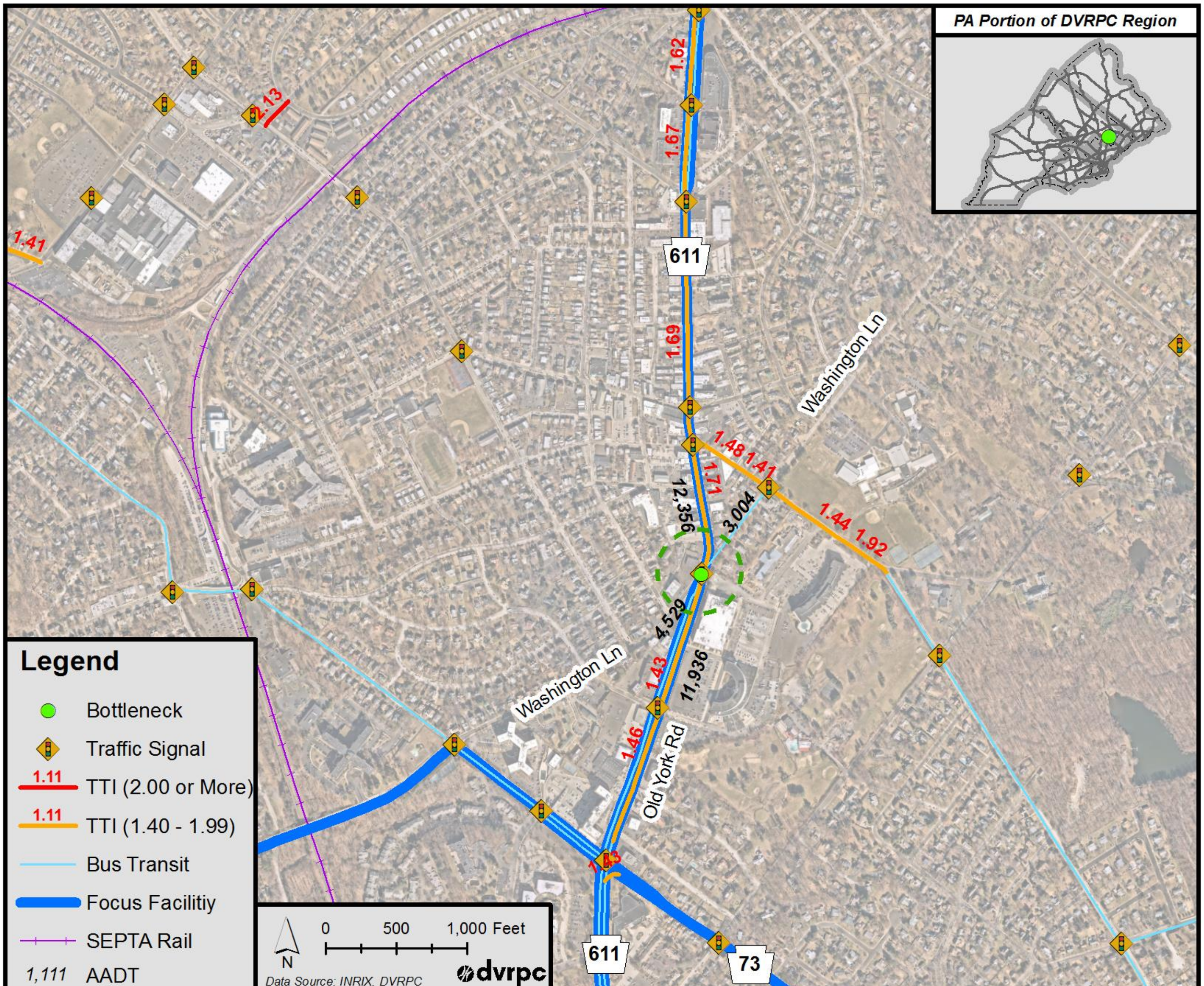
Recently implemented or partially implemented strategies are listed first and italicized

Figure 77: Bottleneck 130
PA 363 (Trooper Rd) @ Ridge Pk, Lower Providence Twp, Montgomery County, PA

Summary of Conditions	**Congestion Measures**	
The signalized intersection at PA 363 (Trooper Rd) and Ridge Pk in Lower Providence Township, Montgomery County includes four roadway approaches and is ranked **#6** and **#28** in peak travel time vehicle and volume delay, respectively. PA 363 south of Ridge Pk and all of Ridge Pk at the intersection are classified as principal arterials, and PA 363 North of Ridge Pk is classified as a minor arterial.	TT AM Peak Vehicle Delay (sec):	37.1
	TT PM Peak Vehicle Delay (sec):	131.2
	TT AM Peak Volume Delay (hr):	5:43:58
	TT PM Peak Volume Delay (hr):	26:20:18
	Level of Travel Time Reliability (mi):	1.07
	Peak Hour Excessive Delay (per mi):	21,539
	TDM Forecasted Congestion (mi):	0.77

Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: No projects	Peak Hour Approach Volume:	2,768
* FY 2023-26 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.00
1) Signal Improvements	CMP High Crash Severity (mi):	0.00
2) Intelligent Transportation Systems (ITS)	Transit Route:	Yes
3) Transit Infrastructure Improvements	Traffic Signal Type:	Coordinated
4) Turning Movement Enhancements	Focus Roadway Facility:	135; 176
5) Modifications to Existing Transit Routes or Services	Corridor and Subcorridor Area:	9B
6) Walking and Bicycling Improvements	CMP Objectives Score:	5.84

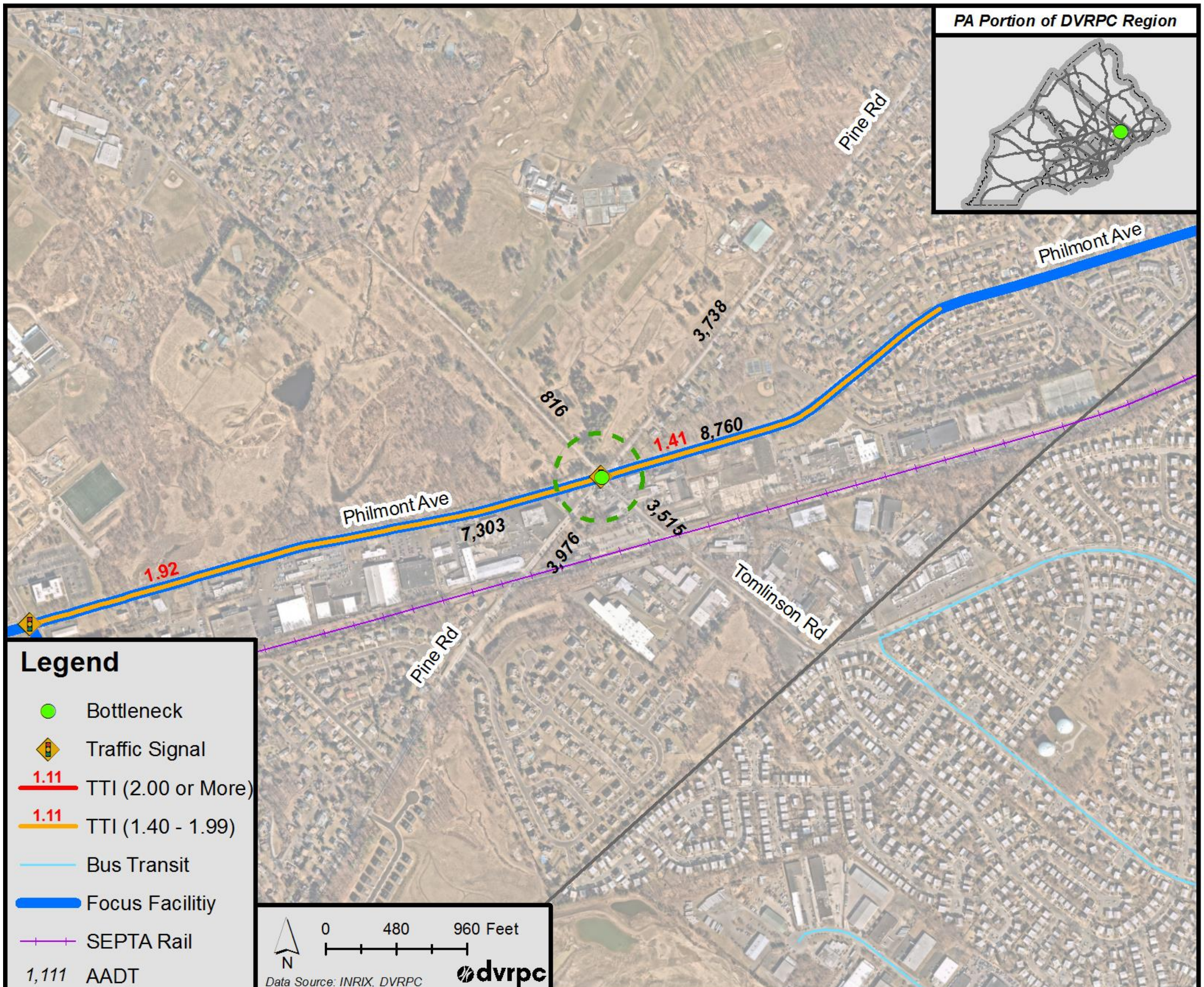
Figure 78: Bottleneck 102
PA 611 (Old York Rd) @ Washington Ln, Abington Twp, Montgomery County, PA



Summary of Conditions	**Congestion Measures**	
The signalized intersection at PA 611 (Old York Rd) and Washington Ln in Abington Township, Montgomery County includes four roadway approaches and is ranked **#13** and **#23** in peak travel time vehicle and volume delay, respectively. PA 611 and Washington Ln are both classified as principal arterial roadways. The PA 611 southbound approach to the intersection experiences the most delay. The Long-Range Plan includes a PA 611 ITS improvements project, and the project scope is from 2041 to 2050.	TT AM Peak Vehicle Delay (sec):	51.5
	TT PM Peak Vehicle Delay (sec):	163.4
	TT AM Peak Volume Delay (hr):	10:49:58
	TT PM Peak Volume Delay (hr):	46:33:37
	Level of Travel Time Reliability (mi):	0.00
	Peak Hour Excessive Delay (per mi):	36,034
	TDM Forecasted Congestion (mi):	0.77

Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: #199 PA 611 ITS Improvements and Multimodal Upgrades	Peak Hour Approach Volume:	2,864
* FY 2023-26 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.00
1) Signal Improvements	CMP High Crash Severity (mi):	0.00
2) Intelligent Transportation Systems (ITS)	Transit Route:	Yes
3) Expanded Parking for Existing Transit Stations (including remote, all modes)	Traffic Signal Type:	Coordinated
4) Park and Ride Lots	Focus Roadway Facility:	103
5) Transit-Oriented Development (TOD)	Corridor and Subcorridor Area:	14E
6) Walking and Bicycling Improvements	CMP Objectives Score:	8.77

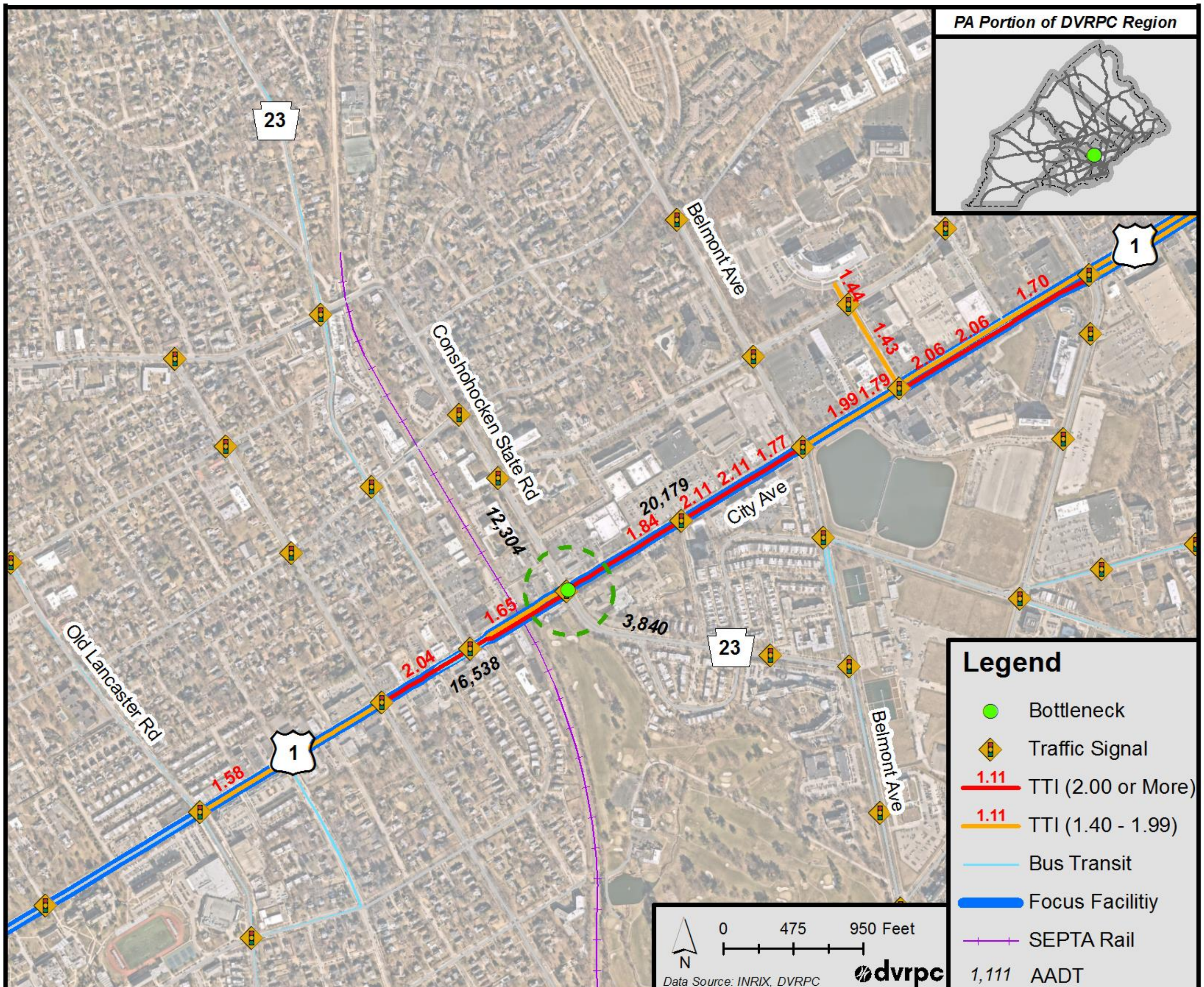
Figure 79: Bottleneck 123
Philmont Ave @ Pine Rd, Lower Moreland Twp, Montgomery County, PA



Summary of Conditions	Congestion Measures	
The signalized intersection at Philmont Ave and Pine Rd in Lower Moreland Township, Montgomery County includes six roadway approaches and is ranked **#17** and **#66** in peak travel time vehicle and volume delay, respectively. Philmont Ave is classified as a principal arterial roadway, and both Pine Rd and Tomlinson Rd (south of intersection) are minor arterials, and Pine Road north of the intersection is a major collector. The Philmont Ave eastbound approach to the intersection experiences the most delay. The TIP project MPMS #110315 proposes to realign the roadway approaches to the intersection and add shoulder and turning lane improvements.	TT AM Peak Vehicle Delay (sec):	52.1
	TT PM Peak Vehicle Delay (sec):	146.0
	TT AM Peak Volume Delay (hr):	7:18:52
	TT PM Peak Volume Delay (hr):	25:35:51
	Level of Travel Time Reliability (mi):	0.76
	Peak Hour Excessive Delay (per mi):	22,587
	TDM Forecasted Congestion (mi):	0.56

Planned Improvements on 2050 LRP & FY 2023-26 TIP	Additional Factors	
* 2050 LRP: MRP *#BS Regional rail parking expansions, and new storage track at Noble station*	Peak Hour Approach Volume:	2,530
* FY 2023-26 TIP: MPMS #110315 Philmont/Tomlinson Road/Pine Road Improvements - 6 point intersection	Intersection Legs Included in Delay:	4/4
Very Appropriate Strategies	National Highway System:	Yes
1) Signal Improvements	CMP High Crash Frequency (mi):	0.00
2) Turning Movement Enhancements	CMP High Crash Severity (mi):	1.06
3) Intersection Improvements of a Limited Scale	Transit Route:	No
4) Transit Infrastructure Improvements	Traffic Signal Type:	Isolated
5) Modifications to Existing Transit Routes or Services	Focus Roadway Facility:	201
6) Walking and Bicycling Improvements	Corridor and Subcorridor Area:	12A
	CMP Objectives Score:	5.76

Figure 80: Bottleneck 152
US 1 (City Ave) @ PA 23 (Conshohocken State Rd), Lower Merion Twp, Montgomery County and West Park Philadelphia County, PA



Summary of Conditions

The signalized intersection at US 1 (City Ave) and PA 23 (Conshohocken State Rd) occurs along a shared boundary between Lower Merion Township, Montgomery County and North East Planning District in Philadelphia County. It includes four roadway approaches and is ranked **#11** and **#3** in peak travel time vehicle and volume delay, respectively. US 1 is classified as a principal arterial roadway, and PA 23 as a principal arterial roadway north of the intersection and a minor arterial south of the intersection. The US 1 eastbound and westbound approaches to the intersection experience the highest congestion, and an adaptive signal system is operating along US 1 (City Ave).

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	85.6
TT PM Peak Vehicle Delay (sec):	169.1
TT AM Peak Volume Delay (hr):	35:41:46
TT PM Peak Volume Delay (hr):	87:56:33
Level of Travel Time Reliability (mi):	0.35
Peak Hour Excessive Delay (per mi):	53,537
TDM Forecasted Congestion (mi):	0.47

Planned Improvements on 2050 LRP & FY 2023-26 TIP

* 2050 LRP: No projects
* FY 2023-26 TIP: No projects

Very Appropriate Strategies

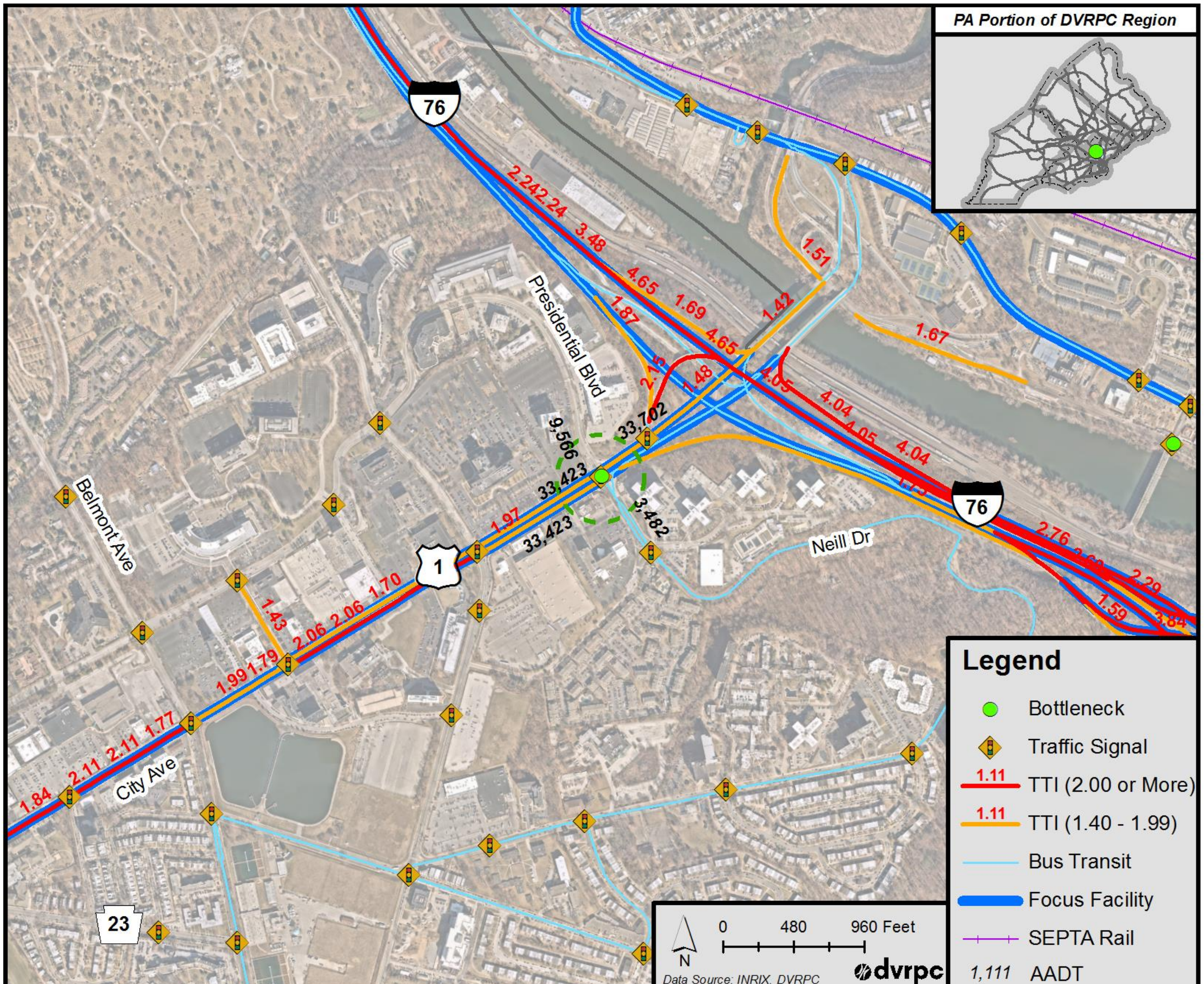
1) *Signal Improvements*
2) *Integrated Corridor Management (ICM)*
3) Enhanced Transit Amenities and Safety
4) Turning Movement Enhancements
5) Improvements to Pedestrian and Bicycle Access to Transit Stations and Bus Stops
6) More Frequent Transit or More Hours of Service

Additional Factors	
Peak Hour Approach Volume:	5,040
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.27
Transit Route:	Yes
Traffic Signal Type:	Adaptive
Focus Roadway Facility:	40
Corridor and Subcorridor Area:	5F; 7A; 7B
CMP Objectives Score:	8.49

Recently implemented or partially implemented strategies are listed first and italicized

Figure 81: Bottleneck 153

US 1 (City Ave) @ Presidential Blvd, Lower Merion Twp, Montgomery County and West Park Philadelphia County, PA

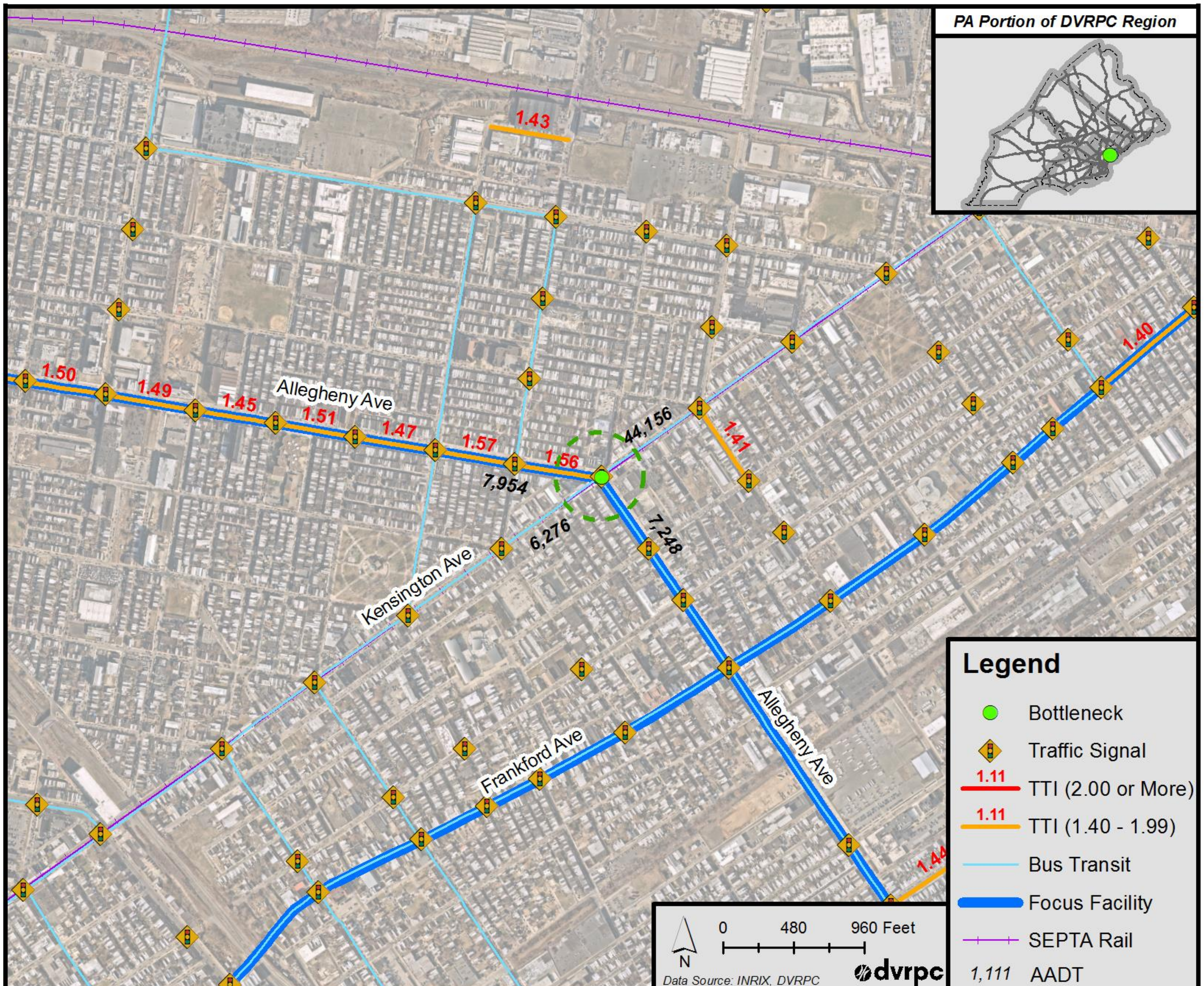


Summary of Conditions	**Congestion Measures**	
The signalized intersection at US 1 (City Ave) and Presidential Blvd occurs along a shared boundary between Lower Merion Township, Montgomery County and North East Planning District in Philadelphia County. It includes four roadway approaches and is ranked **#19** and **#4** in peak travel time vehicle and volume delay, respectively. US 1 is classified as a principal arterial roadway, and Presidential Blvd as a collector roadway. The US 1 eastbound and westbound approaches to the intersection experience the highest congestion, and an adaptive signal system is operating along US 1 (City Ave).	TT AM Peak Vehicle Delay (sec):	80.4
	TT PM Peak Vehicle Delay (sec):	144.8
	TT AM Peak Volume Delay (hr):	39:48:28
	TT PM Peak Volume Delay (hr):	86:43:46
	Level of Travel Time Reliability (mi):	0.35
	Peak Hour Excessive Delay (per mi):	58,576
	TDM Forecasted Congestion (mi):	0.55

Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: No projects	Peak Hour Approach Volume:	7,216
* FY 2023-26 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.00
1) *Signal Improvements*	CMP High Crash Severity (mi):	0.62
2) *Integrated Corridor Management (ICM)*	Transit Route:	Yes
3) Enhanced Transit Amenities and Safety	Traffic Signal Type:	Adaptive
4) Turning Movement Enhancements	Focus Roadway Facility:	40
5) Improvements to Pedestrian and Bicycle Access to Transit Stations and Bus Stops	Corridor and Subcorridor Area:	5F; 7A; 7B
6) More Frequent Transit or More Hours of Service	CMP Objectives Score:	9.10

Recently implemented or partially implemented strategies are listed first and italicized

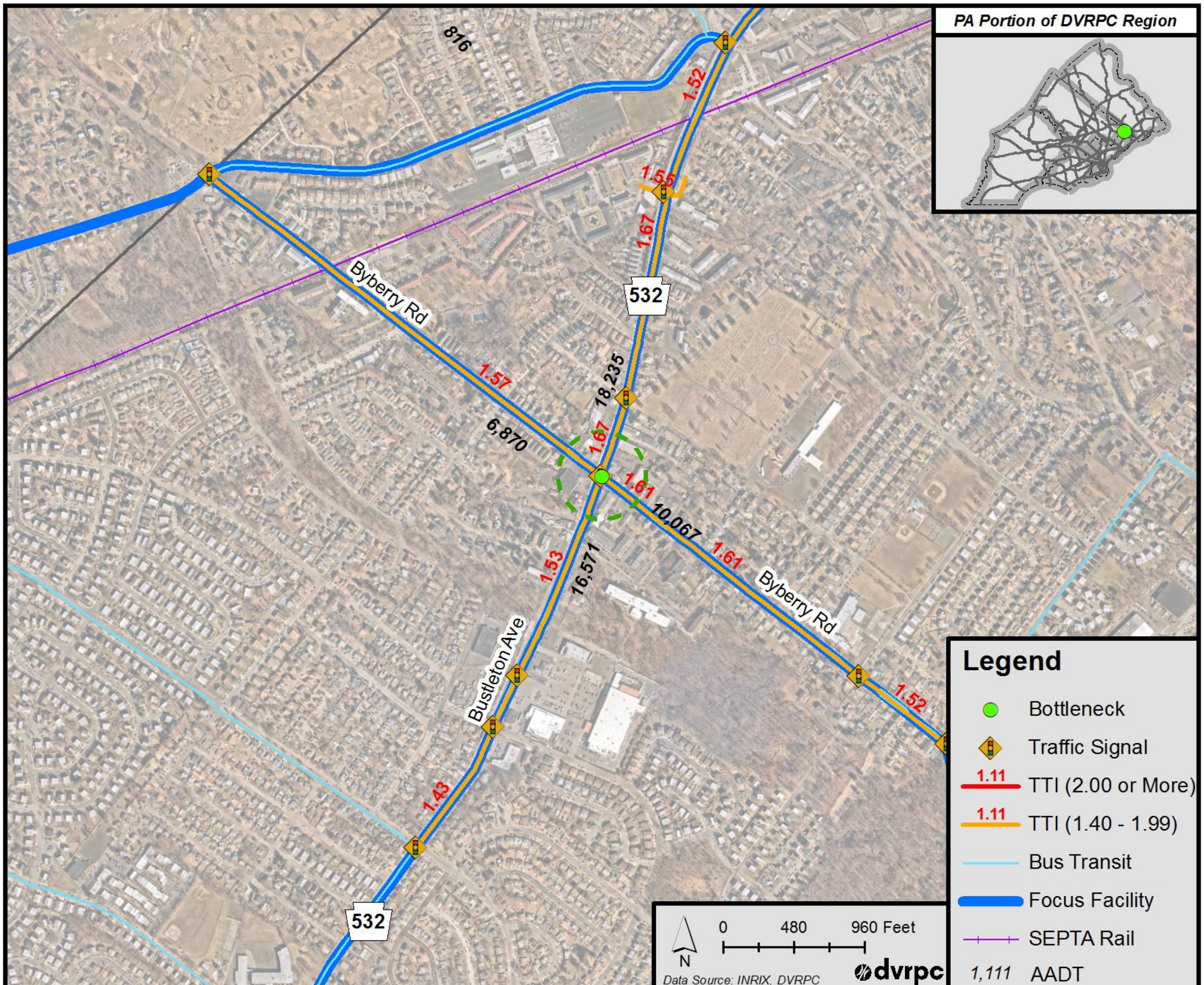
Figure 82: Bottleneck 151
Allegheny Ave @ Kensington Ave, North Philadelphia County, PA



Summary of Conditions	Congestion Measures	
The signalized intersection at Allegheny Ave and Kensington Ave in Philadelphia is ranked **#5** and **#49** in peak travel time vehicle and volume delay, respectively. Kensington Ave is classified as a principal arterial roadway and Allegheny Ave as a minor arterial. The Allegheny Ave eastbound approach to the intersection experiences the most delay. The Market Frankford Line Allegheny Station is located at the southwest corner of the intersection.	TT AM Peak Vehicle Delay (sec):	45.0
	TT PM Peak Vehicle Delay (sec):	207.6
	TT AM Peak Volume Delay (hr):	5:40:47
	TT PM Peak Volume Delay (hr):	29:43:07
	Level of Travel Time Reliability (mi):	0.00
	Peak Hour Excessive Delay (per mi):	12,055
	TDM Forecasted Congestion (mi):	0.44

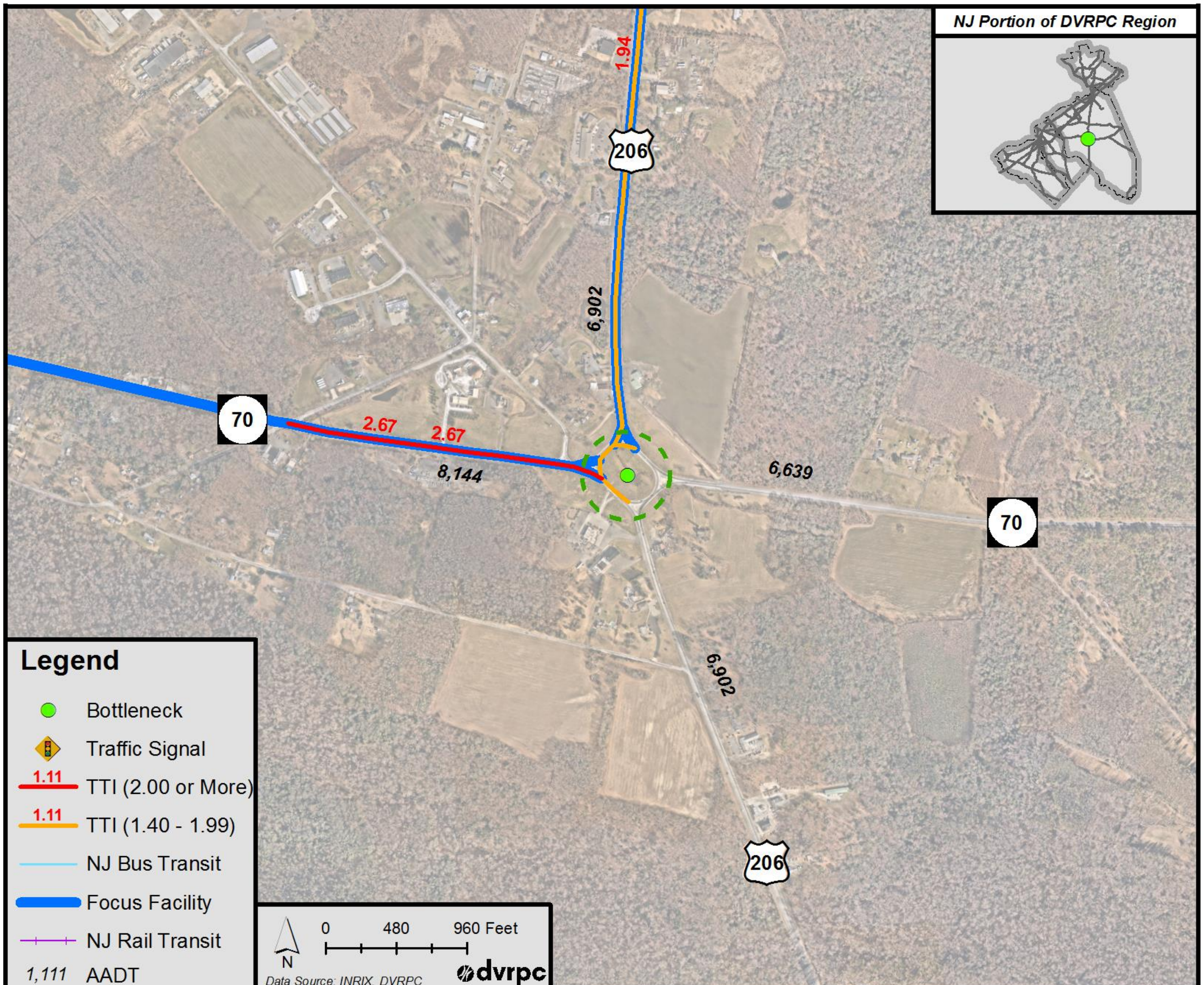
Planned Improvements on 2050 LRP & FY 2023-26 TIP	Additional Factors	
* 2050 LRP: No projects	Peak Hour Approach Volume:	2,307
* FY 2023-26 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	1.18
1) Signal Improvements	CMP High Crash Severity (mi):	1.71
2) Turning Movement Enhancements	Transit Route:	Yes
3) Transit Infrastructure Improvements	Traffic Signal Type:	Pre-Timed
4) Modification to Existing Routes or Services	Focus Roadway Facility:	204
5) Walking and Bicycling Improvements	Corridor and Subcorridor Area:	4B; 14A
6) Placemaking for Non-Motorized Transportation	CMP Objectives Score:	7.97

Figure 83: Bottleneck 138
PA 532 (Bustleton Ave) @ Byberry Rd, Upper Far Northeast Philadelphia County, PA



Summary of Conditions	**Congestion Measures**	
The signalized intersection at PA 532 (Bustleton Ave) and Byberry Rd in Philadelphia is ranked **#4** and **#5** in peak travel time vehicle and volume delay, respectively. PA 532 is classified as a principal arterial roadway and Byberry Rd as a minor arterial. The West Trenton Line passenger rail Forest Hills and Somerton stations are about one-half mile west and north, respectively, of the intersection.	TT AM Peak Vehicle Delay (sec):	100.6
	TT PM Peak Vehicle Delay (sec):	242.0
	TT AM Peak Volume Delay (hr):	20:56:17
	TT PM Peak Volume Delay (hr):	77:45:59
	Level of Travel Time Reliability (mi):	1.36
	Peak Hour Excessive Delay (per mi):	35,564
	TDM Forecasted Congestion (mi):	1.23
Planned Improvements on 2050 LRP & FY 2023-26 TIP	**Additional Factors**	
* 2050 LRP: No projects	Peak Hour Approach Volume:	4,657
* FY 2023-26 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.00
1) Signal Improvements	CMP High Crash Severity (mi):	0.53
2) Transit Infrastructure Improvements	Transit Route:	Yes
3) Walking and Bicycling Improvements	Traffic Signal Type:	Coordinated
4) Parking Supply-and-Demand Management	Focus Roadway Facility:	190; 200
5) Shuttle Service to Stations	Corridor and Subcorridor Area:	12A
6) Demand Response Transit Services (Microtransit)	CMP Objectives Score:	7.68

Figure 84: Bottleneck 375
US 206 @ NJ 70, Southampton Twp, Burlington County, NJ



Summary of Conditions

The one-lane traffic circle intersection at US 206 and NJ 70 in Southampton Township, Burlington County includes four roadway approaches and is ranked **#6** and **#21** in peak travel time vehicle and volume delay, respectively. US 206 and NJ 70 are both classified as principal arterial roadways, and the NJ 70 eastbound approach to the intersection experiences the most delay. This traffic circle has many of the characteristics of a modern roundabout, but for example it does not include any pedestrian facilities.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	34.7
TT PM Peak Vehicle Delay (sec):	114.2
TT AM Peak Volume Delay (hr):	4:43:32
TT PM Peak Volume Delay (hr):	21:28:19
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	5,806
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

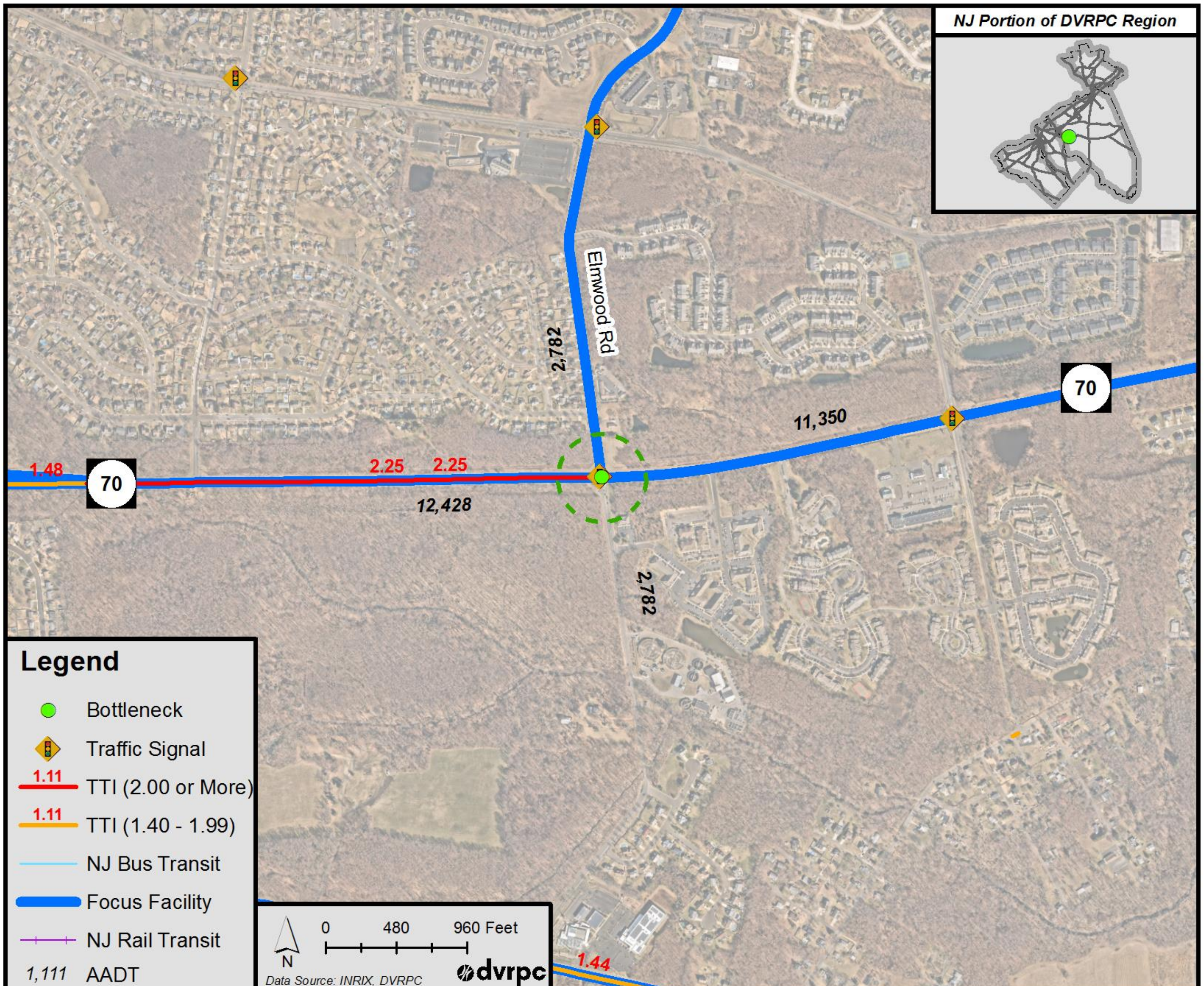
Very Appropriate Strategies

1) *Roundabout*
2) Turning Movement Enhancements
3) Improve Circulation
4) Walking and Bicycling Improvements

Additional Factors	
Peak Hour Approach Volume:	2,573
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	No
Traffic Signal Type:	n/a
Focus Roadway Facility:	369; 415
Corridor and Subcorridor Area:	12D
CMP Objectives Score:	3.32

Recently implemented or partially implemented strategies are listed first and italicized

Figure 85: Bottleneck 310
NJ 70 @ Elmwood Rd, Evesham Twp, Burlington County, NJ



Summary of Conditions

The intersection at NJ 70 and Elmwood Rd in Evesham Township, Burlington County includes four roadway approaches with additional left-turn lanes on all approaches and is ranked **#9** and **#10** in peak travel time vehicle and volume delay, respectively. NJ 70 is classified as a principal arterial roadway and Elmwood Rd as a major collector. The NJ 70 eastbound approach to the intersection experiences the most delay. Sidewalks exist along Elmwood Rd south and north of NJ 70, but stop short of the intersection.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	44.6
TT PM Peak Vehicle Delay (sec):	109.1
TT AM Peak Volume Delay (hr):	9:22:34
TT PM Peak Volume Delay (hr):	31:00:17
Level of Travel Time Reliability (mi):	0.66
Peak Hour Excessive Delay (per mi):	13,121
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

