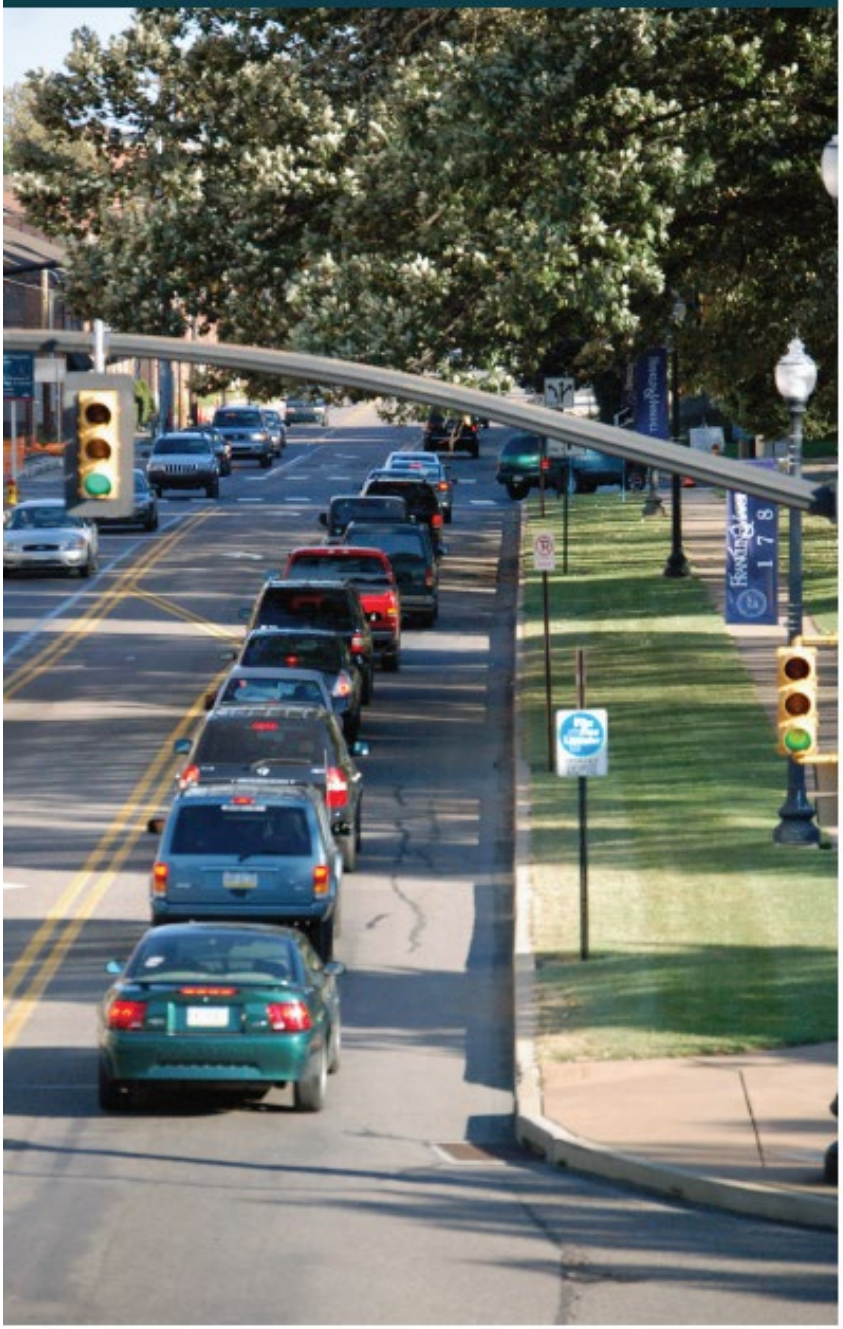
Congestion Management Process 2019

cmp 2019



Lancaster County MPO

Lancaster County Metropolitan Planning Organization
Lancaster County, Pennsylvania
JANUARY 2020

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Glossary of Key Terms

Term	Definition
Traffic Congestion	Congestion usually relates to an excess of vehicles on a portion of roadway at a particular time resulting in speeds that are slower than normal.
CMP	The Congestion Management Process (CMP) is a means to evaluate and monitor traffic congestion within the region.
MTP	The Lancaster County's Metropolitan Transportation Plan (MTP) provides a regional transportation vision and addresses strategies and projects to improve mobility and access. The CMP provides important information for the MTP related to congestion needs and strategy identification/prioritization.
Performance Measures	Measures are used to evaluate and monitor the degree to which the transportation system accomplishes adopted public objectives. They can be applied at all stages of transportation decision-making.
TTI and PTI	Travel Time Index (TTI) and Planning Time Index (PTI) are two measures used within the CMP to evaluate traffic congestion. They measure congested travel times against free-flow travel times (e.g. those typically experienced during hours with no traffic congestion).
Federal Performance Measures	The Federal Highway Administration (FHWA) has established a set of performance measures for State Departments of Transportation (State DOTs) and MPOs to monitor and track over time.
CMP Network	The CMP network provides the key roadway corridors for which the MPO tracks and monitors more detailed traffic congestion measures.
Congestion Causes	Understanding traffic congestion causes is an important factor in determining appropriate and effective mitigation strategies. Causes can include high traffic volume, incidents, work zones, and weather.
Strategy Toolbox	A strategy toolbox is a range of strategies for consideration by policy makers and planners in the region. These strategies are grouped into demand management (e.g. reduce amount of travel) and operational management (e.g. improve traffic flow) categories.
TIP	The Lancaster County Transportation Improvement Program (TIP), also known as a short-range plan, lists all transportation projects that seek federal transportation funding within a four-year horizon. The TIP includes projects aimed at reducing traffic congestion and improving safety.
Corridor Visioning	The CMP recommends a corridor visioning process where stakeholder discussions are used to identify appropriate multi-modal strategies that fit the future vision and goals for the corridor.
SOV Capacity Projects	The CMP is also used to evaluate the need for projects that focus on increasing capacity for Single Occupant Vehicles (SOV) like roadway widening (e.g. new lanes) or new road construction. Other project types like transit, bike/pedestrian, or low-cost operational strategies should first be considered.

1. Introduction

A Congestion Management Process (CMP) provides the Lancaster Metropolitan Planning Organization (MPO) a means to evaluate and monitor traffic congestion within the region. It provides information to assist in the identification and prioritization of congestion reducing strategies.

A CMP is required in metropolitan areas with population exceeding 200,000, known as Transportation Management Areas (TMAs). Federal requirements state that in all TMAs, the CMP shall be developed and implemented as an integrated part of the metropolitan transportation planning process; however, Federal regulations are not prescriptive regarding the methods and approaches that must be used to implement a CMP.

In Lancaster County, the MPO has aimed to update the CMP every two years to coordinate with the Metropolitan Transportation Plan (MTP), Transportation Improvement Program (TIP) and Regional Operations Plan (ROP) updates. The MPO is always looking to make the CMP more accurate and easier to understand. Updates to the CMP continue to draw from the Federal Highway Administration (FHWA) CMP Guidebook[1], national best practices, and new and innovative data sources as they become more readily available. This document provides a technical summary of the 2019 CMP update. It is supported by a public "Story Map" website[2], GIS mapping files, electronic databases and other coordination and outreach with key partners and stakeholders within the region.

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[1] https://www.fhwa.dot.gov/planning/congestion_management_process/cmp_guidebook/cmpguidebk.pdf
[2] Project Story Map: https://storymaps.arcgis.com/stories/6831762ed08a4410ba7eeae8912d35be

2. Understanding Traffic Congestion

In Lancaster County, just about everyone has experienced some form of traffic congestion. Congestion usually relates to an excess of vehicles on a portion of roadway at a particular time resulting in speeds that are slower than normal. At times this may result in stop-and-go traffic. Acceptable levels of traffic congestion can vary by the type of transportation facility, by location within the region, and by time of day. For instance, commuters typically expect and are generally willing to accept a certain amount of traffic congestion during morning and evening "rush hours." However, they may not be willing to accept that same level of performance in the middle of the day. The CMP aims to identify performance measures that can help further understand the congestion components highlighted in **Exhibit 1**.

Exhibit 1: Components of Congestion

- **Duration** – The length of time during which congestion affects the travel system.
- **Extent** – The number of people or vehicles affected by congestion and by the geographic distribution of congestion.
- **Intensity** – The severity of congestion that affects travel is a measure from an individual traveler's perspective. In concept, it is measured as the difference between the desired condition and the conditions being analyzed.
- **Variation** – This key component describes the change in the other three elements. Recurring delay (the regular, daily delay that occurs due to high traffic volumes) is relatively stable. Delay that occurs due to incidents is more difficult to predict.

2.1 Types and Causes of Congestion

The identification and prioritization of strategies to reduce traffic congestion requires an understanding of the locations, extent, and causes of congestion. There are two basic types of congestion: recurring and non-recurring. Recurring congestion takes place virtually every day when and where traffic demand exceeds the existing roadway capacity. This is sometimes called peak period or "drive time" congestion. Non-recurring congestion is caused by irregular events such as crashes, roadway hazards, highway construction, adverse weather, and special events. Both need to be addressed in different ways to effectively deal with the full spectrum of congestion. **Exhibit 2** provides examples of causes of both recurring and non-recurring congestion.

Exhibit 2: Types and Causes of Congestion

Causes of Recurring Congestion	*Causes of Non-Recurring Congestion*
Inadequate roadway capacity	Crashes (and associated delays)
Roadway bottlenecks	Construction activities (work zones)
Intersections	Special events
Railroad crossings	Emergency management and incidents
Roadway tunnels	Weather

Local Examples of Recurring Congestion – A significant example of recurring congestion in Lancaster County includes US 30 from East Towne Mall to the outlets. Centerville Road in East Hempfield Township also provides a good example.