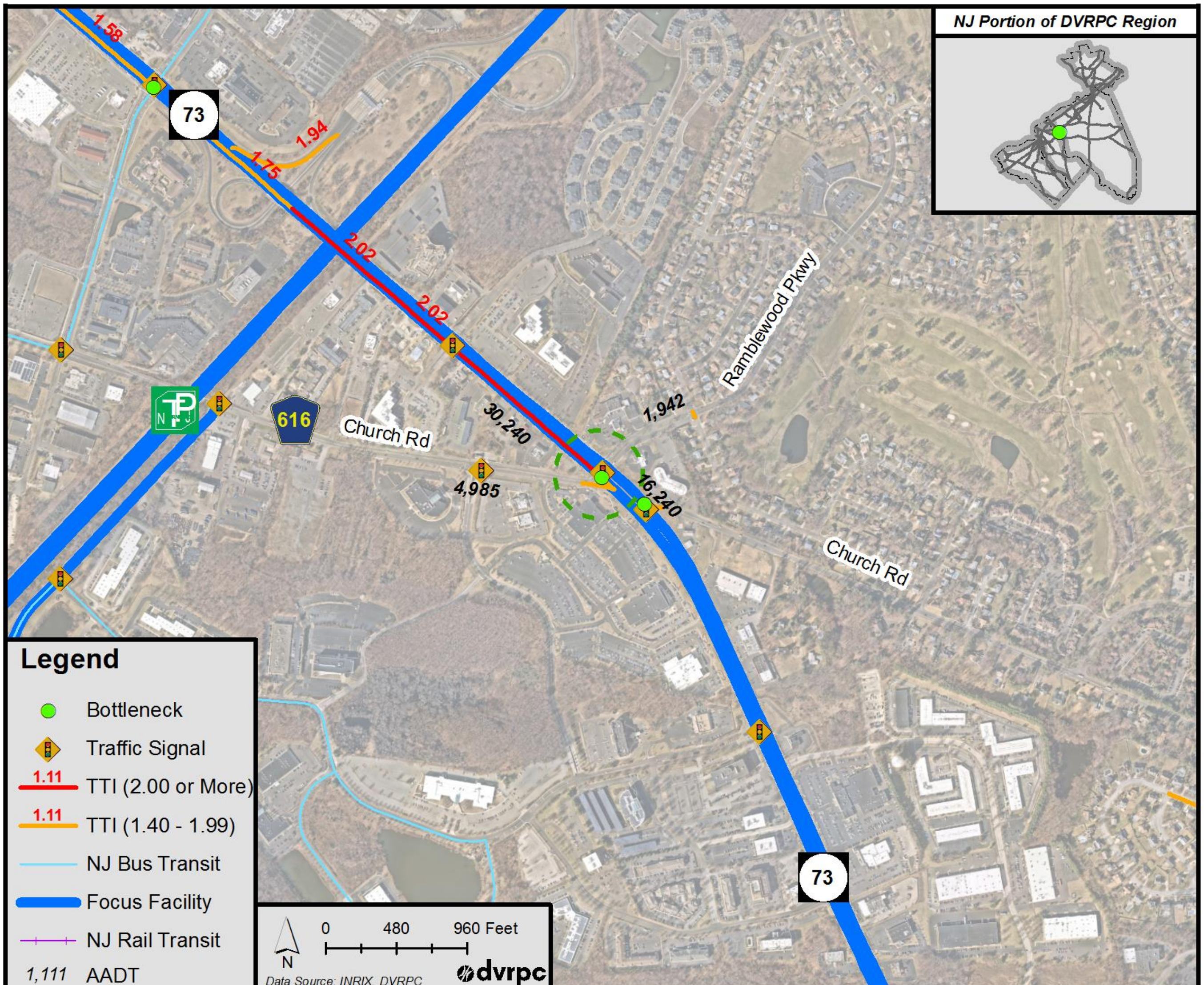
Very Appropriate Strategies

1) Signal Improvements
2) Turning Movement Enhancements
3) Improve Circulation
4) Walking and Bicycling Improvements

Additional Factors	
Peak Hour Approach Volume:	2,544
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.80
Transit Route:	No
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	369; 405
Corridor and Subcorridor Area:	12D
CMP Objectives Score:	3.24

Figure 86: Bottleneck 388

NJ 73 @ Church Rd/Ramblewood Pkwy, Mount Laurel Twp, Burlington County, NJ



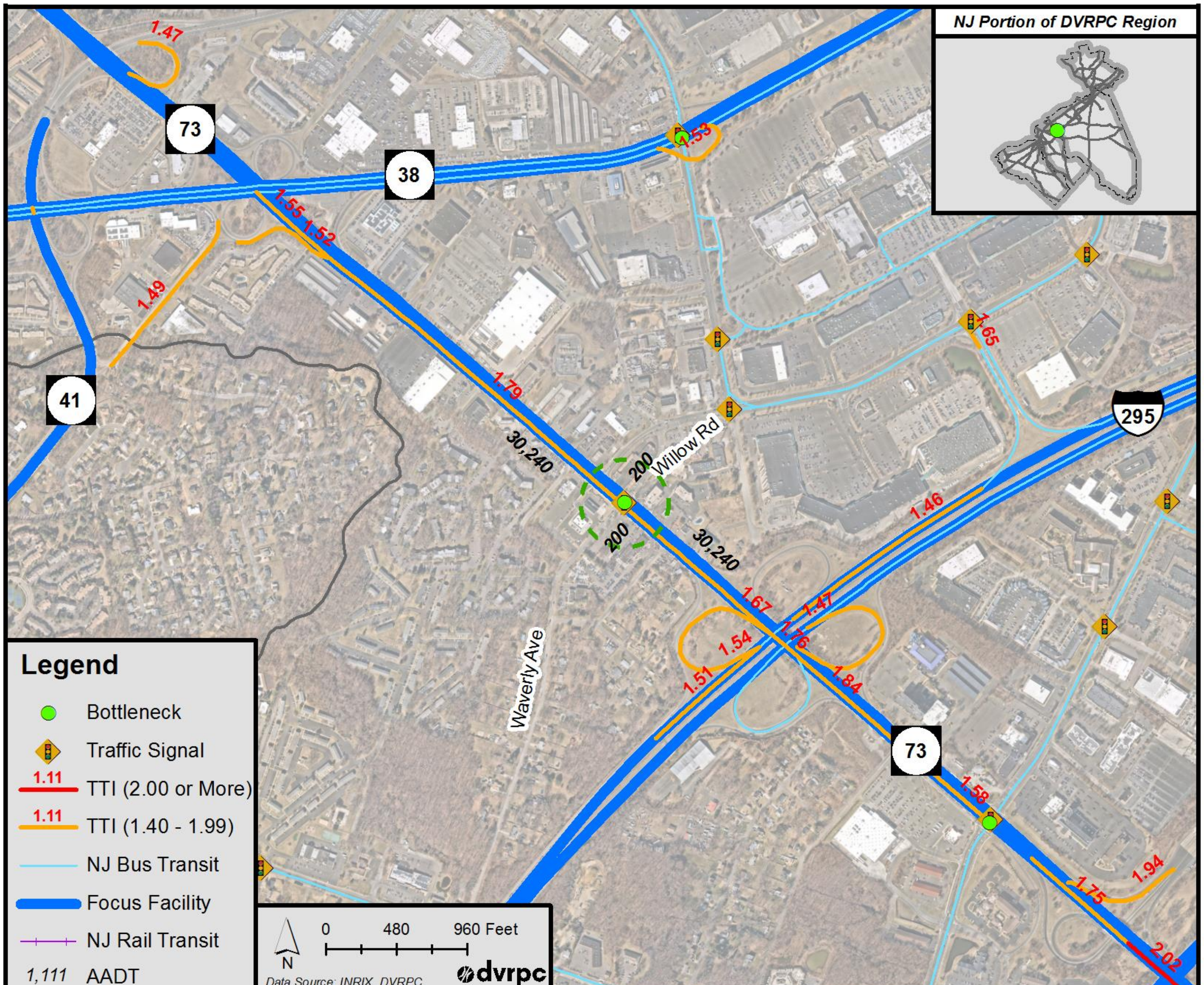
Summary of Conditions	Congestion Measures	
The intersection at NJ 73 and CR 616 (Church Rd)/Ramblewood Pkwy in Mount Laurel Township, Burlington County includes four roadway approaches with dedicated left-turn lanes on NJ 73 and dedicated right-turn lanes on Church Rd and Ramblewood Pkwy and is ranked **#17** and **#2** in peak travel time vehicle and volume delay, respectively. NJ 73 is classified as a principal arterial roadway and Church Rd/Ramblewood Pkwy as a minor arterial. The NJ 73 southbound approach to the intersection experiences the most delay. An adaptive signal system was completed along NJ 73 in 2021.	TT AM Peak Vehicle Delay (sec):	21.7
	TT PM Peak Vehicle Delay (sec):	80.5
	TT AM Peak Volume Delay (hr):	10:52:38
	TT PM Peak Volume Delay (hr):	54:47:50
	Level of Travel Time Reliability (mi):	0.00
	Peak Hour Excessive Delay (per mi):	34,991
	TDM Forecasted Congestion (mi):	0.03

Planned Improvements on 2050 LRP & FY 2024-27 TIP	Additional Factors	
* 2050 LRP: MRP #210 Grade separated interchanges at NJ 73 at Church Rd and Fellowship Rd	Peak Hour Approach Volume:	4,809
* FY 2024-27 TIP: DB #12380 Operational and Safety upgrades at NJ 73 @ Church Rd and NJ 73 @ Fellowship Rd, including a pedestrian overpass	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.00
1) *Signal Improvements*	CMP High Crash Severity (mi):	0.80
2) Intersection improvements of a Limited Scale	Transit Route:	No
3) Encourage Use of Transit Services and TDM Programs	Traffic Signal Type:	Adaptive
4) Comprehensive Policy Approaches	Focus Roadway Facility:	372
5) New Bus Services	Corridor and Subcorridor Area:	13A; 2C
	CMP Objectives Score:	6.57

Recently implemented or partially implemented strategies are listed first and italicized

Figure 87: Bottleneck 308

NJ 73 @ Waverly Ave/Willow Rd, Maple Shade Twp, Burlington County, NJ



Summary of Conditions
The intersection at NJ 73 and Waverly Ave/Willow Rd in Maple Shade Township, Burlington County includes four roadway approaches with dedicated left- and right-turn lanes on Waverly Ave and Willow Rd approaches and prohibited left- or right-turns on NJ 73 approaches, and is ranked **#46** and **#6** in peak travel time vehicle and volume delay, respectively. NJ 73 is classified as a principal arterial roadway and Waverly Ave and Willow Rd as local roads. The NJ 73 southbound approach to the intersection experiences the most delay, and an adaptive signal system was completed along NJ 73 including at this location in 2021.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	3.0
TT PM Peak Vehicle Delay (sec):	53.9
TT AM Peak Volume Delay (hr):	1:43:07
TT PM Peak Volume Delay (hr):	40:26:09
Level of Travel Time Reliability (mi):	0.60
Peak Hour Excessive Delay (per mi):	20,655
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2024-27 TIP

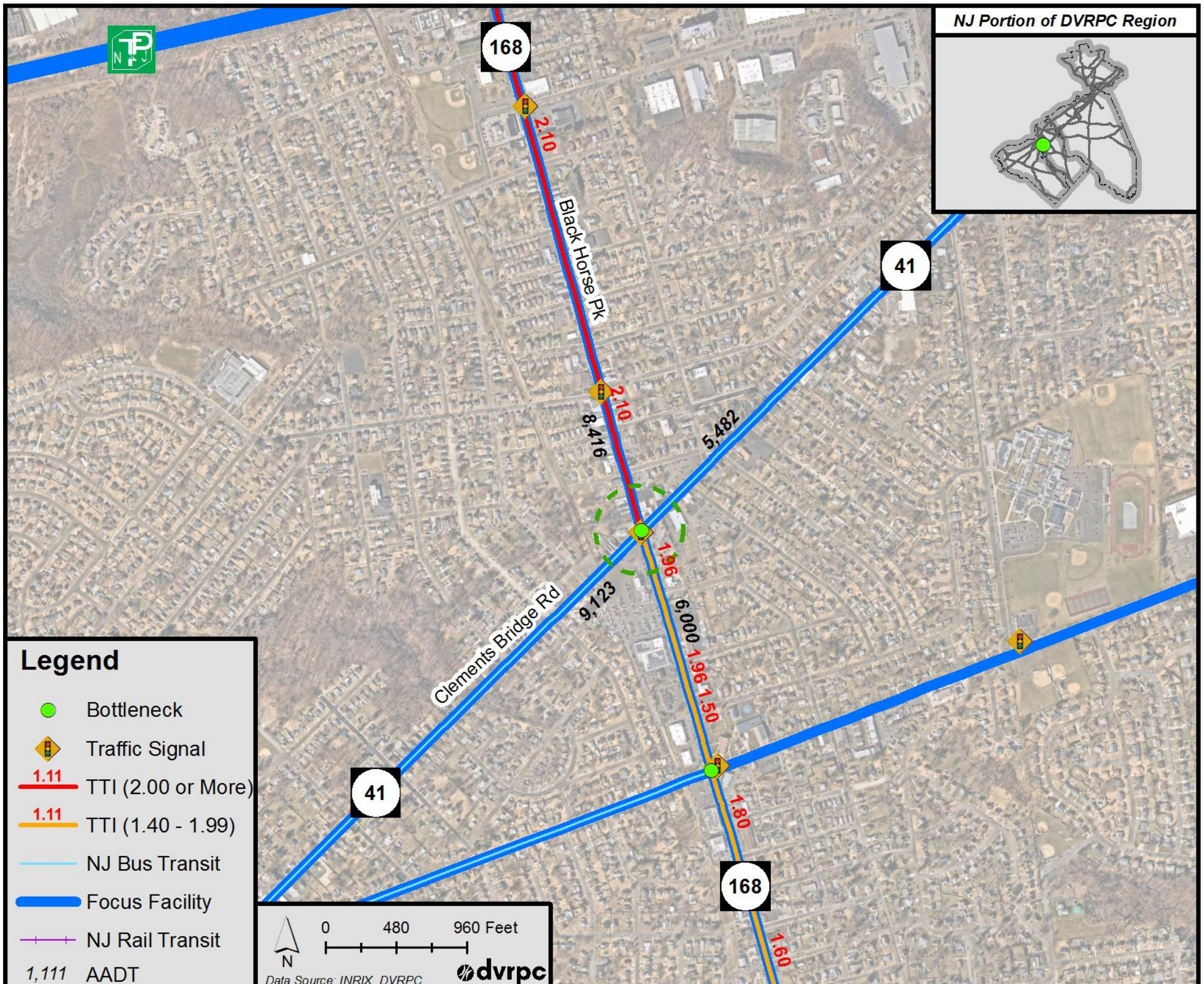
* 2050 LRP: No projects
* FY 2024-27 TIP: DB #18383 Improvement of safety, security, mobility, accessibility, and reliability

Additional Factors	
Peak Hour Approach Volume:	5,479
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	No
Traffic Signal Type:	Adaptive
Focus Roadway Facility:	371
Corridor and Subcorridor Area:	13A
CMP Objectives Score:	6.63

Very Appropriate Strategies

1) Signal Improvements
2) Modifications to Existing Transit Routes or Services
3) Encourage Use of Transit Services and TDM Programs
4) Comprehensive Policy Approaches
5) New Bus Services
6) Walking and Bicycling Improvements

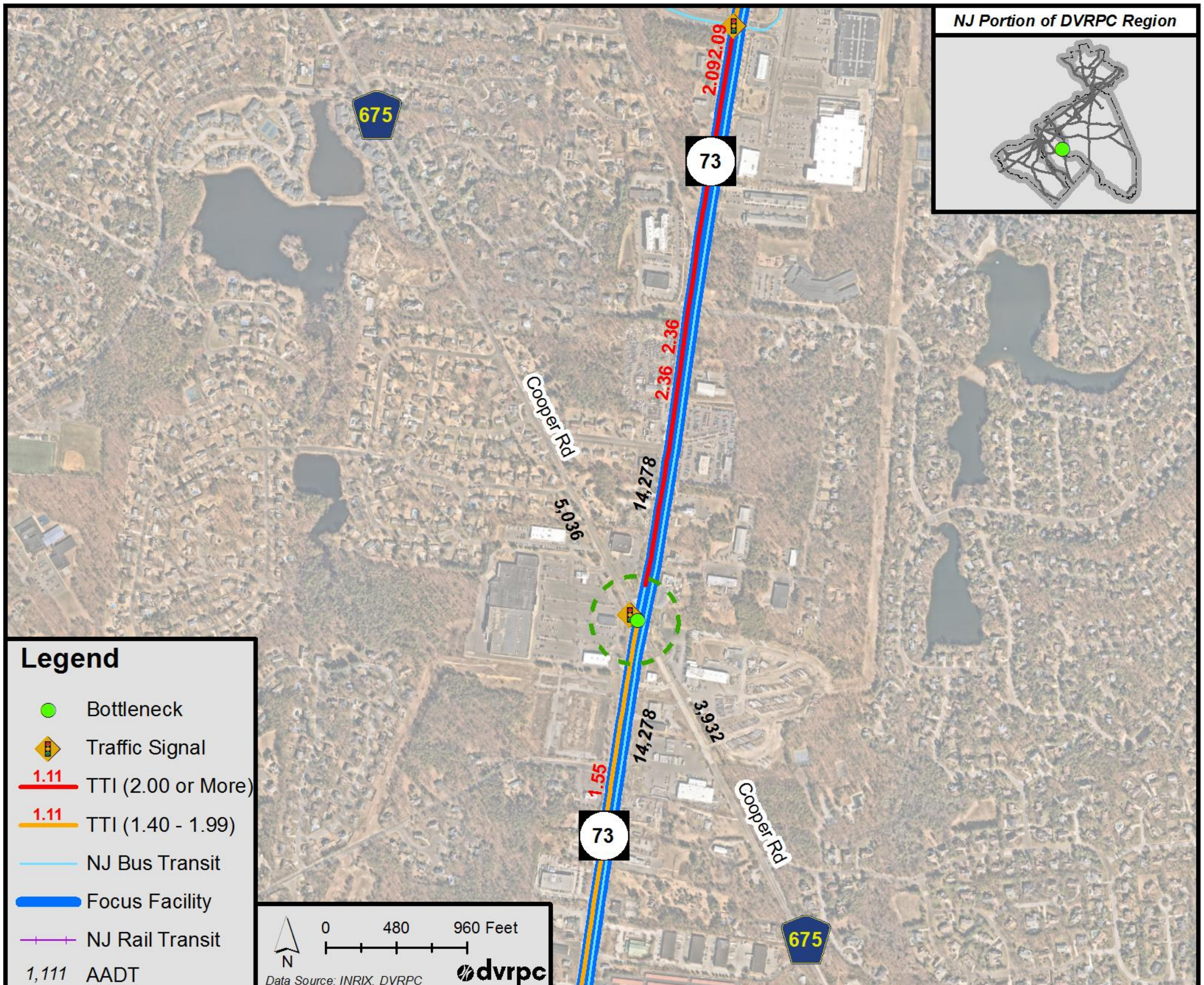
Figure 88: Bottleneck 402
NJ 168 (Black Horse Pk) @ NJ 41 (Clements Bridge Rd), Runnemede Borough, Camden County, NJ



Summary of Conditions	Congestion Measures	
The intersection at NJ 168 (Black Horse Pk) and NJ 41 (Clements Bridge Rd) in Runnemede Borough, Camden County is ranked **#1** and **#4** in peak travel time vehicle and volume delay, respectively, and includes four roadway approaches with dedicated left-turn lanes on the NJ 168 approaches. NJ 168 and NJ 41 west of the intersection are classified as principal arterial roadways and NJ 41 east of the intersection is classified as a minor arterial. The NJ 168 northbound and southbound approaches experience the most delay.	TT AM Peak Vehicle Delay (sec):	56.2
	TT PM Peak Vehicle Delay (sec):	223.6
	TT AM Peak Volume Delay (hr):	8:28:26
	TT PM Peak Volume Delay (hr):	44:34:58
	Level of Travel Time Reliability (mi):	1.03
	Peak Hour Excessive Delay (per mi):	27,355
	TDM Forecasted Congestion (mi):	1.13

Planned Improvements on 2050 LRP & FY 2024-27 TIP	Additional Factors	
* 2050 LRP: No projects	Peak Hour Approach Volume:	2,612
* FY 2024-27 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.32
1) Signal Improvements	CMP High Crash Severity (mi):	0.00
2) Turning Movement Improvements	Transit Route:	Yes
3) Encourage Use of Transit Services and TDM Programs	Traffic Signal Type:	Coordinated
4) Comprehensive Policy Approaches	Focus Roadway Facility:	312; 385
5) New Bus Services	Corridor and Subcorridor Area:	2B; 3C
6) Walking and Bicycling Improvements	CMP Objectives Score:	7.03

Figure 89: Bottleneck 369
NJ 73 @ CR 675 (Cooper Rd), Voorhees Twp, Camden County, NJ



Summary of Conditions

The intersection at NJ 73 and CR 675 (Cooper Rd) in Voorhees Township, Camden County is ranked **#3** and **#8** in peak travel time vehicle and volume delay, respectively, and includes four roadway approaches with dedicated left-turn lanes on all approaches, and dedicated right-turn lanes on the NJ 73 approaches. NJ 73 is classified as a principal arterial roadway and CR 675 as a minor arterial. An adaptive signal system was completed along NJ 73 in 2021.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	26.8
TT PM Peak Vehicle Delay (sec):	119.1
TT AM Peak Volume Delay (hr):	6:36:34
TT PM Peak Volume Delay (hr):	37:04:56
Level of Travel Time Reliability (mi):	0.09
Peak Hour Excessive Delay (per mi):	17,833
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

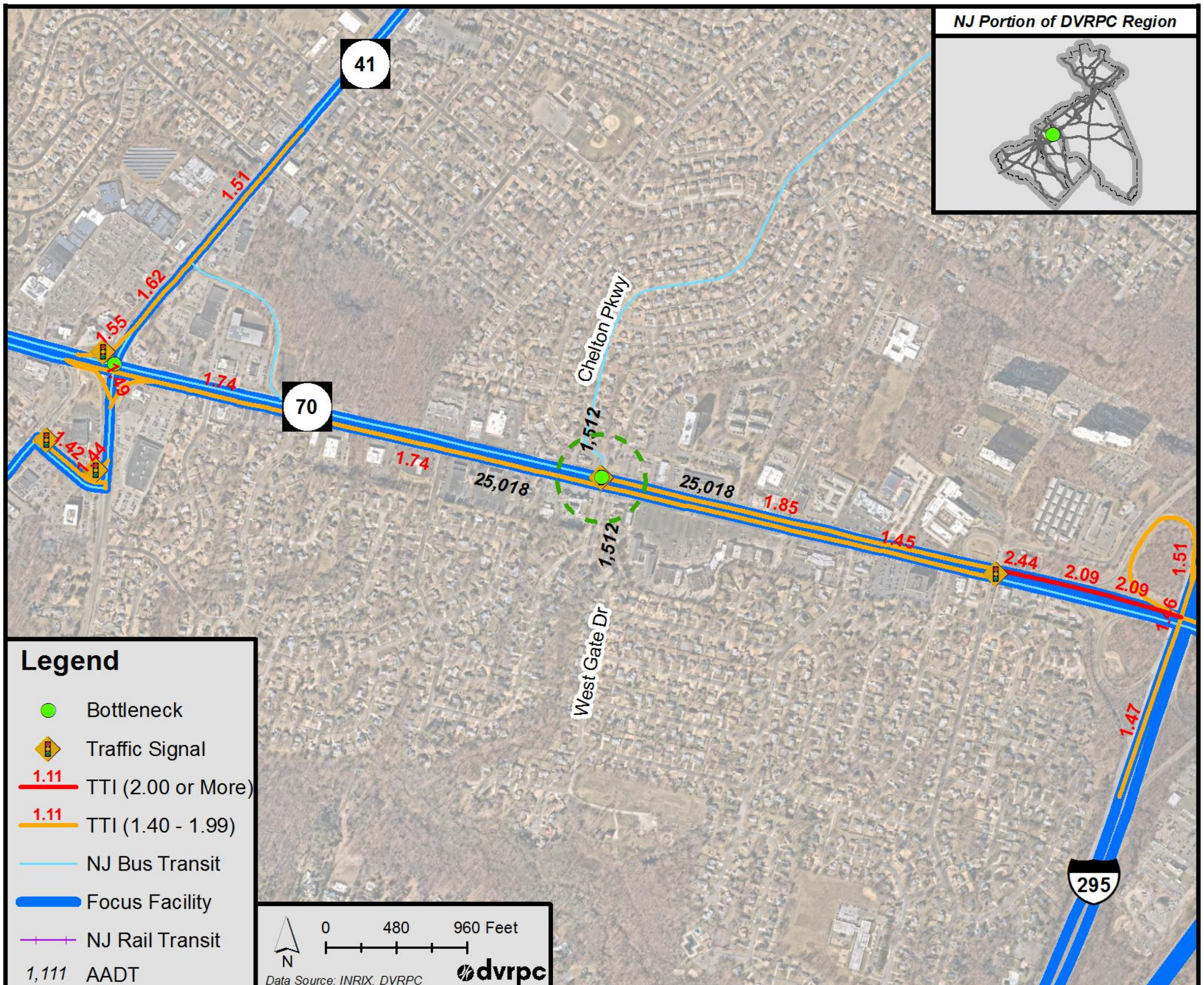
1) *Signal Improvements*
2) Turning Movement Improvements
3) Improve Circulation
4) Encourage Use of Transit Services and TDM Programs
5) Modifications to Existing Transit Routes or Services
6) Comprehensive Policy Approaches

Additional Factors	
Peak Hour Approach Volume:	3,278
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.11
Transit Route:	Yes
Traffic Signal Type:	Adaptive
Focus Roadway Facility:	373
Corridor and Subcorridor Area:	13B
CMP Objectives Score:	3.99

Recently implemented or partially implemented strategies are listed first and italicized

Figure 90: Bottleneck 340

NJ 70 @ Chelton Pkwy/West Gate Dr, Cherry Hill Twp, Camden County, NJ



Summary of Conditions

The intersection at NJ 70 and Chelton Pkwy/West Gate Dr in Cherry Hill Township, Camden County is ranked **#5** and **#1** in peak travel time vehicle and volume delay, respectively, and includes four roadway approaches with dedicated left-turn lanes on all approaches. NJ 73 is classified as a principal arterial roadway that is a divided roadway and includes two travel lanes in each direction. Chelton Pkwy is classified as a local roadway and Gates Dr as a major collector and both include one lane in each direction. The intersection is part of TIP project DB# 11338 (FY 2020-23), which consists of milling, resurfacing, and reconstructing NJ 70 from NJ 38 to Cooper Ave.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	45.0
TT PM Peak Vehicle Delay (sec):	118.6
TT AM Peak Volume Delay (hr):	23:35:41
TT PM Peak Volume Delay (hr):	78:10:15
Level of Travel Time Reliability (mi):	1.16
Peak Hour Excessive Delay (per mi):	50,830
TDM Forecasted Congestion (mi):	0.59

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP # 93 NJ 70 Corridor and Intersection Improvements

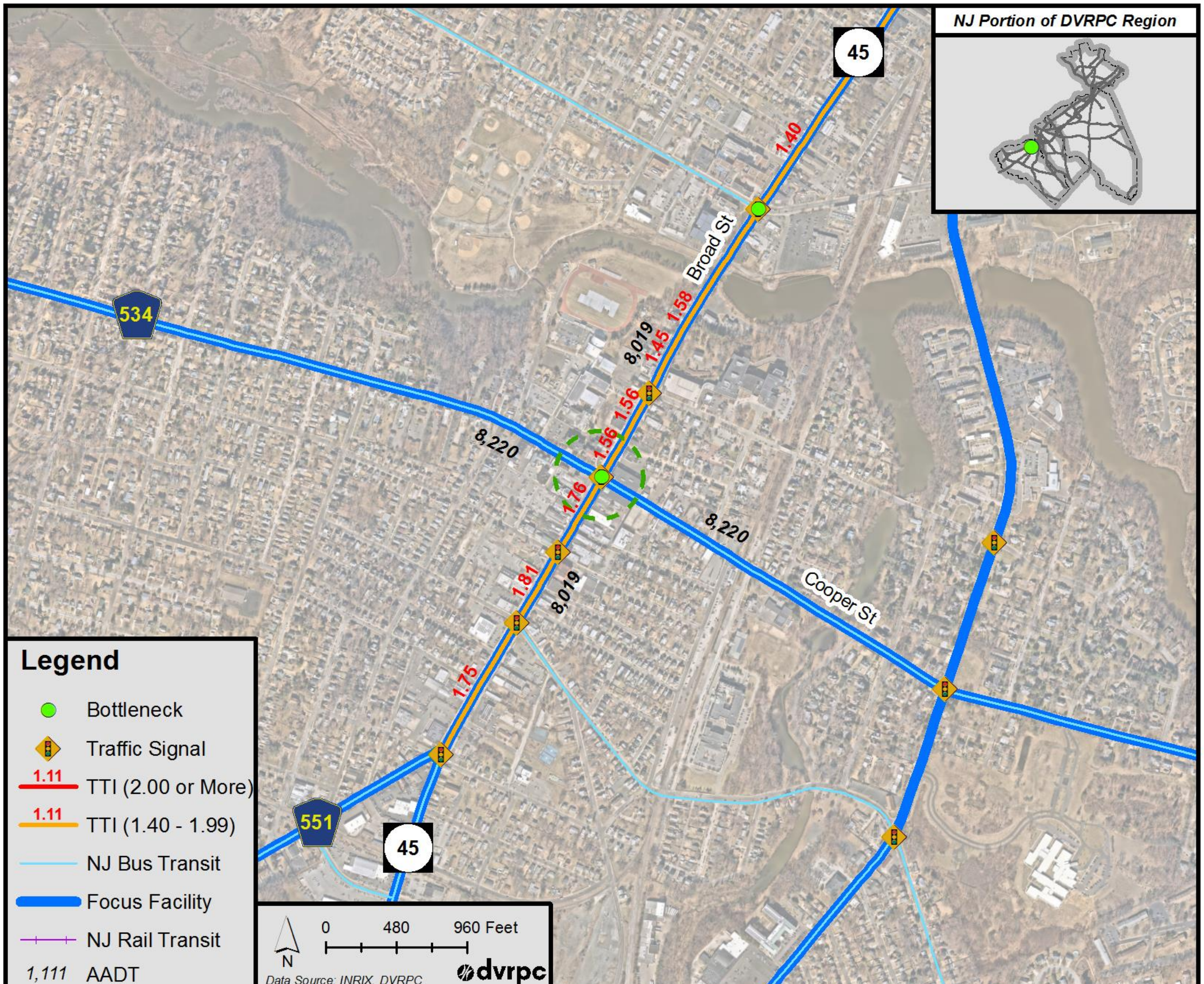
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Turning Movement Improvements
3) Encourage Use of Transit Services and TDM Programs
4) Modifications to Existing Transit Routes or Services
5) Walking and Bicycling Improvements
6) Comprehensive Policy Approaches

Additional Factors	
Peak Hour Approach Volume:	4,775
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	367
Corridor and Subcorridor Area:	12B
CMP Objectives Score:	8.44

Figure 91: Bottleneck 396
NJ 45 (Broad St) @ CR 534 (Cooper St), Woodbury City, Gloucester County, NJ



Summary of Conditions

The intersection at NJ 45 (Broad St) and CR 534 (Cooper St) in Woodbury City, Gloucester County is ranked **#7** and **#19** in peak travel time vehicle and volume delay, respectively, and includes four roadway approaches with dedicated left-turn lanes on all approaches. Both NJ 45 and CR 534 are classified as a principal arterial roadways. NJ 45 northbound and southbound approaches to the intersection the most delay.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	48.0
TT PM Peak Vehicle Delay (sec):	112.8
TT AM Peak Volume Delay (hr):	7:32:33
TT PM Peak Volume Delay (hr):	22:51:24
Level of Travel Time Reliability (mi):	1.09
Peak Hour Excessive Delay (per mi):	37,427
TDM Forecasted Congestion (mi):	0.42

Planned Improvements on 2050 LRP & FY 2024-27 TIP

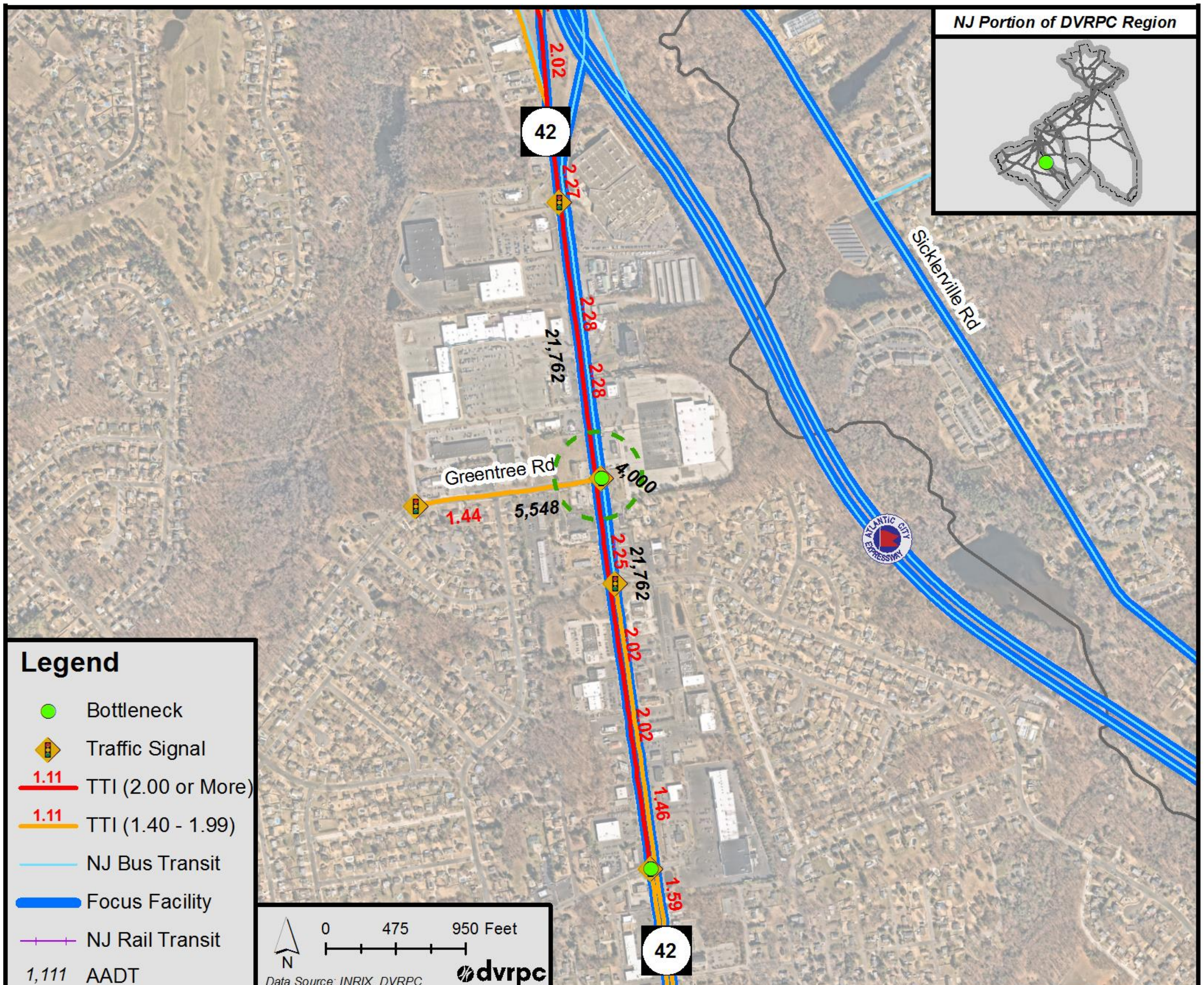
* 2050 LRP: MRP *#T Glassboro Camden Line, construct new transit line from Camden to Gloucester County*
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Improve Circulation
3) Economic Redevelopment-Oriented Transportation Policies
4) Transit-Oriented Development (TOD)
5) Modifications to Existing Transit Routes or Services
6) Placemaking for Non-Motorized Transportation

Additional Factors	
Peak Hour Approach Volume:	2,923
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.82
CMP High Crash Severity (mi):	0.82
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	360; 406
Corridor and Subcorridor Area:	11B
CMP Objectives Score:	8.62

Figure 92: Bottleneck 411
NJ 42 (Black Horse Pk) @ CR 651 (Greentree Rd), Washington Twp, Gloucester County, NJ



Summary of Conditions

The intersection of NJ 42 (Black Horse Pk) and CR 651 (Greentree Rd) in Washington Township, Gloucester County is ranked **#8** and **#3** in peak travel time vehicle and volume delay, respectively, and contains four roadway approaches (including one being an NJ 42 northbound jug handle exit). NJ 42 is classified as a principal arterial and carries two lanes of traffic in each direction with no dedicated left-turning lanes, and is a divided roadway separated by a grass median barrier. CR 651 is classified as a minor arterial with one travel lane and an additional dedicated left-turning lane. NJ 42 northbound and southbound approaches experience the most delay.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	35.2
TT PM Peak Vehicle Delay (sec):	112.8
TT AM Peak Volume Delay (hr):	11:21:10
TT PM Peak Volume Delay (hr):	50:51:26
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	28,020
TDM Forecasted Congestion (mi):	0.58

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #303 NJ 42, Kennedy Ave to Atlantic City Expressway; resurface, rehabilitate, and reconstruct, including ADA compliance improvements
* FY 2024-27 TIP: No projects

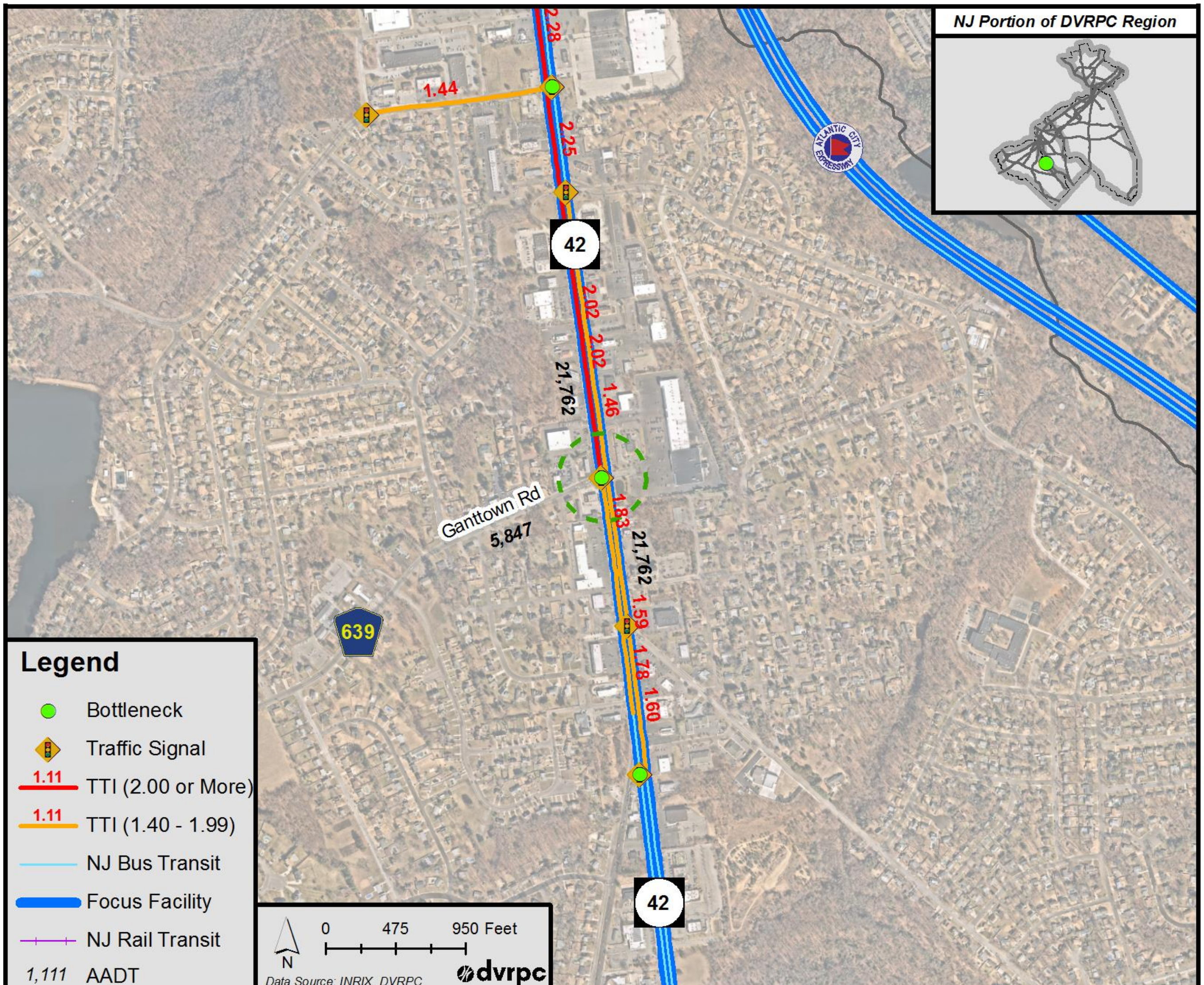
Very Appropriate Strategies

1) Signal Improvements
2) Improve Circulation
3) Park and Ride Lots
4) Modifications to Existing Transit Routes or Services
5) Placemaking for Non-Motorized Transportation

Additional Factors	
Peak Hour Approach Volume:	4,776
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.25
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	366
Corridor and Subcorridor Area:	3A
CMP Objectives Score:	6.03

Figure 93: Bottleneck 408

NJ 42 (Black Horse Pk) @ CR 639 (Ganttown Rd), Washington Twp, Gloucester County, NJ



Summary of Conditions

The intersection of NJ 42 (Black Horse Pk) and CR 639 (Ganttown Rd) in Washington Township, Gloucester County is ranked **#13** and **#5** in peak travel time vehicle and volume delay, respectively, and contains four roadway approaches with additional dedicated left- and right-turning lanes on all approaches (except the westbound approach which contains just a dedicated left-turning lane). NJ 42 is classified as a principal arterial and carries two traffic lanes in each direction, and CR 639 is a minor arterial with one lane of traffic in one direction and terminates at the intersection. The westbound approach to the intersection is driveway from the Ganttown Square Shopping Mall.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	18.4
TT PM Peak Vehicle Delay (sec):	87.5
TT AM Peak Volume Delay (hr):	7:23:19
TT PM Peak Volume Delay (hr):	41:23:46
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	36,488
TDM Forecasted Congestion (mi):	0.14