Local Examples of Non-recurring Congestion – This type of congestion can be caused by special events such as Fourth of July in Lititz Springs Park, Sertoma Chicken Barbecue and the Art & Craft Festival at Longs Park, or the Make-A-Wish Truck Convoy.

3. The Congestion Management Process

A Congestion Management Process (CMP) is a systematic process for managing traffic congestion that provides up-to-date information on transportation system performance. A CMP is required in metropolitan areas with population exceeding 200,000, known as Transportation Management Areas (TMAs). Although a CMP is required in every TMA, federal regulations are not prescriptive regarding the methods and approaches that must be used to implement a CMP. This flexibility has been provided in recognition that different metropolitan areas may face different conditions regarding traffic congestion and may have different visions of how to deal with congestion.

The Lancaster County Planning Commission (LCPC) leads the development of the CMP and coordinates with stakeholders and the public. The CMP reflects a continuous process that interacts with the county's planning products and processes, such as the Metropolitan Transportation Plan (MTP) as well as various interests that hold a stake in the performance of Lancaster County's transportation system.

The CMP provides regional and corridor level performance measures for the purpose of measuring current congestion levels and evaluating the effectiveness of various strategies used in congestion mitigation. In Lancaster County, the CMP has become an important tool for identifying and monitoring congestion problems and for prioritizing investments.

The CMP allows the Lancaster MPO to:

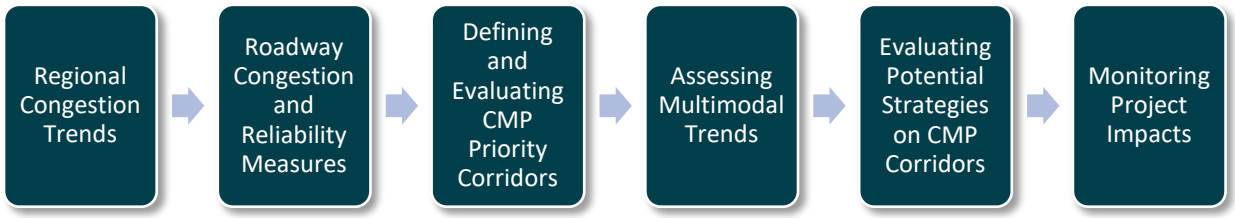
- Identify existing and future congested locations;
- Determine the causes of congestion;
- Develop alternative strategies to mitigate congestion;
- Evaluate the potential of different strategies;
- Propose alternative strategies that best address the causes and impacts of congestion;
- Track and evaluate the impact of completed projects; and
- Ensure congestion related projects are planned and programmed onto the TIP and MTP.

3.1 CMP Process Steps

This document is organized by the CMP process steps as illustrated in **Exhibit 3**. These steps focus on the development of traffic congestion performance measures that can be integrated into the project identification and prioritization processes for the TIP and MTP.

The 2019 CMP update contains several changes from previous versions. These include new travel time data sources, discussion on the federal performance measures, steps to further assess potential strategies, and procedures to monitor the impact of completed transportation projects.

Exhibit 3: Key Steps in the Lancaster CMP



3.2 CMP Coordination and Outreach

The CMP was developed in coordination with regional partners and organizations including those highlighted in **Exhibit 4**. Data obtained from the Pennsylvania Department of Transportation (PennDOT), Red Rose Transit, Amtrak, and Commuter Services of Pennsylvania serves as important components of the CMP evaluations. This CMP provides summaries of performance measures based on collected travel time and ridership numbers. However, qualitative comments from stakeholders and the public are also important in monitoring congestion needs and priorities. The information in this CMP has been shared with the public through a "Story Map" website[3] to initiate more discussion on traffic congestion issues and needs within the region. Some of these comments will be captured through surveys and meetings conducted for future updates of the MTP.

Exhibit 4: Coordination Partners in the Development of the CMP

Citizens	PennDOT	Lancaster County	Municipalities	MPO	Red Rose Transit
Commuter Services of South Central PA	Amtrak	Emergency Responders	Businesses	Freight Providers	Event Organizers

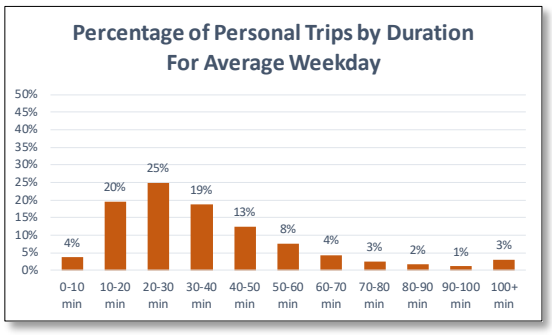
[3] Project Story Map: https://storymaps.arcgis.com/stories/6831762ed08a4410ba7eeae8912d35be

3.3 CMP Performance Measures and Data Sources

Developing performance measures is a critical element of the CMP. Performance measures assist the MPO staff in identifying problem areas and communicating this information to the public and decision-makers. At the regional level, performance measures can be used to monitor congestion trends and track progress toward the achievement of objectives. At the local level, performance measures are used to identify locations experiencing congestion problems. They also are used to support assessment and selection of congestion mitigation strategies and evaluation of implemented strategies.

Exhibit 5 summarizes the Lancaster County CMP performance measures and associated data sources. Over the last decade, the Lancaster CMP has aimed to include innovative data sources that provide travel time information from cellular and vehicle Global Positioning System (GPS) devices. These data sources now provide travel times for every hour and day on many of the primary roads within the County. Travel times during peak hours (e.g. AM and PM "rush hours") can be compared to off-peak times (e.g. nighttime hours) to evaluate index measures that provide insights into levels of traffic congestion.

The Lancaster MPO has obtained and processed 2018 INRIX travel time data to evaluate regional and corridor congestion levels. INRIX aggregates GPS probe data from a wide array of commercial vehicle fleets, connected cars, and mobile apps. PennDOT, as well as other Planning Partners, across the state are now beginning to rely on this data as a key source for the CMP and other planning products. The Lancaster MPO uses the Regional Integrated Transportation Information System (RITIS), a tool developed by the University of Maryland CATT Lab, to access and evaluate the INRIX travel time data. One limitation of the INRIX data source is the coverage of roadways. The data includes nearly all the primary roads but does not provide information for other minor collector and local roadways.



In addition to INRIX, the Lancaster MPO has purchased StreetLight vehicle origin-destination (O-D) data. This data makes use of cellular locational services (e.g. location data used in a wide variety of applications) to identify where vehicle trips start and end. The information has been used to assist in identifying corridors where multi-modal strategies may be more effective. For example, if a roadway segment has a large number of trips that travel a short distance, then bike, pedestrian, or transit strategies may be more applicable at that location.

Exhibit 5: CMP Performance Measures

Measure	*Description*	*Data Source*	*Role in CMP*
Travel Time Index (TTI)	Ratio of average travel time in the peak period to the travel time at free-flow conditions.	2018 INRIX "XD"	Identify locations of recurring congestion
Planning Time Index (PTI)	Ratio of the 95th percentile peak period travel time to the free flow travel time.	2018 INRIX "XD"	Identify locations with "unreliable" [4] congestion
Travel Delay (Hours)	Vehicle hours of travel above free-flow conditions	2011-2018 INRIX "TMC"	Assess regional trends within the county
Regional Bottlenecks	RITIS methodology to assess sources of congestion based on multiple factors including duration and extent	2018 INRIX "TMC"	Assess priority locations where congestion originates
Federal Reliability Measures	Ratio of peak period to free-flow travel times (calculated differently than TTI, PTI)	2018 NPMRDS[5]	Assess regional trends on National Highway System
Crashes	Numbers of Crashes and Fatalities	PennDOT (C-DART)	Used to evaluate source of non-recurring delay on segments
Traffic Volume	Total daily traffic volume on roadway	PennDOT 2018 RMS[6]	Measure of demand – utilized in delay calculations
Truck Volume	Total daily truck volume on roadway	PennDOT 2018 RMS	Measure of demand – utilized in delay calculations
Number of Signals	Total number of signals along CMP corridor	PennDOT TSAMS[7]	Evaluate potential for signal technology strategies
Percentage Trips < 5miles	Number of vehicle trips on roadway traveling < 5 miles	StreetLight O-D data	Evaluate potential for multi-modal strategies
Ridership	Total number of trips taken on RRTA and Amtrak.	RRTA and Amtrak	Assess trends and usage of transit and rail system in county
Carpooling	Total number participating in ride-sharing program.	County Commuter Services of PA	Assess trends and usage of carpooling/vanpooling in region

[4] Reliability is defined in ***Section 5*** of this report
[5] NPMRDS = "National Performance Management Research Data Set"
[6] RMS = "Roadway Management System"
[7] TSAMS = "PennDOT Traffic Signal Asset Management System"