Planned Improvements on 2050 LRP & FY 2024-27 TIP

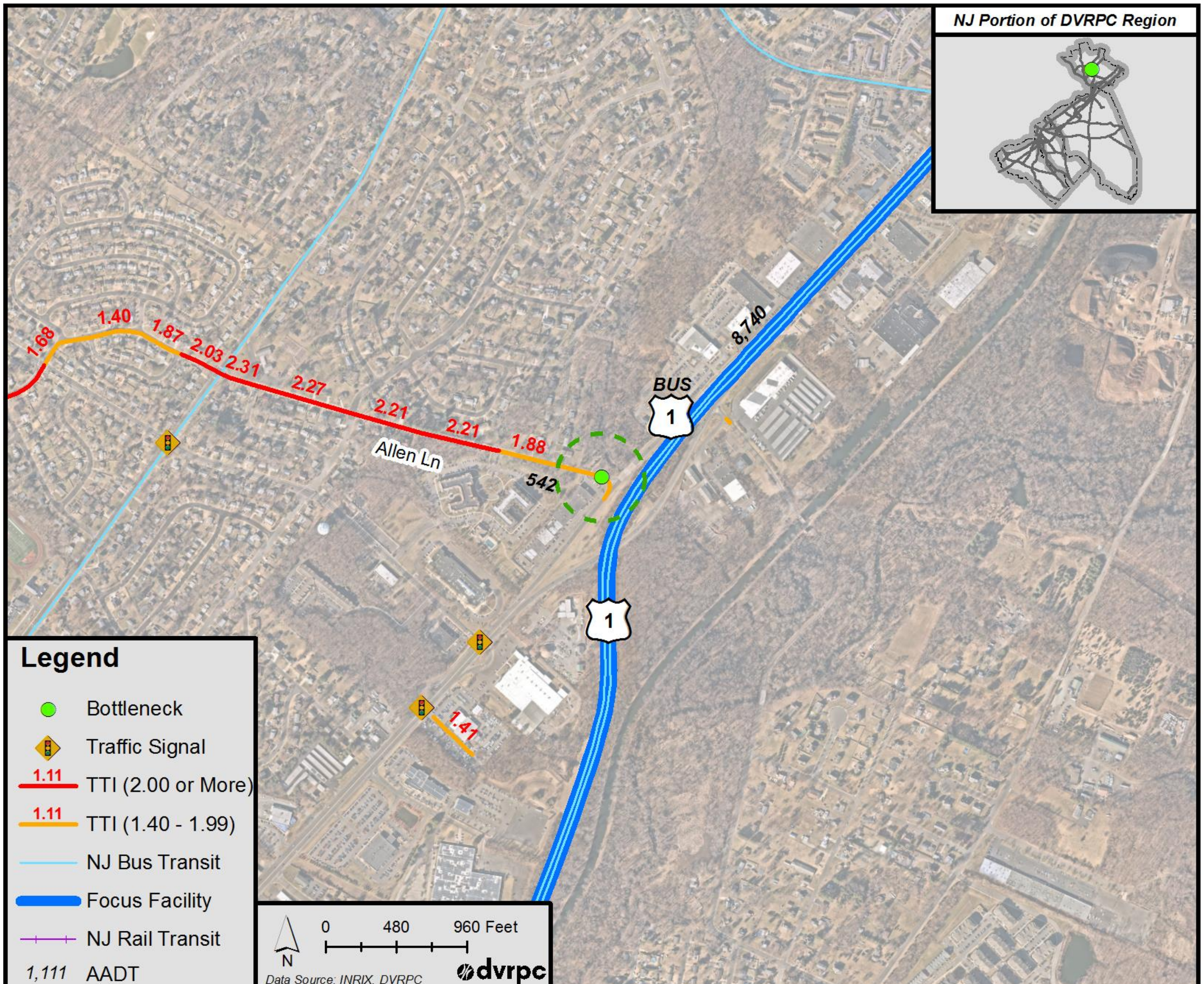
* 2050 LRP: MRP #303 NJ 42, Kennedy Ave to Atlantic City Expressway; resurface, rehabilitate, and reconstruct, including ADA compliance improvements
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Improve Circulation
3) Park and Ride Lots
4) Modifications to Existing Transit Routes or Services
5) Placemaking for Non-Motorized Transportation

Additional Factors	
Peak Hour Approach Volume:	4,443
Intersection Legs Included in Delay:	3/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	366
Corridor and Subcorridor Area:	3A
CMP Objectives Score:	4.94

Figure 94: Bottleneck 361
US 1 Bus (Brunswick Pk) @ Allen Ln, Lawrence Twp, Mercer County, NJ



Summary of Conditions
The intersection of US 1 Bus (Brunswick Pk) and Allen Ln in Lawrence Township, Mercer County is ranked **#12** and **#113** in peak travel time vehicle and volume delay, respectively, with two roadway approaches. Allen Ln is classified as a major collector and the eastbound approach ends at the intersection and is stop controlled. US 1 Bus is classified as a principal arterial roadway and is one-way southbound with two traffic lanes. The Allen Ln eastbound approach experiences the most delay.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	93.8
TT PM Peak Vehicle Delay (sec):	11.4
TT AM Peak Volume Delay (hr):	0:59:17
TT PM Peak Volume Delay (hr):	0:27:34
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	4,210
TDM Forecasted Congestion (mi):	0.00

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: No projects
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

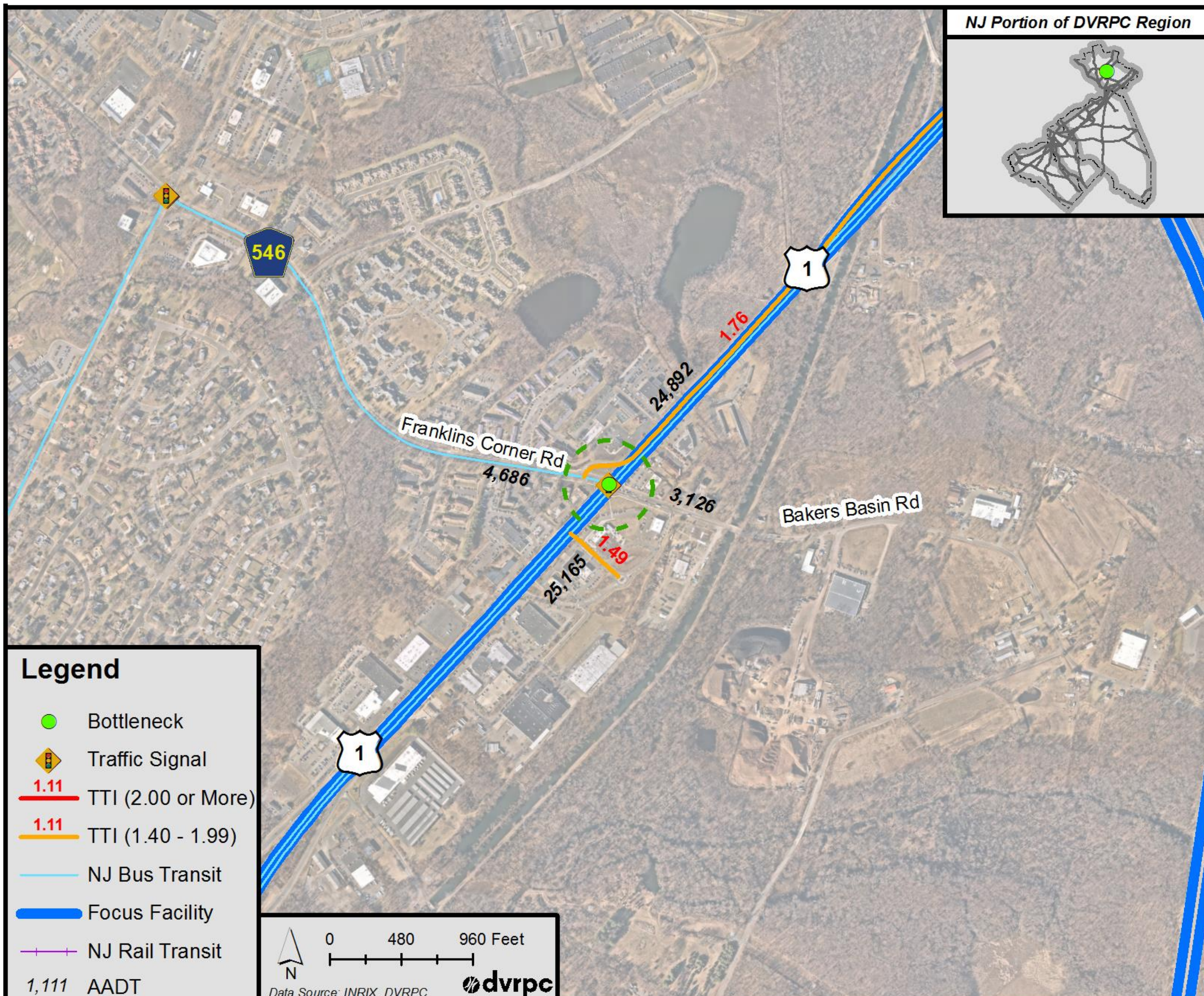
1) Turning Movement Improvements
2) Roundabout
3) Access Management Policies
4) Improve Circulation
5) Access Management Projects

Additional Factors	
Peak Hour Approach Volume:	835
Intersection Legs Included in Delay:	2/2
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	0.00
Transit Route:	No
Traffic Signal Type:	n/a
Focus Roadway Facility:	n/a
Corridor and Subcorridor Area:	4B
CMP Objectives Score:	3.56

Figure 95: Bottleneck 318
NJ 33 @ CR 526 (Robbinsville Edinburg Rd), Robbinsville Twp, Mercer County, NJ

Summary of Conditions	**Congestion Measures**	
The intersection of NJ 33 and CR 526 (Robbinsville Edinburg Rd) in Robbinsville Township, Mercer County is ranked **#25** and **#53** in peak travel time vehicle and volume delay, respectively, with three roadway approaches each containing dedicated left and/or right turning lanes. NJ 33 is classified as a principal arterial roadway and CR 526 as a minor arterial. The NJ 33 eastbound approach experiences the most delay. There is an adjacent intersection just to the east at NJ 33 and CR 526 (Robbinsville Allentown Rd) that likely contributes to the overall delay.	TT AM Peak Vehicle Delay (sec):	21.9
	TT PM Peak Vehicle Delay (sec):	71.8
	TT AM Peak Volume Delay (hr):	3:01:34
	TT PM Peak Volume Delay (hr):	10:38:52
	Level of Travel Time Reliability (mi):	0.00
	Peak Hour Excessive Delay (per mi):	15,361
	TDM Forecasted Congestion (mi):	0.16
Planned Improvements on 2050 LRP & FY 2024-27 TIP	**Additional Factors**	
* 2050 LRP: No projects * FY 2024-27 TIP: No projects	Peak Hour Approach Volume:	1,714
	Intersection Legs Included in Delay:	3/3
Very Appropriate Strategies	National Highway System:	Yes
1) Signal Improvements	CMP High Crash Frequency (mi):	0.03
2) Turning Movement Enhancements	CMP High Crash Severity (mi):	0.00
3) Roundabout	Transit Route:	Yes
4) Transit Infrastructure Improvements	Traffic Signal Type:	Coordinated
5) Modifications to Existing Transit Routes or Services	Focus Roadway Facility:	351
6) Walking and Bicycling Improvements	Corridor and Subcorridor Area:	9B
	CMP Objectives Score:	4.88

Figure 96: Bottleneck 360
US 1 (Brunswick Pk) @ CR 546 (Franklins Corner Rd), Lawrence Twp, Mercer County, NJ



Summary of Conditions	Congestion Measures	
The intersection of US 1 (Brunswick Pk) and CR 546 (Franklins Corner Rd) in Lawrence Township, Mercer County is ranked **#44** and **#13** in peak travel time vehicle and volume delay, respectively, and contains four roadway approaches. The US 1 approaches include only through lanes and the CR 546 approaches include both through lane, and dedicated left and/or right turning lanes. US 1 is classified as a principal arterial roadway with jughandle ramp exits before the intersection to facilitate indirect left-turns and/or U-turns at the intersection, and CR 546 is classified as a minor arterial.	TT AM Peak Vehicle Delay (sec):	18.5
	TT PM Peak Vehicle Delay (sec):	55.0
	TT AM Peak Volume Delay (hr):	4:29:24
	TT PM Peak Volume Delay (hr):	27:22:05
	Level of Travel Time Reliability (mi):	0.64
	Peak Hour Excessive Delay (per mi):	11,590
	TDM Forecasted Congestion (mi):	0.73

Planned Improvements on 2050 LRP & FY 2024-27 TIP	Additional Factors	
* 2050 LRP: MRP *#S US 1 Bus Rapid Transit, Express bus service serving the US 1 corridor*	Peak Hour Approach Volume:	5,208
* FY 2024-27 TIP: No projects	Intersection Legs Included in Delay:	4/4
	National Highway System:	Yes
Very Appropriate Strategies	CMP High Crash Frequency (mi):	0.00
1) Signal Improvements	CMP High Crash Severity (mi):	0.64
2) Transit Infrastructure Improvements	Transit Route:	Yes
3) Park and Ride Lots	Traffic Signal Type:	Coordinated
4) Transit-Oriented Development (TOD)	Focus Roadway Facility:	316
5) Walking and Bicycling Improvements	Corridor and Subcorridor Area:	4B
6) Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes	CMP Objectives Score:	5.72

Figure 97: Bottleneck 364
US 1 (Brunswick Pk) @ CR 571 (Washington Rd), West Windsor Twp, Mercer County, NJ

Summary of Conditions

The Penns Neck two-lane traffic circle intersection at US 1 (Brunswick Pk) and CR 571 (Washington Rd) in West Windsor Township, Mercer County is ranked **#65** and **#27** in peak travel time vehicle and volume delay, respectively, and contains four roadway approaches. US 1 and CR 571 both serve as principal arterial roadways, and the US 1 northbound approach experiences the most delay.

Congestion Measures	
TT AM Peak Vehicle Delay (sec):	37.7
TT PM Peak Vehicle Delay (sec):	42.3
TT AM Peak Volume Delay (hr):	14:26:09
TT PM Peak Volume Delay (hr):	18:43:41
Level of Travel Time Reliability (mi):	0.00
Peak Hour Excessive Delay (per mi):	12,599
TDM Forecasted Congestion (mi):	1.44

Planned Improvements on 2050 LRP & FY 2024-27 TIP

* 2050 LRP: MRP #84 US 1 from Alexander Rd to Mapleton Rd; *#S US 1 Bus Rapid Transit*
* FY 2024-27 TIP: No projects

Very Appropriate Strategies

1) Signal Improvements
2) Transit Infrastructure Improvements
3) Park and Ride Lots
4) Transit-Oriented Development (TOD)
5) Walking and Bicycling Improvements
6) Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes

Additional Factors	
Peak Hour Approach Volume:	5,882
Intersection Legs Included in Delay:	4/4
National Highway System:	Yes
CMP High Crash Frequency (mi):	0.00
CMP High Crash Severity (mi):	1.02
Transit Route:	Yes
Traffic Signal Type:	Coordinated
Focus Roadway Facility:	318;374;375
Corridor and Subcorridor Area:	4C; 14A
CMP Objectives Score:	6.14

4.5 Selecting Focus Limited Access Roadway Bottlenecks

Focus Limited Access Roadway Bottlenecks contain a road segment on a limited access roadway or approach to a limited access roadway with a high peak hour TTI or PTI segment greater than 1.50 or 3.00, respectively, and high peak hour vehicle and volume delays, analyzed separately for each county. For each bottleneck, peak travel time vehicle and volume delays are summarized for the immediate bottleneck segment and adjacent upstream segments with a TTI of 1.40 or more, or until another bottleneck is encountered. The CATT Lab PDA Bottleneck Ranking Tool was used to help in these efforts, but a manual process of identifying segments with the highest delays was applied to derive the final list of bottlenecks by county.

There are 145 Focus Limited Access Roadway Bottlenecks identified: 102 in the Pennsylvania subregion and 43 in the New Jersey subregion (see Figure 98). The bottlenecks are symbolized by volume delay in quartiles separately for the Pennsylvania and New Jersey portions of the region with brown locations being the most delayed and yellow the least. The bottleneck label identifier can be cross-referenced with Tables 12 and 13 to identify more detailed delay and ranking information. The top three limited access roadway bottlenecks in Pennsylvania include the US 1 (Roosevelt Expressway) southbound on-ramp to I-76 westbound in Philadelphia, Hollow Road on-ramp to I-76 eastbound in Montgomery County, and State Road on-ramp to I-95 southbound in Philadelphia. The top three in New Jersey all occur in Camden County: I-295 southbound on-ramp to NJ 42 southbound; NJ 168 northbound on-ramp to I-295 southbound, and the US 130 (Crescent Boulevard)/Market Street on-ramp to I-76 eastbound.

Tables 12 and 13 contain a list of Focus Limited Access Roadway Bottlenecks in the Pennsylvania and New Jersey portions of the DVRPC region, respectively, sorted in ascending order by county and limited access roadway bottleneck name. They are ranked by both peak travel time vehicle and volume delay with a rank of 1 being the most delayed. Most bottlenecks are more delayed during the PM peak hour, but there are a few with more delay during the AM peak hour. These are indicated in the “AM/PM Highest Delay” column and highlighted in gray. Vehicle and volume delays are measured in seconds and hours, respectively. The delay rankings are color coded by quartiles from the most to least in delay, with brown being the most delayed and yellow the least. The CMP Objective Measure scores for all segments that are part of the bottleneck are averaged and ranked, and listed for each bottleneck.

Since delay is only accumulated to the next upstream bottleneck (as long as the road segments meet the selection criteria), Limited Access Roadway Bottlenecks that occur at closely spaced interchanges may not indicate as high of delay compared to those interchanges spaced farther apart. Bottlenecks that are clustered together should still be considered for improvements even if they show less delay. For example, the on-ramp at I-76 eastbound at Belmont Ave contains a peak hour volume delay ranking of 31, and the next upstream bottleneck at the on-ramp at I-76 eastbound at Hollow Road contains a delay ranking of 2. The difference in delay rankings is partially attributed to how the distance delay is calculated. The distance along I-76 from Belmont Avenue to the next upstream bottleneck at Hollow Road is about 1.6 miles, whereas the distance from Hollow Road to the next upstream bottleneck at Matsonford Road is about 4.4 miles.

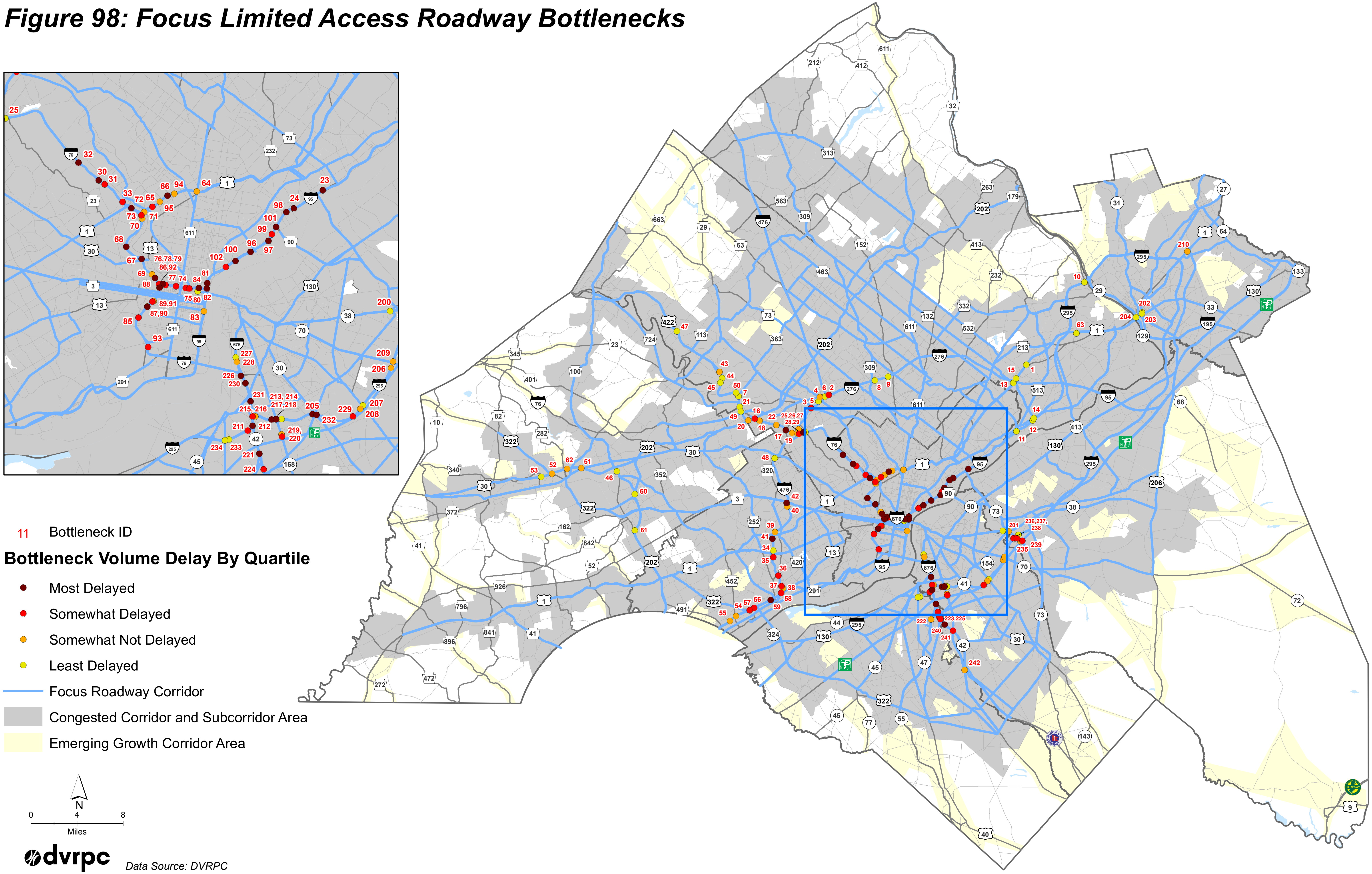
Bottlenecks occur on limited access roadways along the mainline and at key on- and off-ramps. Bottlenecks along the mainline may occur due to lane drops, such as from three to two lanes. Bottlenecks at on-ramps may occur at merge locations where drivers along the mainline may need to slow down for merging drivers on the on-ramp that are trying to find a gap to enter the mainline. Bottlenecks near off-ramps may occur due to traffic queuing back to the mainline from a traffic signal at the end of an off-ramp with an extended red phase.

Bottlenecks on limited access roadways may be due to deficient roadway geometry such as short on- and off-ramps and not providing the driver adequate distance to merge onto the mainline, or adequate off-ramp length to safely exit the highway. For example, the US 30 Bypass from Reeceville Road to US 30 Business in Chester County includes interchanges with various short on- and off-ramps, such as at PA 340 (Bondsville Road). Additionally, bottlenecks may occur due to weaving conflicts between interchanges when they are spaced closely together, and drivers are jockeying for position to enter and exit the mainline. Again, the US 30 Bypass between the PA 113 and Norwood Road interchanges is a good example of this.

Limited Access Roadway Bottlenecks can often have a greater impact on commuters than intersection bottlenecks due to the high volume of traffic on the roadways, and limited alternative routes to avoid the bottleneck. Traffic incidents such as crashes or disabled vehicles that occur along limited access roadways can compound these issues. Traffic incident management is a key strategy to mitigate congestion on these limited access roadways and clear crashes and disabled vehicles from the mainline as soon as possible. DVRPC transportation operations staff work closely with regional incident management task forces to better understand incident management issues and help to provide programs and funding to effectively manage roadways by reducing the time for incident detection, verification, response, and clearance.

The Focus Limited Access Roadway Bottlenecks should be considered in DVRPC corridor and other planning studies, PennDOT and NJDOT programs, implementing before-and-after performance evaluations, and could be added to the *Plan-TIP Project Evaluation Criteria*. Improvement recommendations will need to be weighed against regional priorities and the region’s extreme funding constraint.

Figure 98: Focus Limited Access Roadway Bottlenecks



Data Source: DVRPC

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Table 12:

Focus Limited Access Roadway Bottlenecks in the Pennsylvania Portion of the DVRPC Region: Peak Travel Time Vehicle and Volume Delay (Sorted by County and Name)

				Peak Hour Vehicle Delay (sec)						Peak Hour Volume Delay (hh:mm:ss)					
MAP ID	Name	Municipality	County	AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Rank	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
10	I-295 NB On-Ramp @ Taylorsville Rd NB	Lower Makefield Township	Bucks	10.3	3.6	10.3	AM	92	96	2:30:39	0:31:36	2:30:39	AM	1.93	102
12	I-95 SB On-Ramp @ PA 132 (Street Rd)	Bensalem Township	Bucks	6.4	10.6	10.6	PM	91	86	1:14:37	4:48:34	4:48:34	PM	4.82	91
11	I-95 SB On-Ramp @ PA 63 (Woodhaven Rd)	Bensalem Township	Bucks	3.2	26.4	26.4	PM	82	77	1:25:47	20:00:32	20:00:32	PM	7.66	69
63	Oxford Valley Rd SB @ US 1 NB Off-Ramp	Falls Township	Bucks	1.3	10.9	10.9	PM	89	97	0:04:49	2:25:52	2:25:52	PM	5.21	88
13	PA 132 (Street Rd) EB @ US 1 SB Off-Ramp	Bensalem Township	Bucks	24.3	37.6	37.6	PM	70	81	5:04:44	11:21:40	11:21:40	PM	7.21	75
14	PA 132 (Street Rd) EB @ US 13 (Bristol Pk) SB Off-Ramp	Bensalem Township	Bucks	47.4	60.2	60.2	PM	57	80	6:29:02	11:50:10	11:50:10	PM	8.63	55
15	US 1 NB On-Ramp @ I-276 Exit	Bensalem Township	Bucks	2.9	6.4	6.4	PM	98	88	1:23:25	4:06:43	4:06:43	PM	5.24	87
1	US 1 SB On-Ramp @ Fairhill Ave/Highland Ave	Middletown Township	Bucks	5.3	10.8	10.8	PM	90	90	0:13:39	3:38:46	3:38:46	PM	4.71	94
46	PA 100 NB On-Ramp @ Pottstown Pk	West Whiteland Township	Chester	4.0	19.1	19.1	PM	84	87	0:28:42	4:35:03	4:35:03	PM	8.98	45
61	US 202 NB On-Ramp @ US 322 Business/High St	West Goshen Township	Chester	3.3	8.2	8.2	PM	94	92	1:00:40	3:23:23	3:23:23	PM	2.88	100
60	US 202 SB On-Ramp @ PA 100 SB	West Goshen Township	Chester	0.9	1.8	1.8	PM	102	102	0:21:30	0:55:06	0:55:06	PM	2.77	101
62	US 30 Bypass EB On-Ramp @ Norwood Rd	Downingtown Borough	Chester	44.5	1.0	44.5	AM	65	63	35:14:00	0:07:42	35:14:00	AM	4.46	95
51	US 30 WB On-Ramp @ US 30 Business (Lancaster Ave)	East Caln Township	Chester	1.8	68.2	68.2	PM	51	65	0:20:59	34:07:15	34:07:15	PM	7.86	66
49	US 422 EB On-Ramp @ 1st Ave	Tredyffrin Township	Chester	3.8	0.0	3.8	AM	101	99	2:15:44	0:00:00	2:15:44	AM	3.87	97
53	US-30 Bypass EB On-Ramp @ PA 340 (Bondsville Rd)	Caln Township	Chester	40.6	1.1	40.6	AM	68	78	18:25:59	0:12:43	18:25:59	AM	5.58	84
52	US-30 Bypass EB On-Ramp @ US-322	Caln Township	Chester	59.0	3.0	59.0	AM	58	72	28:18:30	0:52:35	28:18:30	AM	5.43	85
34	I-476 NB On-Ramp @ Baltimore Pk	Nether Providence Township	Delaware	41.7	29.1	41.7	AM	66	76	20:03:19	20:11:30	20:11:30	PM	8.17	62
37	I-476 NB On-Ramp @ I-95	Ridley Township	Delaware	28.0	134.9	134.9	PM	19	28	18:34:37	143:41:51	143:41:51	PM	9.38	36
36	I-476 NB On-Ramp @ MacDade Blvd	Ridley Township	Delaware	55.8	92.6	92.6	PM	36	48	35:25:20	78:27:32	78:27:32	PM	8.50	57
39	I-476 NB On-Ramp @ US 1 (Media Bypass)	Marple Township	Delaware	65.8	45.3	65.8	AM	54	71	28:29:53	25:18:39	28:29:53	AM	6.57	78
40	I-476 SB @ PA 3 (West Chester Pk) EB	Marple Township	Delaware	9.3	46.3	46.3	PM	63	59	5:29:28	42:21:23	42:21:23	PM	5.30	86
48	I-476 SB @ US 30	Radnor Township	Delaware	8.7	18.5	18.5	PM	85	82	1:00:11	11:15:51	11:15:51	PM	5.63	83
35	I-476 SB On-Ramp @ Baltimore Pk	Nether Providence Township	Delaware	40.8	79.1	79.1	PM	45	50	25:17:46	59:29:10	59:29:10	PM	7.27	74
38	I-476 SB On-Ramp @ MacDade Blvd	Ridley Township	Delaware	5.4	34.9	34.9	PM	71	66	3:30:12	33:49:41	33:49:41	PM	7.20	76
42	I-476 SB On-Ramp @ PA 3 (West Chester Pk) WB	Marple Township	Delaware	16.8	257.5	257.5	PM	4	12	7:26:11	279:20:29	279:20:29	PM	8.64	54
41	I-476 SB On-Ramp @ US-1 (Media Bypass)	Marple Township	Delaware	69.0	226.8	226.8	PM	10	23	41:50:25	185:49:32	185:49:32	PM	7.34	73
55	I-95 NB On-Ramp @ Chichester Ave	Upper Chichester Township	Delaware	6.3	26.8	26.8	PM	81	61	7:06:38	37:23:07	37:23:07	PM	8.13	63
54	I-95 NB On-Ramp @ PA 452 (Market St)	Upper Chichester Township	Delaware	14.5	28.3	28.3	PM	77	64	13:35:17	34:23:53	34:23:53	PM	8.79	51
57	I-95 NB On-Ramp @ US 322 EB	Chester City	Delaware	49.5	79.5	79.5	PM	44	32	63:26:07	132:32:52	132:32:52	PM	9.31	41
59	I-95 SB On-Ramp @ Edgmont Ave	Chester City	Delaware	11.4	65.8	65.8	PM	53	24	24:15:20	179:47:05	179:47:05	PM	10.61	13
58	I-95 SB On-Ramp @ I-476	Chester City	Delaware	21.2	93.5	93.5	PM	35	49	12:41:16	76:29:55	76:29:55	PM	9.78	26
56	I-95 SB On-Ramp @ US 322 WB/Commodore Barry Br	Chester Township	Delaware	5.6	64.7	64.7	PM	55	26	9:53:03	163:38:14	163:38:14	PM	9.70	28
4	I-276 EB On-Ramp @ Germantown Pk	Plymouth Township	Montgomery	1.6	52.1	52.1	PM	60	70	0:16:40	28:31:57	28:31:57	PM	6.02	80
2	I-276 EB On-Ramp @ I-476 NB	Plymouth Township	Montgomery	2.7	114.5	114.5	PM	26	46	1:14:56	83:10:03	83:10:03	PM	7.93	65
8	I-276 WB @ PA 309	Upper Dublin Township	Montgomery	22.7	18.9	22.7	AM	83	79	13:02:08	13:59:19	13:59:19	PM	8.00	64
9	I-276 WB On-Ramp @ Virginia Dr	Upper Dublin Township	Montgomery	11.1	10.2	11.1	AM	88	84	7:13:20	8:45:36	8:45:36	PM	5.75	82
26	I-476 NB On-Ramp @ I-76	West Conshohocken Borough	Montgomery	3.7	40.8	40.8	PM	67	62	1:31:35	36:28:47	36:28:47	PM	8.73	52
3	I-476 NB On-Ramp @ Ridge Pike	Plymouth Township	Montgomery	3.1	67.4	67.4	PM	52	35	0:14:40	124:21:23	124:21:23	PM	7.47	72
6	I-476 NE Ext SB On-Ramp @ I-276 WB	Plymouth Township	Montgomery	9.0	0.9	9.0	AM	93	89	4:02:34	0:29:28	4:02:34	AM	4.79	92
5	I-476 SB On-Ramp @ Germantown Pk	Plymouth Township	Montgomery	32.0	5.7	32.0	AM	73	85	7:38:29	2:02:18	7:38:29	AM	4.75	93
31	I-76 EB @ Belmont Ave	Lower Merion Township	Montgomery	50.8	80.1	80.1	PM	43	31	61:45:22	139:00:05	139:00:05	PM	7.67	68
32	I-76 EB On-Ramp @ Hollow Rd	Lower Merion Township	Montgomery	153.7	310.9	310.9	PM	2	2	238:11:23	617:21:55	617:21:55	PM	9.34	38
27	I-76 EB On-Ramp @ I-476 NB/Matsonford Rd	West Conshohocken Borough	Montgomery	48.8	94.3	94.3	PM	34	83	26:26:37	73:22:35	9:18:20	PM	9.65	30
28	I-76 EB On-Ramp @ I-476 SB	West Conshohocken Borough	Montgomery	48.3	74.1	74.1	PM	47	47	36:30:41	81:02:19	81:02:19	PM	8.83	49
17	I-76 EB On-Ramp @ PA 320 (Gulph Rd)	Upper Merion Township	Montgomery	102.3	156.7	156.7	PM	16	17	114:06:32	230:00:40	230:00:40	PM	9.34	38
18	I-76 EB On-Ramp @ US-202 EB	Upper Merion Township	Montgomery	34.4	25.8	34.4	AM	72	67	33:15:59	31:17:30	33:15:59	AM	8.41	59
22	I-76 WB @ Henderson Rd	Upper Merion Township	Montgomery	6.5	29.8	29.8	PM	75	54	5:43:59	47:42:56	47:42:56	PM	8.84	48
25	I-76 WB Off-Ramp @ I-476 NB	West Conshohocken Borough	Montgomery	136.4	250.3	250.3	PM	7	6	188:13:32	432:51:24	432:51:24	PM	8.21	61
30	I-76 WB On-Ramp @ Belmont Ave	Lower Merion Township	Montgomery	126.5	130.3	130.3	PM	22	25	131:33:20	178:10:39	178:10:39	PM	9.48	34
29	I-76 WB On-Ramp @ I-476 NB/Matsonford Rd	West Conshohocken Borough	Montgomery	33.1	77.7	77.7	PM	46	69	10:35:05	32:22:40	32:22:40	PM	8.47	58
19	I-76 WB On-Ramp @ I-476 SB	Upper Merion Township	Montgomery	13.2	28.0	28.0	PM	78	68	11:21:54	33:10:28	33:10:28	PM	7.54	71
33	I-76 WB On-Ramp @ US 1 (City Ave)	Lower Merion Township	Montgomery	92.1	110.3	110.3	PM	27	33	78:17:44	129:37:06	129:37:06	PM	9.51	33

Table 12
Continued

MAP ID	Name	Municipality	County	Peak Hour Vehicle Delay (sec): AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Peak Hour Volume Delay (hh:mm:ss): Rank	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
16	I-76 WB On-Ramp @ US-202 EB	Upper Merion Township	Montgomery	65.6	91.5	91.5	PM	37	27	90:37:42	161:02:10	161:02:10	PM	8.36	60
44	US 422 EB Off-Ramp @ Egypt Rd	Upper Providence Township	Montgomery	11.9	7.5	11.9	AM	87	100	1:34:36	1:38:54	1:38:54	PM	6.88	77
45	US 422 EB On-Ramp @ Egypt Rd	Upper Providence Township	Montgomery	6.4	0.2	6.4	AM	97	94	3:11:15	0:02:15	3:11:15	AM	5.98	81
21	US 422 EB On-Ramp @ PA 23 (Valley Forge Rd)	Upper Merion Township	Montgomery	5.2	1.4	5.2	AM	99	95	3:06:31	0:08:27	3:06:31	AM	4.00	96
7	US 422 EB On-Ramp @ PA 363 (Trooper Rd)	West Norriton Township	Montgomery	7.3	1.8	7.3	AM	96	91	3:35:37	0:13:37	3:35:37	AM	4.94	89
47	US 422 EB On-Ramp @ Township Line Rd	Limerick Township	Montgomery	7.6	2.6	7.6	AM	95	93	3:12:44	0:30:20	3:12:44	AM	3.48	98
50	US 422 WB @ PA 363 (Trooper Rd)	Lower Providence Township	Montgomery	1.7	5.2	5.2	PM	100	98	0:00:39	2:17:19	2:17:19	PM	3.31	99
43	US 422 WB On-Ramp @ Egypt Rd	Upper Providence Township	Montgomery	0.0	47.5	47.5	PM	62	53	0:00:00	52:49:13	52:49:13	PM	6.51	79
20	US 422 WB On-Ramp/Swedesford Rd @ I-76	Upper Merion Township	Montgomery	8.2	49.5	49.5	PM	61	74	3:02:12	23:51:19	23:51:19	PM	4.91	90
80	Benjamin Franklin Br EB @ 6th St	Central	Philadelphia	8.1	15.0	15.0	PM	86	101	0:55:23	1:07:03	1:07:03	PM	7.81	67
79	I-676 EB On-Ramp @ 24th St	Central	Philadelphia	31.6	95.8	95.8	PM	32	38	25:51:23	105:59:38	105:59:38	PM	10.22	15
74	I-676 EB On-Ramp @ Broad St	Central	Philadelphia	27.5	89.8	89.8	PM	39	29	34:57:05	140:42:43	140:42:43	PM	11.43	3
76	I-676 EB On-Ramp @ I-76 WB	Central	Philadelphia	40.9	94.6	94.6	PM	33	43	26:35:35	90:44:16	90:44:16	PM	10.71	9
77	I-676 WB On-Ramp @ 16th St	Central	Philadelphia	46.5	64.5	64.5	PM	56	40	56:03:51	100:02:27	100:02:27	PM	10.04	22
78	I-676 WB On-Ramp @ 22nd St	Central	Philadelphia	55.4	106.3	106.3	PM	29	21	81:26:56	200:01:41	200:01:41	PM	11.69	1
84	I-676 WB On-Ramp @ Ben Franklin Br	Central	Philadelphia	8.9	96.7	96.7	PM	31	22	11:33:36	196:52:28	196:52:28	PM	10.99	7
75	I-676 WB On-Ramp @ I-95	Central	Philadelphia	175.5	95.1	175.5	AM	12	36	123:48:31	84:13:08	123:48:31	AM	10.07	21
67	I-76 EB On-Ramp @ Girard Ave	West Park	Philadelphia	86.7	133.3	133.3	PM	21	11	154:03:23	307:17:00	307:17:00	PM	8.69	53
86	I-76 EB On-Ramp @ I-676 (Vine Street Expressway)	University - Southwest	Philadelphia	89.9	229.8	229.8	PM	9	7	107:14:07	389:17:46	389:17:46	PM	10.14	18
68	I-76 EB On-Ramp @ Montgomery Dr	West Park	Philadelphia	254.9	173.5	254.9	AM	6	8	386:17:28	360:41:08	386:17:28	AM	9.44	35
93	I-76 EB On-Ramp @ Passyunk Ave	Lower South	Philadelphia	12.7	72.2	72.2	PM	49	44	8:26:31	86:21:30	86:21:30	PM	9.03	43
90	I-76 EB On-Ramp @ South St	University - Southwest	Philadelphia	12.8	27.6	27.6	PM	79	73	8:17:49	25:24:02	25:24:02	PM	10.08	20
73	I-76 EB On-Ramp @ US 1 (City Ave) NB	West Park	Philadelphia	69.4	72.0	72.0	PM	50	45	79:32:43	83:57:56	83:57:56	PM	9.92	24
70	I-76 EB On-Ramp @ US 1 (Roosevelt Blvd) SB	West Park	Philadelphia	38.0	13.8	38.0	AM	69	58	42:31:00	19:34:49	42:31:00	AM	9.68	29
89	I-76 EB On-Ramp @ Walnut St	University - Southwest	Philadelphia	34.7	108.5	108.5	PM	28	30	38:04:17	139:42:20	139:42:20	PM	11.00	6
88	I-76 WB On-Ramp @ @ I-676 WB	University - Southwest	Philadelphia	61.5	135.6	135.6	PM	18	18	77:22:57	227:43:30	227:43:30	PM	11.59	2
85	I-76 WB On-Ramp @ 34th St	South	Philadelphia	106.1	38.1	106.1	AM	30	42	91:19:46	43:23:33	91:19:46	AM	10.71	9
92	I-76 WB On-Ramp @ Schuylkill Ave	University - Southwest	Philadelphia	22.5	81.6	81.6	PM	42	34	23:07:57	127:25:20	127:25:20	PM	10.74	8
91	I-76 WB On-Ramp @ South St	University - Southwest	Philadelphia	11.7	55.2	55.2	PM	59	51	8:01:01	57:37:24	57:37:24	PM	10.69	11
69	I-76 WB On-Ramp @ Spring Garden St	West Park	Philadelphia	7.2	30.0	30.0	PM	74	57	7:39:51	43:12:33	43:12:33	PM	8.81	50
87	I-76 WB On-Ramp @ University Ave	University - Southwest	Philadelphia	99.4	157.5	157.5	PM	15	20	108:15:41	212:29:08	212:29:08	PM	10.16	17
72	I-76 WB On-Ramp @ US 1 SB	West Park	Philadelphia	129.1	348.9	348.9	PM	1	1	133:35:06	633:02:39	633:02:39	PM	9.52	32
98	I-95 NB On-Ramp @ Betsy Ross Br	River Wards	Philadelphia	16.2	247.2	247.2	PM	8	4	26:07:10	531:33:48	531:33:48	PM	9.34	38
24	I-95 NB On-Ramp @ Bridge St	North Delaware	Philadelphia	19.0	90.7	90.7	PM	38	19	31:11:14	214:04:40	214:04:40	PM	9.00	44
97	I-95 NB On-Ramp @ Castor Ave	River Wards	Philadelphia	7.7	143.9	143.9	PM	17	10	10:54:10	314:09:00	314:09:00	PM	9.94	23
83	I-95 NB On-Ramp @ Christopher Columbus Blvd	Central	Philadelphia	6.6	28.8	28.8	PM	76	60	5:22:50	39:08:52	39:08:52	PM	8.97	46
81	I-95 NB On-Ramp @ I-676 EB	Central	Philadelphia	12.6	162.7	162.7	PM	14	15	13:59:47	246:48:15	246:48:15	PM	10.18	16
82	I-95 NB On-Ramp @ Race St	Central	Philadelphia	9.0	122.8	122.8	PM	25	16	11:38:01	235:20:19	235:20:19	PM	11.29	4
100	I-95 NB On-Ramp @ Richmond St	River Wards	Philadelphia	21.7	129.7	129.7	PM	23	9	34:10:43	330:17:58	330:17:58	PM	10.09	19
96	I-95 SB On-Ramp @ Allegheny Ave	River Wards	Philadelphia	188.2	104.9	188.2	AM	11	14	249:46:08	183:42:25	249:46:08	AM	10.35	14
101	I-95 SB On-Ramp @ Aramingo Ave	River Wards	Philadelphia	288.3	104.3	288.3	AM	3	5	521:13:44	256:54:32	521:13:44	AM	9.88	25
102	I-95 SB On-Ramp @ Aramingo Ave/Girard Ave	River Wards	Philadelphia	45.8	33.5	45.8	AM	64	41	95:47:07	92:56:10	95:47:07	AM	9.07	42
99	I-95 SB On-Ramp @ Betsy Ross Br/Aramingo Ave	River Wards	Philadelphia	134.0	49.5	134.0	AM	20	37	118:53:21	59:20:59	118:53:21	AM	8.55	56
23	I-95 SB On-Ramp @ State Rd	North Delaware	Philadelphia	199.2	256.3	256.3	PM	5	3	323:33:01	543:11:02	543:11:02	PM	9.72	27
66	US 1 NB (Roosevelt Blvd) On-Ramp @ Abbottsford Ave	North	Philadelphia	4.2	166.2	166.2	PM	13	13	3:49:32	257:23:50	257:23:50	PM	11.22	5
65	US 1 NB (Roosevelt Blvd) On-Ramp @ Ridge Ave	North	Philadelphia	4.5	73.9	73.9	PM	48	39	1:23:01	100:48:51	100:48:51	PM	10.68	12
71	US 1 NB On-Ramp @ I-76 WB	West Park	Philadelphia	4.4	89.6	89.6	PM	40	55	1:38:32	44:23:00	44:23:00	PM	8.91	47
95	US 1 SB (Roosevelt Blvd) On-Ramp @ Abbottsford Ave	Lower Northwest	Philadelphia	27.3	23.8	27.3	AM	80	75	21:13:29	23:23:59	23:23:59	PM	7.64	70
94	US 1 SB (Roosevelt Blvd) On-Ramp @ Berkley St	Upper Northwest	Philadelphia	86.0	54.2	86.0	AM	41	56	43:18:51	33:57:20	43:18:51	AM	9.36	37
64	US 1 SB On-Ramp @ Roosevelt Blvd	North	Philadelphia	128.0	23.9	128.0	AM	24	52	53:32:00	13:47:33	53:32:00	AM	9.64	31

Most Delayed
Somewhat Delayed
Somewhat Not Delayed
Least Delayed

AM Delay

Source: DVRPC analysis of 2021 INRIX data

Table 13:

Focus Limited Access Roadway Bottlenecks in the New Jersey Portion of the DVRPC Region: Peak Travel Time Vehicle and Volume Delay (Sorted by County and Name)

				Peak Hour Vehicle Delay (sec)					Peak Hour Volume Delay (hh:mm:ss)						
MAP ID	Name	Municipality	County	AM Peak Vehicle Delay	PM Peak Vehicle Delay	Highest Vehicle Delay	Time of Day with Highest Delay	Rank	Rank	AM Peak Volume Delay	PM Peak Volume Delay	Highest Volume Delay	Time of Day with Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
237	I-295 SB On-Ramp @ Nixon Dr	Mount Laurel Township	Burlington	2.7	8.7	8.7	PM	38	39	0:24:10	4:23:47	4:23:47	PM	4.67	41
236	I-295 SB On-Ramp @ NJ 73 SB	Mount Laurel Township	Burlington	4.9	22.6	22.6	PM	23	18	1:44:07	19:05:43	19:05:43	PM	6.41	23
200	NJ 38 WB On-Ramp @ NJ 41 SB	Maple Shade Township	Burlington	2.3	8.0	8.0	PM	40	42	0:06:56	1:53:41	1:53:41	PM	3.87	43
238	NJ 73 SB On-Ramp @ I-295 NB	Mount Laurel Township	Burlington	6.6	32.6	32.6	PM	14	17	2:57:38	21:18:34	21:18:34	PM	6.38	24
201	NJ 73 SB On-Ramp @ NJ 38	Maple Shade Township	Burlington	1.4	12.8	12.8	PM	32	33	0:15:31	5:52:39	5:52:39	PM	5.72	31
239	NJ 73 SB On-Ramp @ NJ Turnpike	Mount Laurel Township	Burlington	7.2	17.9	17.9	PM	28	25	1:50:23	10:11:15	10:11:15	PM	5.46	34
235	NJ Turnpike On-Ramp @ NJ 73	Mount Laurel Township	Burlington	2.7	44.0	44.0	PM	10	12	0:23:37	30:12:16	30:12:16	PM	4.76	39
211	I-295 NB @ I-76 Off-Ramp	Bellmawr Borough	Camden	23.3	24.1	24.1	PM	20	15	17:50:57	23:42:31	23:42:31	PM	8.00	10
216	I-295 NB On-Ramp @ I-76 EB	Bellmawr Borough	Camden	4.4	9.8	9.8	PM	34	30	3:13:00	8:31:04	8:31:04	PM	6.06	27
218	I-295 NB On-Ramp @ NJ 168 (Black Horse Pk) NB	Bellmawr Borough	Camden	6.5	5.7	6.5	AM	43	35	3:35:54	4:59:06	4:59:06	PM	4.76	39
217	I-295 NB On-Ramp @ NJ 168 (Black Horse Pk) SB	Bellmawr Borough	Camden	17.9	27.7	27.7	PM	17	9	15:44:07	34:21:17	34:21:17	PM	7.28	14
215	I-295 NB On-Ramp @ NJ 42 NB	Bellmawr Borough	Camden	19.2	16.9	19.2	AM	25	20	15:11:00	10:54:30	15:11:00	AM	7.03	15
207	I-295 SB On-Ramp @ CR 561 (Haddonfield-Berlin Rd) NB	Cherry Hill Township	Camden	2.8	7.2	7.2	PM	42	34	0:47:50	5:17:29	5:17:29	PM	5.31	36
208	I-295 SB On-Ramp @ CR 561 (Haddonfield-Berlin Rd) SB	Cherry Hill Township	Camden	1.1	9.4	9.4	PM	35	29	1:22:24	8:59:26	8:59:26	PM	5.83	30
229	I-295 SB On-Ramp @ Melrose Ave	Haddonfield Borough	Camden	6.6	22.6	22.6	PM	22	13	4:31:48	28:13:34	28:13:34	PM	5.86	29
214	I-295 SB On-Ramp @ NJ 168 (Black Horse Pk) NB	Bellmawr Borough	Camden	25.5	186.1	186.1	PM	3	2	25:05:20	273:11:58	273:11:58	PM	9.57	2
213	I-295 SB On-Ramp @ NJ 168 (Black Horse Pk) SB	Bellmawr Borough	Camden	7.6	37.4	37.4	PM	11	8	3:50:08	37:52:07	37:52:07	PM	8.48	8
206	I-295 SB On-Ramp @ NJ 70 EB	Cherry Hill Township	Camden	4.0	13.4	13.4	PM	31	24	0:26:17	10:12:23	10:12:23	PM	5.22	37
209	I-295 SB On-Ramp @ NJ 70 WB	Cherry Hill Township	Camden	6.2	19.4	19.4	PM	24	28	0:47:17	9:08:49	9:08:49	PM	5.92	28
232	I-295 SB On-Ramp @ US 30 NB/Copley Rd	Barrington Borough	Camden	27.1	103.8	103.8	PM	6	5	28:14:51	149:14:32	149:14:32	PM	8.68	5
205	I-295 SB On-Ramp @ US 30 SB	Haddon Heights Borough	Camden	6.4	28.4	28.4	PM	16	11	4:43:51	31:00:43	31:00:43	PM	8.55	6
228	I-676 EB On-Ramp @ Morgan St EB	Camden City	Camden	0.9	17.1	17.1	PM	29	27	0:02:09	9:26:51	9:26:51	PM	7.42	13
227	I-676 EB On-Ramp @ Morgan St WB	Camden City	Camden	3.2	9.1	9.1	PM	37	36	0:11:24	4:55:22	4:55:22	PM	6.83	18
226	I-676 SB On-Ramp @ Collings Ave	Camden City	Camden	1.1	96.5	96.5	PM	7	7	0:04:23	67:40:04	67:40:04	PM	9.28	4
230	I-76 EB On-Ramp @ I-676 EB	Gloucester City	Camden	5.1	143.2	143.2	PM	5	4	5:33:44	170:37:58	170:37:58	PM	10.44	1
231	I-76 EB On-Ramp @ US 130 (Crescent Blvd)/Market St	Gloucester City	Camden	16.4	205.8	205.8	PM	2	3	3:22:04	194:04:33	194:04:33	PM	9.48	3
219	NJ 168 (Black Horse Pk) NB @ NJ Turnpike SB Off-Ramp	Bellmawr Borough	Camden	20.7	49.2	49.2	PM	9	32	2:22:10	6:17:24	6:17:24	PM	6.89	16
220	NJ 168 (Black Horse Pk) SB @ NJ Turnpike SB Off-Ramp	Bellmawr Borough	Camden	5.1	63.2	63.2	PM	8	21	0:38:47	11:45:33	11:45:33	PM	6.67	20
240	NJ 42 NB On-Ramp @ Lower Landing Rd	Gloucester Township	Camden	34.1	5.5	34.1	AM	13	10	32:26:28	5:01:59	32:26:28	AM	6.85	17
241	NJ 42 NB On-Ramp @ NJ 168 (Black Horse Pk)	Gloucester Township	Camden	26.3	6.0	26.3	AM	18	14	23:44:19	6:30:37	23:44:19	AM	5.42	35
212	NJ 42 SB On-Ramp @ I-295 SB	Bellmawr Borough	Camden	26.2	211.4	211.4	PM	1	1	22:03:42	323:18:47	323:18:47	PM	8.54	7
233	I 295 NB On-Ramp @ NJ 47 NB	Westville Borough	Gloucester	7.9	5.8	7.9	AM	41	37	4:47:37	4:55:19	4:55:19	PM	7.58	12
234	I 295 NB On-Ramp @ NJ 47 SB	Westville Borough	Gloucester	9.1	7.0	9.1	AM	36	38	4:53:40	4:35:25	4:53:40	AM	7.68	11
242	NJ 168 (Black Horse Pk) SB @ Atlantic City Expressway SB Off-Ramp	Washington Township	Gloucester	6.9	36.3	36.3	PM	12	26	0:22:59	9:38:23	9:38:23	PM	5.57	33
224	NJ 42 NB On-Ramp @ CR 544 (Clements Bridge Rd)	Deptford Township	Gloucester	25.3	4.9	25.3	AM	19	19	17:19:33	3:26:10	17:19:33	AM	5.59	32
225	NJ 42 NB On-Ramp @ NJ 41 (Hurffville Rd) NB	Deptford Township	Gloucester	32.4	6.0	32.4	AM	15	16	23:25:41	2:37:30	23:25:41	AM	6.17	25
223	NJ 42 NB On-Ramp @ NJ 41 (Hurffville Rd) SB	Deptford Township	Gloucester	13.7	4.2	13.7	AM	30	22	10:53:38	1:44:34	10:53:38	AM	5.03	38
221	NJ 42 NB On-Ramp @ NJ 55	Deptford Township	Gloucester	165.2	136.5	165.2	AM	4	6	109:07:26	102:06:24	109:07:26	AM	8.45	9
222	NJ 55 NB On-Ramp @ Deptford Center Rd	Deptford Township	Gloucester	18.2	11.8	18.2	AM	26	31	6:58:49	5:30:42	6:58:49	AM	6.07	26
203	Market St NB Ramp @ Stockton St Ramp	Trenton City	Mercer	3.1	8.6	8.6	PM	39	43	0:11:00	0:17:05	0:17:05	PM	6.60	21
202	US 1 NB On-Ramp @ NJ 129	Trenton City	Mercer	18.2	9.2	18.2	AM	27	40	4:18:01	2:41:07	4:18:01	AM	6.74	19
210	US 1 SB On-Ramp @ CR 533 (Quakerbridge Rd)	Lawrence Township	Mercer	0.0	11.1	11.1	PM	33	23	0:00:00	10:40:27	10:40:27	PM	4.23	42
204	US 1 SB On-Ramp @ Market St	Trenton City	Mercer	3.1	22.9	22.9	PM	21	41	0:17:13	3:28:09	3:28:09	PM	6.58	22

Most Delayed
Somewhat Delayed
Somewhat Not Delayed
Least Delayed

AM Delay

Source: DVRPC analysis of 2021 INRIX data

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4.6 SEPTA and NJ Transit Bus Reliability

Identifying congested bus routes for larger areas, like the DVRPC region, lends itself to first analyzing at the route facility level, rather than at the segment level. This improves understanding of how some bus routes are performing better than others, and enables bus route performance to be tracked over time.

Bus route planning time and ridership delay measures are used to analyze transit reliability. Planning time was chosen over travel time, since reliability is a key factor in attracting and retaining transit riders. Peak planning time vehicle delay is calculated from the INRIX travel time data and peak ridership delay is calculated from the planning time delay and the annual ridership based on published FY 2021 ridership data for NJ Transit and FY 2019 ridership for SEPTA. Ridership delay helps to understand the magnitude of delay since a crowded bus stuck in traffic is more impactful than a bus with just a few riders. Planning time delay measures the 95th percentile delay for one vehicle. High planning time delays may be due to unforeseen circumstances such as crashes, disabled vehicles, or parked cars in bus lanes. Delays were divided by the facility length, and ranked separately for SEPTA and NJ Transit from most to least in delay, for both measures. The delay is divided, or normalized, by facility length since longer routes would tend to over-represent delay.

Transit routes were updated on the INRIX road network from the latest published route information from SEPTA and NJ Transit. The main part of the route was chosen to be analyzed, and other parts that had less frequent service were dropped. A few route segments were removed from the analysis where INRIX data was not available. Figure 99 maps the 98 transit routes analyzed—65 SEPTA routes and 33 NJ Transit—and displays their planning time ridership delay by quartile with the most delayed routes shown in brown and the least delayed in yellow. All main bus transit routes for NJ transit were included in the analysis, except for those with less than ten riders per weekday on average or those having less than 75 percent of their service area in the DVRPC region. Most SEPTA routes are included in the analysis except for those recommended to be dropped as part of SEPTA's Bus Revolution network changes.

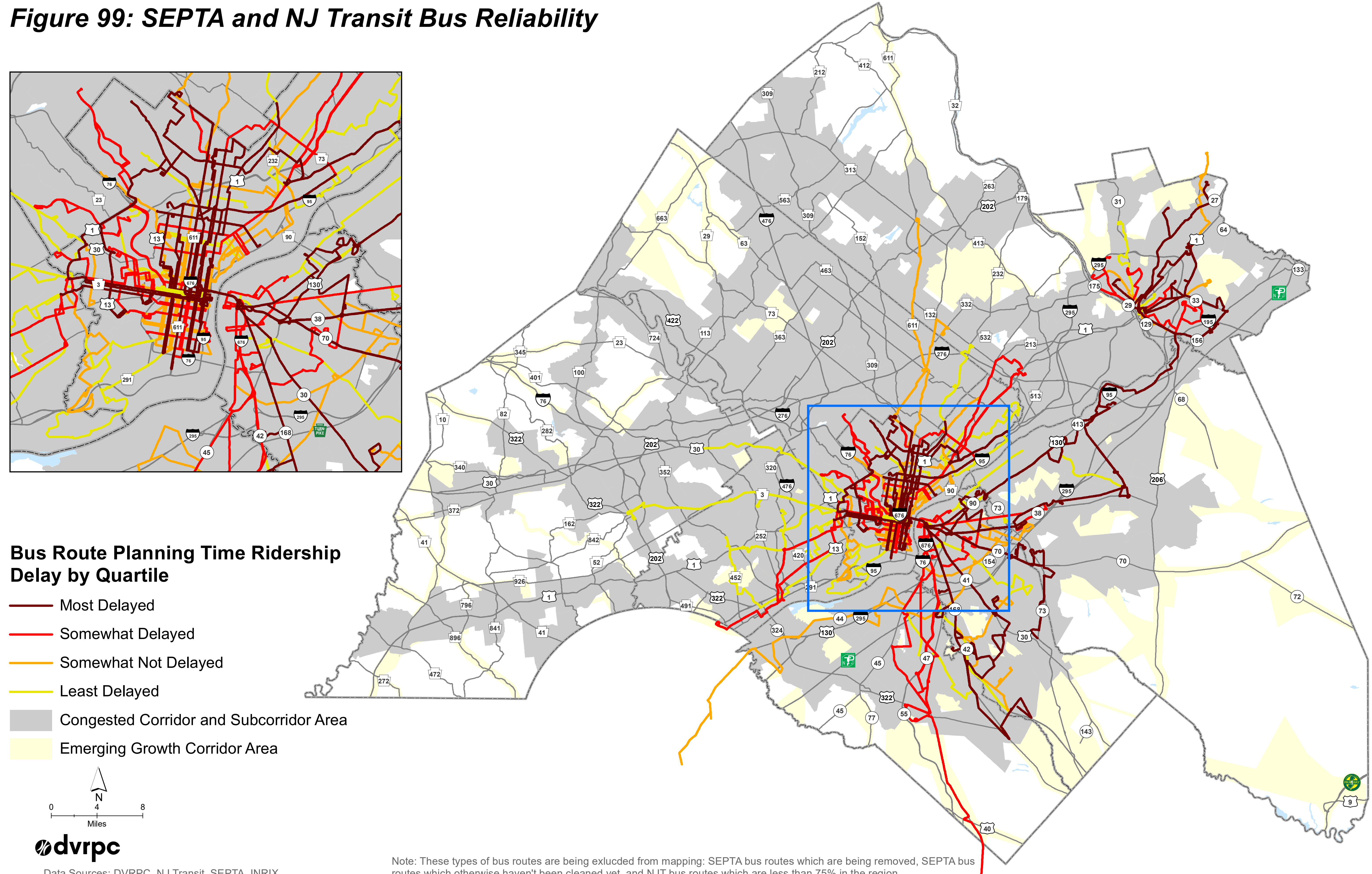
Tables 14 and 15 contain a list of SEPTA and NJ Transit routes, sorted by route name, and ranked by both peak planning time vehicle delay and ridership delay with a rank of 1 being the most delayed. The delay rankings are color coded by quartiles from the most to least in delay, with brown being the most delayed and yellow the least delayed. Most of the transit routes are more delayed during the PM peak hour, but there are a few NJ Transit routes that are more delayed during the AM peak hour, which are noted in the "AM/PM Highest Delay" column. Vehicle and ridership delays are measured in seconds and hours, respectively. Although congestion and reliability measures are of primary importance for the CMP, they are not the sole factors to consider in ranking transit route facilities, and influencing investment decisions. Additional factors to consider are the other CMP Objective Measures as aligned with the Long-Range Plan, which are used to help select Priority Congested Corridor and Subcorridor Areas (see Chapter 4, section 8) and to identify strategies to mitigate congestion (see Chapter 4, section 9). The CMP Objective Measure scores for all segments that are part of the transit route facility are averaged and ranked by route and listed along with the other delay measures for each bus route.

SEPTA routes with the highest ridership delay are all in the City of Philadelphia and include Route 47 (Whitman Plaza to 5th and Godfrey), Route 18 (Fox Chase to Cedarbrook Plaza), and Route 23 (11th and Market to Chestnut Hill). SEPTA routes with the highest vehicle delays include Route 44 (5th and Market to Ardmore), Route 27 (Broad-Carpenter to Plymouth Meeting Mall), and Route 9 (4th and Walnut to Andorra). The majority of these routes are in the City and have significant ridership (greater than one million per year), but are not the highest ridership routes.

NJ Transit routes with the highest ridership delay include Route 400 (Sicklerville – Philadelphia), Route 403 (Camden – Lindenwold PATCO – Turnersville), and Route 609 (Ewing – Quaker Bridge Mall). Both Routes 400 and 403 have the majority of the route in Camden County, and Route 609 is in Mercer County. NJ Transit routes with the highest vehicle delay include Route 414 (Moorestown – 30th Street Philadelphia), Route 404 (Cherry Hill Mall – Pennsauken-Philadelphia) and Route 406 (Berlin – Marlton – Philadelphia). Route 414 has low ridership, so this route has less congestion impact compared to other routes with higher ridership.

Unreliable transit routes that are within the CMP Congested Corridor, Subcorridor, and Emerging Growth Corridor Areas are given more weight for managing reliability and congestion than routes not in these areas. The most delayed transit route facilities should be considered in DVRPC corridor and other planning studies, before-and-after performance evaluations, and could be added to the *Plan-TIP Project Evaluation Criteria*. They will need to be weighed against regional priorities and the region's extreme funding constraint.

Figure 99: SEPTA and NJ Transit Bus Reliability



Data Sources: DVRPC, NJ Transit, SEPTA, INRIX

Note: These types of bus routes are being exlucded from mapping: SEPTA bus routes which are being removed, SEPTA bus routes which otherwise haven't been cleaned yet, and NJT bus routes which are less than 75% in the region.

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Table 14:
SEPTA Transit Route Facilities: Peak Planning Time Vehicle and Ridership Delay (Sorted by Route)

			Peak Hour Planning Delay (sec/mi)					Peak Hour Ridership Delay (hr/mi) (hh:mm:ss)							
Route	Name	Miles	AM Delay	PM Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	Annual Ridership (000)	AM Delay	PM Delay	Highest Peak Delay	AM/PM Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
2	20th-Johnston to Pulaski-Hunting Park	12.41	62.9	80.3	80.3	PM	49	38	1,464.3	97:15:07	124:14:56	124:14:56	PM	5.67	52
3	33rd-Cecil B. Moore to Frankford TC	14.98	70.2	93.1	93.1	PM	38	21	2,372.7	175:58:39	233:12:21	233:12:21	PM	6.46	29
4	Broad-Pattison to Fern Rock TC	19.83	92.3	129.7	129.7	PM	11	13	2,102.1	204:51:45	288:01:55	288:01:55	PM	7.40	9
5	Front-Market to Frankford TC	13.44	74.3	105.6	105.6	PM	27	42	1,015.8	79:45:21	113:19:30	113:19:30	PM	7.02	14
6	Olney TC to Cheltenham-Ogontz	4.81	73.4	122.7	122.7	PM	15	22	1,783.2	138:12:17	231:02:37	231:02:37	PM	5.37	59
7	Pier 70 to 33rd-Dauphin	18.64	68.3	83.8	83.8	PM	45	35	1,468.5	105:57:00	129:57:56	129:57:56	PM	6.38	32
9	4th and Walnut to Andorra	23.93	113.7	166.3	166.3	PM	3	20	1,362.0	163:37:02	239:16:51	239:16:51	PM	7.83	5
12	Columbus-Dock to 50th-Woodland	9.15	90.8	129.1	129.1	PM	12	46	717.9	68:50:16	97:55:22	97:55:22	PM	6.47	28
14	Neshaminy & Oxford Valley Malls to Frankford TC	21.42	43.0	60.2	60.2	PM	61	33	2,144.7	97:22:51	136:24:12	136:24:12	PM	6.06	40
16	City Hall to Cheltenham-Ogontz	18.25	111.9	161.1	161.1	PM	5	14	1,688.7	199:37:01	287:25:12	287:25:12	PM	8.44	2
17	Penn's Landing to 20th-Johnston & Broad-Pattison	9.17	112.2	132.5	132.5	PM	9	9	2,807.7	332:36:17	392:47:18	392:47:18	PM	6.70	24
18	Fox Chase to Cedarbrook Plaza	16.84	84.6	114.0	114.0	PM	20	2	4,566.5	407:59:41	549:37:35	549:37:35	PM	7.18	12
20	Philadelphia Mills to Frankford TC	14.32	43.1	50.6	50.6	PM	64	51	1,540.8	70:12:06	82:20:24	82:20:24	PM	5.46	56
21	Penn's Landing to 69th Street TC	12.96	88.8	132.2	132.2	PM	10	7	2,983.1	279:42:38	416:40:06	416:40:06	PM	8.33	4
22	Willow Grove & Warminster to Olney TC	30.96	57.9	83.2	83.2	PM	46	43	1,267.8	77:32:49	111:24:41	111:24:41	PM	6.09	39
23	11th-Market to Chestnut Hill	20.33	78.7	117.8	117.8	PM	17	3	3,791.6	315:02:37	471:33:26	471:33:26	PM	6.67	26
24	Southampton & Rockledge to Frankford TC	25.55	57.9	93.6	93.6	PM	37	56	650.1	39:46:54	64:15:46	64:15:46	PM	6.14	37
25	Frankford TC to Columbus Commons	14.39	67.0	103.5	103.5	PM	29	34	1,209.0	85:31:53	132:13:16	132:13:16	PM	6.62	27
26	Frankford TC to Chelten Ave Station	16.31	81.1	111.4	111.4	PM	22	10	2,900.4	248:32:46	341:22:57	341:22:57	PM	6.73	23
27	Broad-Carpenter to Plymouth Meeting Mall	24.61	113.5	173.7	173.7	PM	2	24	1,185.9	142:12:56	217:34:10	217:34:10	PM	7.76	7
29	Pier 70 to 33rd-Dickinson	3.86	62.4	66.7	66.7	PM	57	47	1,297.5	85:29:08	91:27:24	91:27:24	PM	5.37	60
31	City Hall to 76th-City	8.10	76.6	105.3	105.3	PM	28	32	1,229.4	99:31:11	136:45:16	136:45:16	PM	6.77	22
33	Penn's Landing to 23rd-Venango	11.09	93.0	119.7	119.7	PM	16	6	3,319.7	325:55:31	419:47:12	419:47:12	PM	6.40	31
37	Chester TC to Broad-Snyder	18.84	46.5	58.0	58.0	PM	63	57	990.9	48:43:08	60:45:04	60:45:04	PM	5.90	44
38	5th-Market to Wissahickon TC	18.66	68.2	90.9	90.9	PM	42	52	780.6	56:13:01	74:54:29	74:54:29	PM	6.69	25
39	Richmond-Cumberland to 33rd-Dauphin	6.12	57.0	74.6	74.6	PM	52	59	663.0	39:52:57	52:14:10	52:14:10	PM	5.23	65
40	2nd-Lombard to Conshohocken-Monument	17.27	73.9	96.8	96.8	PM	34	26	1,984.8	154:58:35	202:58:06	202:58:06	PM	5.87	45
42	Penn's Landing to Wycombe or 61st-Pine	13.12	93.1	123.5	123.5	PM	14	12	2,213.7	217:33:46	288:51:46	288:51:46	PM	6.78	21
43	Richmond-Cumberland to 50th-Parkside	13.89	76.8	101.7	101.7	PM	32	44	951.0	77:10:55	102:09:53	102:09:53	PM	7.35	10
44	5th and Market to Ardmore	24.53	127.7	195.1	195.1	PM	1	25	1,024.2	138:06:47	211:04:09	211:04:09	PM	8.38	3
45	Broad-Oregon to Nobel-12th	7.36	55.8	86.1	86.1	PM	44	31	1,514.4	89:18:30	137:41:13	137:41:13	PM	5.73	50
46	58th-Baltimore to 63rd-Malvern	1.32	71.2	81.3	81.3	PM	47	36	1,496.1	112:35:19	128:26:05	128:26:05	PM	5.38	58
47	Whitman Plaza to 5th and Godfrey	18.51	80.0	126.8	126.8	PM	13	1	4,771.1	403:14:08	638:48:11	638:48:11	PM	5.70	51
48	Front-Market to 27th-Allegheny	10.39	91.1	116.5	116.5	PM	19	17	2,296.8	220:53:21	282:41:12	282:41:12	PM	6.92	16
52	49th-Woodland to 54th-City or 50th-Parkside	10.70	64.3	109.7	109.7	PM	24	8	3,493.2	237:14:29	404:36:44	404:36:44	PM	5.78	47
53	Wayne-Carpenter to Broad-Hunting Park or G-Hunting Park	11.95	66.7	79.7	79.7	PM	50	55	766.5	53:58:43	64:30:09	64:30:09	PM	5.41	57
54	Richmond-Cambria to 33rd-Dauphin	8.28	65.1	108.7	108.7	PM	25	18	2,153.4	148:02:53	247:15:59	247:15:59	PM	7.20	11
55	Willow Grove & Doylestown to Olney TC	43.12	48.0	73.0	73.0	PM	53	41	1,579.2	80:08:50	121:41:49	121:41:49	PM	5.73	49
56	23rd-Venango & Bakers Centre to Torresdale-Cottman	15.70	84.2	132.7	132.7	PM	8	5	3,008.3	267:36:23	421:33:36	421:33:36	PM	7.03	13

Table 14
(Continued)

Route	Name	Miles	Peak Hour Planning Delay (sec/mi) AM Delay	PM Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Peak Hour Ridership Delay (hr/mi) (hh:mm:ss) Rank	Annual Ridership (000)	AM Delay	PM Delay	Highest Peak Delay	AM/PM Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
57	Whitman Plaza to Rising Sun-Olney & Fern Rock TC	21.80	64.2	98.3	98.3	PM	33	11	2,929.5	198:35:20	304:16:30	304:16:30	PM	6.11	38
58	Neshaminy Mall & Somerton to Frankford TC	25.69	48.0	94.5	94.5	PM	36	19	2,418.6	122:40:59	241:27:21	241:27:21	PM	6.29	34
59	Castor-Bustleton to Arrott TC	7.74	52.3	66.4	66.4	PM	58	50	1,182.0	65:14:41	82:51:40	82:51:40	PM	5.23	63
60	35th-Allegheny to Richmond-Westmoreland	10.65	88.7	137.0	137.0	PM	6	4	2,968.1	277:59:17	429:28:34	429:28:34	PM	6.91	17
61	9th-Market to Manayunk	15.25	87.3	110.6	110.6	PM	23	37	1,076.7	99:17:14	125:46:54	125:46:54	PM	6.91	18
64	50th-Parkside to Pier 70	16.00	71.2	95.7	95.7	PM	35	28	1,574.1	118:26:28	159:01:45	159:01:45	PM	6.43	30
65	Germantown-Chelten to 69th Street TC	16.96	92.8	116.9	116.9	PM	18	16	2,290.5	224:32:48	282:48:56	282:48:56	PM	6.97	15
66	Frankford TC to Frankford-Knights	11.94	81.0	102.7	102.7	PM	31	15	2,607.6	223:05:27	282:52:14	282:52:14	PM	7.64	8
67	Philadelphia Mills & Bustleton to Frankford TC	14.28	59.6	63.1	63.1	PM	60	48	1,366.8	86:03:49	91:09:29	91:09:29	PM	5.35	62
68	69th Street TC via UPS and PNC to Broad-Oregon	42.17	37.3	45.0	45.0	PM	65	65	562.5	22:09:46	26:45:11	26:45:11	PM	5.63	53
70	Torresdale-Cottman & Frankford-Gregg to Fern Rock TC	15.07	64.4	91.2	91.2	PM	40	23	2,259.9	153:45:58	217:38:20	217:38:20	PM	6.25	35
75	Wayne Junction to Arrott TC	7.16	84.6	112.6	112.6	PM	21	49	758.0	67:42:38	90:10:46	90:10:46	PM	5.36	61
79	Columbus Commons to 29th-Snyder	5.48	64.5	92.0	92.0	PM	39	30	1,519.8	103:32:12	147:37:52	147:37:52	PM	5.80	46
84	Philadelphia Mills & Bustleton-County Line to Frankford TC	22.60	57.6	58.2	58.2	PM	62	58	986.4	59:59:25	60:35:56	60:35:56	PM	5.47	55
104	West Chester University to 69th Street TC	40.99	54.0	68.4	68.4	PM	56	53	969.6	55:19:01	70:05:00	70:05:00	PM	5.23	64
105	Rosemont to 69th Street TC	13.03	68.2	89.1	89.1	PM	43	61	360.9	25:59:44	33:57:48	33:57:48	PM	6.37	33
106	Ardmore & Paoli to 69th Street TC	32.19	61.8	72.8	72.8	PM	54	63	373.6	24:22:33	28:43:40	28:43:40	PM	5.75	48
107	Lawrence Park to 69th Street TC	26.73	59.2	91.0	91.0	PM	41	62	311.3	19:28:12	29:56:20	29:56:20	PM	6.22	36
108	Airport & Airport Business Center to 69th Street TC	16.39	49.8	70.2	70.2	PM	55	40	1,656.0	87:08:21	122:44:31	122:44:31	PM	5.97	42
109	Chester TC to 69th Street TC	22.61	60.3	103.1	103.1	PM	30	29	1,404.8	89:25:36	152:58:29	152:58:29	PM	6.87	19
110	Springfield Mall & Penn State to 69th Street TC	26.08	69.0	106.8	106.8	PM	26	54	591.1	43:03:41	66:39:14	66:39:14	PM	6.82	20
112	Delaware County Community College to 69th Street TC	15.67	72.7	80.9	80.9	PM	48	64	319.5	24:32:17	27:18:58	27:18:58	PM	5.97	43
113	Northtowne Plaza to 69th Street TC	29.16	53.6	75.7	75.7	PM	51	27	2,131.1	120:34:31	170:21:31	170:21:31	PM	6.00	41
114	Penn State & I-95 Industrial Park to Darby TC	39.17	49.8	66.2	66.2	PM	59	60	596.7	31:23:46	41:44:09	41:44:09	PM	5.62	54
LUCYGO*	Gold Loop through University City	2.90	164.3	156.9	164.3	AM	4	39	709.8	123:10:59	117:35:38	123:10:59	AM	9.00	1
LUCYGR*	Green Loop through University City	3.85	131.0	134.8	134.8	PM	7	45	709.8	98:13:39	101:01:59	101:01:59	PM	7.82	6

Most Delayed
Somewhat Delayed
Somewhat Not Delayed
Least Delayed

Note: Ridership is based on the *2021 SEPTA Service Plan Update* , which contains fiscal year 2019 data (July 1, 2018 - June 30, 2019).

* Ridership is the same for both LUCY Gold and LUCY Green, since it was not provided separately.

Source: DVRPC analysis of 2021 INRIX data

Table 15:

DVRPC CMP NJ Transit Route Facilities: Peak Planning Time Vehicle and Ridership Delay (Sorted by Route)

			Peak Hour Planning Delay (sec/mi)					Peak Hour Ridership Delay (hr/mi) (hh:mm:ss)							
Route	Name	Miles	AM Delay	PM Delay	Highest Peak Delay	AM/PM Highest Delay	Rank	Rank	Annual Ridership (000)	AM Delay	PM Delay	Highest Peak Delay	AM/PM Highest Delay	CMP Obj. Score	CMP Obj. Score Rank
400	Sicklerville - Philadelphia	47.63	45.6	58.1	58.1	PM	10	1	709.3	34:10:26	43:33:18	43:33:18	PM	5.13	8
402	Pennsville - Philadelphia	67.10	34.5	37.8	37.8	PM	32	22	104.4	3:48:22	4:10:19	4:10:19	PM	4.55	25
403	Camden - Lindenwold Patco - Turnersville	45.47	38.3	56.7	56.7	PM	11	2	344.7	13:56:57	20:38:02	20:38:02	PM	5.08	10
404	Cherry Hill Mall - Pennsauken- Philadelphia	19.18	64.9	71.6	71.6	PM	2	6	181.6	12:26:49	13:43:49	13:43:49	PM	5.80	3
405	Camden - Merchantville - Cherry Hill Mall	11.61	32.4	58.7	58.7	PM	9	20	88.6	3:01:43	5:29:29	5:29:29	PM	4.93	15
406	Berlin - Marlton - Philadelphia	34.97	49.6	66.6	66.6	PM	3	5	223.6	11:42:01	15:43:52	15:43:52	PM	5.80	2
407	Camden - Merchantville - Moorestown Mall	31.19	36.5	56.1	56.1	PM	12	13	134.2	5:10:30	7:56:48	7:56:48	PM	4.26	29
408	Millville -Philadelphia	71.30	31.4	41.5	41.5	PM	28	14	180.4	5:58:40	7:54:07	7:54:07	PM	4.46	27
409	Trenton - Willingboro - Philadelphia	92.53	34.4	41.0	41.0	PM	29	7	304.4	11:02:55	13:10:22	13:10:22	PM	4.94	13
412	Sewell - Glassboro - Philadelphia	63.04	37.9	50.4	50.4	PM	15	15	147.1	5:53:19	7:49:55	7:49:55	PM	4.90	16
413	Camden - Mt. Holly - Florence	63.57	28.1	43.0	43.0	PM	25	9	224.2	6:39:31	10:10:51	10:10:51	PM	4.57	24
414	Moorestown - 30th Street Philadelphia	35.11	59.8	72.0	72.0	PM	1	32	2.7	0:09:58	0:12:00	0:12:00	PM	5.47	6
417	Mt. Holly - Willingboro - 30th Street Philadelphia Express	61.41	38.7	47.7	47.7	PM	20	33	3.0	0:07:06	0:08:45	0:08:45	PM	5.06	12
419	Camden - Rt.73/Pennsauken Station - Riverside	23.65	36.8	37.4	37.4	PM	33	26	59.1	2:18:09	2:20:15	2:20:15	PM	5.12	9
450	Camden - Cherry Hill Mall	28.07	38.2	59.7	59.7	PM	7	10	142.5	5:45:31	8:58:59	8:58:59	PM	5.79	4
451	Camden - Voorhees Town Center	34.02	38.6	59.9	59.9	PM	6	28	21.0	0:51:26	1:19:49	1:19:49	PM	4.60	22
452	Camden - 36th Street Station	16.85	41.5	53.7	53.7	PM	13	12	140.6	6:09:59	7:58:54	7:58:54	PM	5.33	7
453	Ferry Avenue Patco - Camden	6.22	33.2	40.7	40.7	PM	31	29	27.8	0:58:40	1:11:56	1:11:56	PM	6.04	1
455	Cherry Hill Mall - Woodbury - Paulsboro	53.84	34.9	50.3	50.3	PM	16	18	106.2	3:55:16	5:38:49	5:38:49	PM	4.46	26
457	Camden - Moorestown Mall	31.97	41.1	51.3	51.3	PM	14	21	77.3	3:21:10	4:11:22	4:11:22	PM	4.32	28
459	Voorhees Town Center - Camden County College - Avandale P&R	28.34	32.5	43.4	43.4	PM	24	24	77.6	2:39:48	3:33:30	3:33:30	PM	4.03	31
463	Woodbury - Avandale Park/Ride	31.60	31.1	49.5	49.5	PM	17	30	18.2	0:35:47	0:56:59	0:56:59	PM	3.87	33
555	Avandale Park & Ride - 30th Street Philadelphia	48.06	43.4	60.0	60.0	PM	5	31	4.0	0:10:51	0:15:00	0:15:00	PM	5.71	5
601	College Of New Jersey - Trenton - Hamilton Marketplace	31.20	40.9	40.3	40.9	AM	30	16	171.3	7:24:10	7:17:27	7:24:10	AM	4.06	30
603	Mercer Mall - Hamilton Square - Yardville - Hamilton Marketplace	36.59	36.5	49.2	49.2	PM	18	17	137.1	5:17:03	7:07:16	7:07:16	PM	4.81	18
605	Montgomery Township - Princeton - Quaker Bridge Mall	21.90	35.7	42.0	42.0	PM	27	25	52.8	1:59:40	2:20:36	2:20:36	PM	3.95	32
606	Princeton - Mercerville - Hamilton Marketplace	55.55	45.8	49.0	49.0	PM	19	4	320.9	15:30:28	16:36:11	16:36:11	PM	4.64	21
607	Ewing - Trenton - Independence Plaza	16.28	38.0	44.8	44.8	PM	22	23	87.7	3:30:56	4:08:48	4:08:48	PM	5.07	11
608	Hamilton - Ewing	19.87	42.8	41.6	42.8	AM	26	11	194.2	8:45:58	8:31:51	8:45:58	AM	4.85	17
609	Ewing - Quaker Bridge Mall	21.36	39.9	58.8	58.8	PM	8	3	270.8	11:25:21	16:48:57	16:48:57	PM	4.58	23
613	Mercer Mall - Hamilton Square - Yardville - Hamilton Marketplace	36.38	37.5	46.3	46.3	PM	21	8	230.3	9:06:56	11:16:27	11:16:27	PM	4.94	14
619	Ewing - Mercer County College	16.30	51.1	65.6	65.6	PM	4	19	81.2	4:23:01	5:38:03	5:38:03	PM	4.70	19
624	Pennington - East Trenton	27.39	36.6	44.2	44.2	PM	23	27	39.6	1:32:08	1:51:15	1:51:15	PM	4.70	20

Most Delayed
Somewhat Delayed
Somewhat Not Delayed
Least Delayed

Source: DVRPC analysis of 2021 INRIX data

Note 1: Length in miles indicates the portion of the route within the DVRPC region; Note 2: Annual ridership is based on NJ Transit Annual Ridership Data for fiscal year 2021 (July 1, 2020 - June 30, 2021).

4.7 Congested Corridor, Subcorridor, and Emerging Growth Corridor Areas

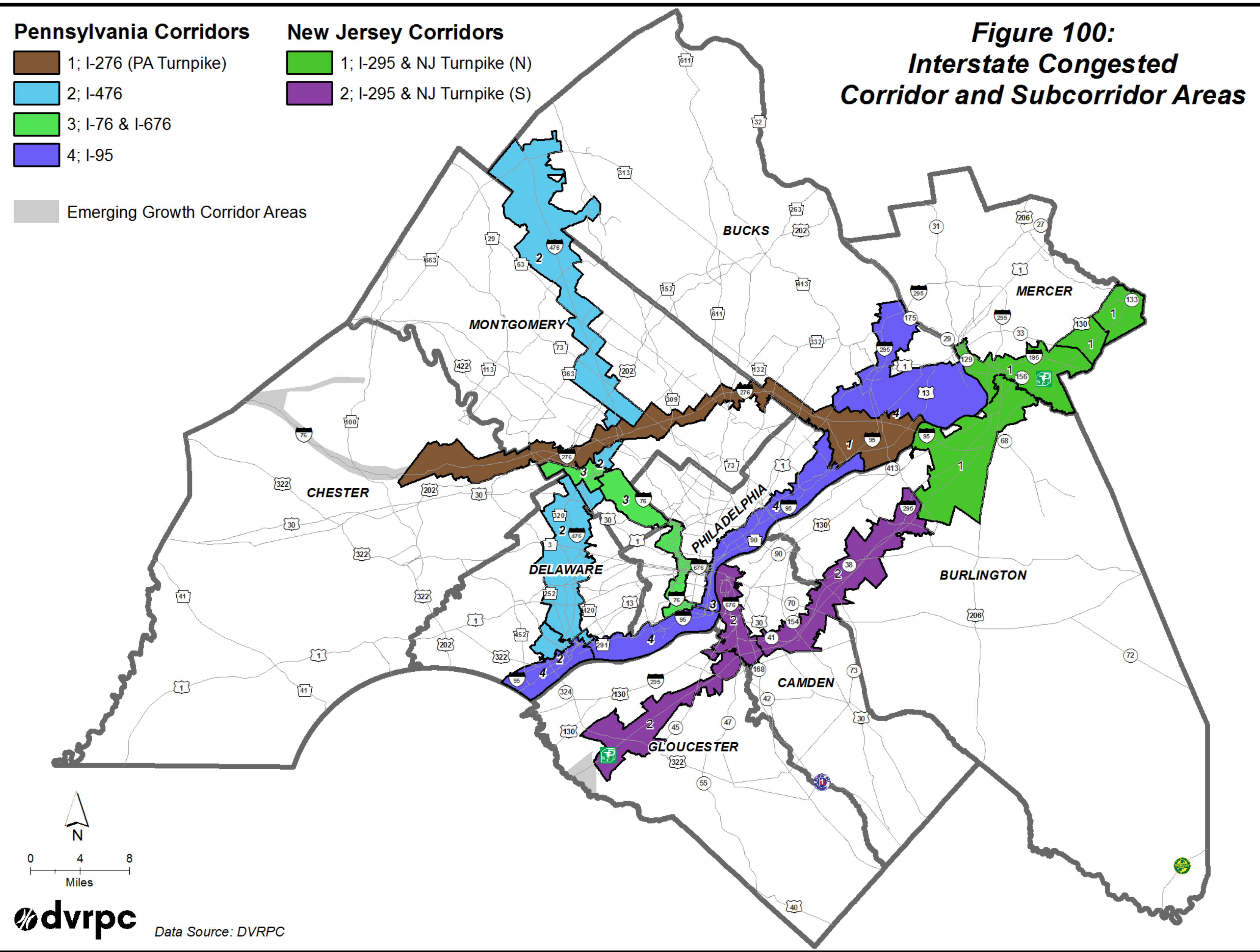
The DVRPC region is segmented into CMP Congested Corridor and Subcorridor Areas to help prioritize congested locations and to assist in developing focused strategies to mitigate congestion. The region is too large to prioritize congested locations and develop mitigation strategies for all roadways and intersections separately, so the Subcorridor Areas provide, at a regional planning level, a framework for analysis. The CMP uses Focus Roadway Corridor Facilities, Bottlenecks, and CMP Objective Measures to identify 37 broader CMP Corridor Areas that experience more congestion and reliability. There are 20 Corridor Areas in the Pennsylvania subregion which are further divided into 68 subcorridors. There are 17 Corridor Areas in the New Jersey subregion, which are further divided into 63 subcorridors. For example, Corridor Area 5 (US 1) in Pennsylvania consists of nine Subcorridor Areas starting in western Chester County and ending at the Pennsylvania and New Jersey state boundaries. Corridor Area 6 (US 130) in New Jersey includes 12 Subcorridor Areas starting in Gloucester County and ending at the Mercer County and Middlesex County boundary. Additionally, Emerging Regionally Significant Growth Corridor Areas are identified where traffic congestion is not a major concern yet, but may be in the future given existing land use and travel trends. Figures 100 and 101 show the Congested Corridor, Subcorridor, and Emerging Growth Corridor Areas by interstate and non-interstate, respectively. The location and extent of the areas are based on various factors, such as land use, roadway functional classification, parallel roadways, transit facilities, and input from the CMP Advisory Committee. The Corridor and Subcorridor Areas have been updated from the prior 2019 CMP to align with census block group boundaries, so census socioeconomic data can more accurately indicate the underlying makeup of the Subcorridor Areas and assist in identifying strategies for managing congestion.