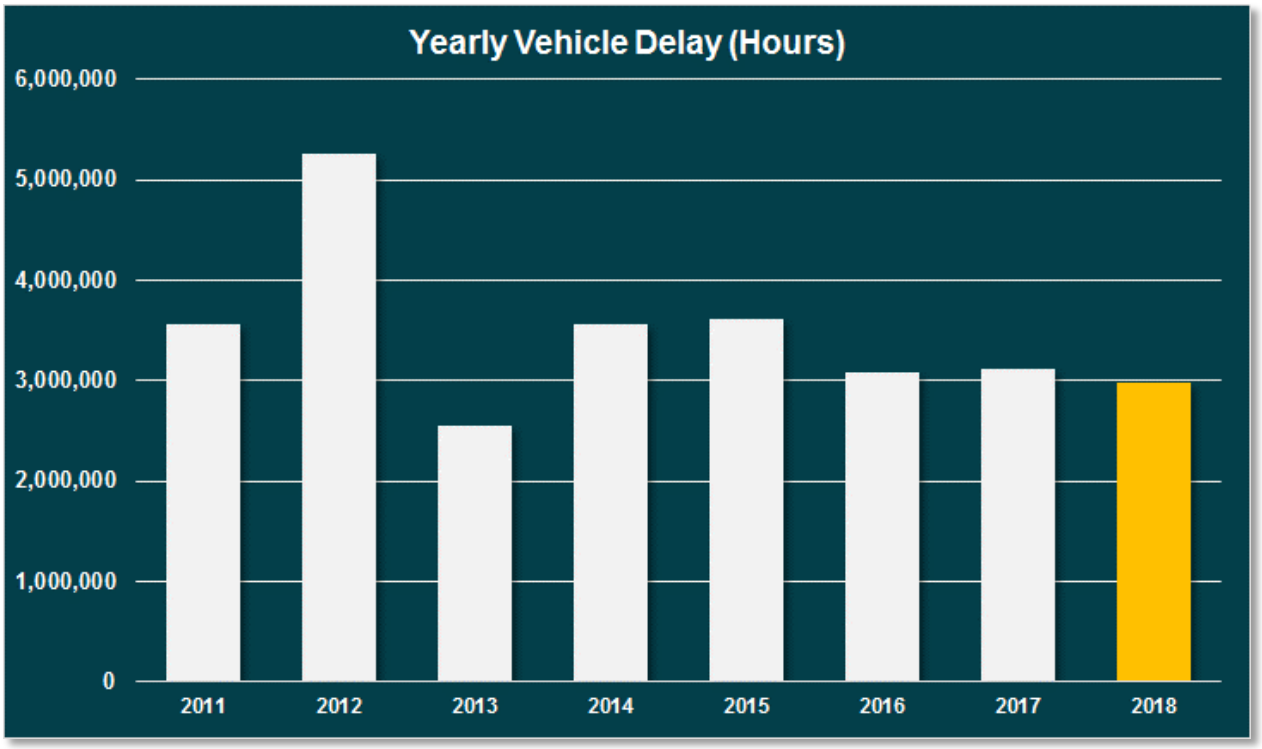
4. Regional Congestion Trends

Over the last decade, significant advances have been made in archiving and sharing vehicle and cellular phone GPS data to assess travel speeds across all hours of the day. Using data available from the Federal Highway Administration (FHWA) and PennDOT, the Lancaster MPO is able to assess regional congestion levels across different years.

One measure often used in regional assessments is traffic delay (in hours) which measures the time difference between actual travel time and free-flow time (e.g. the travel time typically encountered during the night hours). **Exhibit 6** highlights the trend in Lancaster County of the total vehicle delay from 2011-2018. Overall delay has been similar over the last five years. Note that the GPS travel time data is only available for the primary roadways in the region, therefore this graph does not reflect the trends on local or other minor roadways.

Other measures that aim to identify the reliability (i.e. consistency or dependability) of travel times will also be tracked at a regional level. The FHWA has established a set of performance measures to track overall progress in reducing or maintaining traffic congestion in support of PennDOT's statewide goals and targets. It is a required process that must be incorporated into the MPO's TIP and MTP.

Exhibit 6: Lancaster County Vehicle Delay Trends (2011-2018)



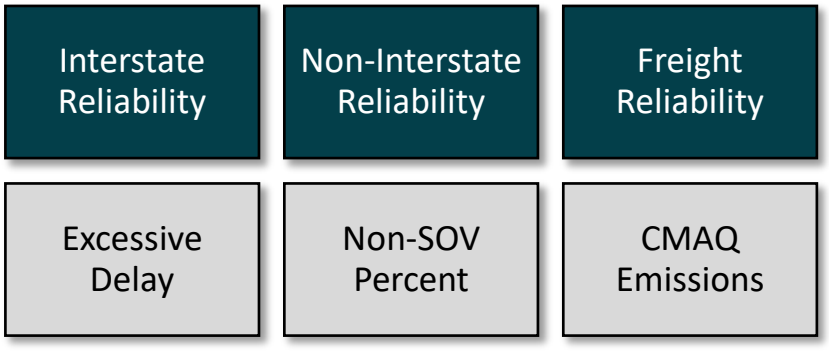
5. Federal Performance Measures

The Federal Highway Administration (FHWA) has established a set of performance measures for State Departments of Transportation (State DOTs) and MPOs to use as required by the Moving Ahead for Progress in the 21st Century Act (MAP–21) and the Fixing America's Surface Transportation (FAST) Act.

For more details on federal measure rulemaking, see:
https://www.fhwa.dot.gov/tpm/rule.cfm

Specific measures are required to assess the performance of the Interstate and non-Interstate National Highway System (NHS); freight movement on the Interstate System; and traffic congestion and on-road mobile source emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program as highlighted in **Exhibit 7**. These system performance measures are collectively referred to as the "PM-3 measures". They include measures of traffic reliability, excessive traffic delay, the number of persons not commuting in single-occupant vehicles (Non-SOV), and emission benefits of transportation projects funded through the CMAQ program. The delay, Non-SOV and CMAQ emissions measures are addressed within the *Lancaster County MPO's CMAQ Performance Plan*[8] and currently only apply to the MPO portion of the Philadelphia urbanized area.

Exhibit 7: PM-3 Federal Performance Measures



The concept of travel time reliability is an important component of the PM-3 measures. Reliability measures the consistency or dependability in travel times, as measured from day to day or across different times of day. For more information on traffic reliability measures, see FHWA's Travel Time Reliability brochure.[9]

[8] https://lancastercountyplanning.org/AgendaCenter/ViewFile/Agenda/_11262018-280 (See Item 8 Attachment)
[9] https://ops.fhwa.dot.gov/publications/tt_reliability/brochure/ttr_brochure.pdf

PennDOT and the Lancaster MPO are currently tracking yearly average values for the federal PM-3 reliability performance measures. These measures include:

- Reliability Percentage (for Interstates and Non-Interstates) - Based on percent of person-miles traveled on the Interstate system or non-Interstate system that are reliable (using a measure referred to as the Level of Travel Time Reliability or LOTTR). The higher the percentage, the better the reliability. For example, 100% means that travel times are very reliable for nearly all times of the year.
- Truck Travel Time Reliability Index - The higher the index, the worse the reliability. For example, a value of 1.30 means truck travel times can be 30% higher than average times.

At this time, only statewide targets have been established for the travel time reliability measures by PennDOT. The Lancaster MPO must only assess and monitor their regional reliability measures and work towards supporting PennDOT's statewide goals.

The RITIS website platform has been established to evaluate the MPO's performance related to the federal PM-3 reliability measures. As illustrated in **Exhibit 8**, the 2017 and 2018 performance measures by month and year indicate a relatively stable trend. Values have remained better than the overall statewide targets.

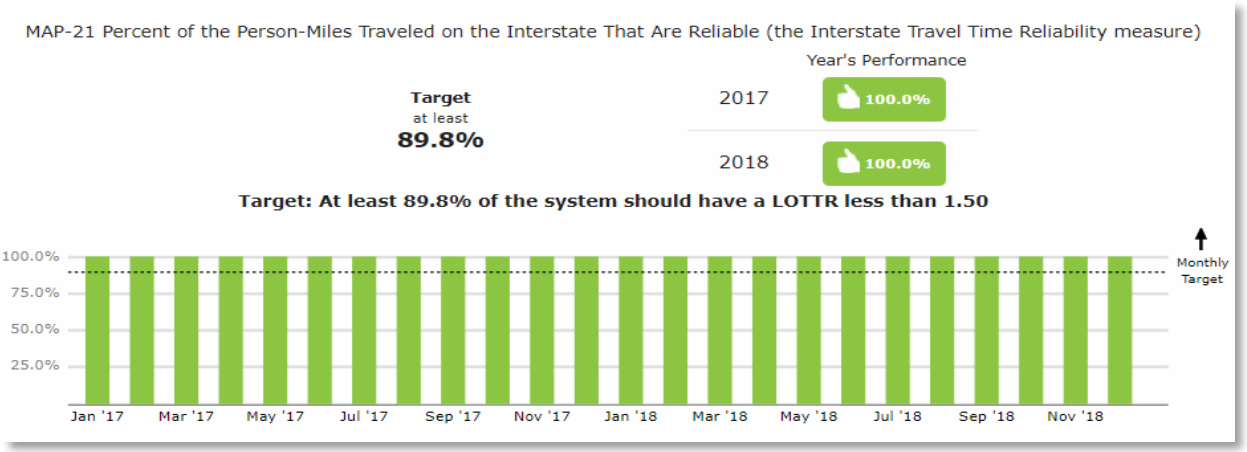
The federal performance measures only apply to the County's National Highway System (NHS) roadways. The Lancaster NHS roads include:

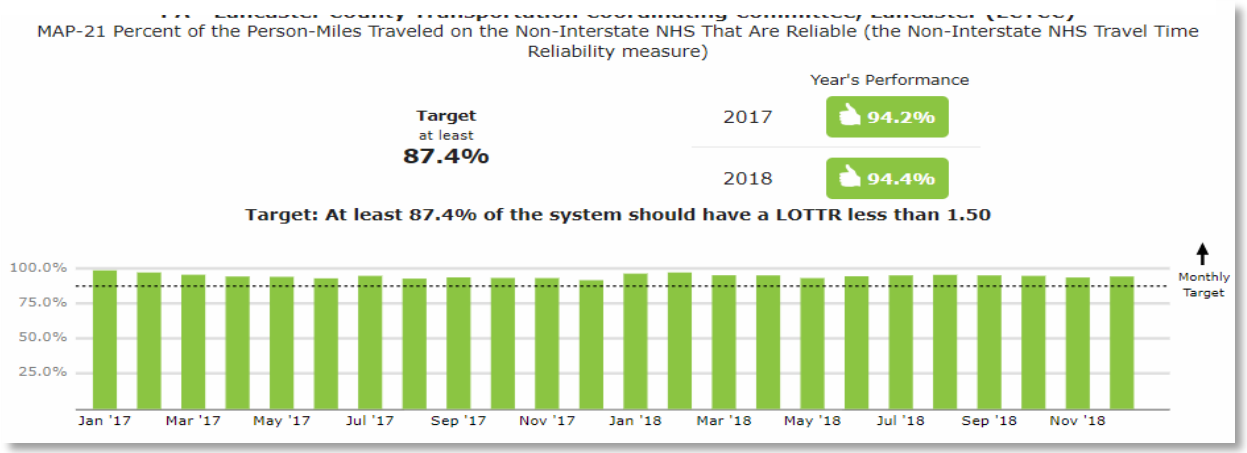
- Interstate: I-76 (Turnpike)
- Non-Interstate: US 30, US 222, US 322, PA 283, PA 72 and PA 41

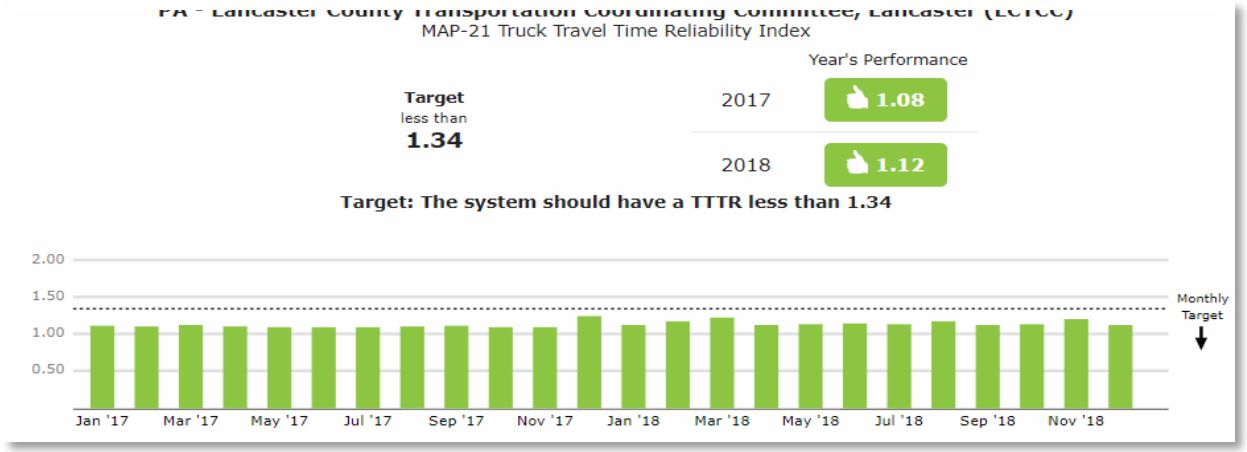
The federal measures provide a means to track overall progress in reducing or maintaining traffic congestion on NHS roads in support of PennDOT's statewide goals and targets. It is a required process that must be incorporated into the MPO's TIP and MTP. Traffic congestion occurs on many roads outside of the NHS system and the federal performance measures, alone, do not provide sufficient information to identify all regional issues and needs related to traffic congestion. As a result, the Lancaster County CMP incorporates more detailed traffic congestion assessments that can be integrated into the MTP and support project identification and prioritization.

Exhibit 8: Federal Reliability and Truck Travel Index Values for Lancaster County

(2017-2018 Federal Measure Reports – Source RITIS)







6. Assessing Roadway Congestion and Reliability

An evaluation of roadway congestion and reliability is a key component of the CMP. It focuses on the evaluation of all roadways where data is available and can be used to complement public and stakeholder insights collected during the TIP and MTP process. The regional assessment also serves as the basis for the development of focus corridors for further data evaluations. The Lancaster MPO has integrated multiple performance measures to assess roadway congestion as discussed in the following sections.

6.1 TTI and PTI

As part of the Lancaster CMP, a regional assessment of travel times was conducted using INRIX XD historic speed and travel time data for weekdays and weekends in 2018. The regional assessment utilized two common performance measures for evaluating traffic congestion; Travel Time Index (TTI) and Planning Time Index (PTI).

$$TTI = \frac{TT_{Mean}}{TT_{FreeFlow}} \qquad PTI = \frac{TT_{95\%}}{TT_{FreeFlow}}$$

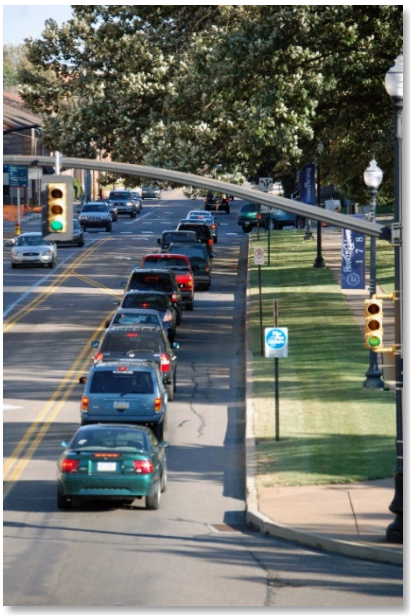
The TTI is the ratio of the measured average travel time during a specific time period to the travel time required to make that same trip at free-flow (e.g. typically at night time) speeds. For example, a TTI of 1.30 for the PM peak hour indicates a 20-minute free-flow trip requires, on average, about 26 minutes during the evening rush-hour (i.e. 30% higher travel time). Typically, TTI values over 1.25 indicate moderate levels of traffic congestion. Values over 1.50 indicate more severe levels of congestion, especially in smaller urban areas.

The PTI ratio compares the near-worst case travel time during a specific time period to the travel time required to make that same trip at free-flow speeds. PTI is computed as the 95th percentile travel time divided by the free-flow travel time and is often used to measure travel reliability. For example, a PTI of 1.60 for the PM peak hour indicates a 15-minute free-flow trip may require planning for 24 minutes during the peak period (i.e. 60% higher travel time) to ensure on-time arrival 95 percent of the time. PTI is useful because it can be directly compared to the TTI (a measure of average congestion) on similar numeric scales. Typically, PTI values between 1.5 and 2.5 indicate moderate levels of congestion (e.g. unreliable travel). PTI values over 2.5 indicate more severe reliability and congestion issues. Since PTI utilizes worst-case travel times, it is not only impacted by everyday congestion but also traffic incidents, work zones, weather, and other events.

Exhibits 8-9 illustrate the weekday and weekend PTI values within Lancaster County for the PM peak hour (e.g. 5:00-6:00pm). In addition, supporting web-based maps have been developed for MPO staff that

provide more detailed assessments of both TTI and PTI values for each time period.[10] Using the filter button on the left side ( ) of the map tools, one can select different time periods for analysis. Additional layers are available including 2015-2017 TomTom travel time data used for the previous CMP update.

6.2 Regional Bottlenecks



The RITIS tool provides additional performance measures beyond TTI and PTI to evaluate regional congestion. Bottlenecks are locations on roadways where conditions have fallen below a certain percent of the free-flow speed for an extended period of time. The characteristics of the bottlenecks (e.g. location, how long conditions last for) can be used to determine which locations are of most concern for the traveling public. The RITIS tool includes an algorithm to track and rank bottleneck locations for different metrics.

The foundation of tracking congestion and identifying bottlenecks is based on analyzing the INRIX travel times to identify groups of consecutive congested road segments. Road segments are considered congested if the reported speed falls below 60% of the free-flow speed. Upon identification, each occurrence is assigned a set of attributes derived from the source data, including head location (defined as the furthest downstream segment). This head location provides insights on the where the congestion originates.

For this CMP update, separate bottleneck rankings have been developed for the following RITIS metric categories:

- "*Total Duration*" – the total number of hours during the year that produced some levels of traffic congestion. Within the ranking tables, this metric is referred to as "**Duration of Congestion**" and identifies locations that experience traffic congestion most often.
- "*Congestion*" – represents the level of congestion experienced per vehicle. Within the ranking tables, this metric is referred to as "**Intensity of Congestion**"[11] and identifies locations where traffic congestion is at the highest levels in the county.

Exhibit 10 summarizes the top 25 source locations of congestion for the duration and intensity metrics discussed above. Note that the naming of some locations is assigned within the RITIS system and may require further modification to improve clarification. A map of these locations is provided in **Exhibit 11**.

[10] Weekday Map: http://s3.amazonaws.com/tmp-map/xd/lanco/lanco-xd-weekday-tom-tom-upd.html
Weekend Map: http://s3.amazonaws.com/tmp-map/xd/lanco/lanco-xd-wkend-tom-tom.html

[11] The concepts of duration and intensity are also introduced in **Section 2** of this report.