4.8 Selecting Priority Congested Corridor and Subcorridor Areas

CMP Objective Measures are used to identify Priority Congested Corridor and Subcorridor Areas for making investment decisions to manage traffic congestion (see Figure 102). Priority areas are used in the *Plan-TIP Project Evaluation Criteria*, which help to focus where investments need to be made to support the goals of the DVRPC Long-Range Plan, including increasing mobility and reliability, integrating modes and increasing accessibility, modernizing infrastructure, achieving a Vision Zero goal of no fatalities or serious injuries on the region's transportation network by 2050, making global connections, strengthening cybersecurity, and ensuring that transportation investments support other goals of the Long-Range Plan.

The measures are based on CMP objectives and criteria that are derived from goals of the Long-Range Plan (see Chapter 2). Scores are assigned to congested roadway segments that meet CMP objective criteria, and locations that meet more criteria receive higher scores and indicate a greater need for managing congestion, which are shown in brown and red on the mapping (see Figure 21). For example, congestion on a NHS roadway near passenger rail stations with high crash frequency, and within a Long-Range Plan land use center, will receive greater priority than congestion locations where these factors are not present. The locations that meet more CMP objective criteria are used to help select Priority Congested Corridor and Subcorridor Areas along with input from the CMP Advisory Committee.

Figure 100: Interstate Congested Corridor and Subcorridor Areas



Data Source: DVRPC

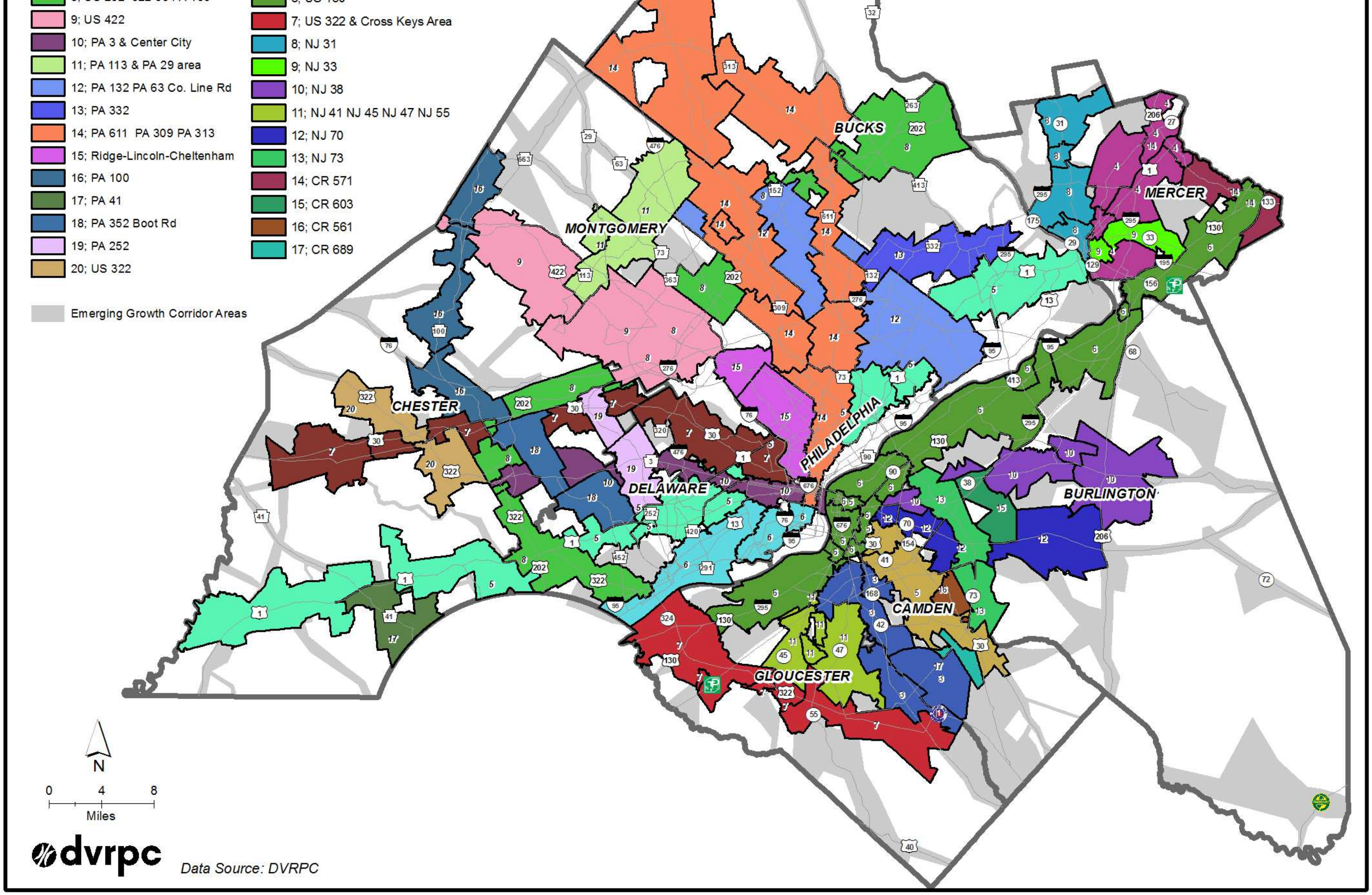
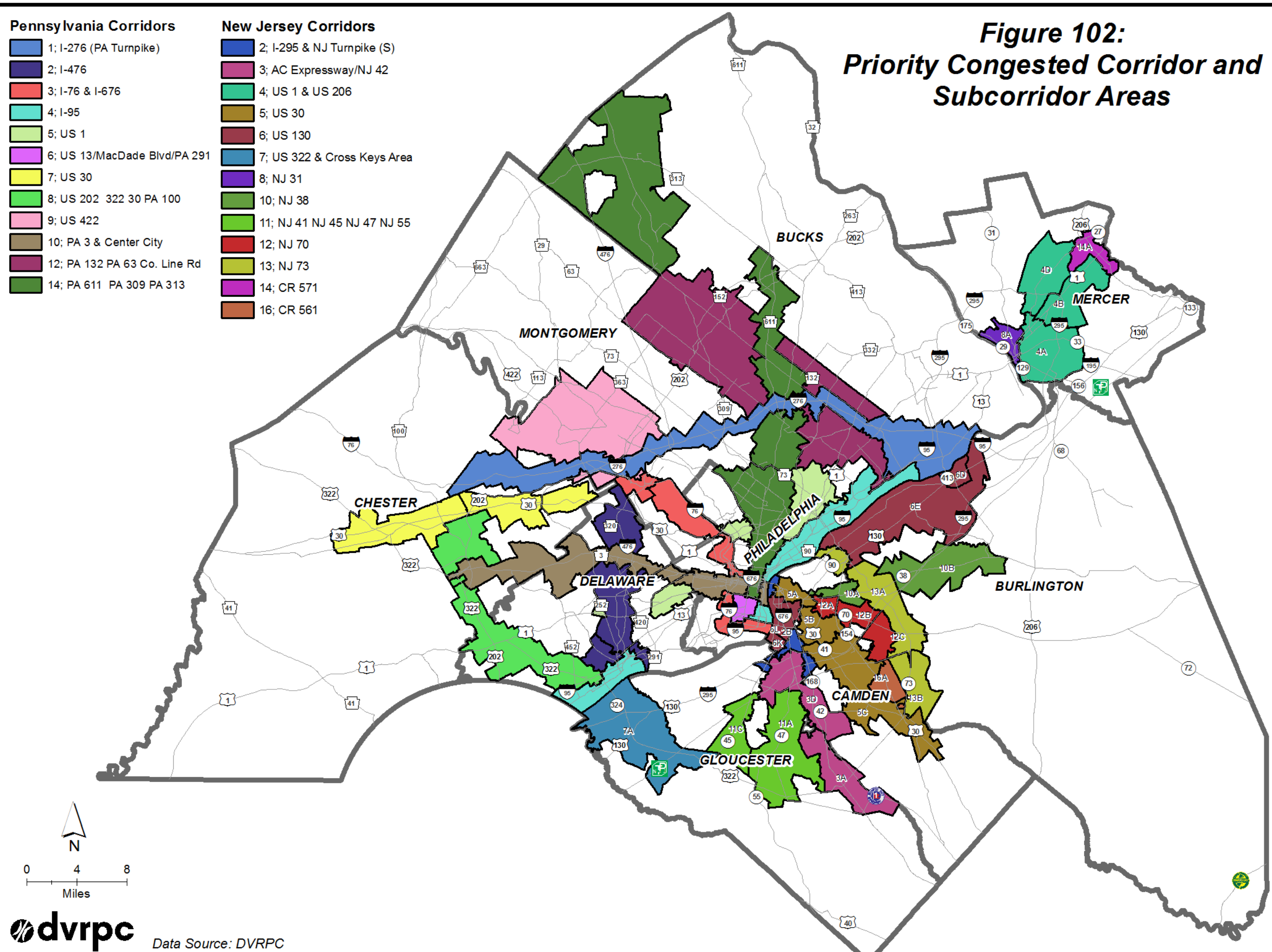


Figure 101: Non-Interstate Congested Corridor and Subcorridor Areas

Figure 102: Priority Congested Corridor and Subcorridor Areas



4.9 Advancing from CMP Objective Measures to Strategies

A main component of the CMP is to provide an appropriate mix of strategies to mitigate congestion by Congested Corridor and Subcorridor Area, and Most Congested Focus Roadway Corridor Facility and Intersection Bottleneck that will improve the mobility of people and goods traversing the regional transportation system, and at the same time address other CMP Objectives as applicable, such as achieving Vision Zero, improving safety and security, increasing accessibility, and supporting Long-Range Plan principles.

CMP Objective Measures help drive the process of identifying which strategies are more appropriate than others using Long-Range Plan goals and CMP objectives. Every Subcorridor Area and facility in the region presents its own unique mobility challenges, so care should be taken to select the strategies that best fit the conditions, goals, and character of the area under consideration. For example, high congestion on a bus transit facility may warrant strategies such as Transit Signal Priority (TSP), ITS for transit, and modifications to existing transit routes and services. If the Subcorridor Area contains high Environmental Justice communities, then the area is higher priority for investment to address mobility challenges. High congestion on limited access roadways may warrant ITS and Incident Management, Active Traffic Management (ATM), and Active Transportation Demand Management (ATDM) strategies. High congestion with high crash frequency or severity may warrant safety improvement strategies. A guide to advancing from CMP Objective Measures to strategies is listed in Table 16. For the CMP objective of increasing mobility and reliability, strategies higher up on the list should be considered first before new roadway capacity or passenger rail investments. Although each strategy for a particular measure may not necessarily be the most appropriate, the table provides a network screening of measures that starts the process of identifying appropriate strategies.

Chapter 5 details 125 strategies in the CMP that can be used to mitigate congestion.

Table 16: Advancing from CMP Objective Measures to Strategies to Reduce Congestion

LRP Goals	CMP Objectives	CMP Objective Measures	CMP Objective Measure Criteria	Guide to Advancing from Objectives and Criteria to Strategies

Increase Mobility and Reliability	Increase mobility and reliability, including minimizing growth in recurring and non-recurring congestion, and meeting PM3 targets	1. Travel Time Index (TTI) to understand usual recurring congestion by road segment
		2. Planning Time Index (PTI) to understand non-recurring congestion by road segment
		3. Focus roadway corridor facility Vehicle Delay to understand how the corridor is performing for each vehicle
		4. Focus roadway corridor facility Volume Delay to understand how the corridor is performing for all vehicles
		5. High anticipated Volume To Capacity (V/C) and high anticipated growth in V/C in the peak hours using the travel demand model (2015 to 2050), reflecting board adopted population and employment forecasts
		6. Bottleneck delays to understand which intersections or limited access roadway locations are experiencing the most congestion or unreliability
		7. PM3 Level of Travel Time Reliability (LOTTR), and Peak Hour Excessive Delay (PHED) to understand reliability and congestion
			1. INRIX roadway links with medium and high TTI (1.20 to 1.50) and (>1.50) for peak hour periods 7-8 am, 8-9 am, 4-5 pm, and 5-6 pm, whichever is greater, all weekdays in 2021
			2. INRIX roadway links with medium and high PTI (2.00 to 3.00), (3.00 to 3.50) and (> 3.50) for peak hour periods, 7-8am, 8-9 am, 4-5 pm, and 5-6 pm, whichever is greater, all weekdays in 2021
			3. Corridor Vehicle Travel Time and Planning Time Delay is the difference in actual travel time and the free-flow travel times and the planning time and the free-flow travel time, respectively, during peak hour periods, whichever is greater
			4. Corridor Travel Time and Planning Time Volume Delay is the difference in actual travel time and free-flow travel time and the planning time and free-flow travel time, respectively during peak hour periods, whichever is greater, multiplied by traffic volume in the peak period
			5. Model links with 2050 Volume To Capacity (V/C) (>=0.85) for peak periods AM/PM, whichever is greater, and links with 15 percent increase in (V/C) between base year and future year, and base year V/C (>=0.85) to focus on where congestion might become a problem in the future
			6. Identify bottlenecks using road links with TTI > 1.50 or PTI > 3.0 using INRIX travel time data. Then identify all approach segments, and trail trailing segments with TTI 1.40 or more to calculate vehicle and volume delays
			7. PM3 NPMRDS links with medium and high LOTTR (>= 1.50 to 2.49) and (>=2.50), and high PHED (> 1x regional average). LOTTR is calculated by dividing 80th percentile by 50th percentile travel times
				• High TTI **or** High Vehicle Delay **or** High Volume Delay **or** High PHED – Review strategies for TSMO/ITS (road & transit)
				  ○ Where transit exists: Transit Signal Priority (TSP), ITS Improvements for Transit, Modifications to Existing Transit Routes or Services, Transit Infrastructure Improvements
				  ○ On limited access highways: ITS Variable Speed Limits, Ramp Metering
				• High PTI or High LOTTR or High Bottleneck Delay
				  ○ Freeways: ITS family (esp. Traveler Information and Incident Management Services)
				  ○ Arterials: Signal Improvements family (esp. Coordinated Traffic Signals, Adaptive Signals)
				• High Growth in V/C – Improve Circulation and Comprehensive Policy Approaches, such as Growth Management & Smart Growth, Complete Streets, Revisions to Existing Land Use/Transportation Regulations, Access Management Policies and Projects
				• High TTI **and** High Volume Delay **and** High PHED **and** High PTI – Review all strategies above, plus Inter-regional Transportation Coordination if appropriate. Integrated Corridor Management (ICM), New Bus Services, Minor Road Expansions
				• Highly Congested – High TTI **and** High Vehicle Delay **and** High Volume Delay **and** High PHED **and** High PTI **and** High Growth in V/C – All strategies above plus Bus Rapid Transit or Exclusive Bus Lanes, New Passenger Rail Investments, Adding Capacity to Existing Roads (esp. Interchange with Related Road Segments), Part-Time Shoulder Use/Flex Lanes, General Purpose Lanes

Integrate Modes and Increase Accessibility	Provide transit, trails and sidewalks where they are most needed for an accessible and connective multimodal network	1. Assess Transit score, and population nearby rail stations and bus routes to understand where transit could reasonably help improve accessibility	1. Identify links with very high or high transit score by Census Block Group, within one-mile buffer of all rail stations, and within a quarter mile buffer of all bus routes	• High Transit Score, Rail Station, or Bus Transit – Walking and Bicycling Improvements, Modifications to Existing Transit Routes or Services, New Bus Services (esp. Shuttle Service to Stations, Transportation Services for Specific Populations). Consider Economic Development-Oriented Transportation Strategies where poverty is a major issue ○ Review with above average and well above average Indicators of Potential Disadvantage (IPD)
Modernize Infrastructure	Modernize and maintain the existing core transportation network	1. National Highway System (NHS), Primary Highway Freight System (PHFS) including Critical Urban and Rural Freight Corridors; rail lines (passenger and freight); major freight facilities and Philadelphia International Airport 2. Roads with substantial bus or trolley service, which are essential infrastructure for transit riders	1. All NHS and PHFS (including principal arterials); existing passenger rail (including Amtrak); existing freight rail lines; major freight facilities—major rail yards, rail-truck intermodal yards, and ports (one-mile buffer); Philadelphia International Airport (one-mile buffer) 2. Roads used by bus or trolley routes making three or more runs during the peak period in urban locations, or two or more runs in suburban locations	• NHS, PHFS and Critical Urban and Rural Freight Corridors and freight facilities – Goods Movement strategies • Roads with substantial transit service **or** train stations with high boarding's – Review Transit Infrastructure Improvements, TSP, ITS Improvements for Transit, Shuttle to Station, TOD, Modifications to Existing Transit Routes or Services • Substantial transit **and** Highly Congested – Review if appropriate: Passenger Intermodal Center or Garage for Transit Riders, Express Transit Routes, BRT
Achieve Vision Zero	Improving vehicle, pedestrian, and bicyclist safety, and reducing nonrecurring congestion by reducing crashes	1. Crash rate by comparing actual crash rate to average crash rate based on roadway characteristics, including AADT, access control, divisor, roadway width, and location (rural, not rural) 2. Severity Index including kill and major injuries	1. Segments with crash rate four or more times the average rate (three or more in NJ) would be considered high crash rate corridors 2. Segments with five or more kill or major injuries per segment mile (four or more in NJ) would be considered high severity corridors	• High crash rates and High severity – Emphasize Safety Improvements and Programs, and review FHWA proven safety countermeasures ○ On Interstates: Incident Management

Table 16: Advancing from CMP Objective Measures to Strategies to Reduce Congestion

LRP Goals	CMP Objectives	CMP Objective Measures	CMP Objective Measure Criteria	Guide to Advancing from Objectives and Criteria to Strategies
Make Global Connections	Maintain movement of goods by truck and rail, and meeting PM3 targets	1. PM3 Truck Travel Time Reliability (TTTR) Index on Interstate System 2. Corridor Truck Planning Time Volume Delay to understand how the corridor is performing due to truck volumes 3. Truck Travel Planning Time Index (TPTI) on National Highway System 4. Truck Travel Time Index (TTTI) on the National Highway System	1. NPMRDS interstate roadway links with high TTTR for the 5 time periods. TTTR is (95th percentile / 50th percentile) travel times. TTTR >= 2.00 considered highly unreliable 2. Truck Planning Time Delay is the difference in planning time from free-flow time during the peak hours, whichever is greater, multiplied by truck volume in peak period 3. NPMRDS roadway links with high Truck Planning Time Index (TPTI) scores for peak hour periods 7-8 am, 8-9 am, 4-5 pm, and 5-6 pm, whichever is greater, all weekdays in 2021. PTI is (95th percentile / free-flow travel time) 4. NPMRDS roadway links with high Truck Travel Time Index (TTTI) scores for peak hour periods 7-8 am, 8-9 am, 4-5pm, and 5-6 pm, whichever is greater, all weekdays in 2021. PTI is (average travel time / free-flow travel time)	• High TTTR and TPTI Score – Provide for full-service overnight truck parking facilities, due in part to recent changes for driver hours-of-service regulations. Provide provisions for short-term parking for various types of deliveries in urban areas • High Truck Volume Delay, and High TTTI Score ○ Provide provisions for short-term parking for various types of deliveries in urban areas ○ Provide for wider turn-radii for truck turn movements, where applicable
Strengthen Security and Cybersecurity	Maintain and enhance transportation security and prepare for both routine and major events, especially ones that call for interregional movements far beyond normal	1. Areas where high population density makes evacuation a regional concern 2. Most heavily used bridges and passenger transit stations 3. Nuclear Power Plant evacuation zones 4. General location of largest military bases in the region Note: Infrastructure measures are also considered in security planning.	1. Areas with high population or employment density (>2x regional average). Also, stadium and waterfront attractions, such as the Stadium Complex and Penn's Landing to name a few 2. The most heavily used bridges in the region – bridges that carry over 100,000 trips per average day, and key passenger and rail bridges. Also, the most heavily used transit station in each county (except Philadelphia has three) – roads within a one-mile buffer 3. Nuclear power plant Emergency Planning Zones (EMZ) – NHS roads in these 10-mile zones 4. Military Facilities – General location of USCG-Sector Delaware Bay and Fort Dix/McGuire Air Force Base (one-mile buffer)	• High densities – Evacuation Planning • Most heavily used transit stations – Transit Station Security • Nuclear power plant EMZ – Coordinate with Nuclear Emergency Evacuation Zone (EMZ) Planning • Most heavily used bridges – Bridge Security • Military facilities – Coordinate with Military Bases
Ensure Transportation Investments Support Other Long-Range Plan Principles and Focus Areas: 1. Principles ○ Sustainability ○ Equity ○ Resiliency 2. Focus Areas ○ Preserve and Restore the Natural Environment ○ Grow and Innovative and Connected Economy with Broadly Shared Prosperity	1. Prioritize transportation investment in less-sensitive environmental areas 2. Invest to support Community Centers first, then Infill and Redevelopment areas, then Emerging Growth areas 3. Reduce poverty and increase work force skills by investing in EJ and Equity populations 4 & 5: All CMP objectives work toward expanding the economy and creating an integrated, multimodal transportation network	1. Environmental Screening Tool score (less harm to environment), and roads in 100- and 500-year floodplains 2. Centers, Infill and Redevelopment areas, Emerging Growth areas 3. Assess IPD indicators including zero-vehicle households	1. Road links within lowest impact range (0 to 2) of LRP Environmental Screen Tool scores. This further links planning and NEPA, and road links within 100- and 500-year floodplains 2. LRP Land Use Centers; Infill and Redevelopment and Emerging Growth land use categories that intersect road links 3. IPD indicators are above average and well above average, and zero-vehicle households that intersect road links	• Environmental impact high – Environmentally Friendly Transportation Strategies, Context Sensitive Design. Emphasize Growth Management and Smart Growth and if road capacity is being considered it should be done with careful evaluation of environmental factors and potential impacts. Further review of environmental issues is recommended early in the project development process. DVRPC can assist • LRP Centers – Review for strategies such as Walking and Bicycling Improvements, Improve Circulation, Planning and Design for Non-motorized Transportation, Context Sensitive Design, and Complete Streets ○ LRP Center with transit – Shuttle Service to Stations, TOD, TSP, Transit Infrastructure Improvements ○ Infill and Redevelopment/Emerging Growth areas **and** high PTI – Improve Circulation (especially Access Management Projects & County and Local Road Connectivity), Intersection Improvements of a Limited Scale, Transit-First Policy, Modifications to Existing Transit Routes or Services, New Bus Services, New Passenger Rail Investments, and Minor Road Expansions, in that order ○ Infill/Redevelopment with transit – TSP, ITS Improvements for Transit, Modifications to Existing Transit Routes or Services, Transit Infrastructure Improvements • Environmental Justice – Walking and bicycling improvements, modifications to existing transit routes or services, new bus service. Consider Economic Development-Oriented Transportation Strategies where poverty is a major issue

Source: DVRPC, 2023

5. Traffic Congestion Mitigation Strategies

The CMP includes a list of 125 strategies to mitigate congestion (see Chapter 5, section 4). These strategies are applied at the Congested Corridor, Subcorridor, and Emerging Growth Corridor Area levels at a regional planning scale where a set of strategies is most appropriate. They are also applied at the facility level for the Most Congested Corridor Facilities and Intersection Bottlenecks. Corridor and Subcorridor Area strategies are subdivided into Very Appropriate and Secondary strategies. Appropriate Everywhere, or region wide strategies, should be considered for all Congested Corridor and Subcorridor Areas, and Emerging Growth Corridor Areas. A limited number of Very Appropriate strategies reflect the context of the corridor area. The Secondary strategies should be considered after the Very Appropriate ones, and they cover a range of TSMO, TDM, transit, and roadway strategies based on the context of the area.

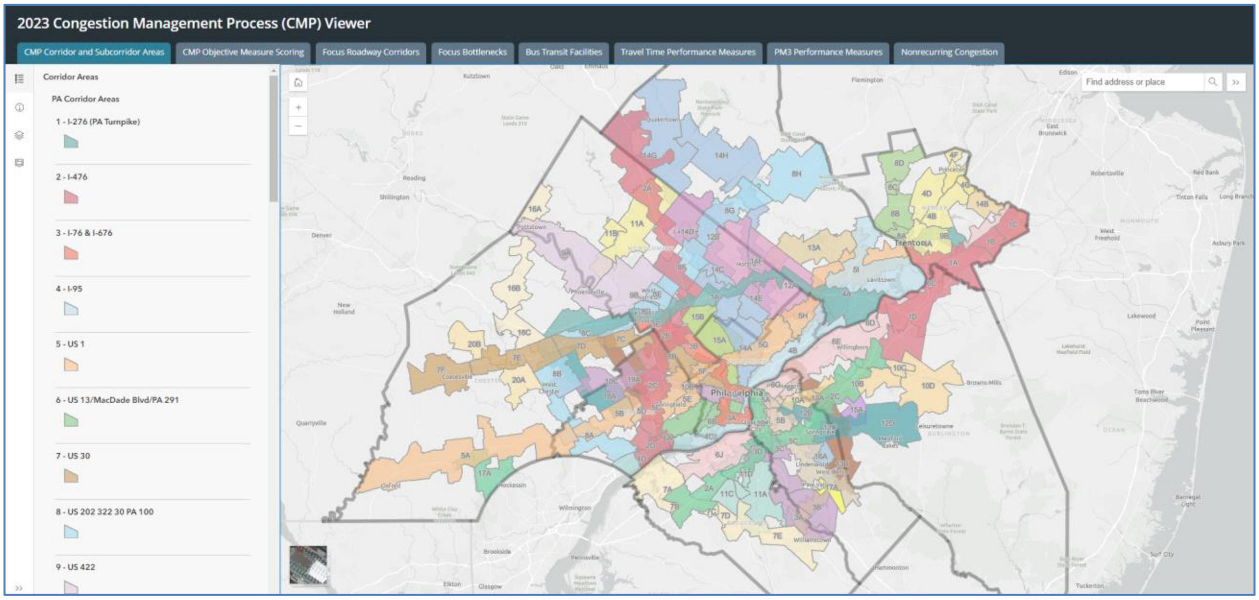
The Very Appropriate and Secondary strategies by Congested Corridor and Subcorridor Area are listed in priority order from top to bottom and the top strategies should be considered first. For example, adding new capacity should be a last resort and only appears at the bottom of the strategy lists in a limited number of corridors where expansion has been deemed appropriate. Within the context of the CMP, the order for prioritizing strategies is (1) maintain and modernize the existing transportation network, by bringing roads, bridges, and transit facilities up to current design standards; making substantive safety improvements; and improving convenience for transferring between modes; (2) optimize the operational efficiency of existing transportation facilities and manage transportation demand by fostering efficient land use patterns, encouraging non-SOV options, and pursuing strategies that reduce the need for and length of trips; and (3) add new road capacity at the highest priority locations, only as a last resort to mitigate congestion. These Very Appropriate and Secondary strategies provide a starting point for planners and project managers to take a deeper dive into the appropriate mitigation measures for a particular location. New major SOV capacity-adding projects may be appropriate when other strategies do not reasonably reduce congestion higher up the Very Appropriate and Secondary strategy lists, but these projects must be developed in an appropriate way, and be incorporated with CMP supplemental strategies and commitments.

5.1 Strategies by Congested Corridor and Subcorridor Area

The specific strategies for a Congested Corridor and Subcorridor Area are identified by the CMP Advisory Committee and DVRPC staff using various sources, including adopted corridor planning studies and CMP Objective Measures (see Chapter 4, section 9). For example, the Pennsylvania subcorridor 7D (US 30 Paoli, Malvern) contains seven Very Appropriate strategies, including signal improvements, placemaking for non-motorized transportation, improve circulation, passenger intermodal center or garage for transit riders, Transit-Oriented Development (TOD), walking and bicycling Improvements, and demand response transit services (microtransit). The New Jersey subcorridor 4C (US 1/Penns Neck area) contains six Very Appropriate strategies, including signal improvements, transit infrastructure improvements, discouragement of car use, comprehensive policy approaches, walking and bicycling improvements, and bus rapid transit (BRT) or exclusive right-of-way bus lanes.

A map of the Congested Corridor and Subcorridor Areas, along with the Very Appropriate and Secondary strategies, is available on the CMP website at www.dvrpc.org/webmaps/cmp (see Figure 103). Other information included by Congested Corridor and Subcorridor Area include, strategy notes, programmed major and minor SOV capacity-adding TIP projects, Long-Range Plan projects, and references to any adopted corridor or other relevant planning studies. Strategy notes include specific strategies that may be recommended for a facility based on a corridor study, or more detail on a specific strategy.

Figure 103: CMP Congested Corridor and Subcorridor Area Web Mapping

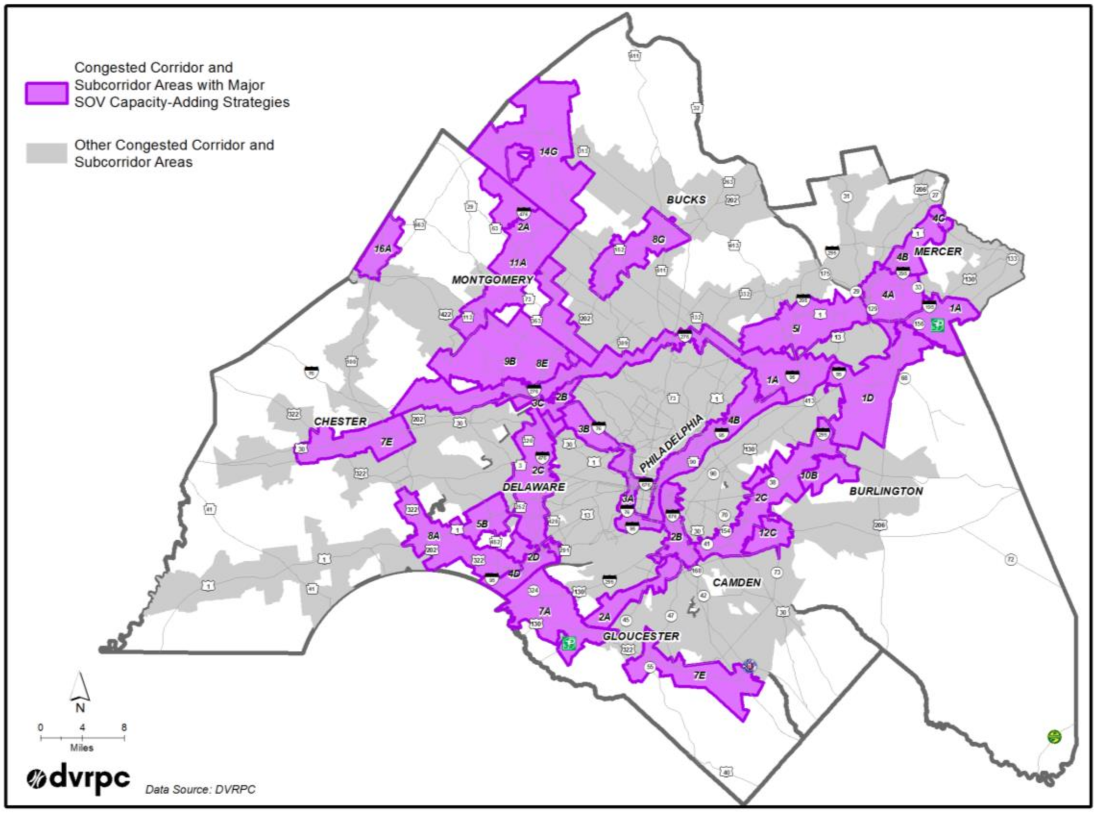


Source: DVRPC, www.dvrpc.org/webmaps/cmp

5.2 Major SOV Capacity-Adding as a Strategy

The CMP helps decision makers assess where and how to make transportation project investments by identifying Very Appropriate and Secondary strategies to mitigate congestion by Congested Corridor and Subcorridor Area. One of the ways this is accomplished is by considering certain subcorridor areas for limited additional road capacity, realizing that some areas have experienced or are forecasted to experience increased development, and some additional capacity may be necessary. The CMP does not encourage development in these areas, however, it may sometimes be appropriate. Just over one-third of the Subcorridor Areas in each of the Pennsylvania and New Jersey portions of the DVRPC region contain major SOV capacity-adding strategies (see Figure 104). For Subcorridor Areas where capacity additions are deemed appropriate, expansion is considered appropriate on the primary subcorridor facility(ies) identified in the subcorridor name. These projects result in increases in SOV capacity that will likely impact regional or corridor travel patterns. They take into consideration, although are not determined by, projects that are modeled for air quality conformity or studies considered likely to result in non-exempt air quality conformity projects. Minor SOV capacity-adding projects may slightly increase SOV road capacity, but are not new through lanes or new roads that are likely to result in capacity increases that would significantly affect corridor or regional travel patterns. Adding major SOV capacity may be appropriate when major congestion problems cannot be adequately addressed by a set of other strategies, and should be coordinated with multimodal supplemental strategies to get the most long-term value from the investment. Project screening criteria in the *Plan-TIP Project Evaluation Criteria* (DVRPC publication #23128) includes whether new roadway capacity-adding projects are located in CMP subcorridors designated for limited additional road capacity. If the project fails the screening process, it is not considered for inclusion in either the Aspirational Vision or Funded Plan. CMP strategies to add major capacity to existing roads include general purpose lanes, part-time shoulder use/flex lanes, adding movements at interchanges with related road segments, or large intersection projects with associated road segments. Strategies to add major capacity by building new roads include: arterial or collector roads, bypass roads, or limited-access highways. Procedures for how additional major road capacity may be added as a strategy with additional supplemental strategies are described in the next section.

Figure 104: Congested Corridor and Subcorridor Areas with Major Capacity-Adding as a Strategy

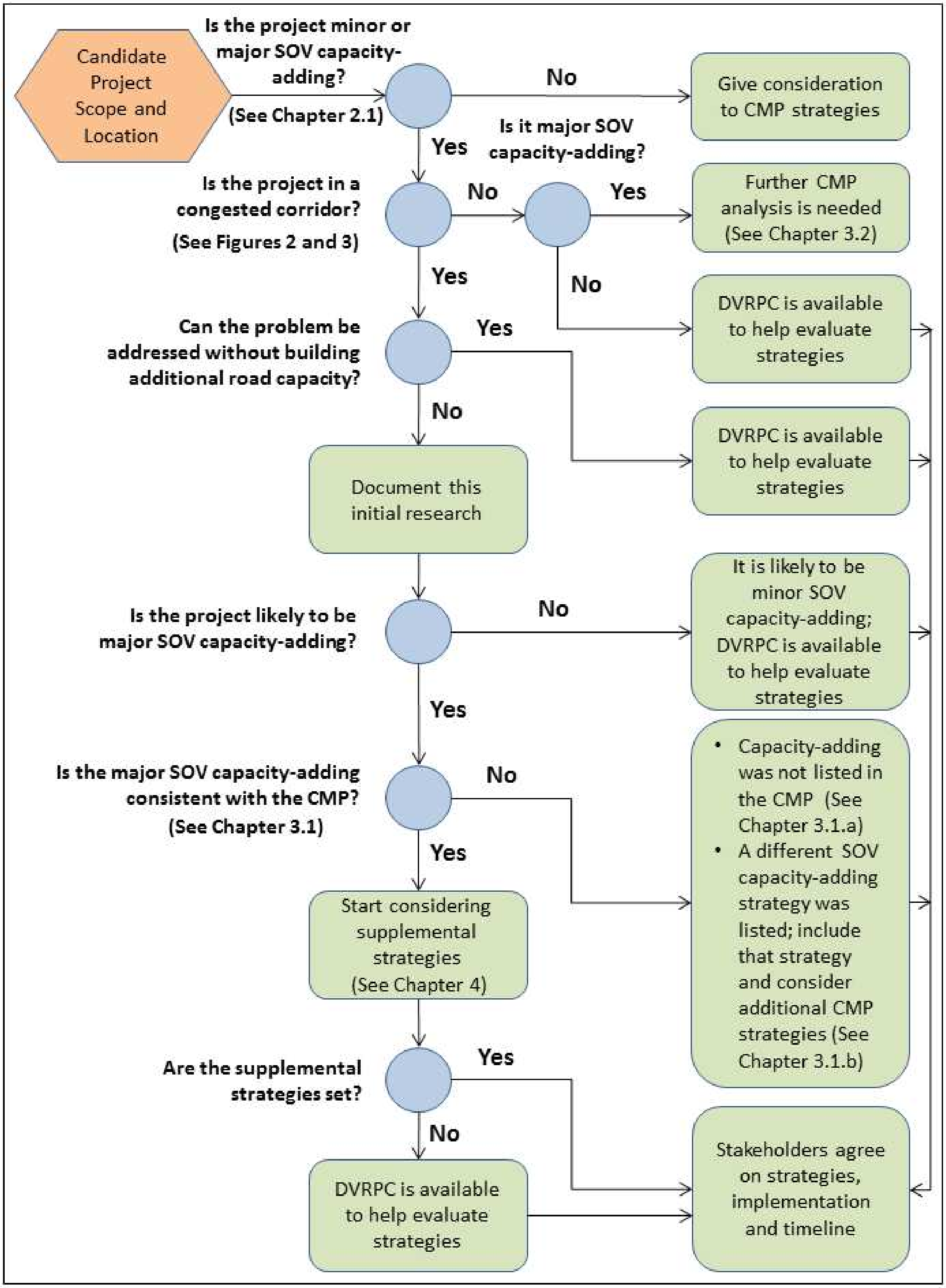


5.3 Major SOV Capacity-Adding Projects and the CMP

Major SOV capacity-adding project strategies may be appropriate when other strategies do not reasonably reduce congestion, but these projects must be developed in an appropriate way to get the most long-term value from investments and meet federal requirements. Final engineering for major SOV capacity-adding projects should not be listed on the TIP without a table of multimodal supplemental strategies. DVRPC staff are available to provide technical and process support to project managers, including helping to set up stakeholder meetings or providing maps and analysis to advance the supplemental strategies. DVRPC has published CMP Supplemental Project Status Memorandum reports that list project commitments. See the ***Supplemental Projects Status Memorandum*** reports on the DVRPC website at **www.dvrpc.org/CongestionManagement/NewsAndTech** to track the progress of strategy implementation. In 2022/2023 DVRPC developed additional CMP supplemental strategies for major SOV capacity-adding projects, including the US 30 Bypass in Chester County (MPMS #87781 & #107551), and US 1 section RC3 in Bucks County (MPMS #93446).

The process of identifying the most appropriate strategies for a transportation improvement project is necessary as part of the CMP. See Figure 105 for how a project moves through the CMP. For more information, see the *CMP Procedures* (DVRPC Publication #21010). It includes instructions for project sponsors on how to be consistent with the CMP, and clarification of which projects qualify as major SOV capacity-adding.

Figure 105: How a Candidate Project Moves through the CMP



Source: DVRPC, 2023

5.4 Range of Strategies to Reduce Congestion

Below is a list of strategies to address traffic congestion that can be used for specific Focus Roadway Corridor Facilities and Intersection Bottlenecks, or CMP Congested Corridor and Subcorridor Areas. Since each area presents its own unique mobility challenges, different CMP Very Appropriate and Secondary strategies are recommended by subcorridor. Appropriate strategies to manage congestion depend on a host of factors, including limited and non-limited access roadways, availability of transit, urban versus rural, socioeconomic characteristics, and the CMP Objective Measure scoring (See Chapter 4, section 9 Advancing from CMP Objective Measures to Strategies). The strategies also serve as a reference source for planners, engineers, and others thinking about ways to effectively address congestion problems across multiple modes of transportation while considering fiscal constraint.

The five categories below summarize the range of strategies. Some of them should be considered in virtually all situations, known as region wide strategies (**highlighted in green**) on the following pages and listed at the end of this section.

A. **Operational Improvements:**
projects that maintain, optimize, and modernize the existing transportation system (roads, transit, other) by increasing throughput and efficiency on existing facilities, while maintaining and improving safety

B. **Transportation Demand Management (TDM), Policy Approaches, and Smart Transportation:**
programs and projects that encourage the use of alternative modes of transportation, other than driving alone, and that otherwise focus on the demand side of trip making through physical or policy approaches, often also advancing other quality-of-life, environmental, and economic development goals

C. **Public Transit Improvements and New Investments:**
programs and projects to increase the frequency, operating speed, and/or reliability of existing services and facilities first, adding new service when necessary and affordable within fiscal constraint

D. **Goods Movement:**
policies, strategies, and projects to maintain and optimize the safe and efficient movement of freight

E. **Road Improvements and New Roads:**
projects that increase the capacity of existing roads or build new capacity on new right-of-way, only as a last resort and when affordable within fiscal constraint

A. Operational Improvements

Strategies in this category address traffic congestion problems through the improved management of existing roads and transportation facilities. Operational improvements may address issues such as coordination of traffic signals or safe management of combinations of through and local vehicles, primarily through engineering-based approaches. Transportation System Management and Operations (TSMO) applies multimodal, cross-jurisdictional services and projects to improve transportation network operations, security, safety, and reliability. It provides an even broader range of ways to maximize the use of the entire transportation system while minimizing the expense and impacts of building major new capacity. Intelligent Transportation Systems (ITS) focuses on integrating new technologies and coordinating data to improve roadway communications, reliability, and efficiency. Design requirements will ensure that all transportation projects and facilities are brought up to nominal safety standards. Where deficiencies exist, future investments will address them through improved shoulders, guide rails, lane dividers, signage, line-of-sight clearances, or lighting, and/or meet Americans with Disabilities Act (ADA) requirements.

Signage and Safety – Strategies to reduce congestion using appropriate signage and incorporating a safety approach.

1. **Signage –** Improvements to clearly communicate location and direction information, including adding or removing signs (to reduce clutter), redesigned signs, "trailblazing" to key locations, maintenance of signs and line-of-sight to them, and pavement markers to provide information.

2. **Safety System Approach –** SSA is an FHWA approach focused on reducing deaths and serious injuries through designs that accommodate human mistakes and injury tolerances. FHWA states that "Safety is an ethical imperative of the designers and owners of the transportation system. All transportation projects should apply these principles from the beginning and throughout project design and delivery: (1) deaths and injuries are unacceptable; (2) humans make mistakes; (3) humans are vulnerable; (4) responsibility is shared; (5) safety is proactive; and (6) redundancy is crucial. The elements of the SSA address every aspect of the risks associated with crashes, and when considered together create a holistic approach to safety across the entire transportation system: Safe Road Users, Safe Roads, Safe Speeds, Safe Vehicles, and Post-Crash Care.

3. **Substantive Safety –** Substantive safety uses data to characterize a road by its safety performance relative to an expected value for similar facilities. It may be quantified in terms of: crash frequency (number of crashes for a given road segment or intersection over a specified time period); crash rate (normalized to account for exposure); crash type; and/or crash severity (i.e., fatality, injury, or property damage only). If the roadway in question has a significantly higher incidence or severity of crashes than other roads of its kind, it may have a substantive safety problem. FHWA's proven safety countermeasures represent a range of strategies that can help to deal with specific substantive safety issues. These strategies are highly appropriate in corridors with documented safety issues, and can also be more broadly applied as a measure to support the region's Vision Zero by 2050 goal. Nominal safety projects, those that adhere to applicable design criteria and standards, typically fall into the category of system preservation (such as repaving, restriping, code compliance, etc.). However, adding value to maintenance-type projects is a way to re-frame such efforts within the SSA context, and promote safety everywhere systemically. For example, the DVRPC has been working with regional roadway owners to identify opportunities to add bicycle lanes and road diets on corridors scheduled for repaving. See also #75 Road Diets, #15 Roundabouts, #11 Access Management Projects, #78 Improvements for Bicycling, #76 Traffic Calming, and #6 Left-Turn Lanes, and the FHWA Proven Safety Countermeasures.

4. **Work Zone Management –** There are various strategies to minimize congestion and maintain motorist and work safety caused by maintenance and construction activities. ITS is often used to alert drivers and help manage a work area. These strategies are already part of the planning done by various implementing agencies for all federal-aid highway projects as part of their Traffic Management Plan.

Turning Movement Enhancements – Strategies to reduce congestion and crashes through safer turning movements.

5. **Channelization –** This strategy is used in optimizing the flow of traffic for making right turns, usually using concrete islands or pavement markings.

6. **Left-Turn Lanes –** This strategy installs left-turn lanes to decrease left-turning traffic causing friction with through traffic. These are also a FHWA proven safety countermeasure.

7. **Center-Turn Lanes –** This strategy is used in conditions where there are many vehicles turning left midblock to reduce the impact on the movement of through traffic.

8. **Jughandles –** These are at-grade ramps provided at or between intersections to permit motorists to make indirect left turns and/or U-turns.

Improve Circulation – Strategies designed to move more vehicles through the existing road system, often using engineering approaches.

9. **Street Circulation Patterns –** This strategy changes and/or restricts the direction of travel or separates two-way traffic on roadways. This can involve changing the designation of roadways from two-way travel to one-way, or vice versa.

10. **Vehicle Use Limitations and Restrictions –** This includes the outright or time-of-day restrictions of vehicles to increase roadway capacity. This can include turn restrictions during peak hours to eliminate conflicting movements, limiting truck travel in the left-hand lane of limited access highways with three or more lanes, except to make a left turn, and prohibiting trucks on local roads using a “No Trucks,” or “No Thru Trucks” sign. Freight demand management strategies can be explored for corridors experiencing issues with freight loading and deliveries blocking travel lanes. See also Freight Operations Improvements.

11. **Access Management Projects –** This refers to the engineering side of controlling access primarily to and from arterial roadways. Access is controlled through the number and design of driveways, medians, and median lanes. This strategy is an FHWA proven safety countermeasure. See also #73 Access Management Policies.

12. **Parking Operations –** This includes changes to parking intended to improve the operation of roadways, such as relocating parking spaces nearest to dangerous intersections if line-of-sight is a problem; incentives to keep short-term parking used as such; and time-of-day limitations on parking.

13. **County and Local Road Connectivity –** This is a range of ways to encourage local traffic to use the local road network in order to maximize use of highways for through traffic. It can be encouraged through enhanced signage, additional connections within the local road network, and state policies.

14. **Bottleneck Removal of a Limited Scale for Cars and Trucks –** Removal or correction of short isolated and temporary lane reductions, substandard design elements, and other physical limitations that form a capacity constraint. See also #104 Bottleneck Removal for Passenger Rail, #108 Bottleneck Removal for Freight Rail, #88 Easier Transfers for Passengers, #77 Improvements for Walking, and #78 Improvements for Bicycling.

15. **Roundabouts –** These are circular intersections with specific design and traffic-control features. Key features include yield control of entering traffic, channelized approaches, and appropriate geometric curvature to slow speeds. Roundabouts provide substantially better operational and safety characteristics than older traffic circles and rotaries and are safer than comparable signalized intersections. This strategy is an FHWA proven safety countermeasure.

Signal Improvements – Strategies, ranging from basic to sophisticated, that improve the efficiency of signals individually and in systems. This includes specific applications, such as for pre-emption for emergency vehicles or buses.

16. **Basic Upgrading of Traffic Signals –** Adjustments and maintenance of signal timing and phasing, including installation of new signals as warranted, to improve flow and reduce congestion. This also includes equipment update, traffic signal removal, and pre-timed signal plans.

17. **Coordinated Traffic Signal Systems –** Includes linked traffic signals, closed-loop systems, and time-based systems. These systems generally interconnect intersections through a centralized controller, which synchronizes signals based on predetermined timing patterns in order to efficiently move vehicles. Coordinated signal systems need to have their timing patterns reviewed and updated every three to five years. They can be timed to encourage travel at or just below the posted speed limit to enhance safety.

18. **Adaptive Signal Systems –** Responsive signal systems that change based on real-time traffic conditions. Using detectors, a centralized computer will periodically sample traffic flow and determine the most appropriate timing plan and signal phasing. This may be employed for corridors or interconnected areas.

19. **Signal Pre-emption for Emergency Vehicles –** Use of technology in vehicles and within signal infrastructure to preempt the signal timing to create green signals for ambulances and other high-priority response vehicles through the existing road system.

20. **Transit Signal Priority (TSP) –** Use of technology in vehicles and/or at signalized intersections to temporarily extend green time or otherwise expedite buses, light rail, or trolleys through the existing road system.

Intelligent Transportation Systems (ITS) – Strategies that encompass a broad range of technologies to relieve congestion, and improve communications and safety. This includes the dissemination of 511 real-time travel information to the public when integrated into the transportation system's infrastructure.

21. **Traveler Information Services –** Provision of real-time pre-trip and en-route information to travelers on current traffic and other conditions. This includes advisory services to warn of traffic or transit delays, and dynamic message signs to inform motorists of traffic conditions. It is especially relevant to special-event generators and roadways with significant concentrations of travelers unfamiliar with the transportation system.

22. **Integrated Corridor Management (ICM) –** Building upon ITS technologies, ICM coordinates the individual network operations between parallel facilities to create an interconnected system. A corridor is defined as a combination of parallel surface transportation networks (e.g., freeway, arterial, transit networks) that link the same major origins and destinations. A coordinated effort between networks along a corridor can effectively manage the total capacity in a way that will result in reduced congestion. ICM uses many other strategies in this list, such as #17 Coordinated Traffic Signal Systems, #20 TSP, #23 Incident Management, and #21 Traveler Information Services. Often, these efforts are done from a Transportation Management Center.

23. **Incident Management –** These are programs to improve incident detection and verification; quickly and safely respond to and clear traffic incidents; and reduce the number of overall major, secondary, and work zone related traffic incidents. They usually include improved interagency communication and coordination.

24. **Automated Toll Collection –** This includes various existing and developing strategies that reduce congestion and delays at tollbooths, including by shifting to all-electronic tolls, such as E-ZPass. The Pennsylvania Turnpike converted to all cashless toll booths in late 2021.

25. **Commercial Vehicle Operations –** Utilization of ITS technologies to improve efficiency and effectiveness of commercial vehicles. This includes weigh station pre-clearance, automated safety inspections, and onboard safety monitoring.

Active Traffic Management (ATM) and Active Transportation and Demand Management (ATDM) – ATM is the ability to dynamically manage recurring and nonrecurring congestion on the mainline based on prevailing traffic conditions. Focusing on trip reliability, it maximizes the effectiveness and efficiency of the facility and increases throughput and safety through the use of integrated systems. ATM strategies include variable speed displays, dynamic lane assignment (DLA), part-time shoulder use/flex lanes, junction control, queue warning, and ramp metering. ATM can be combined with travel demand management and other operational strategies to create ATDM, which refers to the collective approach for dynamically managing travel and traffic demand and available capacity of transportation facilities. ATDM incorporates prevailing traffic conditions with one or a combination of operational strategies that are tailored to real time and predicted conditions in an integrated fashion. ATDM includes traditional traffic management and ITS technologies as well as new technologies and nontraditional traffic management technologies, such as ATM, managed lanes, ramp management, TDM, and ICM among others.

26. **Dynamic Lane Assignment (DLA) –** This involves the use of lane control signals on gantries to provide advance notice that a lane is closed ahead, and to start the merge process into available other lanes well in advance of the actual closure. DLA is often installed in conjunction with #29 variable speed displays and also supports the ATM strategies of #121 Part-Time Shoulder Use/Flex Lanes, #28 Queue Warning, and #27 Junction Control.

27. **Junction Control –** A strategy that dynamically changes lane allocation at interchanges based on mainline, and entering or exiting ramp volumes. Junction control is useful for situations with a varying relationship between mainline demand and ramp demand. This strategy allows a ramp to have one or two lanes, depending on ramp and the mainline volumes. Through use of signs, and possibly lighted pavement markers, junction control can close a mainline lane and create a second lane on the ramp for entering or exiting traffic. When turned on, the right lane becomes a second entrance by closing it to mainline traffic upstream of the on-ramp, or an exit-only lane at an off-ramp. At other times of the day, when ramp demand is not as high or when mainline volumes are such that a mainline lane cannot be closed, the ramp operates as a single lane and the right mainline lane would operate as a through lane through the interchange.

28. **Queue Warning –** The use of technologies such as warning signs, flashing lights, or in-vehicle devices, to alert motorists of downstream queues. Goals include effectively utilizing available roadway capacity and reducing the likelihood of collisions related to queuing. In some applications, the cause of the queue (crash, maintenance activities, congestion) is also displayed on dynamic message signs.

29. **Variable Speed Displays –** These systems regulate speeds and advise motorists of downstream conditions, incidents, or congestion, providing advance warning to motorists and the need to slow down. They are often used in conjunction with DLA to merge vehicles out of lanes that are closed downstream in an orderly manner. Variable speed displays and lane control systems work to stabilize traffic speeds, reduce flow breakdown, and prevent the onset of stop-and-go driving behavior. This results in more uniform traffic flow, safer driving conditions, and reduces both primary and secondary incidents and their severity. Variable speed displays may be advisory or regulatory. If they are regulatory (e.g., variable speed limits), they are legal speed limits for which a motorist can receive a citation if they exceed the posted limit. If they are advisory, a motorist cannot be cited for a speed limit violation, unless in the officer's judgment, they are driving too fast for the prevailing conditions. This is also called "Speed Harmonization."

30. **Dynamic Rerouting –** The use of variable destination signing to make better use of available roadway capacity by directing motorists to less congested facilities. Dynamic rerouting signs are often intended for the nonlocal traveler wishing to travel through a metropolitan area. As a result,

dynamic routing is often used to divert traffic around central business districts or other activity centers and is most effectively applied to interstate corridors.

31. **Ramp Metering –** Time-differentiated metering that acts as a traffic signal for vehicles entering freeways in order to control access to the highway and assist in maintaining vehicle flow.

Transportation Security – Improvements and programs designed to reduce negative transportation impacts of major events of all types. An all-hazards approach prepares the transportation system for events, including severe weather, major crashes, terrorist or criminal activities, or very large-scale events; any of which can create major congestion challenges.

32. **Coordinate with Military Bases –** Coordinate transportation planning in the vicinity of military bases with their security and access needs.

33. **Coordinate within the Nuclear Emergency Planning Zone (EPZ) –** Coordinate transportation planning in EPZs with nuclear plant and county/local evacuation plans.

34. **Freight Rail Bridge Security –** Enhance security on and around the limited number of key freight rail bridges, in particular the eight crossings of the Schuylkill and Delaware rivers.

35. **Passenger Rail Bridge Security –** Enhance security on and around the limited number of key bridges that carry passengers by rail. There are four major rail river crossings, two of which are part of the Northeast Corridor Amtrak Line.

36. **Road System Bridge Security –** Enhance security on and around road system bridges. This is especially important for the interstate system bridges in the region that carry over 100,000 vehicles on average per day.

37. **Transit Station Security –** Enhance security at and around transit stations, with particular attention to the most heavily used ones in each county that could become a focus in an evacuation situation.

38. **Evacuation Planning –** Coordinate with and enhance how transportation would serve dense and at-risk populations if they needed to leave the area, such as people without access to a private vehicle.

39. **Cybersecurity –** Enhance transportation systems so that they can be protected from outside interference. Cybersecurity techniques can include conducting risk assessments and vulnerability tests; inventorying all equipment with connectivity to other equipment and the internet; protecting the integrity of critical messages both in-network and external, including the use of authentication and encryption; controlled access to firmware; intrusion detection and prevention; hosting an immutable event log; regular software updates; and having plans in place to quickly recover from incidents when they do happen, and adopting lessons learned.

B. Transportation Demand Management (TDM), Policy Approaches, and Smart Transportation

TDM, Policy Approaches, and Smart Transportation include a wide range of strategies that serve to get people and goods to their desired locations, while minimizing congestion and also advancing other quality-of-life, environmental, and economic development goals. They generally make the transportation system more efficient and sustainable, often at less cost than building new capacity, although often requiring education and outreach efforts. By improving the quality-of-life and sustainability of communities, they make it possible for more people to have alternatives to SOV transportation options. By reducing the length and number of car trips, they reduce congestion. These approaches reflect the goals of the DVRPC Long-Range Plan, and of partner states, counties, and many municipalities. This category serves to “level the playing field” by creating conditions whereby alternative transportation can thrive.

Economic, Environmental, and Coordination Approaches – These are strategies to reduce congestion by providing economic benefits, implementing environmental policies, and establishing regional coordination.

40. **Park and Ride Lots –** These are facilities that serve as a transfer point between modes. They may be served by public transportation or can be used for transferring to carpools and vanpools. This strategy may cover agreements for use of existing spaces, adding additional spaces to existing facilities, or building new lots that do not primarily serve transit. See also #90 Expanded Parking for Existing Transit Stations (including remote, all modes) and #92 Improvements to Pedestrian and Bicycle Access to Transit Stations and Bus Stops.

41. **Economic Redevelopment-Oriented Transportation Policies –** These are transportation strategies that serve the goals of redevelopment, revitalization, renewal, and recentralization of the region in keeping with adopted plans and programs. Such approaches are generally more efficient ways for a region to manage congestion while retaining or increasing employment, than developing in previously undeveloped areas. Examples may include actively redeveloping brownfields in CMP subcorridor areas as appropriate for investment of federal transportation funds. Brownfields are often sited near rail or other major transportation facilities and may be ideal for mixed-use, transit-oriented development (TOD) or freight intermodal centers.

42. **Environmentally Friendly Transportation Policies –** These are transportation strategies that seek to minimize the impacts of transportation on the natural environment in keeping with adopted plans and programs. They include approaches to minimize stormwater runoff; conserve fuel; improve air quality; and preserve farmland, natural features, and open spaces. They may include “Green Streets” programs or projects that help reduce flooding to prevent roads from closing or becoming unsafe during rain storms or other weather events.

43. **Inter-regional Transportation Coordination –** Although part of many other strategies, this is explicit recognition that people and goods travel across regional boundaries, and that congestion management is made more effective by coordinating and communicating beyond strict geographic lines. This includes coordination of MPOs, transit authorities, and departments of transportation, as well as outreach to key stakeholders, such as the freight community. The strategy includes continued strengthening of the transportation planning process.

Discouragement of Car Use – Strategies that encourage fewer cars on the road by reducing the number of SOVs, providing options for commuters, and promoting the use of transit and other modes rather than driving alone. Outreach and marketing are important to the success of these strategies.

44. **Carpool/Vanpool Programs –** Carpooling is sharing a ride with one or more other people for at least most of a trip on a regular basis. Vanpooling is sharing a ride with a larger group of riders going to the same destination. These alternative forms of transportation save time and money, and are beneficial for the environment.

45. **Car Sharing –** This is an organized program that facilitates sharing vehicles among multiple users without each incurring the fixed cost and maintenance obligations of ownership. A charge is associated with each trip, or on a subscription basis such as through the Enterprise Car Share program. Some communities are also experimenting with shared neighborhood electric vehicles.

46. **Emergency Ride Home –** This serves as a safety net for employees who car/vanpool or use transit service by providing a reliable backup ride to get them to their destination if an emergency arises or a car or vanpool participant has to work unusual hours.

47. **Ride Matching –** This refers to any range of ways to help match people willing to coordinate their trip making. This is most often done with regard to work commutes. There are public services available, as well as services provided by specific employers. DVRPC has a program called Share-A-Ride. It is a free service that matches commuters with transit services, carpools, vanpools, and walking/bicycling opportunities in the five-county southeastern Pennsylvania region. The Share-A-Ride program also partners with local employers to provide these services for employees. Transportation Management Associations (TMAs) also provide related programs.

48. **Local Delivery Service –** This strategy encourages businesses to deliver their products to customers to reduce SOV trips, especially in communities where car ownership is low.

49. **Bicycle to Work –** Programs to encourage employees to commute to work by bicycle. Supportive strategies may also include the provision of bicycle amenities by employers, such as bike racks (especially weather protected), bike maintenance stations (for example, air pumps), and shower access.

50. **Micromobility –** This includes a number of low-speed small wheeled vehicles such as bicycles, scooters, skateboards, roller skates, self-balancing vehicles, and other devices. These can be fully human powered or have some degree of electric motor assistance, such as e-bikes and e-scooters. Individuals may own or use their own vehicles, or rent them on a per use or subscription basis through a sharing program, such as bike sharing (like Indego in Philadelphia) or scooter sharing. E-scooters sharing services are currently not legal in Pennsylvania.

51. **Mobility-as-a-Service (MaaS) –** This strategy involves the Integration of various shared mobility transportation modes into a single service, accessible on demand, via a seamless digital trip planning and payment application. Modes included in a MaaS network can range from traditional transit and taxis to newer options such as ride-hailing, bike and scooter sharing, and car sharing; and could eventually incorporate emerging technologies like automated taxis and shuttles.

Shift Peak Travel – Strategies that encourage employers to allow employees to work from home or shift their schedules to reduce the number of travelers during peak hours.

52. **Telecommute –** This involves the elimination of a commute, either partially or completely, to a conventional office through the use of computers and telecommunication technologies (phone, personal computer, email, etc.). It can involve either working at home, at a satellite work center, or a co-working space that is closer to an employee’s home than the conventional office.

53. **Alternate Work Hours –** These are strategies that reduce vehicle trip demand on highway facilities by shifting it to less congested time periods. This may include work schedules that spread the hours in which trips to and from the workplace occur or the complete elimination of trips to the workplace on some days, such as through compressed work weeks.

Outreach and Marketing – Strategies that promote and advertise existing services to encourage increased participation and/or general use of transit and TDM strategies, such as carpool, vanpool, and ridesharing programs, alternate work hours, telecommuting, emergency ride home, promotion of a regional commuter benefit, and car- and bike-sharing programs. Also included are strategies for effectively communicating with transportation-disadvantaged populations.

54. **Encourage Use of Transit Services and TDM Programs –** This covers outreach, education, planning, and other ways of encouraging use of transit services and TDM programs. This is applicable to employers, public entities, and the general public. It includes carpool, vanpool, and

ridesharing programs; alternate work hours; emergency ride home; promotion of a regional commuter cost benefit; car sharing; bike sharing; and other TDM strategies.

55. **Environmental Justice and Equity Outreach for Decision-Making –** Although general outreach includes the range of groups that have a history and/or likelihood of being adversely affected or not adequately involved in decisions about transportation services, it has tended not to be effective in reaching these populations. Focused outreach may include meetings in different locations, times, or formats than are often used in the process of preparing recommendations or making decisions, and offering translated materials or translators as needed for people to participate.

56. **Multilingual Communication –** As part of the environmental justice and equity outreach, provide basic information in language-neutral signs where reasonable or in the languages used in communities with significant populations that speak English as a second language. This includes bus schedules and wayfinding signs. In addition to increasing access, this reduces the number of travelers confused for a range of reasons, including speed of reading and vision.

57. **Promotion of a Regional Commuter Cost Benefit –** A commuter benefit program allows employers to offer their employees a cost-saving way to help pay for commuting on transit or vanpools. It saves employers and commuters money because the program takes advantage of federal legislation that allows tax-free dollars to pay for transit fares.

Comprehensive Policy Approaches – Policy approaches that reduce congestion and often have multiple beneficial outcomes, such as improving safety, connectivity, accessibility for all roadway users, and minimizing impacts on the environment.

58. **Growth Management and Smart Growth –** This covers techniques that encourage the use of land in a manner that reduces overall congestion and transportation costs. These approaches recognize that transportation and land use decisions form a cycle, with many implications for communities. Dense, mixed-use development can reduce trip length by creating a better job/housing balance and by making it more feasible to get to places by means other than driving alone. This includes locating neighborhood schools and other public service facilities where students or service visitors can walk to them and/or access via transit to reduce the duplicative need for buses and congestion from drivers.

59. **Complete Streets –** This is an approach to planning, designing, building, operating, and maintaining streets that enables safe access for all people who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. A municipality may be able to adopt such standards for future roads and roads under rehabilitation. Note that this is an adopted policy of the New Jersey Department of Transportation. See also #75 Road Diets.

60. **Transit-First Policy –** This policy facilitates the implementation and enforcement of strategies that give preferential treatment to transit to increase its attractiveness in comparison to SOV travel. Strategies include TSP, off-board fare payment, and dedicated bus lanes. See also #71 Transit-Oriented Development (TOD); and #20 TSP, and #96 Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes.

61. **Americans with Disabilities Act (ADA) Improvements –** ADA improvements, such as curb ramps, are built on public roadway facilities to provide access for all pedestrians, including those with physical and visual disabilities.

62. **Pavement Preservation –** Pavement preservation involves a proactive approach to maintain existing roadways in order to reduce future costly, time-consuming rehabilitation and reconstruction that leads to associated traffic disruptions. Lowest Life Cycle Cost (LLCC) is an approach to maximize the life of an asset at lower cost by focusing on preservation, rather than just on poor condition.

63. **Bridge Preservation –** Bridge preservation, like pavement preservation, involves an LLCC proactive approach to slow or reverse deterioration, in order to keep the facility in good repair and extend the service life. Doing so can prevent later costly and time-consuming rehabilitation and reconstruction that leads to associated traffic disruptions.

64. **Railroad/Linear Right-of-Way Preservation –** The preservation of abandoned railroad rights-of-way is a strategy to support potential future transit or freight rail service or other transportation uses before other development occurs. This preservation strategy can also apply to other linear rights-of-way, such as those for utilities.

65. **Curbside Management –** A growing number of users are seeking access to the curb, particularly in urban areas. These users include parking, freight loading and delivery, pick-up and drop-off for ride-hailing vehicles, EV charging stations, bike lanes, bike and scooter parking, green stormwater infrastructure, ADA accessibility improvements, and parklets. Managing the competing demands for curb space requires taking an inventory of available curb space, and allocating the space for optimal use. Management techniques can include regulations on use by time of day, operational strategies, technology, and pricing. See also #105 Loading and Deliveries.

Financial Incentives – Strategies that are oriented around using financial incentives and targeted pricing systems to encourage efficient travel choices.

66. **Pricing Policies –** There are various policies that use pricing to shape transportation behavior or raise funds. They can include gas taxes, insurance structures, mileage-based user fees (MBUF), parking pricing, or other approaches. The funds may be used for general transportation improvements, or to pay for a specific project. See also specific applications, such as #67 Tolls/Congestion Pricing, and #68 Parking Supply-and-Demand Management.

67. **Tolls/Congestion Pricing –** This is a method of reducing congestion by charging for roadway use. Tolls are generally applied based on access or distance traveled, while congestion pricing considers time of day and/or real-time demand for the facility—with higher fees during the periods of greatest demand. Pricing structures could also be applied based on vehicle class and weight. Tolling strategies are intended to encourage travelers to shift to alternative times, routes, or modes during peak traffic periods; they may also be intended to help offset costs of maintaining the roadway. However, tolling can risk shifting travel off highways and onto local roads.

68. **Parking Supply-and-Demand Management –** These are actions taken to alter the supply and/or demand of a parking system to further the attainment of transportation objectives. They can include parking cash-out/transportation allowances, preferred parking areas for carpools or for people who only drive a few times a week, setting parking minimums or maximums to limit or expand parking supply through zoning, or changes in pricing.

69. **Transit Pass Access to Vulnerable Communities –** There are various policies to provide more affordable transit options, such as free full-week passes for public school students, discounted passes for low-income customers, and providing free or affordable transfers. Universal Basic Mobility programs provide stipends to low-income households or within historically underinvested communities to ensure basic levels of transportation access. The stipends can often be used on various modes, including transit, car sharing, bike sharing, ridehailing, and other shared mobility services. Programs can be paired with #51 Mobility-as-a-Service.

Land Use/Transportation Policies – Strategies that reduce congestion by changing land use and development patterns to encourage mobility options and limit new trip generation.

70. **Revisions to Existing Land Use/Transportation Regulations –** Revise and better coordinate existing regulations, such as zoning, to reduce future traffic congestion. Integrated land use and travel simulation modeling, or buildout analysis can help to assess potential outcomes resulting from land use, zoning, and other regulatory changes. It is desirable that zoning ordinances, subdivision

regulations, and other rules reflect master plans and other community goals, such as maintaining reasonable accessibility and quality-of-life. They can also incorporate access management. See also #11 Access Management Projects and #73 Access Management Policies.

71. **Transit-Oriented Development (TOD) –** This includes pedestrian-friendly, mixed-use development focused around transit stations. TOD encourages residents and workers to rely on modes other than the automobile. See also #60 Transit-First Policy.

72. **Trip Reduction Ordinances –** These are ordinances that use a municipality's regulatory authority to limit trip generation from development sites. They usually cover an entire local political subdivision rather than just an individual project; they spread the burden more equitably between existing and future development; and they may be less vulnerable to legal challenges than conditions imposed on development approvals. Approaches may be voluntary or mandatory. Also known as Employee Trip Reduction.

Smart Transportation Corridor Solutions – Strategies to promote and enable smart transportation solutions for managing congestion while designing projects that fit within the existing or planned context of the community.

73. **Access Management Policies –** Adoption of the right to share access, provide cross access, regulate driveways, or other regulatory authority. This can also include the development of model ordinances and adoption of an access code by itself or as part of other regulations. Access management codes may cover corner lot requirements, continuity of sidewalk/bike networks and pedestrian/transit rider access, and land use (trip making) intensity controls in specific areas. See also #11 Access Management Projects.

74. **Context-Sensitive Design –** This is a design approach that begins engaging with local stakeholders early in the process to ensure that projects reflect community goals, such as PennDOT Connects. Context-sensitive design also encourages designers to consider nontraditional approaches to designing projects for the community context while maintaining basic design standards. This is also known as context-sensitive solutions. It considers existing land use and the physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining mobility and safety.

75. **Road Diets –** Road diets involve a reduction in the number of through lanes, for example, reducing a four-lane undivided road to three lanes, with two through lanes, a center turn lane, and two bike lanes. Road diets can encourage alternate modes of transportation, calm traffic, reduce crashes for all road users, and, in some cases, increase on-street parking. This strategy is an FHWA proven safety countermeasure. Studies indicate that in conditions where the average daily traffic is under 20,000 vehicles, there is minimal effect on road capacity or travel time.[1]

76. **Traffic Calming –** This refers to specific actions intended to slow vehicular traffic to improve safety or meet other community goals. These goals can include improving pedestrian safety, making roads and streets more hospitable for bicycling and walking, and enhancing the livability of a neighborhood. In a commercial setting, traffic-calming can be part of a set of strategies to encourage a more walkable commercial district and to encourage investment. In a residential area, traffic-calming strategies, such as speed tables or speed humps, are sometimes used to reduce the speed and amount of through traffic cutting across local streets. Other traffic calming approaches include narrowed lane widths, chicanes, chokers, speed cushions, bulbouts, raised crosswalks, and median islands with pedestrian refuges. These techniques can be paired with improvements on larger roads to better manage the flow of traffic. Traffic calming is an FHWA proven safety countermeasure.

[1] *Corridor Planning Guide: Towards a More Meaningful Integration of Transportation and Land Use (Publication No. #07028). Philadelphia, PA: Delaware Valley Regional Planning Commission, 2007, p.29.*

Walking and Bicycling Improvements – These are strategies to reduce congestion and promote livability by making it safer and more convenient to travel by walking and bicycling.

77. **Improvements for Walking –** There are a number of ways to improve safety and convenience for all pedestrians, but especially for ones who rely on walking for accessibility. These improvements should be selected to fit the level of development and population. Examples include sidewalk improvements, crosswalk improvements, signals, markings giving pedestrians the right-of-way, and pedestrian countdown signals.

78. **Improvements for Bicycling –** There are a number of ways to improve safety and convenience for bicyclists, especially for people using bicycles for transportation. Examples include provision of sharrows, bike lanes, cycletracks, multiuse trails, and bicycle storage facilities to promote bicycles as an alternative to automobiles. Bicycle lanes are an FHWA proven safety countermeasure.

79. **Placemaking for Non-Motorized Transportation –** This covers the general work to make an area more conducive for modes other than driving alone, including landscaping, streetscaping, and development of regional bicycling and walking plans and maps.

80. **Connection and Access to Regional Trails –**This strategy provides connectivity and accessibility to the Circuit and other regional trail networks. The Circuit is Greater Philadelphia's multi-use trail network connecting people to jobs, communities, parks, and waterways.

81. **Shared Space –** This is a concept where typically narrow streets with low vehicle volumes are designed without a curb and with high-quality streetscape materials, enabling the street to function like a plaza or a paved yard. Through the use of design elements such as paving treatments and strategically placed vertical elements, shared space cues drivers to behave differently than on conventional streets so that all modes are integrated, and users have equal priority to use the space. By providing safe, comfortable, and aesthetically pleasing areas for pedestrians and bicyclists, shared space prioritizes these modes over motorized vehicles. Living streets expand the shared space concept by providing comfortable furniture to sit and rest, green infrastructure, and generous landscaping. Also known as curbless streets, flex space, or woonerven (or the singular, woonerf). A shared space concept is being proposed in Old City, Philadelphia on Market Street between Front and 3rd streets.

C. Public Transit Service Improvements and Expansion

This group of strategies deals with ways to make existing transit services more convenient. This may include bus, rail, or other conveyance—either publicly or privately owned—providing general or special service (but not including school buses, charter, or sightseeing services) on a regular and continuing basis.

ITS Improvements for Transit – Strategies to make existing transit services more convenient and reliable through ITS technologies.

82. **Electronic Fare Payment Improvements –** This involves automatic trip payment through the use of noncash media, such as magnetically encoded or radio frequency identification enabled fare cards, smartphones, and other digital devices. Increasingly, this method coordinates with other systems so that one medium works across various transit systems, or even for both transit and toll roads. An example of this is the "SEPTA Key" program. These programs can provide granular ridership data that can be used to improve service options.

83. **Advanced Transit System Management –** Use of Automatic Vehicle Locator systems on buses to communicate with people riding transit (such as information about transfers) or considering riding it (such as when the next vehicle is expected at a stop). Advanced Transit System Management

may be coordinated through transit centers to be able to make real-time adjustments to schedules. Additionally, it may include the use of ITS technologies for bus, train, and coordinated transit management, including train signals and power grids. This is sometimes called Intelligent Transit Stops. See also #20 TSP.

Modification to Existing Routes or Services – Strategies to make existing transit services more convenient and reliable; includes the use of ITS technologies.

84. **Express Transit Routes or Stop Consolidation –** This involves having select or all service on a route stop only at major stops in order to transport people more rapidly. It can be done by dropping less heavily used stops from peak-hour scheduled runs or by adding additional express service.

85. **Extensions or Changes in Bus Routes –** This includes review of where bus service is provided, in order to find ways to provide better or more efficient service using existing resources. For bus or other services, it may include minor extensions in existing routes to provide service to a broader area.

86. **More Frequent Transit or More Hours of Service (Span of Service**) – This involves providing additional service on an existing transit route. It can be done for increased peak service, increased service throughout the day, or to provide earlier or later service.

87. **Flexible Routing/Route Deviation Service** – This is an approach that increases passenger convenience for fixed-route bus riders by building in the ability for buses to deviate within a defined distance, such as a quarter-mile from a fixed route. This may require advance arrangement and is generally used more in rural areas.

88. **Easier Transfers for Passengers –** Focused improvements to make it more possible and convenient to fully use all available modes of transportation for their best purposes. Examples might include minor changes in schedules to better align bus and train schedules, improved information and amenities at intermodal centers, or through more convenient walking connections between different train lines. See also #91 Passenger Intermodal Center or Garage for Transit Riders.

Transit Infrastructure Improvements – Strategies that make it more convenient, safe, and desirable to use transit services focusing on connectivity, accessibility and mobility improvements in and around transit stops and stations, and at rail crossings.

89. **Enhanced Transit Amenities and Safety –** This strategy includes, but is not limited to, onboard features and improvements at transit stops. Improvements at transit stops may include lighting, bus pull-off areas, shelters for passengers, real-time information, and making it safer for passengers walking to and from stops. Safety may be addressed for the people traveling, and also for the vehicles and bicycles left at stations. See also #83 Advanced Transit System Management and #92 Improvements to Pedestrian and Bicycle Access to Transit Stations and Bus Stops.

90. **Expanded Parking for Existing Transit Stations (including remote, all modes) –** Access to stations can be a limiting factor for use of the services that stop at them. Within the category of increasing parking capacity to existing facilities, this may be done through added surface lot capacity or shared use agreements with nearby sources of parking. An inexpensive example is assessing whether existing parking lots can be restriped in part or whole with smaller stalls to fit more vehicles in the same space. This could also be assessed in parking requirement regulations. There are a range of ways that access can be improved, see also #71 TOD, #98 Shuttle Service to Stations, #91 Passenger Intermodal Center or Garage for Transit Riders, and #92 Improvements to Pedestrian and Bicycle Access to Transit Stations and Bus Stops.

91. **Passenger Intermodal Center or Garage for Transit Riders –** This can range from extensive new facilities such as a landmark building with a range of services and structured parking, to parking

decks for transit stations, to new surface lots. See also #40 Park and Ride Lots, and #90 Expanded Parking for Existing Transit Stations (including remote, all modes).

92. **Improvements to Pedestrian and Bicycle Access to Transit Stations and Bus Stops –** Biking, walking, and public transit work together to help residents and workers reduce SOV trips. Enabling safer bicycle and pedestrian connections between transit stations, neighborhoods, and employers, and improving bicycle accommodations at transit facilities can expand a rail station's catchment area at a lower cost than parking expansion. It can alternatively help ensure that station parking capacity is used by riders traveling from farther distances. DVRPC’s *Level of Traffic Stress* maps (**www.dvrpc.org/webmaps/bikestress**) identify the level of stress comfort for cyclists along streets, and DVRPC's RideScore tool (**www.dvrpc.org/webmaps/ridescore**) can help prioritize rail stations for bike improvements. Additionally, *SEPTA Bus Stop Design Guidelines* (DVRPC Publication #12025) illustrates how a bus stop can be effectively connected with the development it is intended to serve.

93. **Multimodal Transportation Hub –** Hubs expand the number of alternative modes readily available at transit stations to improve first- and last-mile access to transit. Modes can include car sharing, bike sharing, scooter sharing, and others. Design should include Transportation Network Company (TNC) and taxi pick-up and drop-off areas, secure bike parking, and direct access to safe networks of sidewalks and bike lanes.

94. **At-Grade Rail Crossing Safety Improvements –** These are Improvements to the rail system at road or trail crossings that can increase safety and reduce delays and other impacts. This may include improved coordination and warning systems. A related strategy is to equip a priority set of vehicles (such as school buses, hazardous material haulers, and emergency vehicles) with in-vehicle devices warning of approaching trains, with real-time information on train position.

New Bus Services – Strategies that provide new bus or shuttle routes or services.

95. **Bus Route –** New regular bus service in an area not served by existing routes.

96. **Bus Rapid Transit (BRT) or Exclusive Right-of-Way Bus Lanes –** This group of strategies aims to speed up bus service to make it more competitive with private automobiles. These approaches are often implemented together along with streamlined fare payments and boarding, enhanced use of ITS and traveler communication services, high-end vehicles, and distinctive marketing to allow buses to bypass road congestion. Both are generally applied to high-ridership routes. Exclusive bus lanes may be part of existing roads or on new rights-of-way. See also #20 TSP and #60 Transit-First Policies.

97. **Demand Response Transit Services (Microtransit) –** Microtransit involves transit set up by appointment, available to the general public using smaller vehicles, such as vans, 30-foot buses, transportation network companies (such as Uber or Lyft), or taxis. Services may use automated shuttles, though Pennsylvania does not currently allow for automated vehicle operations on public roadways, outside of testing. This may be most applicable in areas where transit demand is low or development is very dispersed.

98. **Shuttle Service to Stations –** Shuttle services may be added to make existing services more accessible or to efficiently expand their reach in less dense areas. Smaller vehicles can provide loops or demand-responsive services to train stations, bus stops, or other multimodal transportation transfer centers. This is sometimes referred to as shuttle bus to line-haul transit or last-mile service. Future services may use automated shuttles.

99. **Transportation Services for Special Events –** Shuttle services and other approaches can be provided to get people to and from sporting events, concerts, or other major gatherings. This can be

an efficient way to reduce nonrecurring congestion and the need for expensive investments in infrastructure. These services usually serve outlying parking lots and/or transit stops.

100. **Transportation Services for Specific Populations –** This is the provision of services that addresses specific needs or populations, and includes employer-supported shuttles for employees. It also includes services oriented toward senior citizens and persons with disabilities.

101. **Intercity Bus –** These are longer-distance downtown-to-downtown routes (such as Megabus) for distances around 125 to 350 miles, which are too short for airline trips, but uncomfortably long for driving. Curbside congestion for departures and arrivals are issues that need to be managed as part of this strategy.

New Passenger Rail Investments – Strategies that provide new passenger rail routes, stops, stations, or services.

102. **Intercity Rail Service –** This is longer-distance new rail service connecting to cities outside the region on new track or track previously not used for this specific service. Such service may be fueled and operated in a variety of ways, including electric or diesel power.

103. **Fixed-Rail Service (new, extensions, or added stations) –** This is generally, although not always, oriented to commuter rail movement within one region, often with linkages to intercity transportation. It can be provided in many ways, including trolley, subway, elevated rail, light-rail, or other approaches. This may include enhancements of existing services or new services.

104. **Bottleneck Removal for Passenger Rail –** Investing in new bridges, tunnels, double-decker cars, switches, or other communication systems significantly increases the capacity of the rail system with limited need for right-of-way. Specific projects can include double tracking, new passing sidings, and new interlockings. See also #88 Making Transfers Easier for Passengers and #108 Bottleneck Removal for Freight Rail.

D. Goods Movement

Managing congestion on roads generally helps trucks move freight. Additional strategies can also be used to increase the efficient and safe movement of goods by various modes. See also A. Operational Improvements.

Freight Operations Improvements – Strategies to make truck, freight rail, and other means of moving goods function more efficiently by themselves or in combination with each other.

105. **Loading and Deliveries –** The provision of loading and delivery spaces on- and off-street is essential in central business districts and urban areas. Ensuring adequate capacity for truck loading and delivery reduces lane obstructions and other unsafe short-term parking behavior. These curbside management improvements coupled with freight demand management strategies, such as off-hours deliveries or consolidated delivery sites, can improve safety and traffic flow. See also #65 Curbside Management.

106. **Signage and Wayfinding –** The provision of appropriate wayfinding signage can be used to communicate preferred truck routes to drivers, including truck restriction signage. Clear directional signage may help to decrease miles traveled by reducing missed and incorrect turns at decision points.

107. **Truck Parking (staging and overnight) –** With trucking remaining the predominant mode of domestic freight transportation, and drivers required to meet stringent hours-of-service requirements, the supply of truck parking is critical for goods movement. However, parking is

insufficient to meet current demand. Additional truck parking capacity can help to reduce vehicle miles traveled in search for parking and reduce truck parking on highway ramps and shoulders, which presents significant safety issues.

108. **Bottleneck Removal for Freight Rail –** Investing in needed upgrades to bridges, tunnels, switches, or other communication systems significantly increases the capacity of the rail system with limited need for new right-of-way. See also #104 Bottleneck Removal for Passenger Rail; and #113 Freight Centers and Intermodal Facilities.

109. **Making Intermodal Transfers Easier for Freight –** Improvements to make it more feasible and convenient to fully use all available modes of transportation for their best purposes. Examples might include "last-mile" minor improvements to roads needed for truck access to rail sidings or improved communications/ITS approaches. See also #113 Freight Centers and Intermodal Facilities; and #88 Easier Transfers for Passengers.

110. **Freight Rail (rehabilitation or reconstruction) –** Existing rail infrastructure requires routine maintenance and periodic upgrades. Both Pennsylvania and New Jersey have statewide, competitive Rail Freight Assistance Programs that fund rail freight maintenance projects, with short-line railroads often being the beneficiaries.

Freight Capacity Investments – Strategies to expand the capacity of truck, freight rail, and other means of moving goods.

111. **Grade-Crossing Separations –** Roadway-railroad crossings that are at-grade create delay for both freight rail operations and the driving public. In instances of high usage, it may be desirable to grade separate the crossing to create free-flow conditions and improve safety for both the rail and vehicular traffic. The Federal Railroad Association has a Grade Crossing Elimination Grant Program that can be used to fund grade crossing improvement or elimination projects.

112. **Freight Rail (new or expanded) –** New rail lines or improvements of existing facilities built to industry standards will help meet the needs of moving freight efficiently by rail. This may promote a mode switch from truck to rail for certain commodities or ensure that current goods moved by rail do not switch to truck travel.

113. **Freight Centers and Intermodal Facilities –** These support growth and efficiency at designated freight centers and major intermodal terminals. Freight centers are clusters of freight-related activities that are often served by common infrastructure across multiple modes. Intermodal activities can focus on transfer between modes, such as rail to truck. Investment in these centers provides benefits, such as improved management, lower transport costs, value-added activities, and increased reliability. Having appropriate truck parking areas for staging can be a critical component to freight center efficiency.

114. **Port Facility Expansion –** The expansion of existing marine terminals and the creation of new ones helps maximize the use of the region's waterways for freight transportation purposes.

E. Road Improvements and New Roads

These strategies address the area between minor operational improvements and building major new road facilities on new alignments.

Minor Road Expansions – Strategies that, although adding some capacity, intend to address a variety of goals. They should be carefully coordinated with other appropriate strategies and be reviewed for whether they change travel patterns in the corridor (such as intersection improvements at multiple, contiguous intersections).

115. **Frontage or Service Roads –** These are local roads that run parallel to higher-speed limited access roads that typically provide access to private driveways, shops, houses, and commercial uses. Road strategies include maintaining access to local land uses, while generally increasing the throughput of regional roads. These projects incorporate #11 Access Management Projects and #73 Access Management Policies.

116. **Intersection Improvements of a Limited Scale –** Minor isolated intersection widening and lane restriping to increase intersection capacity and safety. This may include auxiliary turn lanes (right or left) and widened shoulders. Intersection design should be context sensitive. Geometries should reflect the types and levels of expected truck activity, especially for designated truck routes.

117. **Major Reconstruction with Minor Capacity Additions –** Major reconstruction focuses on the basic use of a roadway, but may increase capacity, safety, and access for other modes. For example, reconstructing a facility so that it meets current design standards may include lengthening on- and off-ramps to provide driver's adequate distance to merge onto the mainline, or adequate off-ramp length to safely exit the highway, which can result in higher actual safe operating speeds. Major new bridge or bridge replacement projects and interchange reconfigurations may fit into this category. These projects also offer the opportunity to add bicycle and pedestrian infrastructure to road facilities.

118. **High-Occupant Vehicle Treatments –** High-Occupant vehicles operate with two or more persons, and include carpools, vanpools, and buses. Treatments include giving priority to these vehicles, such as on High-Occupant Vehicle (HOV) lanes on freeways and at park and ride lots. These treatments help to reduce congestion by increasing the person throughput capacity of critically congested corridors. This also includes supporting policies and constructing facilities to encourage the use of high occupant vehicles. An assumption is that such a project will inherently include a range of TDM and safety improvements, and be coordinated with community needs.

Adding Capacity to Existing Roads – These are strategies that extend or widen existing roads to add new through lanes in order to expand transportation network capacity. They should be carefully coordinated with appropriate supplemental strategies to get the most long-term value from the investment.

119. **General Purpose Lanes –** This is the addition of one or more through lanes to an existing road.

120. **Interchange with Related Road Segments –** These are projects at a scale that is expected to change regional transportation patterns (such as adding new movements at existing interchanges). They increase the capacity of the existing road network by increasing interconnection opportunities, and capacity. Large intersection projects with related roads that will add major capacity would be included in this strategy.

121. **Part-Time Shoulder Use/Flex Lanes –** These are similar concepts that are implemented in conjunction with complementary ITS and ATM strategies, and require sophisticated traffic management systems. Part-time shoulder use allows vehicles to travel the shoulder (or emergency lane) as an additional traffic lane on a freeway or expressway during peak and congested periods. Flex lanes is a broader concept where lanes on a roadway can be changed based on traffic demands, and can include lanes that are open during high traffic volumes (such as part-time shoulder use), reversible lanes, or lanes dedicated to certain types of vehicles (like buses or carpools) during specific times. A reversible lane may be in the middle of a roadway, where the direction of travel can be changed based on directional peak period demand. For example, higher traffic volumes heading to downtown in the morning peak and then higher volumes heading out of downtown in the afternoon peak.