Exhibit 9: Assessment of Unreliable Roadway Segments (PTI) for the Weekday PM Peak Hour

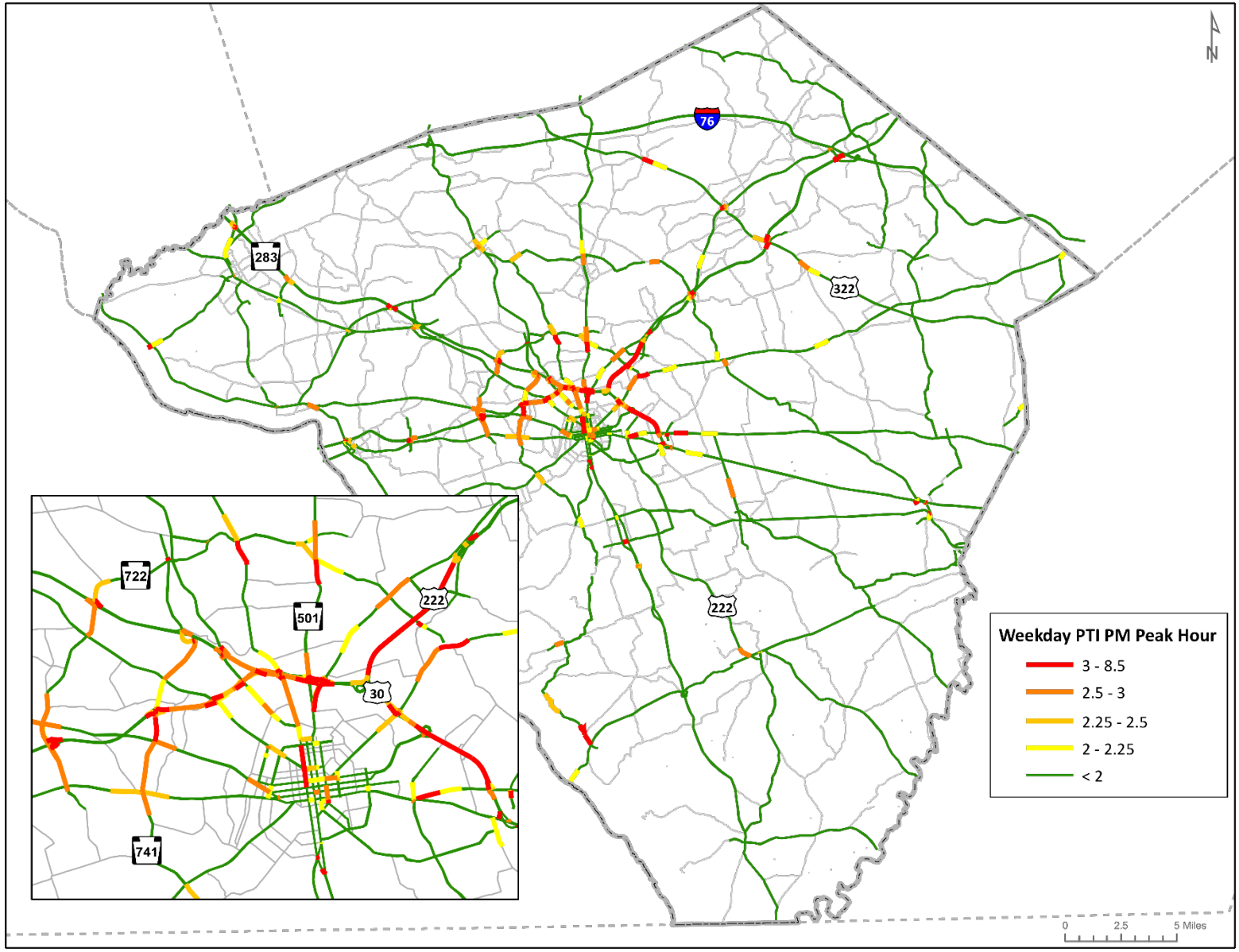


Exhibit 10: Assessment of Unreliable Roadway Segments (PTI) for the Highest Hour During <u>Weekend</u>

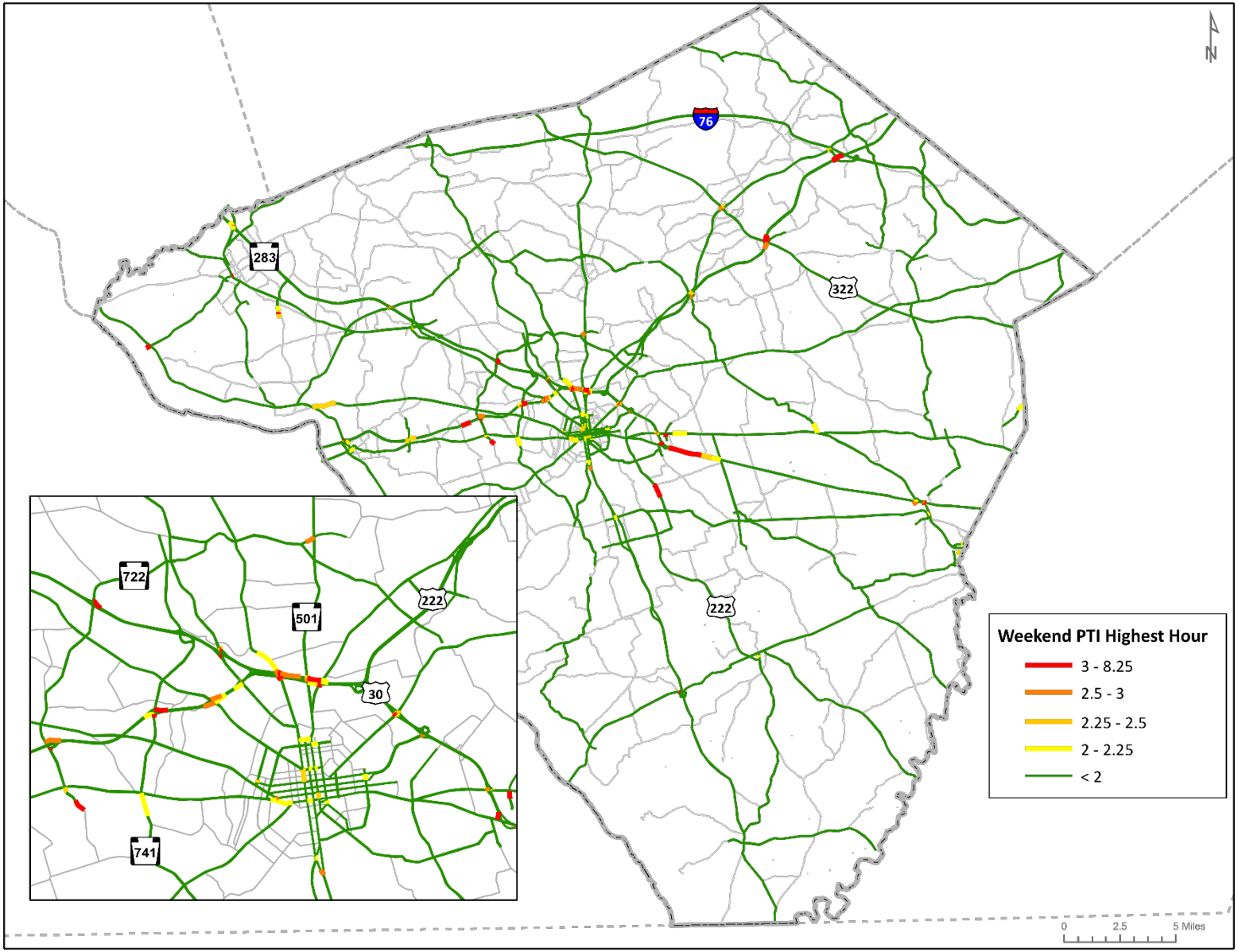
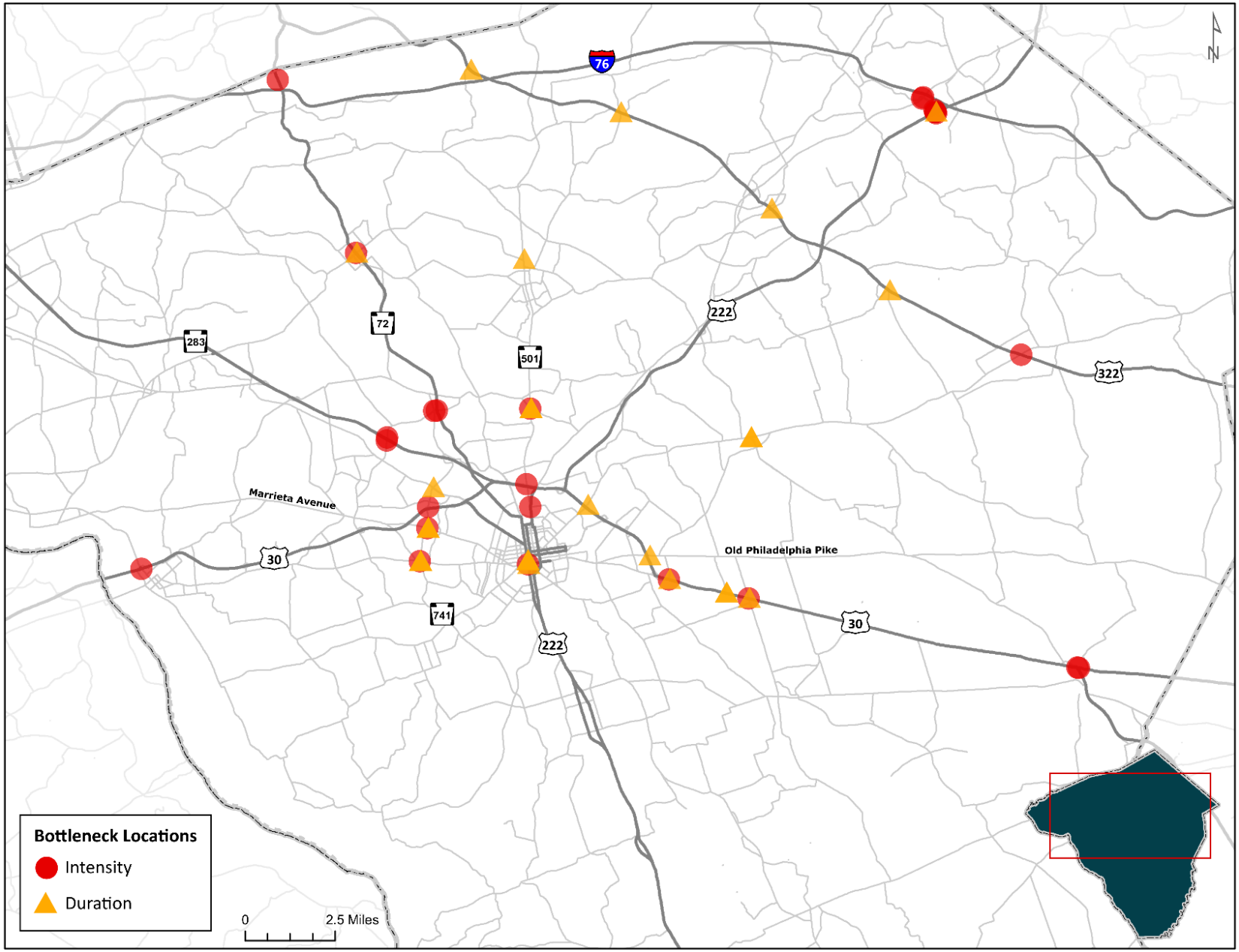


Exhibit 11: RITIS Bottleneck Rankings by Congestion Duration and Intensity

(Locations in Both Lists are Highlighted)

Congestion Duration		Congestion Intensity	
Rank	**Source Location**	**Rank**	**Source Location**
1	PA-41 N @ US-30 (LINCOLN HWY)	1	PA-741 S @ PA-23 (MARIETTA AVE)
2	READING INTERCHANGE CONNECTOR W @ US-222	2	US-30 E @ (WITMER RD/PLEASANT DR)
3	COLONEL HOWARD BLVD @ US-222	3	US-30 E @ PA-896
4	PA-501 S @ US-222 (OREGON PIKE)	4	US-30 W @ OAKVIEW RD
5	PA-741 S @ PA-23 (MARIETTA AVE)	5	US-322 W @ N CLAY RD
6	PA-722 E @ PA-72 (MAIN ST)	6	PA-741 N @ PA-23 (MARIETTA AVE)
7	PA-272 S @ COLONEL HOWARD BLVD	7	PA-340 W @ US-30 (LINCOLN HWY)
8	US-322 E @ PA-23 (MAIN ST)	8	PA-741 S @ PA-462 (COLUMBIA AVE)
9	PA-741 N @ PA-462 (COLUMBIA AVE)	9	PA-741 N @ PA-462 (COLUMBIA AVE)
10	PA-441 S @ US-30 (LINCOLN HWY)	10	PA-501 N @ PA-722 (VALLEY RD/PETERSBURG RD)
11	PA-501 N @ US-30	11	PRINCE ST (US-222) S @ PA-462 (ORANGE ST)
12	READING INTERCHANGE CONNECTOR E @ US-222	12	US-322 E @ N RAILROAD AVE
13	US-30 E @ OAKVIEW RD	13	PA-501 N @ LINCOLN AVE
14	PA-722 W @ PA-283	14	US-322 E @ SPEEDWELL FORGE RD
15	LEBANON-LANCASTER INTERCHANGE N @ PA-72	15	PA-741 S @ HARRISBURG PIKE
16	US-30 E @ PA-41 (NEWPORT AVE)	16	PA-23 W @ NEW HOLLAND PIKE
17	COLONEL HOWARD BLVD N @ PA-272 (N READING RD)	17	PA-501 S @ PA-722 (VALLEY RD/PETERSBURG RD)
18	US-222 S (PRINCE ST) @ PA-462 (KING ST)	18	US-222 S @ PA-462 (ORANGE ST)
19	PA-722 W @ PA-741 (LEMON ST)	19	PRINCE ST (US-222) S @ PA-462 (KING ST)
20	PA-72 N @ PA-772	20	PA-72 N @ PA-772
21	COLONEL HOWARD BLVD S @ US-222	21	PA-23 E @ PA-772 (NEWPORT RD)
22	US-30 E @ PA-896 (EASTBROOK/HARTMAN BRIDGE RD)	22	US-322 W @ STATE ST
23	PA-501 S @ PA-722 (VALLEY RD/PETERSBURG RD)	23	PA-772 W @ PA-23 (W MAIN ST)
24	PA-722 E @ PA-283	24	US-30 W @ PLEASANT DR/WITMER RD
25	PA-741 N @ US-30 (LINCOLN HWY)	25	READING INTERCHANGE CONNECTOR W @ US-222

Exhibit 12: RITIS Bottleneck Map for Top 25 Locations by Duration and Intensity



6.3 High Volume Intersections

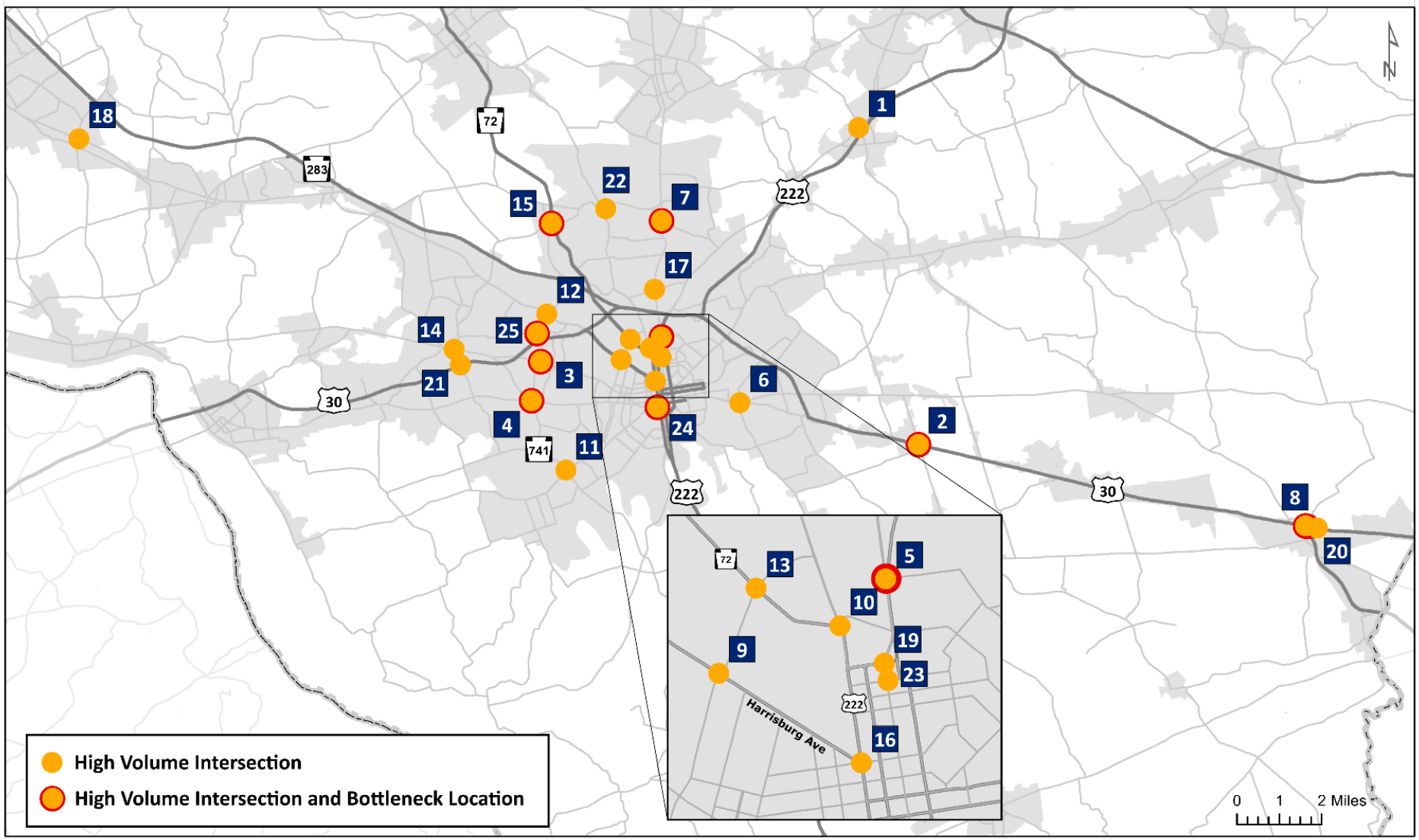
The identification of high volume intersections can be used to complement the congestion data presented above and provide insights on priority locations for intersection or traffic signal improvements. PennDOT daily traffic volumes by intersection approach were aggregated and used to rank signalized intersections within the county as listed and mapped in **Exhibit 13 and 14**, respectively.