New Roads – Strategies that build new roads in order to add capacity to make the existing transportation system function better, and/or to provide access to new development areas. They should be carefully coordinated with appropriate supplemental strategies to get the most long-term value from the investment.

122. **Gridded Streets –** Part of a traditional street network with intersection spacing every 1,200 feet or less. These streets were typically built before the automobile era, and facilitate easier bicycle, pedestrian, and transit improvements. Projects can expand existing gridded street networks or work to establish them within existing curvilinear road systems.

123. **Arterial or Collector Road –** New road or substantial extension of an existing road (usually over a mile in length), generally built with many access points and designed to fit local conditions.

124. **Bypass –** A bypass adds new capacity on a new alignment. Such roads may tend to be short to medium in length and address a variety of transportation and other issues.

125. **Limited-Access Highway –** This is the addition of a new facility or extension of existing facilities with accompanying ramps, tolls if included, signage, and other related improvements.

Region Wide Strategies

Alternative Work Hours
Americans with Disabilities Act (ADA) Improvements
Bridge Preservation
Car Sharing
Carpool/Vanpool Programs
Context-Sensitive Design
Encourage Use of Transit Services and TDM Programs
Emergency Ride Home
Environmentally Friendly Transportation Policies
Growth Management and Smart Growth
Inter-Regional Transportation Coordination
Pavement Preservation
Promotion of a Regional Commuter Benefit
Revisions to Existing Land Use/Transportation Regulations
Ride Matching
Safety System Approach
Signage
Telecommute
Traveler Information Services
Work Zone Management

6. Evaluating Performance Trends and the Effectiveness of Implemented Strategies

The CMP provides analysis on the performance of the transportation system for a particular time period, in part, to establish multimodal strategies that can mitigate congestion. However, additional types of analysis are important to evaluate the implementation of strategies. Before-and-after performance analysis of projects is important to help understand the effectiveness of implemented strategies to mitigate congestion in the region. Too often, improvements are made to reduce congestion but a follow-up evaluation is not completed to determine whether congestion has been reduced. Some of this has to do with the lack of staff time to perform a post-analysis of congestion and compare the before-and-after results, and some of it has to do with the inability to compare like data to make a sound planning and engineering judgment. There are many factors that affect the intensity and extent of traffic flows, which makes it sometimes difficult to assess how effective strategies are working to mitigate congestion. It is important to understand the anticipated effectiveness of proposed improvement strategies in order to develop transportation projects with maximum impact, see *CMP Strategy Evaluation: Testing Short-Listed Programs* (DVRPC Publication #12042).

The CMP trends congestion by Focus Roadway Corridor Facility using the INRIX network to evaluate performance and better understand the effectiveness of implemented strategies. The CMP compares average yearly volume delay by facility during the weekday PM peak from 5:00 – 6:00 PM for the years 2017, 2021, and 2022 (see Tables 18 and 19). 2017 is the analysis year of the prior 2019 CMP, 2021 is the analysis year for the current 2023 CMP, and 2022 is the most current year to compare against past performance. A volume delay congestion measure is used to measure performance which is vehicle delay as function of traffic volumes, where 2017 traffic volumes are used for year 2017, and 2021 traffic volumes are used for both 2021 and 2022. The changes in delay for 2022 are based on only travel time delays, since the 2022 traffic volumes are currently not available, and even if they were it takes additional time to conflate to the INRIX network. Both absolute and percent change in volume delay is used to evaluate corridor performance. Using just percent change over-represents corridor volume delay impact, since the absolute change may be quite small, and vice versa evaluating using just absolute change under-represents some corridors where the percent change is significant.

Congestion is analyzed comparing 2017 to 2022 to better understand if corridors are back to pre-pandemic conditions and to evaluate the performance of corridors for projects that started and ended between the time periods. Reduced performance may be due to high traffic volumes and limited capacity, long-term construction work zones, or to some type of non-recurring congestion (see Chapter 1, section 4). Improved performance may be due to completed congestion mitigation projects over the time period using operational improvements, travel demand management, public transit, or other road improvements (see Chapter 5, section 4). Improved performance may also be attributed to reduced travel due to major shifts of people working from home as a result of the pandemic, which makes it difficult to understand the effectiveness of project strategies in reducing congestion. Performance is also analyzed comparing 2021 to 2022 to evaluate how congestion has changed most recently since the pandemic.

Corridors with significantly more delay in 2022 comparing 2017 to 2022 for the Pennsylvania portion of the region include I-95 from PA 132 (Street Road) to PA 90 (CMP facilities 24, 25, and 26) in Bucks and Philadelphia Counties. These facilities experience both high delay and high percent change increases in delay over the time period. Much of this is likely due to the ongoing I-95 reconstruction, including roadway widening to, eliminate lane drops and add shoulders, interchange improvements, and upgrades to the surrounding street network. High increases in delay are also identified along I-76 from I-476 to the I-676

(CMP facilities 17, 18, and 19) in Montgomery and Philadelphia counties. Despite variable speed limit devices installed in 2021 to help manage traffic flow, including the portion of I-76 from I-476 to US 1 (City Ave), the corridor indicates continued congestion. However, I-76 from I-476 to the PA Turnpike (CMP facility 20) in Montgomery County indicates modest reductions in delay which may indicate that variable speed limits are more effective.

For the New Jersey portion of the region, significant increases in delay in 2022 comparing 2017 and 2022 include NJ 42 from the Atlantic Expressway to I-295 (CMP facility 311) and NJ 55 from NJ 47 to NJ 42 (CMP facility 358) in Gloucester County. Much of this delay is likely due to the ongoing I-295/NJ 42 Direct Connect reconstruction, including roadway widening and interchange improvements. The NJ 55 northbound on-ramp to NJ 42 northbound is planned to be widened to two lanes as part of the Direct Connect project, which should help reduce delay at this ramp location.

CMP Focus Roadway Corridor Facilities were identified where roadway performance improved in 2022 comparing 2017 to 2022, but these improvements need to be considered along with the realization that more people are working from home since the pandemic, and contributing to the improved performance. In Pennsylvania, 83 percent of the CMP corridors experienced improved performance, or reductions in delay, when comparing 2017 to 2022. Some delay reductions were modest, but others were quite significant. For example, US 422 from Trooper Road to US 202 (CMP facility 77) in Montgomery County experienced major delay reductions, which may have been in part due to the roadway widening and intersection improvements as part of the US 422 Schuylkill River Crossing Complex project. Chestnut Street from Broad Street to 23rd Street in Philadelphia (CMP facility 160) experienced significant delay reductions, which may be attributable to the City implementing various CMP strategies, including updating lane infrastructure with upgraded lane markings; SEPTA developing education materials to warn drivers not to park in the bus lanes, and enforcement partners working to regulate and ticket drivers parked in travel lanes. Other corridors with major delay reductions include I-476 in Plymouth Meeting, PA from I-276 (PA Turnpike) to I-76 in Conshohocken, PA (CMP facility 9) in Montgomery County, I-476 from I-76 to US 30 Villanova, PA (CMP facility 10) in Delaware and Montgomery counties, I-276 (PA Turnpike) from I-76 to I-476 (CMP facility 2) in Montgomery County, and I-95 from I-676 to I-76 (CMP facility 28) in Philadelphia.

In New Jersey, 89 percent of the corridors experienced reductions in delay comparing 2017 to 2022. Similar to the Pennsylvania region, some delay reductions were modest but others were significant. For example, I-295 from NJ 31 to NJ 29 (CMP facility 377) in Mercer County experienced major delay reductions, which may be attributable to the roadway widening, and interchange and toll gate improvements as part of the Scudder Fall Bridge replacement project. Also, NJ 73 from the NJ Turnpike to NJ 70 (CMP facility 372) in Burlington County experienced significant reductions in delay, and more modest reductions were on NJ 73 from NJ 70 to US 30 (CMP facility 373) in both Burlington and Camden Counties. This may in part be due to the adaptive signal system that was completed on NJ 73 in 2021. Other corridors with some major reductions in delay include I-676 from the NJ-PA State Line to I-76 (CMP facility 327) in Camden County, I-195 from the New Jersey Turnpike to I-295 (CMP facility 326) in Mercer County, NJ 38 from NJ 73 to I-295 (CMP facility 353) in Burlington County, and US 1 from Alexander Road to CR 629 (CMP facility 318) in Mercer County.

CMP Focus Roadway Corridor Facilities are evaluated comparing 2021 to 2022 to identify how performance has changed since the pandemic. Most of the facilities in DVRPC's Pennsylvania (87 percent) and New Jersey (88 percent) counties experienced increases in delay.

Facilities with some of the most increases in delay by absolute change in the Pennsylvania counties include:

- I-76 from Passyunk Ave to I-476 (CMP facilities 16, 17, 18, and 19) in Philadelphia and Montgomery counties,
- I-95 from US 322 to the PA-DE State Line (CMP facility 32) in Delaware County, and
- I-476 from US 30 to US 1 (CMP facilities 11 and 12) in Delaware County.

Additional top corridors with both high percent and absolute change increases in delay from 2021 to 2022 are:

- I-95 from PA 132 (Street Road) to Academy Road (CMP facilities 24 and 25) in Bucks County,
- US 422 from Egypt Road to US 202 (CMP facilities 76 and 77) in Montgomery County, and
- US 322/US 202 from US 1 to PA 3 (CMP facility 64) in Chester and Delaware counties.

These corridors are still below 2017 levels, excluding portions of I-76 and where comparison data is not available.

Some top corridors for the New Jersey counties with the most increase in delay by absolute change include:

- US 1 from I-295 to CR 629 (CMP facilities 317 and 318) in Mercer County,
- I-295 from NJ 70 to NJ 38 (CMP facility 309) in Burlington and Camden counties, and
- NJ 70 from NJ 73 to NJ 38 (CMP facilities 367 and 368) in Camden County.

Additional top corridors with both high percent and absolute change increases in delay between 2021 and 2022 are:

- NJ 73 from the NJ Turnpike to NJ 70 (CMP facility 372) in Burlington County,
- NJ 55 from NJ 47 to NJ 42 (CMP facility 358) in Gloucester County, and
- I-676 from the NJ-PA State Line to I-76 (CMP facility 327) in Camden County.

All these corridors are still below 2017 delay levels, excluding NJ 55 and portions of NJ 70, and where comparison data is not available.

Table 17:
Focus Roadway Corridor Facilities Yearly Peak Hour Volume Delay Trends in the Pennsylvania Portion of the DVRPC Region (Sorted by County and Roadway)

							Peak Hour Volume Delay (5-6pm)			Absolute Change			Percent Change		
Map ID	Roadway	From Limit	To Limit	2021/ 2022 Miles	Limited Access	County	2017 hh:mm:ss	2021 hh:mm:ss	2022 hh:mm:ss	2017 to 2021	2017 to 2022	2021 to 2022	2017 to 2021	2017 to 2022	2021 to 2022
146	Bristol Rd	PA 532	US 202 Pky	25.66	No	Bucks	4:34:03	3:03:04	3:53:33	-1:30:58	-0:40:30	0:50:28	-33%	-15%	28%
6	I-276 PA Tpk	US 1	I-95	10.60	Yes	Bucks	-	0:00:06	0:02:46	-	-	0:02:40	-	-	2763%
21	I-295	PA 29 (Delaware River)	US 1	11.46	Yes	Bucks	2:53:55	0:04:30	0:01:22	-2:49:25	-2:52:33	-0:03:08	-97%	-99%	-70%
22	I-295	US 1	I-95	12.45	Yes	Bucks	-	0:01:44	0:27:09	-	-	0:25:26	-	-	1472%
23	I-95	I-276 PA Tpk	PA 132 (Street Rd)	6.09	Yes	Bucks	-	1:20:09	3:24:53	-	-	2:04:44	-	-	156%
24	I-95	PA 132 (Street Rd)	PA 63	3.22	Yes	Bucks	5:49:51	6:57:20	14:58:24	1:07:29	9:08:33	8:01:04	19%	157%	115%
25	I-95	PA 63	Academy Rd	5.43	Yes	Bucks	19:35:49	10:43:56	27:26:23	-8:51:53	7:50:34	16:42:27	-45%	40%	156%
169	I-95	I-276 PA Tpk	PA-NJ State Line	4.70	Yes	Bucks	-	0:03:42	0:09:32	-	-	0:05:50	-	-	157%
89	PA 132 (Street Rd)	I-95	US 1	7.45	No	Bucks	17:26:06	11:37:56	11:35:37	-5:48:11	-5:50:29	-0:02:18	-33%	-34%	0%
90	PA 132 (Street Rd)	US 1	PA 611 (Easton Rd)	22.83	No	Bucks	19:41:48	10:17:33	12:42:25	-9:24:15	-6:59:23	2:24:52	-48%	-35%	23%
151	PA 309	Bethlehem Pk	PA 663 (John Fries Hwy)/PA 113	6.29	No	Bucks	-	8:38:07	12:41:48	-	-	4:03:42	-	-	47%
171	PA 309	PA 663/PA 313	Cherry Rd	5.46	No	Bucks	-	5:22:43	11:19:12	-	-	5:56:29	-	-	110%
148	PA 313	PA 611	PA 563	16.78	No	Bucks	4:27:09	4:33:50	5:35:44	0:06:40	1:08:35	1:01:55	2%	26%	23%
149	PA 313	PA 563	PA 309	12.03	No	Bucks	1:44:58	1:35:07	2:16:16	-0:09:52	0:31:17	0:41:09	-9%	30%	43%
97	PA 332	County Line Rd	PA 413 (Newtown Bypass)	19.41	No	Bucks	5:02:39	2:36:16	3:32:16	-2:26:24	-1:30:23	0:56:01	-48%	-30%	36%
98	PA 332	PA 413 (Newtown Bypass)	I-295	8.86	No	Bucks	7:21:09	3:23:54	4:48:00	-3:57:16	-2:33:09	1:24:07	-54%	-35%	41%
144	PA 413	PA-NJ State Line	US 1 Bus (Lincoln Hwy)	12.58	No	Bucks	10:17:55	2:58:50	4:59:57	-7:19:05	-5:17:58	2:01:07	-71%	-51%	68%
145	PA 413	US 1 Bus (Lincoln Hwy)	PA 332	8.65	No	Bucks	-	4:23:38	6:16:53	-	-	1:53:15	-	-	43%
172	PA 513	US 13	US 1 (Lincoln Hwy)	12.88	No	Bucks	-	2:31:07	3:45:18	-	-	1:14:10	-	-	49%
202	PA 532 (Buck Rd)	PA 213 (Bridgetown Pk)	PA 332 (Newtown Byp)	10.87	No	Bucks	-	2:23:13	3:22:37	-	-	0:59:24	-	-	41%
173	PA 532/PA 213	PA 132 (Street Rd)	US 1	11.81	No	Bucks	-	5:17:14	7:06:37	-	-	1:49:23	-	-	34%
136	PA 611	PA 132 (Street Rd)	US 202 Pkwy	9.57	No	Bucks	12:52:05	6:27:16	10:56:49	-6:24:49	-1:55:16	4:29:33	-50%	-15%	70%
147	PA 611	US 202 Pkwy	Stump Rd	14.07	No	Bucks	3:26:39	1:05:20	1:58:24	-2:21:19	-1:28:15	0:53:04	-68%	-43%	81%
150	PA 663 (John Fries Hwy)	PA 309	I-476 NE Ext	6.72	No	Bucks	7:35:20	3:17:54	3:42:15	-4:17:26	-3:53:04	0:24:21	-57%	-51%	12%
44	US 1	Old Lincoln Hwy	I-295	15.40	No	Bucks	-	2:40:28	3:05:43	-	-	0:25:15	-	-	16%
45	US 1	I-295	PA-NJ State Line	12.66	Yes	Bucks	2:01:46	0:32:03	0:25:49	-1:29:44	-1:35:58	-0:06:14	-74%	-79%	-19%
15	US 13	US 1	I-95	12.97	No	Bucks	2:53:16	0:01:36	0:55:27	-2:51:40	-1:57:49	0:53:51	-99%	-68%	3350%
121	US 13	I-95	PA 63	14.28	No	Bucks	6:04:22	2:17:48	3:20:00	-3:46:34	-2:44:22	1:02:12	-62%	-45%	45%
72	US 202	PA 611	PA 413	9.45	No	Bucks	1:03:45	0:35:39	0:29:06	-0:28:07	-0:34:40	-0:06:33	-44%	-54%	-18%
73	US 202	PA 413	PA 32	13.87	No	Bucks	3:59:38	2:44:52	2:44:05	-1:14:46	-1:15:33	-0:00:47	-31%	-32%	0%
152	US 202 Business	PA 611	PA 309	13.83	No	Bucks	-	2:11:10	3:45:09	-	-	1:33:59	-	-	72%
95	County Line Rd	PA 532	PA 611	17.44	No	Bucks, Montgomery	9:31:06	6:17:28	8:24:47	-3:13:38	-1:06:19	2:07:19	-34%	-12%	34%
96	County Line Rd	PA 611	PA 309	16.37	No	Bucks, Montgomery	8:22:01	3:11:33	2:35:55	-5:10:29	-5:46:06	-0:35:37	-62%	-69%	-19%
5	I-276 PA Tpk	PA 611 (Hatboro)	US 1	16.77	Yes	Bucks, Montgomery	4:02:32	1:17:47	2:10:33	-2:44:45	-1:51:59	0:52:46	-68%	-46%	68%
108	PA 309	Bergey Rd	PA 663/PA 313	16.36	No	Bucks, Montgomery	0:25:28	0:07:01	0:45:38	-0:18:27	0:20:10	0:38:37	-72%	79%	551%
71	US 202 Pkwy	PA 309	PA 611	15.05	No	Bucks, Montgomery	5:43:35	1:35:50	3:17:42	-4:07:45	-2:25:53	1:41:52	-72%	-42%	106%
1	I-76 PA Tpk	PA 29	I-76 (Valley Forge)	15.44	Yes	Chester	0:23:42	0:00:00	0:13:51	-0:23:42	-0:09:51	0:13:51	-100%	-42%	0%
114	PA 100	US 422	Ridge Rd	9.09	No	Chester	-	1:05:25	2:21:48	-	-	1:16:23	-	-	117%
115	PA 100	Ridge Rd	US 30 Bypass	26.44	No	Chester	-	4:30:24	6:02:52	-	-	1:32:28	-	-	34%
116	PA 100	US 30 Bypass	US 202	6.33	Yes	Chester	26:43:06	10:07:54	13:16:03	-16:35:11	-13:27:03	3:08:09	-62%	-50%	31%
141	PA 113	PA 100	US 30 Business	7.89	No	Chester	6:22:17	3:28:06	5:42:46	-2:54:11	-0:39:31	2:14:40	-46%	-10%	65%
180	PA 252	US 30	US 202	4.64	No	Chester	-	3:07:59	7:27:52	-	-	4:19:52	-	-	138%
182	PA 29	US 30	I-76 PA Tpk	4.02	No	Chester	-	2:56:41	7:34:18	-	-	4:37:36	-	-	157%
84	PA 3 (West Chester Pk)	PA 352	US 202	6.61	No	Chester	20:01:45	6:33:44	8:30:29	-13:28:01	-11:31:16	1:56:45	-67%	-58%	30%
85	PA 3 (West Chester Pk)	US 202	US 322 Bus (High St)	6.03	No	Chester	-	3:04:29	8:14:58	-	-	5:10:29	-	-	168%
139	PA 352/SR 2022 (Boot Rd)	Pottstown Pk	PA 3	12.21	No	Chester	5:40:42	1:32:01	2:41:19	-4:08:41	-2:59:23	1:09:18	-73%	-53%	75%
142	PA 41	US 1	PA-DE State Line	12.29	No	Chester	6:22:11	3:41:35	4:22:49	-2:40:36	-1:59:23	0:41:13	-42%	-31%	19%
137	PA 724	PA 100	PA 23	18.35	No	Chester	1:50:36	1:34:14	1:47:16	-0:16:22	-0:03:20	0:13:03	-15%	-3%	14%
33	US 1	PA 82 (Unionville Rd)	PA 52 (Kennett Pk) South	6.94	No	Chester	10:06:55	4:51:40	6:59:26	-5:15:15	-3:07:29	2:07:46	-52%	-31%	44%
58	US 1	PA 10	PA 82 (Unionville Rd)	28.04	Yes	Chester	0:34:02	0:00:00	0:00:00	-0:34:02	-0:34:02	0:00:00	-100%	-100%	0%
65	US 202	PA 3	US 30	9.69	Yes	Chester	4:34:21	0:08:25	1:49:13	-4:25:56	-2:45:09	1:40:47	-97%	-60%	1197%
66	US 202	US 30	PA 29	8.75	Yes	Chester	13:15:49	0:14:05	1:36:33	-13:01:44	-11:39:16	1:22:29	-98%	-88%	586%
52	US 30	PA 252 (Leopard Rd)	US 202	11.63	No	Chester	13:26:49	4:40:31	6:53:34	-8:46:19	-6:33:15	2:13:03	-65%	-49%	47%
53	US 30 Business	US 202	US 30 Bypass	9.31	No	Chester	-	3:26:46	4:03:17	-	-	0:36:31	-	-	18%
54	US 30 Business	US 30 Bypass	PA 82 (Coatesville)	17.29	No	Chester	-	6:02:56	5:40:07	-	-	-0:22:49	-	-	-6%

Table 17

Continued

Map ID	Roadway	From Limit	To Limit	2021/ 2022 Miles	Limited Access	County	Peak Hour Volume Delay (5-6pm)			Absolute Change			Percent Change		
							2017 hh:mm:ss	2021 hh:mm:ss	2022 hh:mm:ss	2017 to 2021	2017 to 2022	2021 to 2022	2017 to 2021	2017 to 2022	2021 to 2022
63	US 30 Business	PA 82 (Coatesville)	PA 10	11.82	No	Chester	0:59:17	0:39:38	1:05:24	-0:19:39	0:06:07	0:25:46	-33%	10%	65%
55	US 30 Bypass	US 202	PA 100	4.13	Yes	Chester	2:14:23	0:36:31	2:14:45	-1:37:51	0:00:22	1:38:14	-73%	0%	269%
56	US 30 Bypass	PA 100	US 30 Business	5.25	Yes	Chester	17:59:46	6:49:38	12:46:57	-11:10:08	-5:12:49	5:57:19	-62%	-29%	87%
57	US 30 Bypass	US 30 Business	Reeceville Rd	12.62	Yes	Chester	7:26:49	4:33:40	5:04:28	-2:53:09	-2:22:22	0:30:48	-39%	-32%	11%
143	US 30 Bypass	Reeceville Rd	PA 10	15.21	Yes	Chester	0:12:50	0:00:00	0:00:00	-0:12:50	-0:12:50	0:00:00	-100%	-100%	0%
140	US 322	PA 82	US 30 Business	12.06	No	Chester	-	2:38:42	3:07:32	-	-	0:28:50	-	-	18%
181	US 322	US 202	US 30 Business	16.64	No	Chester	-	1:32:09	2:38:13	-	-	1:06:03	-	-	72%
179	PA 252	PA 3 (Newtown Rd)	US 30	11.66	No	Chester, Delaware	-	1:53:56	5:12:36	-	-	3:18:40	-	-	174%
34	US 1	PA 52 (Kennett Pk) South	US 202	12.00	No	Chester, Delaware	5:27:25	1:50:29	1:30:45	-3:36:56	-3:56:40	-0:19:44	-66%	-72%	-18%
51	US 30	I-476	PA 252 (Leopard Rd)	13.34	No	Chester, Delaware	9:50:26	4:17:20	5:34:38	-5:33:07	-4:15:48	1:17:19	-56%	-43%	30%
64	US 322/US 202	US 1	PA 3	13.56	No	Chester, Delaware	24:45:58	6:52:02	13:58:07	-17:53:56	-10:47:51	7:06:05	-72%	-44%	103%
138	PA 23	PA 724	PA 422	16.90	No	Chester, Montgomery	6:26:54	4:55:44	5:26:00	-1:31:11	-1:00:54	0:30:17	-24%	-16%	10%
168	US 202	PA 29	I-76	14.10	Yes	Chester, Montgomery	3:56:56	0:06:53	0:33:26	-3:50:04	-3:23:30	0:26:34	-97%	-86%	386%
118	Baltimore Ave	US 13	Bishop Ave	6.30	No	Delaware	14:29:38	14:15:57	15:00:59	-0:13:41	0:31:20	0:45:02	-2%	4%	5%
119	Baltimore Pk	Bishop Ave	I-476	5.73	No	Delaware	24:02:28	22:37:45	20:36:43	-1:24:42	-3:25:45	-2:01:02	-6%	-14%	-9%
120	Baltimore Pk	I-476	US 1	6.47	No	Delaware	8:05:33	6:10:20	9:47:46	-1:55:12	1:42:13	3:37:26	-24%	21%	59%
11	I-476	US 30 (Villanova)	US 3 (Broomall)	9.14	Yes	Delaware	58:41:16	29:15:28	47:10:26	-29:25:48	-11:30:50	17:54:58	-50%	-20%	61%
12	I-476	US 3 (Broomall)	US 1	7.32	Yes	Delaware	29:48:02	23:18:29	40:47:02	-6:29:33	10:59:00	17:28:33	-22%	37%	75%
13	I-476	US 1	Baltimore Pk (Swarthmore)	3.40	Yes	Delaware	39:43:01	21:40:40	34:24:14	-18:02:20	-5:18:47	12:43:33	-45%	-13%	59%
14	I-476	Baltimore Pk (Swarthmore)	I-95	7.36	Yes	Delaware	40:33:06	23:30:57	35:03:42	-17:02:09	-5:29:23	11:32:46	-42%	-14%	49%
31	I-95	I-476	US 322	7.59	Yes	Delaware	58:13:42	56:09:17	63:28:18	-2:04:25	5:14:36	7:19:01	-4%	9%	13%
32	I-95	US 322	PA-DE State Line	5.50	Yes	Delaware	78:39:04	36:44:18	56:56:11	-41:54:46	-21:42:53	20:11:53	-53%	-28%	55%
157	Lansdowne Ave	US 13	PA 3	7.59	No	Delaware	14:47:35	10:58:36	12:32:33	-3:48:59	-2:15:02	1:33:57	-26%	-15%	14%
156	PA 252	Baltimore Pk	PA 3	10.49	No	Delaware	11:22:50	4:24:52	8:06:21	-6:57:57	-3:16:29	3:41:29	-61%	-29%	84%
61	PA 291	US 13	I-95	18.12	No	Delaware	1:04:39	0:21:26	0:37:14	-0:43:13	-0:27:26	0:15:47	-67%	-42%	74%
80	PA 3	63rd St (Cobbs Creek Pkwy)	US 1	5.20	No	Delaware	17:10:21	10:36:01	16:44:58	-6:34:20	-0:25:23	6:08:57	-38%	-2%	58%
81	PA 3 (West Chester Pk)	US 1	I-476	5.05	No	Delaware	36:06:59	17:09:53	27:11:43	-18:57:07	-8:55:16	10:01:50	-52%	-25%	58%
82	PA 3 (West Chester Pk)	I-476	PA 252	6.54	No	Delaware	24:23:07	10:41:06	13:41:33	-13:42:01	-10:41:34	3:00:27	-56%	-44%	28%
184	PA 320 (Sprowl Rd)	US 1	PA 3 (West Chester Pk)	6.49	No	Delaware	-	7:51:21	12:58:44	-	-	5:07:23	-	-	65%
154	PA 352	I-95	US 1	11.05	No	Delaware	5:13:24	3:30:44	5:17:59	-1:42:41	0:04:34	1:47:15	-33%	1%	51%
183	PA 420/PA 320 (Sprowl Rd)	I-95	US 1	11.31	No	Delaware	-	6:12:39	11:33:20	-	-	5:20:41	-	-	86%
35	US 1	US 202	US 322	2.40	No	Delaware	28:49:41	16:34:15	13:19:45	-12:15:26	-15:29:56	-3:14:30	-43%	-54%	-20%
36	US 1	US 322	PA 352	11.62	No	Delaware	14:19:58	3:09:22	6:59:11	-11:10:36	-7:20:47	3:49:50	-78%	-51%	121%
37	US 1	PA 352	I-476	7.72	Yes	Delaware	2:52:25	1:34:35	2:13:40	-1:17:50	-0:38:45	0:39:05	-45%	-22%	41%
38	US 1	I-476	PA 3	9.03	No	Delaware	24:00:56	11:54:40	14:53:57	-12:06:16	-9:06:58	2:59:18	-50%	-38%	25%
46	US 13	PA-DE State Line	I-95	15.38	No	Delaware	3:26:23	1:54:51	1:51:43	-1:31:32	-1:34:40	-0:03:08	-44%	-46%	-3%
47	US 13	I-95	Baltimore Ave	13.92	No	Delaware	10:35:24	6:22:33	7:36:14	-4:12:51	-2:59:10	1:13:41	-40%	-28%	19%
153	US 202	US 1	State Line Rd	6.04	No	Delaware	29:11:03	15:49:11	23:49:59	-13:21:53	-5:21:04	8:00:49	-46%	-18%	51%
59	US 322	I-95	PA 452	2.49	No	Delaware	3:59:35	5:20:28	2:27:49	1:20:53	-1:31:46	-2:52:39	34%	-38%	-54%
60	US 322	PA 452	US 1	12.38	No	Delaware	20:40:18	9:07:54	16:45:01	-11:32:24	-3:55:17	7:37:07	-56%	-19%	83%
167	US 322 (Commodore Barry Br)	I-95	PA-NJ State Line	3.30	Yes	Delaware	1:13:06	0:00:00	0:06:18	-1:13:06	-1:06:47	0:06:18	-100%	-91%	0%
83	PA 3 (West Chester Pk)	PA 252	PA 352	13.31	No	Delaware, Chester	5:41:55	2:15:37	3:40:15	-3:26:19	-2:01:40	1:24:38	-60%	-36%	62%
155	PA 352	US 1	PA 3	12.95	No	Delaware, Chester	-	2:29:49	4:05:40	-	-	1:35:52	-	-	64%
30	I-95	PA 291 (Philadelphia Airport)	I-476	14.49	Yes	Delaware, Philadelphia	32:26:43	12:44:33	24:46:33	-19:42:11	-7:40:11	12:02:00	-61%	-24%	94%
2	I-276 PA Tpk	I-76 (Valley Forge)	I-476 PA Tpk NE Ext (Plymouth Meeting)	15.02	Yes	Montgomery	36:28:53	5:00:36	11:09:53	-31:28:17	-25:19:00	6:09:17	-86%	-69%	123%
3	I-276 PA Tpk	I-476 PA Tpk NE Ext (Plymouth Meeting)	PA 309 (Fort Washington)	9.13	Yes	Montgomery	21:51:25	6:59:46	11:46:57	-14:51:39	-10:04:28	4:47:11	-68%	-46%	68%
4	I-276 PA Tpk	PA 309 (Fort Washington)	PA 611 (Hatboro)	8.88	Yes	Montgomery	13:35:29	6:55:44	9:13:00	-6:39:45	-4:22:30	2:17:16	-49%	-32%	33%
9	I-476	I-276 PA Tpk (Plymouth Meeting)	I-76 (Conshohocken)	8.51	Yes	Montgomery	48:24:14	15:37:09	20:00:56	-32:47:05	-28:23:19	4:23:46	-68%	-59%	28%
8	I-476 PA Tpk NE Ext	PA 63 (Sumneytown Pk)	I-276 PA Tpk (Plymouth Meeting)	21.21	Yes	Montgomery	5:43:45	0:04:29	0:04:05	-5:39:16	-5:39:39	-0:00:23	-99%	-99%	-9%
19	I-76	US 1 (City Ave)	I-476	16.21	Yes	Montgomery	97:28:26	83:51:37	121:57:00	-13:36:49	24:28:34	38:05:23	-14%	25%	45%
20	I-76	I-476	I-76 PA Tpk	8.99	Yes	Montgomery	76:26:35	62:07:18	60:12:39	-14:19:18	-16:13:56	-1:54:39	-19%	-21%	-3%
174	Johnson Hwy/Plymouth Rd	US 202 (Markely St)	Germantown Pk	6.06	No	Montgomery	-	0:16:59	1:03:41	-	-	0:46:41	-	-	275%
130	Norristown Rd	PA 463	US 202	12.71	No	Montgomery	8:33:40	3:12:26	4:35:55	-5:21:15	-3:57:45	1:23:30	-63%	-46%	43%
86	PA 113	US 422	PA 73 (Skippack Pk)	14.12	No	Montgomery	3:29:47	0:54:21	1:40:14	-2:35:25	-1:49:32	0:45:53	-74%	-52%	84%
87	PA 113	PA 73 (Skippack Pk)	Allentown Rd	13.37	No	Montgomery	2:01:18	1:46:46	2:41:00	-0:14:32	0:39:42	0:54:13	-12%	33%	51%

Table 17
Continued

Map ID	Roadway	From Limit	To Limit	2021/ 2022 Miles	Limited Access	County	Peak Hour Volume Delay (5-6pm) 2017 hh:mm:ss	2021 hh:mm:ss	2022 hh:mm:ss	Absolute Change 2017 to 2021	2017 to 2022	2021 to 2022	Percent Change 2017 to 2021	2017 to 2022	2021 to 2022
133	PA 29	PA 73 (Skippack Pk)	Ridge Pk	9.43	No	Montgomery	2:59:04	1:12:23	2:26:44	-1:46:41	-0:32:20	1:14:20	-60%	-18%	103%
134	PA 29	Ridge Pk	US 422	4.90	No	Montgomery	7:07:24	3:06:08	5:16:11	-4:01:16	-1:51:13	2:10:03	-56%	-26%	70%
105	PA 309	PA 611	I-276	13.44	Yes	Montgomery	14:23:27	6:06:53	12:08:41	-8:16:34	-2:14:45	6:01:49	-58%	-16%	99%
106	PA 309	I-276	PA 63	11.00	Yes	Montgomery	5:28:57	2:39:03	3:55:01	-2:49:53	-1:33:56	1:15:57	-52%	-29%	48%
128	PA 363 (S Valley Forge Rd)	PA 63 (Welsh Rd)	PA 73 (Skippack Pk)	8.57	No	Montgomery	6:19:19	0:45:36	2:39:54	-5:33:43	-3:39:25	1:54:17	-88%	-58%	251%
129	PA 363 (S Valley Forge Rd)	PA 73 (Skippack Pk)	Ridge Pk	9.20	No	Montgomery	-	1:31:23	2:45:39	-	-	1:14:17	-	-	81%
176	PA 363 (Trooper Rd)	Ridge Pk	US 422	5.15	No	Montgomery	-	7:13:06	13:04:25	-	-	5:51:20	-	-	81%
123	PA 463	PA 113	PA 309	14.67	No	Montgomery	6:18:19	3:26:07	4:13:40	-2:52:12	-2:04:39	0:47:33	-46%	-33%	23%
124	PA 463	PA 309	PA 611	15.24	No	Montgomery	10:23:12	1:50:29	4:16:11	-8:32:42	-6:07:00	2:25:42	-82%	-59%	132%
102	PA 611	PA 309	PA 73	3.86	No	Montgomery	11:02:02	6:31:02	5:58:19	-4:31:00	-5:03:43	-0:32:43	-41%	-46%	-8%
103	PA 611	PA 73	I-276	11.43	No	Montgomery	21:55:39	13:50:27	16:19:20	-8:05:12	-5:36:19	2:28:53	-37%	-26%	18%
92	PA 63	PA 611 (Easton Rd)	PA 152 (Limekiln Pk)	9.43	No	Montgomery	12:23:06	5:36:46	7:45:37	-6:46:20	-4:37:29	2:08:51	-55%	-37%	38%
93	PA 63	PA 152 (Limekiln Pk)	PA 309	5.59	No	Montgomery	3:41:08	1:15:29	2:26:31	-2:25:38	-1:14:36	1:11:02	-66%	-34%	94%
94	PA 63	PA 309	PA 463 (Forty Foot Rd)	12.74	No	Montgomery	-	4:13:00	7:49:12	-	-	3:36:11	-	-	85%
175	PA 63/PA 463 (Forty Food Rd)	Sumneytown Pk	PA 463 (Cowpath Rd)	6.46	No	Montgomery	-	2:11:33	2:42:11	-	-	0:30:39	-	-	23%
125	PA 73	SR 2056 (Washington Lane)	PA 309	7.54	Yes	Montgomery	6:17:01	3:11:12	4:33:37	-3:05:49	-1:43:24	1:22:25	-49%	-27%	43%
126	PA 73	PA 309	US 202	12.18	No	Montgomery	11:19:01	4:01:02	6:58:58	-7:17:59	-4:20:04	2:57:55	-65%	-38%	74%
127	PA 73	US 202	PA 113	15.07	No	Montgomery	4:11:55	2:32:54	3:24:49	-1:39:02	-0:47:07	0:51:55	-39%	-19%	34%
112	Ridge Ave	Northwestern Ave (County Line)	I-476	8.54	No	Montgomery	14:13:29	7:51:56	12:13:39	-6:21:33	-1:59:50	4:21:43	-45%	-14%	55%
135	Ridge Pk	I-476	PA 29	20.47	No	Montgomery	8:50:46	4:45:35	5:44:18	-4:05:11	-3:06:29	0:58:43	-46%	-35%	21%
132	SR 2017 (Susquehanna Rd)	PA 611	PA 309	10.73	No	Montgomery	-	2:41:11	3:44:47	-	-	1:03:36	-	-	39%
131	Sumneytown Pk	US 202	PA 63 (Forty Foot Rd)	10.76	No	Montgomery	10:40:27	4:00:28	5:28:50	-6:39:59	-5:11:37	1:28:23	-62%	-49%	37%
67	US 202	I-76	DeKalb St	4.60	No	Montgomery	27:04:14	17:38:41	17:24:13	-9:25:32	-9:40:00	-0:14:28	-35%	-36%	-1%
69	US 202 (DeKalb Pk)	Johnson Hwy (202 split)	PA 73 (Skippack Pk)	6.34	No	Montgomery	10:24:20	5:10:22	7:10:03	-5:13:58	-3:14:17	1:59:41	-50%	-31%	39%
70	US 202 (DeKalb Pk)	PA 73 (Skippack Pk)	PA 309	10.57	No	Montgomery	9:53:17	5:11:14	6:19:28	-4:42:04	-3:33:49	1:08:14	-48%	-36%	22%
68	US 202 (Markley St)	US 202 (DeKalb Pk)	Swede Rd	9.45	No	Montgomery	-	3:35:30	4:13:50	-	-	0:38:21	-	-	18%
170	US 202 Dekalb Pk	US 202 (Markley St)	Johnson Hwy Split	4.00	No	Montgomery	-	3:03:15	8:45:23	-	-	5:42:08	-	-	187%
74	US 422	PA 100	PA 29	25.06	Yes	Montgomery	1:38:11	0:08:54	0:47:26	-1:29:17	-0:50:45	0:38:32	-91%	-52%	433%
75	US 422	PA 29	Egypt Rd	5.65	Yes	Montgomery	11:31:20	3:55:21	10:14:52	-7:35:59	-1:16:29	6:19:30	-66%	-11%	161%
76	US 422	Egypt Rd	Trooper Rd	6.53	Yes	Montgomery	31:08:56	9:56:51	21:18:20	-21:12:05	-9:50:37	11:21:28	-68%	-32%	114%
77	US 422	Trooper Rd	US 202	4.65	Yes	Montgomery	37:50:23	1:00:52	11:02:37	-36:49:31	-26:47:46	10:01:45	-97%	-71%	989%
7	I-476 PA Tpk NE Ext	PA 663 (John Fries Hwy)	PA 63 (Sumneytown Pk)	27.27	Yes	Montgomery, Bucks	0:33:40	0:00:02	0:52:02	-0:33:37	0:18:22	0:52:00	-100%	55%	151955%
88	PA 113	Allentown Rd	PA 309	6.33	No	Montgomery, Bucks	2:44:33	1:09:40	2:12:53	-1:34:53	-0:31:41	1:03:13	-58%	-19%	91%
107	PA 309	PA 63	Bergey Rd	15.30	No	Montgomery, Bucks	21:33:09	8:48:28	11:47:20	-12:44:41	-9:45:49	2:58:52	-59%	-45%	34%
104	PA 611	I-276	PA 132 (Street Rd)	9.29	No	Montgomery, Bucks	20:56:38	6:41:18	11:41:09	-14:15:20	-9:15:29	4:59:51	-68%	-44%	75%
113	PA 100	PA 73	US 422	13.72	No	Montgomery, Chester	-	0:39:52	1:53:07	-	-	1:13:15	-	-	184%
177	PA 29	PA 23	US 422	6.93	No	Montgomery, Chester	-	4:27:53	5:31:32	-	-	1:03:38	-	-	24%
10	I-476	I-76 (Conshohocken)	US 30 (Villanova)	5.31	Yes	Montgomery, Delaware	35:14:17	8:02:12	12:12:25	-27:12:05	-23:01:52	4:10:13	-77%	-65%	52%
39	US 1	PA 3	US 30 (Girard Ave)	5.11	No	Montgomery, Delaware	19:11:27	11:56:50	16:03:27	-7:14:37	-3:08:00	4:06:37	-38%	-16%	34%
50	US 30	US 1 (City Ave)	I-476	13.09	No	Montgomery, Delaware	12:53:53	9:17:44	12:38:42	-3:36:09	-0:15:10	3:20:58	-28%	-2%	36%
109	PA 63	US 1	PA 611 (Easton Rd)	14.67	No	Montgomery, Philadelphia	8:39:27	2:30:55	4:45:14	-6:08:32	-3:54:14	2:14:19	-71%	-45%	89%
199	PA 73	PA 232 (Oxford Ave)	Church Rd	7.79	No	Montgomery, Philadelphia	-	6:56:38	8:53:12	-	-	1:56:33	-	-	28%
201	Philmont Ave	PA 63 (Red Lion Rd)	Bustleton Ave	5.08	No	Montgomery, Philadelphia	-	6:13:28	10:08:49	-	-	3:55:20	-	-	63%
40	US 1 (City Ave)	US 30 (Lancaster Ave)	I-76	5.89	No	Montgomery, Philadelphia	56:33:10	37:22:15	37:40:30	-19:10:55	-18:52:40	0:18:15	-34%	-33%	1%
204	Allegheny Ave	I-95	PA 611 (Broad St)	7.03	No	Philadelphia	-	7:46:17	8:10:45	-	-	0:24:27	-	-	5%
190	Byberry Rd	US 1 (Roosevelt Blvd)	Philmont Ave	4.26	No	Philadelphia	-	13:10:23	17:12:54	-	-	4:02:31	-	-	31%
196	Chestnut St	63rd St	44th St	2.00	No	Philadelphia	-	13:04:56	12:36:25	-	-	-0:28:31	-	-	-4%
203	Frankford Ave	I-95	US 13	12.24	No	Philadelphia	-	3:19:01	4:38:03	-	-	1:19:01	-	-	40%
165	I-676 (Ben Franklin Br)	North 5th St	PA-NJ State Line	1.06	Yes	Philadelphia	-	17:45:43	24:08:27	-	-	6:22:44	-	-	36%
117	I-676 (Vine Street Expy)	I-76	I-95	4.06	Yes	Philadelphia	256:33:05	252:53:51	254:59:27	-3:39:14	-1:33:38	2:05:36	-1%	-1%	1%
16	I-76	I-676 (Vine Street Expy)	Passyunk Ave	6.08	Yes	Philadelphia	-	85:53:42	128:17:06	-	-	42:23:24	-	-	49%
17	I-76	I-676 (Vine Street Expy)	US 30 (Girard Ave)	3.39	Yes	Philadelphia	189:04:19	183:05:06	208:14:42	-5:59:12	19:10:23	25:09:36	-3%	10%	14%
18	I-76	US 30 (Girard Ave)	US 1 (City Ave)	5.82	Yes	Philadelphia	143:06:41	171:51:52	193:46:54	28:45:12	50:40:13	21:55:02	20%	35%	13%
185	I-76	Passyunk Ave	PA-NJ State Line	7.30	Yes	Philadelphia	-	10:56:47	15:02:41	-	-	4:05:54	-	-	37%
26	I-95	Academy Rd	PA 90 (Betsy Ross Bridge)	11.35	Yes	Philadelphia	34:09:23	102:04:51	113:20:16	67:55:27	79:10:53	11:15:25	199%	232%	11%

Table 17
Continued

Map ID	Roadway	From Limit	To Limit	2021/ 2022 Miles	Limited Access	County	Peak Hour Volume Delay (5-6pm) 2017 hh:mm:ss	2021 hh:mm:ss	2022 hh:mm:ss	Absolute Change 2017 to 2021	2017 to 2022	2021 to 2022	Percent Change 2017 to 2021	2017 to 2022	2021 to 2022
27	I-95	PA 90 (Betsy Ross Bridge)	I-676 (Vine Street Expy)	9.30	Yes	Philadelphia	98:29:33	126:03:06	108:43:48	27:33:33	10:14:15	-17:19:18	28%	10%	-14%
28	I-95	I-676 (Vine Street Expy)	I-76 (Walt Whitman Bridge)	6.00	Yes	Philadelphia	116:30:14	50:18:08	43:26:37	-66:12:06	-73:03:37	-6:51:31	-57%	-63%	-14%
29	I-95	I-76 (Walt Whitman Bridge)	PA 291 (Philadelphia Airport)	9.83	Yes	Philadelphia	27:42:40	23:05:12	29:13:06	-4:37:28	1:30:25	6:07:54	-17%	5%	27%
78	Market St	I-95 (Penns Landing)	PA 611 (Broad St)	2.08	No	Philadelphia	27:43:21	23:37:29	24:19:11	-4:05:53	-3:24:10	0:41:42	-15%	-12%	3%
79	Market St	PA 611 (Broad St)	21st Street	0.43	No	Philadelphia	-	37:10:17	40:51:55	-	-	3:41:38	-	-	10%
186	Market St	21st St	44th St	3.89	No	Philadelphia	-	9:27:29	10:11:08	-	-	0:43:40	-	-	8%
187	Market St	44th St	63rd St	4.01	No	Philadelphia	-	4:14:55	5:58:41	-	-	1:43:45	-	-	41%
62	PA 291	I-95	I-76	8.75	No	Philadelphia	9:23:20	4:47:33	9:58:38	-4:35:48	0:35:18	5:11:06	-49%	6%	108%
159	PA 3 (Chestnut St)	Front St	Broad St	1.15	No	Philadelphia	15:07:27	4:26:26	6:29:24	-10:41:00	-8:38:03	2:02:57	-71%	-57%	46%
160	PA 3 (Chestnut St)	Broad St	23rd St	0.76	No	Philadelphia	40:15:53	0:00:00	8:20:37	-40:15:53	-31:55:15	8:20:37	-100%	-79%	0%
161	PA 3 (Chestnut St)	23rd St	44th St	1.69	No	Philadelphia	38:58:06	18:09:32	23:29:14	-20:48:34	-15:28:52	5:19:42	-53%	-40%	29%
162	PA 3 (Walnut St)	Front St	Broad St	1.15	No	Philadelphia	31:09:23	7:46:17	15:15:31	-23:23:06	-15:53:51	7:29:15	-75%	-51%	96%
163	PA 3 (Walnut St)	Broad St	23rd St	0.76	No	Philadelphia	41:27:03	20:47:42	32:22:56	-20:39:21	-9:04:07	11:35:15	-50%	-22%	56%
164	PA 3 (Walnut St)	23rd St	44th St	1.69	No	Philadelphia	29:03:43	29:20:56	30:31:02	0:17:12	1:27:19	1:10:07	1%	5%	4%
99	PA 611 (Broad St)	Market St	Girard Ave	2.54	No	Philadelphia	-	12:23:24	17:00:12	-	-	4:36:48	-	-	37%
100	PA 611 (Broad St)	Girard Ave	US 1	6.77	No	Philadelphia	32:44:54	34:51:50	35:02:33	2:06:56	2:17:39	0:10:43	6%	7%	1%
101	PA 611 (Broad St)	US 1	PA 309	6.02	No	Philadelphia	28:06:26	20:13:56	18:30:32	-7:52:30	-9:35:54	-1:43:24	-28%	-34%	-9%
158	PA 611 (Broad St)	I-76	Washington Ave	3.83	No	Philadelphia	-	15:33:19	21:54:44	-	-	6:21:25	-	-	41%
188	PA 611 (Broad St)	Washington Ave	Market St	1.91	No	Philadelphia	-	16:11:42	21:17:05	-	-	5:05:23	-	-	31%
189	PA 73 (Cottman Av)	I-95	PA 232 (Oxford Ave)	7.51	No	Philadelphia	-	14:54:07	13:08:20	-	-	-1:45:47	-	-	-12%
195	Passyunk Ave	Broad St	I-76	2.26	No	Philadelphia	-	11:19:19	13:43:36	-	-	2:24:17	-	-	21%
193	Pine St	Front St	Broad St	1.15	No	Philadelphia	-	22:24:45	27:54:31	-	-	5:29:47	-	-	25%
110	Ridge Ave	Callowhill St	US 1	8.21	No	Philadelphia	-	5:31:11	6:56:49	-	-	1:25:38	-	-	26%
111	Ridge Ave	US 1	Northwestern Ave (County Line)	10.27	No	Philadelphia	-	7:03:53	9:56:44	-	-	2:52:50	-	-	41%
166	Route 90 (Betsy Ross Br)	Richmond St	PA-NJ State Line	1.78	Yes	Philadelphia	0:11:21	0:00:00	0:09:36	-0:11:21	-0:01:44	0:09:36	-100%	-15%	0%
205	Tacony-Palmyra Br	I-95	PA-NJ State Line	1.02	Yes	Philadelphia	-	6:18:20	12:42:26	-	-	6:24:06	-	-	102%
41	US 1	I-76	PA 611	6.08	Yes	Philadelphia	69:47:14	62:02:55	60:18:09	-7:44:18	-9:29:05	-1:44:46	-11%	-14%	-3%
42	US 1 (Roosevelt Blvd)	PA 611	US 13	9.50	No	Philadelphia	-	21:04:50	18:29:38	-	-	-2:35:13	-	-	-12%
43	US 1 (Roosevelt Blvd)	US 13	Old Lincoln Hwy	14.42	No	Philadelphia	-	4:12:42	4:46:19	-	-	0:33:37	-	-	13%
197	US 1 (Roosevelt Blvd) Frontage Rd	PA 611	US 13	8.08	No	Philadelphia	-	20:53:21	19:13:30	-	-	-1:39:51	-	-	-8%
198	US 1 (Roosevelt Blvd) Frontage Rd	US 13	I-276 PA Tpk	15.36	No	Philadelphia	-	4:06:19	5:04:14	-	-	0:57:56	-	-	24%
48	US 30 (Girard Ave)	US 13 (N 33rd St)	Lancaster Ave	2.95	No	Philadelphia	38:58:00	8:41:59	11:33:50	-30:16:02	-27:24:10	2:51:52	-78%	-70%	33%
49	US 30 (Lancaster Ave)	Girard Ave	US 1 (City Ave)	4.44	No	Philadelphia	16:02:22	4:44:59	6:16:54	-11:17:23	-9:45:28	1:31:55	-70%	-61%	32%
194	Walnut St	44th St	63rd St	2.01	No	Philadelphia	-	26:51:12	23:16:50	-	-	-3:34:22	-	-	-13%
191	Washington Ave	Front St	Broad St	2.32	No	Philadelphia	-	12:17:57	14:32:09	-	-	2:14:12	-	-	18%
192	Washington Ave	Broad St	Grays Ferry Ave	2.22	No	Philadelphia	-	8:18:24	12:00:11	-	-	3:41:47	-	-	44%
200	PA 532 (Bustleton Pk)	US 1 Roosevelt Blvd	PA 132 (Street Rd)	17.37	No	Philadelphia, Bucks	-	10:54:00	13:40:58	-	-	2:46:57	-	-	26%
91	PA 63	I-95	US 1	6.40	Yes	Philadelphia, Bucks	6:38:52	1:16:18	1:58:20	-5:22:34	-4:40:31	0:42:03	-81%	-70%	55%
122	US 13	PA 63	US 1 (Roosevelt Blvd)	13.70	No	Philadelphia, Bucks	10:03:03	9:20:20	10:19:10	-0:42:43	0:16:06	0:58:50	-7%	3%	10%
178	Germantown Pk	Broad St	I-476 NE Ext	21.32	No	Philadelphia, Montgomery	-	4:30:07	6:26:07	-	-	1:56:00	-	-	43%

Decrease in Delay

Increase in Delay

Note: Corridors with a dash in the 2017 peak hour volume delay or percent change columns cannot be compared to 2021 or 2022 due to either the corridor not existing in 2017, or the lengths being significantly modified since 2017, and not comparable to ones in 2021 or 2022

Source: DVRPC analysis of 2017, 2021, and 2022 INRIX data

Table 18:

Focus Roadway Corridor Facilities Yearly Trends of Peak Hour Volume Delay in the New Jersey Portion of the DVRPC Region (Sorted by County and Roadway)

							Peak Hour Volume Delay (5-6pm)			Absolute Change			Percent Change		
Map ID	Roadway	From Limit	To Limit	2021/ 2022 Miles	Limited Access	County	2017 hh:mm:ss	2021 hh:mm:ss	2022 hh:mm:ss	2017 to 2021	2017 to 2022	2021 to 2022	2017 to 2021	2017 to 2022	2021 to 2022
427	CR 537	CR 541 (Mt. Holly Byp)	US 206	9.12	No	Burlington	-	0:31:26	1:14:33	-	-	0:43:08	-	-	137%
355	CR 537 (Marne Hwy)	NJ 73	CR 541 (Mt. Holly Byp)	20.02	No	Burlington	-	1:40:44	2:11:42	-	-	0:30:58	-	-	31%
403	CR 541 (Mt. Holly Rd)/CR 691	CR 537 (Washington St)	US 130	13.89	No	Burlington	-	1:33:30	2:39:51	-	-	1:06:21	-	-	71%
405	CR 603/N Elmwood Rd	NJ 70	CR 537 (Marne Hwy)	12.79	No	Burlington	2:20:19	0:27:48	0:57:19	-1:52:31	-1:23:00	0:29:31	-80%	-59%	106%
404	CR 607	NJ 70	CR 537 (Marne Hwy)	11.26	No	Burlington	5:54:15	1:35:38	3:36:40	-4:18:37	-2:17:35	2:01:02	-73%	-39%	127%
420	CR 620	NJ 73	CR 623	9.06	No	Burlington	-	2:26:56	3:01:55	-	-	0:34:59	-	-	24%
419	CR 626	I-295	US 130	8.47	No	Burlington	-	0:15:29	0:37:10	-	-	0:21:41	-	-	140%
330	I-295	CR 541 (Mt. Holly Rd)	I-95	9.56	Yes	Burlington	1:01:09	0:00:00	0:43:26	-1:01:09	-0:17:43	0:43:26	-100%	-29%	0%
430	I-295	NJ 38 (Exit 40)	CR 541 (Exit 47)	13.67	Yes	Burlington	-	0:08:51	0:50:06	-	-	0:41:15	-	-	466%
325	I-95	PA-NJ State Line	NJ Tpk	13.71	Yes	Burlington	0:24:42	0:02:51	0:02:06	-0:21:51	-0:22:36	-0:00:45	-88%	-92%	-27%
353	NJ 38	NJ 73	I-295	7.93	No	Burlington	30:39:10	7:39:18	12:04:00	-22:59:52	-18:35:10	4:24:42	-75%	-61%	58%
354	NJ 38	I-295	US 206	19.21	No	Burlington	5:33:51	1:19:47	2:39:34	-4:14:04	-2:54:17	1:19:47	-76%	-52%	100%
369	NJ 70	NJ 73	US 206	20.40	No	Burlington	-	4:44:12	5:19:19	-	-	0:35:07	-	-	12%
372	NJ 73	NJ Tpk (Exit 4)	NJ 70	6.07	No	Burlington	63:01:45	11:41:26	18:53:56	-51:20:19	-44:07:49	7:12:30	-81%	-70%	62%
300	NJ Tpk	Exit 5 (Burlington - Mt. Holly)	Exit 6 (I-95)	10.60	Yes	Burlington	-	0:00:00	0:03:53	-	-	0:03:53	-	-	0%
301	NJ Tpk	Exit 6 (I-95)	Exit 7 (Bordentown - Trenton)	8.62	Yes	Burlington	-	0:00:00	0:00:22	-	-	0:00:22	-	-	0%
306	NJ Tpk	Exit 4 (Camden - Philadelphia)	Exit 5 (Burlington - Mt. Holly)	18.99	Yes	Burlington	1:51:49	2:08:51	2:10:35	0:17:02	0:18:46	0:01:44	15%	17%	1%
408	NJ Tpk	Exit 6 (I-95)	Exit 7 (Bordentown - Trenton) - Cars Only	8.61	Yes	Burlington	-	1:13:48	1:18:09	-	-	0:04:22	-	-	6%
333	US 130	I-295	I-95	9.19	No	Burlington	5:32:17	0:19:12	0:28:14	-5:13:05	-5:04:04	0:09:01	-94%	-92%	47%
334	US 130	NJ 73	CR 543 (Columbus Rd)	23.15	No	Burlington	-	5:00:59	7:36:30	-	-	2:35:30	-	-	52%
414	US 130	CR 543 (Columbus Rd)	I-95	6.48	No	Burlington	-	0:13:04	1:05:35	-	-	0:52:31	-	-	402%
415	US 206	NJ 70	NJ 38	11.56	No	Burlington	-	1:05:31	1:34:23	-	-	0:28:51	-	-	44%
416	US 206	NJ 38	NJ Tpk	22.05	No	Burlington	-	0:35:35	0:56:43	-	-	0:21:07	-	-	59%
417	US 206	NJ Tpk	US 130	2.42	No	Burlington	-	0:31:00	1:00:53	-	-	0:29:53	-	-	96%
309	I-295	NJ 70 (Exit 34)	NJ 38 (Exit 40)	11.83	Yes	Burlington, Camden	-	9:49:58	20:22:06	-	-	10:32:08	-	-	107%
371	NJ 73	US 130	NJ Tpk (Exit 4)	10.28	No	Burlington, Camden	24:34:09	10:36:03	12:22:10	-13:58:05	-12:11:59	1:46:07	-57%	-50%	17%
303	I-295	CR 656 (Florence Columbus Rd)	I-95	15.51	Yes	Burlington, Mercer	3:08:27	0:04:32	0:18:26	-3:03:56	-2:50:01	0:13:54	-98%	-90%	307%
379	NJ Tpk	Exit 7 (Bordentown - Trenton)	Exit 7A (Trenton - Hamilton Twp)	13.96	Yes	Burlington, Mercer	-	0:06:41	0:01:19	-	-	-0:05:21	-	-	-80%
409	NJ Tpk	Exit 7 (Bordentown - Trenton)	Exit 7A (Trenton - Hamilton Twp) - Cars Only	13.92	Yes	Burlington, Mercer	-	1:44:36	1:26:55	-	-	-0:17:41	-	-	-17%
332	US 130	I-195	I-295	13.22	No	Burlington, Mercer	3:52:03	0:49:52	1:32:02	-3:02:10	-2:20:01	0:42:09	-79%	-60%	85%
418	US 206	US 130	I-195	4.65	No	Burlington, Mercer	-	0:22:54	0:18:48	-	-	-0:04:06	-	-	-18%
391	CR 534 (Blackwood-Cementon Rd)	NJ 42	CR 686 (Gibbsboro Rd)	7.03	No	Camden	6:10:10	3:30:42	4:26:31	-2:39:28	-1:43:39	0:55:49	-43%	-28%	26%
421	CR 536 Spur	NJ 42	US 30	11.90	No	Camden	-	0:53:00	1:04:08	-	-	0:11:08	-	-	21%
386	CR 544	NJ 41	US 30	6.25	No	Camden	4:38:51	1:48:07	3:37:09	-2:50:44	-1:01:42	1:49:02	-61%	-22%	101%
388	CR 544	CR 673	NJ 73	5.95	No	Camden	4:36:48	1:06:39	1:42:31	-3:30:09	-2:54:17	0:35:52	-76%	-63%	54%
387	CR 544 (Evesham Rd)	US 30	CR 673	5.70	No	Camden	9:45:34	0:48:54	2:00:49	-8:56:40	-7:44:45	1:11:55	-92%	-79%	147%
396	CR 551 (Kings Hwy)	US 30	US 130	6.16	No	Camden	3:51:44	1:01:12	2:03:13	-2:50:31	-1:48:30	1:02:01	-74%	-47%	101%
382	CR 561	I-295	CR 689 (Berlin - Cross Keys Rd)	14.15	No	Camden	9:40:59	3:46:24	7:18:06	-5:54:35	-2:22:54	3:31:41	-61%	-25%	93%
383	CR 561	I-676	I-295	13.65	No	Camden	-	3:58:17	5:26:22	-	-	1:28:05	-	-	37%
384	CR 636	US 30	NJ 38	6.34	No	Camden	10:39:03	6:39:37	7:48:11	-3:59:26	-2:50:52	1:08:34	-37%	-27%	17%
380	CR 644	Route 90	NJ 70	7.93	No	Camden	9:11:08	4:40:53	7:36:39	-4:30:15	-1:34:29	2:55:46	-49%	-17%	63%
381	CR 644	NJ 70	CR 561	3.49	No	Camden	8:10:14	4:17:36	7:30:40	-3:52:38	-0:39:34	3:13:04	-47%	-8%	75%
389	CR 673 (Springdale Rd)	CR 561 (Haddonfield-Berlin Rd)	CR 616 (Church Rd)	10.45	No	Camden	8:44:00	2:01:32	4:02:26	-6:42:28	-4:41:34	2:00:54	-77%	-54%	99%
390	CR 673 (White Horse Rd)	CR 561 (Haddonfield-Berlin Rd)	CR 534 (Blackwood-Cementon Rd)	8.20	No	Camden	10:17:39	4:44:20	8:28:46	-5:33:19	-1:48:53	3:44:26	-54%	-18%	79%
392	CR 686 (Gibbsboro Rd)	CR 534 (Blackwood-Cementon Rd)	CR 561 (Lakeview Dr)	5.78	No	Camden	9:26:45	1:10:05	3:00:31	-8:16:40	-6:26:14	1:50:26	-88%	-68%	158%
308	I-295	NJ 42 (Exit 26)	NJ 70 (Exit 34)	16.38	Yes	Camden	55:26:58	45:17:44	50:58:46	-10:09:14	-4:28:12	5:41:02	-18%	-8%	13%
327	I-676	NJ-PA State Line	I-76	9.88	Yes	Camden	51:04:52	11:52:24	17:38:35	-39:12:28	-33:26:16	5:46:12	-77%	-65%	49%
328	I-76	NJ-PA State Line	I-295	6.87	Yes	Camden	64:46:53	61:10:53	66:54:11	-3:36:00	2:07:18	5:43:18	-6%	3%	9%
312	NJ 168 (Black Horse Pk)	I-295	NJ 42	7.97	No	Camden	17:06:42	10:42:04	12:11:05	-6:24:38	-4:55:37	1:29:01	-37%	-29%	14%
397	NJ 168/CR 605	I-295	CR 561 (Haddon Ave)	9.57	No	Camden	10:40:48	5:02:00	5:06:32	-5:38:49	-5:34:16	0:04:32	-53%	-52%	2%
395	NJ 41 (Kings Highway)/ CR 551	NJ 70	US 30	7.23	No	Camden	-	2:37:27	5:02:34	-	-	2:25:06	-	-	92%
367	NJ 70	NJ 38	I-295	10.35	No	Camden	25:04:07	15:41:10	23:47:17	-9:22:57	-1:16:50	8:06:07	-37%	-5%	52%
305	NJ Tpk	Exit 3 (Woodbury - South Camden)	Exit 4 (Camden - Philadelphia)	17.10	Yes	Camden	1:32:00	1:22:25	1:17:36	-0:09:35	-0:14:23	-0:04:48	-10%	-16%	-6%
314	Sicklerville Rd	AC Expressway	536 Spur	11.22	No	Camden	2:35:11	2:05:21	2:29:52	-0:29:51	-0:05:19	0:24:31	-19%	-3%	20%

Table 18
Continued

Map ID	Roadway	From Limit	To Limit	2021/ 2022 Miles	Limited Access	County	Peak Hour Volume Delay (5-6pm) 2017 hh:mm:ss	2021 hh:mm:ss	2022 hh:mm:ss	Absolute Change 2017 to 2021	2017 to 2022	2021 to 2022	Percent Change 2017 to 2021	2017 to 2022	2021 to 2022
335	US 130	NJ 73	US 30	10.17	No	Camden	14:24:07	1:45:24	4:23:15	-12:38:43	-10:00:52	2:37:51	-88%	-70%	150%
336	US 130	US 30	I-76	5.19	No	Camden	32:07:38	16:59:20	21:46:35	-15:08:19	-10:21:04	4:47:15	-47%	-32%	28%
322	US 30	I-676	US 130	4.40	Yes	Camden	7:30:23	2:25:23	4:56:30	-5:04:59	-2:33:53	2:31:06	-68%	-34%	104%
323	US 30	US 130	I-295	9.82	No	Camden	20:50:13	11:24:20	13:51:59	-9:25:53	-6:58:14	2:27:39	-45%	-33%	22%
324	US 30	I-295	NJ 73	20.05	No	Camden	8:45:36	6:44:10	7:56:38	-2:01:26	-0:48:58	1:12:28	-23%	-9%	18%
352	NJ 38	US 130	NJ 73	10.98	No	Camden, Burlington	23:49:39	12:29:43	15:56:43	-11:19:56	-7:52:56	3:27:00	-48%	-33%	28%
394	NJ 41	NJ 70	NJ 38	5.08	No	Camden, Burlington	16:43:25	4:24:32	6:29:20	-12:18:52	-10:14:05	2:04:48	-74%	-61%	47%
368	NJ 70	I-295	NJ 73	6.38	No	Camden, Burlington	24:16:40	16:41:14	24:48:41	-7:35:26	0:32:01	8:07:27	-31%	2%	49%
370	NJ 73	NJ-PA State Line	US 130	4.48	No	Camden, Burlington	6:57:16	5:00:05	8:36:33	-1:57:11	1:39:17	3:36:28	-28%	24%	72%
373	NJ 73	NJ 70	US 30	17.08	No	Camden, Burlington	15:38:29	8:32:57	10:25:09	-7:05:32	-5:13:20	1:52:12	-45%	-33%	22%
402	NJ 90	NJ-PA State Line	NJ 73	6.64	Yes	Camden, Burlington	0:29:47	0:00:00	0:00:00	-0:29:47	-0:29:47	0:00:00	-100%	-100%	0%
310	AC Expressway	Williamstown Rd (Exit 38)	Western Terminus (US 42)	12.60	Yes	Camden, Gloucester	0:52:26	0:18:46	0:10:27	-0:33:40	-0:41:59	-0:08:19	-64%	-80%	-44%
393	CR 689 (Berlin - Cross Keys Rd)	NJ 42	AC Expressway	14.36	No	Camden, Gloucester	8:02:06	4:38:13	5:15:19	-3:23:53	-2:46:47	0:37:07	-42%	-35%	13%
313	NJ 168	NJ 42	AC Expressway	6.48	No	Camden, Gloucester	4:55:24	1:38:21	1:47:46	-3:17:03	-3:07:38	0:09:25	-67%	-64%	10%
385	NJ 41	NJ 42	US 30	7.42	No	Camden, Gloucester	9:56:35	5:02:32	7:05:03	-4:54:03	-2:51:32	2:02:31	-49%	-29%	40%
311	NJ 42	AC Expressway	I-295	14.78	Yes	Camden, Gloucester	8:21:55	14:00:09	12:56:20	5:38:14	4:34:25	-1:03:49	67%	55%	-8%
337	US 130	I-76	I-295	6.74	No	Camden, Gloucester	8:55:29	2:47:18	3:18:53	-6:08:11	-5:36:37	0:31:34	-69%	-63%	19%
406	CR 534/CR 640	NJ 41	US 130	10.24	No	Gloucester	5:14:40	2:40:54	4:21:24	-2:33:46	-0:53:16	1:40:30	-49%	-17%	62%
426	CR 544	NJ 41	CR 534	3.67	No	Gloucester	-	5:07:56	7:09:28	-	-	2:01:33	-	-	39%
363	CR 551 (Kings Hwy)	CR 678 (Berkley Rd)	NJ 45	6.63	No	Gloucester	1:09:54	0:10:54	0:40:15	-0:59:00	-0:29:39	0:29:21	-84%	-42%	269%
364	CR 553 (Kings Hwy)	I-295	NJ 55	15.07	No	Gloucester	1:59:36	1:55:01	2:47:21	-0:04:35	0:47:45	0:52:20	-4%	40%	45%
365	CR 553 (Kings Hwy)	NJ 55	NJ 47	4.95	No	Gloucester	3:25:50	1:47:18	3:05:22	-1:38:32	-0:20:28	1:18:04	-48%	-10%	73%
422	CR 654	US 322	NJ 47	16.08	No	Gloucester	-	0:52:56	1:35:33	-	-	0:42:37	-	-	81%
429	CR 678	I-295	NJ 45	8.10	No	Gloucester	-	0:10:45	0:45:40	-	-	0:34:54	-	-	325%
423	CR 689 (Berlin - Cross Keys Rd)	NJ 42	US 322	9.69	No	Gloucester	-	0:40:35	1:21:01	-	-	0:40:26	-	-	100%
424	I-295	US 322	CR 602	6.08	Yes	Gloucester	-	0:00:00	0:00:00	-	-	0:00:00	-	-	0%
362	NJ 41	NJ 42	NJ 47	7.09	no	Gloucester	5:35:09	3:01:03	3:13:09	-2:34:06	-2:22:00	0:12:06	-46%	-42%	7%
366	NJ 42	AC Expressway	US 322	13.61	Yes	Gloucester	10:21:24	9:24:13	13:23:36	-0:57:11	3:02:12	3:59:23	-9%	29%	42%
360	NJ 45	US 130	Kings Hwy	6.13	No	Gloucester	9:30:58	4:33:25	6:58:17	-4:57:33	-2:32:41	2:24:53	-52%	-27%	53%
361	NJ 45	Kings Hwy	US 322	15.17	No	Gloucester	3:08:16	2:00:11	2:00:08	-1:08:05	-1:08:08	-0:00:03	-36%	-36%	0%
356	NJ 47	US 130	NJ 55	11.67	No	Gloucester	2:49:46	2:40:08	2:57:44	-0:09:38	0:07:58	0:17:36	-6%	5%	11%
357	NJ 47	NJ 55	US 322	12.89	No	Gloucester	6:30:19	3:33:58	4:06:29	-2:56:21	-2:23:50	0:32:31	-45%	-37%	15%
358	NJ 55	NJ 42	NJ 47	8.28	Yes	Gloucester	9:47:52	12:35:23	19:06:47	2:47:31	9:18:56	6:31:25	28%	95%	52%
359	NJ 55	NJ 47	US 322	12.10	Yes	Gloucester	0:36:08	0:08:17	0:12:36	-0:27:52	-0:23:33	0:04:19	-77%	-65%	52%
304	NJ Tpk	Exit 2 (Swedesboro-Glassboro)	Exit 3 (Woodbury - South Camden)	26.17	Yes	Gloucester	0:09:10	0:02:14	0:09:21	-0:06:57	0:00:10	0:07:07	-76%	2%	319%
425	US 130	I-295	CR 620	9.69	No	Gloucester	-	0:01:59	0:10:18	-	-	0:08:19	-	-	421%
338	US 130/I-295	I-295	US 322	23.85	Yes	Gloucester	0:38:38	0:03:07	0:04:12	-0:35:31	-0:34:26	0:01:05	-92%	-89%	35%
339	US 322	NJ-PA State Line	I-295	7.33	Yes	Gloucester	0:34:26	0:00:00	0:24:05	-0:34:26	-0:10:20	0:24:05	-100%	-30%	0%
340	US 322	I-295	NJ Tpk (Exit 2)	7.63	No	Gloucester	4:49:47	2:25:05	3:56:34	-2:24:43	-0:53:14	1:31:29	-50%	-18%	63%
341	US 322	NJ Tpk (Exit 2)	NJ 55	14.43	No	Gloucester	1:35:51	1:09:20	1:42:48	-0:26:32	0:06:57	0:33:29	-28%	7%	48%
342	US 322	NJ 55	CR 536/CR 654 (Main St)	18.04	No	Gloucester	3:24:40	1:29:29	2:38:25	-1:55:11	-0:46:14	1:08:56	-56%	-23%	77%
307	I-295	US 130	NJ 42 (Exit 26)	5.79	Yes	Gloucester, Camden	10:24:18	9:10:34	6:17:53	-1:13:44	-4:06:25	-2:52:41	-12%	-39%	-31%
428	US 322/CR 536	CR 536/CR 654 (Main St)	AC Expressway	3.75	No	Gloucester, Camden	-	5:27:38	8:18:02	-	-	2:50:24	-	-	52%
399	CR 533	US 206	US 1	16.29	No	Mercer	9:24:46	2:40:44	3:52:14	-6:44:02	-5:32:32	1:11:30	-72%	-59%	44%
375	CR 571	US 1	US 130	13.95	No	Mercer	3:53:18	2:15:29	2:29:40	-1:37:49	-1:23:39	0:14:10	-42%	-36%	10%
374	CR 571 (Washington Rd)	NJ 27	US 1	3.28	No	Mercer	7:15:51	1:25:07	3:44:41	-5:50:44	-3:31:09	2:19:34	-80%	-48%	164%
401	CR 583 (Princeton Pk)	I-295	NJ 27	10.23	No	Mercer	5:39:12	2:06:02	3:29:34	-3:33:11	-2:09:38	1:23:33	-63%	-38%	66%
407	CR 622 (Olden Ave)	I-295	NJ 31	9.75	No	Mercer	10:07:22	6:03:10	7:39:27	-4:04:12	-2:27:55	1:36:17	-40%	-24%	27%
400	CR 638	US 1	CR 571	8.43	No	Mercer	6:22:41	1:18:54	2:01:41	-5:03:47	-4:21:00	0:42:47	-79%	-68%	54%
326	I-195	I-295	I-95 (NJ Tpk)	12.23	Yes	Mercer	25:21:12	0:19:01	2:00:00	-25:02:10	-23:21:12	1:40:58	-99%	-92%	531%
329	I-295	I-195	US 1	15.18	Yes	Mercer	1:59:24	0:01:26	0:04:13	-1:57:58	-1:55:12	0:02:47	-99%	-96%	193%
376	I-295	US 1	NJ 31	9.43	Yes	Mercer	17:55:33	0:03:44	0:11:04	-17:51:50	-17:44:30	0:07:20	-100%	-99%	197%
377	I-295	NJ 31	NJ 29	8.40	Yes	Mercer	27:06:49	0:07:23	0:00:00	-26:59:26	-27:06:49	-0:07:23	-100%	-100%	-100%
398	NJ 129	NJ 29	US 1	3.96	No	Mercer	15:42:47	2:23:37	4:30:06	-13:19:11	-11:12:41	2:06:29	-85%	-71%	88%

Table 18
Continued

Map ID	Roadway	From Limit	To Limit	2021/ 2022 Miles	Limited Access	County	Peak Hour Volume Delay (5-6pm) 2017 hh:mm:ss	2021 hh:mm:ss	2022 hh:mm:ss	Absolute Change 2017 to 2021	2017 to 2022	2021 to 2022	Percent Change 2017 to 2021	2017 to 2022	2021 to 2022
413	NJ 133	NJ Tpk	CR 571	8.37	No	Mercer	-	0:03:00	0:05:56	-	-	0:02:56	-	-	98%
412	NJ 27	US 206	County Line	7.49	No	Mercer	-	3:22:36	4:48:23	-	-	1:25:47	-	-	42%
343	NJ 29	Cass St	CR 579 (Sullivan Way)	6.85	No	Mercer	13:42:22	1:23:12	3:40:17	-12:19:10	-10:02:05	2:17:05	-90%	-73%	165%
345	NJ 29	CR 579 (Sullivan Way)	I-295	6.22	Yes	Mercer	1:33:22	0:14:20	0:08:59	-1:19:02	-1:24:23	-0:05:21	-85%	-90%	-37%
378	NJ 29	Cass St	I-295	5.57	Yes	Mercer	5:05:48	0:10:13	1:43:09	-4:55:35	-3:22:39	1:32:57	-97%	-66%	910%
344	NJ 31	US 206	CR 622 (Olden Ave)	3.67	No	Mercer	2:14:27	0:51:20	1:10:20	-1:23:06	-1:04:07	0:19:00	-62%	-48%	37%
346	NJ 31	CR 622 (Olden Ave)	I-295	6.03	No	Mercer	2:04:05	0:48:28	1:14:38	-1:15:37	-0:49:26	0:26:11	-61%	-40%	54%
347	NJ 31	I-295	CR 623 (Pennington Titusville Rd)	5.71	No	Mercer	5:47:40	2:34:24	3:45:15	-3:13:16	-2:02:25	1:10:51	-56%	-35%	46%
348	NJ 31	CR 623 (Pennington Titusville Rd)	CR 518 (Lambertville Hopewell Rd)	9.14	No	Mercer	3:24:31	2:34:30	3:09:41	-0:50:02	-0:14:50	0:35:12	-24%	-7%	23%
349	NJ 33	US 1	CR 622 (Olden Ave)	2.37	No	Mercer	5:29:44	3:27:26	3:23:29	-2:02:17	-2:06:15	-0:03:57	-37%	-38%	-2%
350	NJ 33	CR 622 (Olden Ave)	I-295	4.04	No	Mercer	3:32:12	3:00:06	2:29:19	-0:32:06	-1:02:53	-0:30:48	-15%	-30%	-17%
351	NJ 33	I-295	US 130	9.24	No	Mercer	7:10:56	5:31:59	5:11:47	-1:38:57	-1:59:10	-0:20:13	-23%	-28%	-6%
302	NJ Tpk	Exit 7A (Trenton - Hamilton Twp)	Exit 8 (Hightstown - Freehold)	15.47	Yes	Mercer	-	0:00:00	0:47:27	-	-	0:47:27	-	-	0%
410	NJ Tpk	Exit 7A (Trenton - Hamilton Twp)	Exit 8 (Hightstown - Freehold) - Cars Only	15.59	Yes	Mercer	-	1:37:17	2:00:08	-	-	0:22:51	-	-	23%
315	US 1	NJ-PA State Line	CR 616 (Whitehead Rd)	7.17	Yes	Mercer	10:17:28	0:19:11	0:33:48	-9:58:16	-9:43:39	0:14:37	-97%	-95%	76%
316	US 1	CR 616 (Whitehead Rd)	I-295	5.78	Yes	Mercer	12:51:15	4:08:12	6:19:45	-8:43:03	-6:31:29	2:11:33	-68%	-51%	53%
317	US 1	I-295	Alexander Rd	8.44	No	Mercer	37:58:40	9:28:54	22:09:36	-28:29:46	-15:49:04	12:40:42	-75%	-42%	134%
318	US 1	Alexander Rd	CR 629	2.16	No	Mercer	46:58:36	11:45:32	21:30:03	-35:13:04	-25:28:33	9:44:31	-75%	-54%	83%
331	US 130	NJ 133	I-195	15.29	No	Mercer	8:01:13	2:16:48	4:05:57	-5:44:25	-3:55:16	1:49:09	-72%	-49%	80%
320	US 206	I-295	NJ 27	12.09	No	Mercer	3:21:56	2:02:40	2:53:55	-1:19:16	-0:28:01	0:51:15	-39%	-14%	42%
321	US 206	NJ 27	Princeton Ave/County Line	6.55	No	Mercer	7:16:32	2:20:53	3:16:16	-4:55:39	-4:00:16	0:55:22	-68%	-55%	39%
411	US 206	NJ 31	I-295	9.24	No	Mercer	-	1:20:21	1:56:58	-	-	0:36:37	-	-	46%
319	US 206	I-195	NJ 31	8.77	No	Mercer, Burlington	-	1:54:33	2:56:38	-	-	1:02:05	-	-	54%

Decrease in Delay
Increase in Delay

Note: Corridors with a dash in the 2017 peak hour volume delay or percent change columns cannot be compared to 2021 or 2022 due to either the corridor not existing in 2017, or the lengths being significantly modified since 2017, and not comparable to ones in 2021 or 2022

Source: DVRPC analysis of 2017, 2021, and 2022 INRIX data

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7. Conclusions

The CMP analysis combines a variety of traffic data sources to identify the most congested roadways in Greater Philadelphia. It uses this information along with other analyses to recommend multimodal strategies that improve the flow of people and goods, enhance safety, and expand travel options on the region's transportation network.

The CMPs Objective Measures tie to DVRPC Long-Range Plan goals and provide context to areas where congestion is occurring. The CMP Objective Measures include: increasing mobility and reliability, integrating modes and providing transit accessibility where it is most needed, modernizing and maintaining the transportation network, achieving Vision Zero, providing for goods movement, maintaining and enhancing the transportation security and emergency preparedness, and supporting Long-Range Plan goals, such as investing in centers first, prioritizing investments in less sensitive environmental areas, and investing in Environmental Justice communities.

The CMP analyzes 336 Focus Roadway Corridor Facilities, and contains a detailed analysis of 41 of the Most Congested Focus Roadway Corridor Facilities. The CMP analysis for the DVRPC region indicates that peak period traffic congestion is not as bad as it was pre-Covid, but it is approaching pre-Covid conditions. Comparing 2017 to 2022, 85 percent of 236 CMP facilities experienced less congestion in 2022, but comparing the same ones from 2021 to 2022, 86 percent experienced more congestion. Location matters when analyzing congestion. For example, some areas in 2022 experienced more congestion and traffic delay than in 2017 such as I-76 from US 30 (Girard Avenue) to US 1 (City Avenue) in Philadelphia and NJ 42 from the Atlantic City Expressway to I-295 in Camden County at 35 percent and 55 percent, respectively. Some roadways experienced significantly less congestion in 2022 compared to 2017, such as US 422 from Trooper Road to US 202 in Montgomery County and NJ 73 from the NJ Turnpike to NJ 70 in Burlington County at 71 percent and 70 percent, respectively.

The CMP analyzes most SEPTA and NJ Transit bus routes and 400 plus Focus Intersection and Limited-Access Roadway Bottlenecks. It uses the facilities, bottlenecks, and CMP Objective Measures to identify 37 broader CMP Corridor Areas that experience more congestion or unreliability.

The CMP identifies 125 strategies that can help to mitigate congestion—ranging from Transportation System Management and Operations (TSMO), to travel demand management, policy approaches, transit improvements, goods movement, and road improvements and new roads. The CMP uses CMP Objective Measures, data, analysis, and DVRPC and planning partners' corridor planning study findings to help align the right strategy recommendations to the right location. Some of the Most Congested Focus Roadway Facilities and Intersection Bottlenecks are analyzed in more detail with specific recommended Very Appropriate strategies for managing congestion for the facility or bottleneck. The remainder of the focus roadway corridors and bottlenecks include strategies to manage congestion by CMP Corridor and Subcorridor Area. Some 20 regionwide strategies have been identified, which are appropriate to be applied to any facility, whether it is located within or outside of a Congested Corridor Area.

The DVRPC CMP serves as an essential component to the overall transportation planning and programming process. It is useful for transportation project managers, policy makers, municipal and county officials, businesses, and citizens concerned about transportation solutions. Decision-makers can use it to inform choices for transportation improvements with a better understanding of congestion issues in the region. County and other agencies can use the CMP to help identify and prioritize congested locations for project planning and development to mitigate congestion, or to assist in developing strategies for managing congestion that minimize costs and be consistent with the CMP and Long-Range Plan goals. The CMP supports the Long-Range Plan and TIP to inform the process of identifying the most congested locations, and advancing the most appropriate strategies to mitigate congestion, it provides screening criteria for the *Plan and TIP Project Evaluation Criteria*, and competitive grant programs such as the Congestion Management Air Quality (CMAQ). Addressing congestion is an ongoing process and it is most effective with participation from everyone.

7.1 Next Steps

In order to ensure that the DVRPC CMP is flexible and evolving to meet current conditions, it is suggested that some next steps be implemented. They include:

1. Continue to hold meetings with stakeholders for major SOV capacity-adding projects to develop multimodal strategies — including transit, walking, and bicycling — to get the most long-term value from the investment. Develop Supplemental Project Status reports to identify supplemental strategy commitments, and improve sharing with stakeholders and the greater public, and track the progress of strategy implementation.

2. Build on the list of recently implemented roadway congestion mitigation projects, and use the archived travel time data to perform before-and-after performance evaluations using travel times and other congestion measures to determine the effectiveness of implemented improvements on mobility and reliability. Incorporate the RITIS PDA project assessment report templates as a starting point for the evaluations. Use recent or in development DVRPC tools (development intensity zones (DIZ), Plan and freight centers, regional high-injury network, truck route network, IPD analysis, DVRPC corridor studies, strategy effectiveness evaluation studies, roadway functional classification, and traffic volume data to better tie congestion mitigation with appropriate strategies at the facility and corridor area levels in a systematic manner.

3. Work with Planning Partners to identify project needs and/or strategies at the most congested locations. This could include making short- and long-term recommended improvements, and developing estimated costs as applicable.

4. Continue to collect subsequent yearly travel time data to provide complete year-to-year comparisons of congestion and reliability performance measures that enable the identification of trends. This should help to evaluate the effectiveness of implemented strategies targeted to improve congestion, influence future strategies and investment decisions, and inform PM3 target setting.

5. Better understand the causes of congestion by Focus Roadway Corridor Facility and Intersection Bottleneck to help evaluate performance and determine the effectiveness of strategies to manage congestion. Incorporate INRIX Trips, StreetLight, or other similar data sources to determine trip origin and destination patterns, and where long and short trips are occurring. Utilize the CATT Lab PDA Suite and other systems to determine the location, type, and intensity of nonrecurring congestion, such as traffic incidents, work zones, weather-related, and special events, and their impacts on congestion in the region.

6. Develop improvements to the GIS web mapping to better visualize delays and rankings by Focus Roadway Corridor Facility, Transit Route Facility, Focus Intersection Bottleneck, and Limited

Access Roadway Bottleneck, and other CMP Objective Measures. Also, develop a spatial tool to identify for a specific strategy the Corridor and Subcorridor Areas it belongs to.

7. Integrate truck vehicle delay and volume delay into the Focus Roadway Corridor Facility and Bottleneck analysis. Limited truck volume counts on roadways, especially in the New Jersey portion of the DVRPC region, made this analysis more difficult. Work with NJDOT and the New Jersey counties within the DVRPC region to collect more classification counts to determine truck volumes.

7.2 Advisory Committee

The CMP Advisory Committee reviews congestion data, sets corridor area priorities and where SOV-capacity adding and other strategies are most appropriate, helps to identify supplemental strategies, and determines project consistency with CMP policies.

The CMP Advisory Committee was critical in developing the CMP update. The committee met five times (one hybrid and four all remote meetings) and exchanged emails to reach consensus on the 2023 update. The CMP Advisory Committee will continue to meet to address ongoing matters, but more frequently during update periods. Participating organizations are listed below.

- DVRPC Member Governments;
- PennDOT and NJDOT;
- Transit Agencies;
- Federal Partners;
- Transportation Management Associations;
- Other DVRPC Committees, including the Transportation Operations Task Force and Goods Movement Task Force;
- Other MPOs; and
- Other participants as invited or who asked to join.

Title: 2023 Congestion Management Process

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Geographic Area Covered:

The nine-county Philadelphia metropolitan area, which includes the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey

Key Words:

Congestion Management Process (CMP), Traffic, Multimodal, Goods Movement, Transportation, Corridors, Strategies, Single-Occupant Vehicle (SOV), Capacity, Long-Range Plan, Transportation Improvement Program (TIP), Regional Transportation Planning, Criteria, Operations.

Abstract:

A Congestion Management Process (CMP) is a systematic process for managing congestion. It identifies specific multimodal strategies for all locations in the region to minimize congestion and enhance the ability of people and goods to reach their destinations. The CMP advances the goals of the Delaware Valley Regional Planning Commission Long-Range Plan and strengthens the connection between the Plan and the Transportation Improvement Program. The 2023 DVRPC CMP is an update of the 2019 CMP.

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

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

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