Exhibit 13: High Volume Signalized Intersections
*(Ranking Corresponds to Map Label in **Exhibit 14**)*

Rank	Source Location
1	US-222 (OREGON PIKE) @ PA-772 (NEWPORT RD)
2	US-30 (LINCOLN HWY) @ EASTBROOK RD / HARTMAN BRIDGE RD
3	PA-741 (ROHRERSTOWN RD) @ PA-23 (MARIETTA PIKE)
4	PA-462 (COLUMBIA AVE) @ PA-741 (MILLERSVILLE RD)
5	PA-501 (LITITZ PIKE @ US-222 (OREGON PIKE)
6	PA-462 (LINCOLN HWY) @ LAMPETER RD / PITNEY RD
7	PA 501 (LITITZ PIKE) @ PA-722 (PETERSBURG RD / VALLEY RD)
8	US-30 (LINCOLN HWY) @ PA-41 (GAP NEWPORT PIKE)
9	HARRISBURG PIKE @ DILLERVILLE RD / PRESIDENT AVE
10	PA-72 (FRUITVILLE PIKE) @PA-72 (MANHEIM PIKE) / KELLER AVE
11	PA-741 (MILLERSVILLE RD) @ PA-99 (MANOR AVE)
12	PA-741 (MCGOVERNVILLE RD) @ HARRISBURG PIKE
13	PA-72 (MANHEIM PIKE) @ DILLERVILLE RD
14	PA-23 (MARIETTA PIKE) @ CENTERVILLE RD
15	PA-72 (MAIN ST) @ PA-722 (STATE STREET)
16	PA-272 (PRINCE ST) @ HARRISBURG PIKE / JAMES ST
17	LITITZ PIKE (PA-501) @ ROSEVILLE RD
18	PA-230 (MARKET ST) @ CLOVERLEAF RD / COLEBROOK RD
19	US-222 (DUKE ST) @ MCGOVERN AVE
20	US-30 @ WHITE HORSE RD
21	CENTERVILLE RD @ US-30
22	FRUITVILLE PIKE @ PA-722 (PETERSBURG RD)
23	US-222 (DUKE ST) @ LIBERTY ST
24	KING ST @ PRINCE ST
25	PA-741 @ US-30 (LINCOLN HWY)

Exhibit 14: High Volume Signalized Intersection Map

*(Map Labels Correspond to Ranking in **Exhibit 13**)*



7. Defining and Prioritizing CMP Corridors

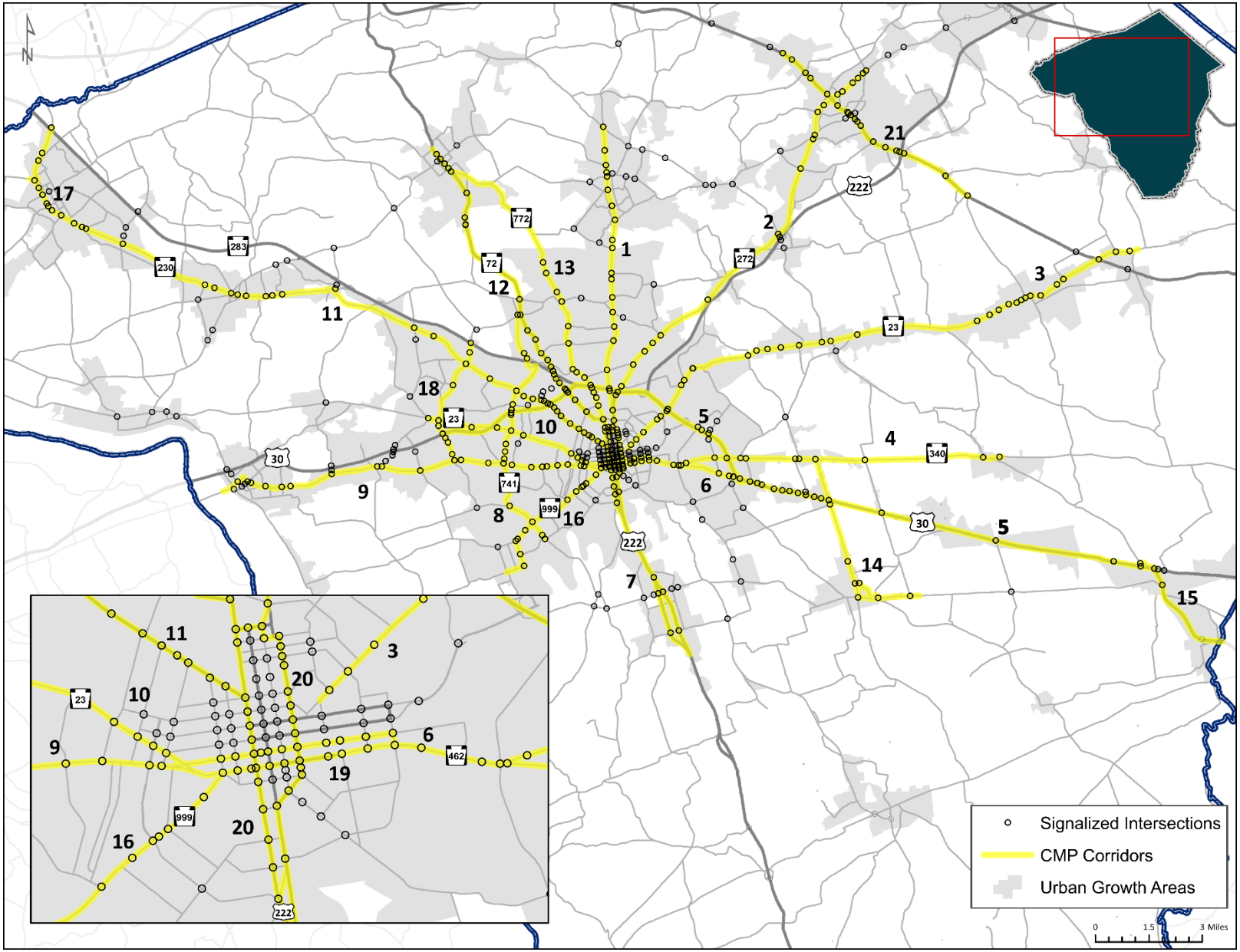
The Lancaster County Planning Commission identifies a number of networks to support its planning work. In addition to such networks as the National Highway System and functional classification, the MPO has developed a CMP Network comprised of 21 of the county's most critical congested corridors — a total of 166 linear miles of roadway utilizing the regional travel time measures discussed in the previous section. The CMP corridors have also been divided into segments to support more detailed performance measure assessments (there are 93 separate CMP corridor segments). The corridors are summarized below and illustrated in **Exhibit 15**.

CMP Corridors

1. **PA 501 - Lititz Pike**
2. **PA 272 - Oregon Pike**
3. **PA 23 - New Holland Pike/Avenue**
4. **PA 340 - Old Philadelphia Pike**
5. **US 30**
6. **King Street (PA 462 East)**
7. **US 222/PA 272 - Willow Street Pike**
8. **PA 741 - Rohrerstown Road**
9. **PA 462 - Columbia Avenue**
10. **PA 23 - Marietta Pike**
11. **Harrisburg Pike (SR 4020)**
12. **Manheim Pike (PA 72)**
13. **Fruitville Pike (PA 772/ SR 4011)**
14. **PA 896/PA 741**
15. **PA 41**
16. **PA 999 & SR 3029 - Millersville Pike, George/Frederick Streets**
17. **PA 230/PA 743**
18. **State Road/Centerville Road**
19. **PA 462 & SR 1002 - King and Orange Streets**
20. **US 222 - Prince, Queen, Church & Lime Streets**
21. **US 322**

The CMP network provides the key roadway corridors for which the MPO tracks and monitors more detailed traffic congestion measures. Additional information is collected for these corridors including traffic volumes, delays, travel times, crashes and information on the origins and destinations of those using the corridor. This information is used to understand the causes of the congestion and to help in identifying or prioritizing potential strategies.

Exhibit 15: Map of CMP Corridors



7.1 Data Collected For CMP Corridors

A variety of data is collected and aggregated for separate segments of each CMP corridor. The data encompasses the categories provided in **Exhibit 16**. In addition to the PennDOT roadway, traffic signal [12], traffic volume and crash data, the corridor assessments include a more detailed evaluation of the INRIX XD travel time data. StreetLight cellular origin-destination data has also been used to evaluate spot segments along each corridor to identify the distribution of travel distances. The information provides insights on the potential benefits of multi-modal strategies at those locations. The CMP also aims to provide connections to local land use and area characteristics that have been developed for Lancaster Places 2040.[13] A complete list of the data for each corridor is provided in **Appendix A**.

Exhibit 16: Data Collected for CMP Corridors

7.2 Assessment and Ranking of CMP Corridor Congestion

Performance measures have been developed for each CMP corridor sub-segment to assist in prioritizing areas of concern and identifying characteristics of the traffic congestion. There are currently 93 CMP Corridor segments that have travel time data.

The TTI and PTI measures discussed previously are two key measures used to assess the corridors. **Exhibit 17** provides a summary of the corridor congestion levels and rankings. A "Level" column provides a visual key to which corridors have the highest levels of congestion for each measure (e.g. dark circle equates to higher congestion). Rows highlighted in red indicate the top 10 congested corridor segments for either measure.

[12] Mapping of Traffic Signals & Adaptive Systems: http://tmp-map.s3.amazonaws.com/tsams/lancaster-traffic-signals.html
[13] https://www.places2040.com/the-plan-1

Exhibit 17: CMP Corridor Congestion Ranking
(Levels: High=● Medium=◑ Low=○) [14]

#	Corridor	Seg	Corridor Limits		Recurring Congestion (PM Peak)			Travel Time Reliability (PM Peak)			Differences in Reliability by Travel Direction		Reliabilitity for Other Time Periods	
			FROM	TO	TTI	Rank	Level	PTI	Rank	Level	Level of Diff	High Dir	Weekday AM	Weekend
1	PA 501 - Lititz Pike	A	US 222 - Oregon Pike	US 30	1.42	20	◑	2.70	17	◑	○		◑	◑
		B	US 30	PA 722 - Petersburg Rd	1.54	14	●	2.69	18	◑	○		◑	○
		C	PA 722 - Petersburg Rd	West 7th Street	1.34	31	◑	2.23	29	○	○		◑	◑
		D	Owl Hill Road	Wynfield Drive	1.47	19	◑	2.34	23	○	○		◑	◑
		E	Wynfield Drive	Newport Road	1.29	40	◑	2.13	37	○	○		○	○
2	PA 272 - Oregon Pike	A	PA 501	US 30	2.31	1	●	4.48	1	●	●	N-E	◑	◑
		B	US 30	West of Landis Valley Rd	1.28	41	◑	2.12	38	○	○		◑	○
		C	Valley Brook Drive	PA 722 - Newport Road	1.28	41	◑	2.45	20	○	●	S-W	○	○
		D	PA 722 - Newport Road	State St	1.19	64	○	1.76	63	○	○		◑	○
		E	State St	North of US 322	1.22	55	○	1.82	56	○	○		◑	○
		F	North of US 322	Schoeneck Rd (SR 1047)	1.21	57	○	1.72	67	○	○		○	○
3	PA 23 - New Holland Pike/Avenue.	A	Plum Street	US 30	1.25	47	○	1.96	50	○	○		◑	○
		B	US 30	East of Snake Hill Road	1.50	15	◑	2.86	13	◑	●	S-W	◑	○
		C	East of Snake Hill Road	Hellers Church Road	1.17	67	○	1.53	80	○	○		○	○
		D	Hellers Church Road	Hershey Avenue	1.19	64	○	1.80	58	○	○		◑	○
		E	Hershey Avenue	Shirk Road	1.06	90	○	1.24	91	○	○		○	○
		F	Shirk Road	Ranck Avenue	1.20	63	○	1.78	60	○	○		○	○
		G	Ranck Avenue	US 322	1.13	78	○	1.55	79	○	○		○	○
		H	US 322	East of Springville Rd	1.16	70	○	1.68	70	○	○		◑	○
4	PA 340 - Old Philadelphia Pike	A	PA 462 - Lincoln Hwy	US 30	1.66	10	●	3.94	3	●	●	S-W	◑	○
		B	US 30	Mill Creek Road	1.63	11	●	2.80	15	◑	◑	S-W	◑	◑
		C	PA 896 - Eastbrook Road	PA 772 - W Newport Rd	1.25	47	○	1.64	72	○	○		○	◑
		D	Clearview Road	East of Hollander Rd	1.24	51	○	1.78	60	○	○		○	○
5	US 30	A	Centerville Road	PA 741	1.21	57	○	1.73	65	○	○		○	○
		B	PA 741	PA 283	1.30	36	◑	2.71	16	◑	◑	S-W	○	○
		C	PA 283	US 222	1.42	20	◑	2.21	32	○	○		○	○
		D	US 222	PA 462 - Lincoln Hwy	1.59	12	●	3.42	5	●	●	S-W	○	○
		E	PA 462 - Lincoln Hwy	PA 896 - Eastbrook Rd	2.07	3	●	3.49	4	●	○		◑	●
		F	PA 896 - Eastbrook Rd	East of Belmont Rd	1.15	74	○	1.65	71	○	○		○	◑
		G	East of Belmont Road	PA 772 - Newport Road	1.10	84	○	1.59	76	○	○		○	○
		H	PA 772 - Newport Road	PA 41 - Newport Road	1.08	87	○	1.46	86	○	○		○	○

[14] For TTI: Low ≤ 1.25 | Medium = 1.26 – 1.50 | High ≥ 1.50 ; For PTI: Low ≤ 2.50 | Medium = 2.51 – 3.00 | High ≥ 3.00

Exhibit 17: CMP Corridor Congestion Ranking (continued)

#	Corridor	Seg	Corridor Limits		Recurring Congestion (PM Peak)			Travel Time Reliability (PM Peak)			Differences in Reliability by Travel Direction		Reliabilitity for Other Time Periods	
			FROM	TO	TTI	Rank	Level	PTI	Rank	Level	Level of Diff	High Dir	Weekday AM	Weekend
6	King Street (PA462 East)	A	Broad St	Pitney Road	1.25	47	○	2.02	47	○	○		○	○
		B	Pitney Road	US 30	1.27	43	◑	1.93	52	○	○		○	◑
7	US 222/PA 272 - Willow Street Pike	A	PA 324-New Danville Pk	PA 741 - Long Lane	1.09	86	○	1.41	88	○	○		○	○
		B	PA 741 - Long Lane	Boehms Road	1.16	70	○	1.77	62	○	●	N-E	◑	○
		C	Boehms Road	PA 741 - Long Lane	1.04	91	○	1.40	89	○	●	S-W	○	○
8	PA 741 - Rohrerstown Road	A	Wabank Road	PA 999 - Millersville Pike	1.73	9	●	2.99	12	◑	◑	N-E	◑	◑
		B	PA 999 - Millersville Pk	PA 462 - Columbia Ave	1.26	45	◑	2.08	44	○	○		◑	◑
		C	PA 462 - Columbia Ave	PA 23 - Marietta Pike	2.10	2	●	3.40	6	●	●	S-W	◑	◑
		D	PA 23 - Marietta Pike	US 30	1.82	7	●	4.08	2	●	●	S-W	●	●
		E	US 30	Harrisburg Pike	0.00	92	○	0.00	92	○	○		○	○
		F	Harrisburg Pike	Commercial Avenue	1.50	15	◑	3.02	11	●	◑	S-W	◑	○
		G	PA 283	PA 722 - State Street	0.00	92	○	0.00	92	○	○		○	○
9	PA 462/PA 441 - Columbia Avenue	A	Ruby St	PA 741-Rohrerstown Rd	1.41	22	◑	2.23	29	○	○		○	○
		B	PA 741-Rohrerstown Rd	Lincoln West Drive	1.39	23	◑	2.41	21	○	●	N-E	◑	○
		C	Hampden Rd	Church St	1.21	57	○	1.85	54	○	○		○	○
		D	Church St	East of Prospect Road	1.12	80	○	1.48	83	○	○		○	○
		E	Prospect Road	South 16th Street	1.15	74	○	1.57	78	○	○		○	○
		F	South 16th Street	Third Street	1.26	45	◑	1.94	51	○	○		○	○
		G	Third Street	Front Street	1.21	57	○	2.17	35	○	○		◑	◑
10	PA 23 - Marietta Pike	A	Orange Street	North President Avenue	1.87	6	●	3.39	8	●	●	S-W	◑	◑
		B	North President Ave	PA 741	1.16	70	○	1.99	48	○	○		○	○
		C	PA 741	Stony Battery Road	1.18	66	○	1.84	55	○	○		◑	○
11	Harrisburg Pike (SR 4020)	A	Prince Street (US 222)	Race Avenue	1.38	24	◑	2.29	26	○	○		◑	◑
		B	Race Avenue	US 30	1.27	43	◑	2.22	31	○	○		◑	◑
		C	US 30	PA 741	1.30	36	◑	2.10	42	○	○		◑	◑
		D	PA 741	Centerville Road	1.12	80	○	1.52	82	○	○		○	○
		E	Centerville Road	PA 230 - Main Street	1.11	82	○	1.44	87	○	○		○	○
12	Manheim Pike (PA72)	A	Fruitville Pike (SR 4011)	Loop Road/Service Road	1.36	27	◑	2.31	24	○	○		○	○
		B	Loop Road/Service Rd	PA 283	1.30	36	◑	2.07	45	○	○		○	◑
		C	PA 283	Graystone Road	1.33	33	◑	2.12	38	○	○		◑	○
		D	Graystone Road	Stiegel Street	1.11	82	○	1.47	85	○	○		○	○
		E	Stiegel Street	Colebrook St	1.89	5	●	3.33	10	●	●	N-E	◑	◑

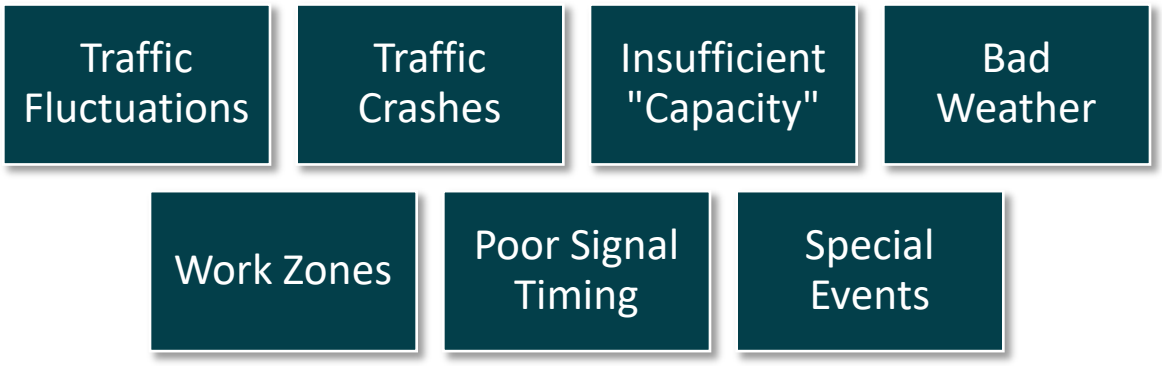
Exhibit 17: CMP Corridor Congestion Ranking (continued)

#	Corridor	Seg	Corridor Limits		Recurring Congestion (PM Peak)			Travel Time Reliability (PM Peak)			Differences in Reliability by Travel Direction		Reliabilitity for Other Time Periods	
			FROM	TO	TTI	Rank	Level	PTI	Rank	Level	Level of Diff	High Dir	Weekday AM	Weekend
13	Fruitville Pike (PA 772/SR4011)	A	McGovern Ave (US222)	PA 72/Keller Avenue	1.48	18	◑	2.41	21	○	○		◑	◑
		B	PA 72/Keller Avenue	Grand Street	1.80	8	●	3.34	9	●	●	N-E	◑	●
		C	Grand Street	PA 722	1.50	15	◑	2.69	18	◑	○		◑	○
		D	PA 722	South of Lititz Road	1.32	35	◑	2.21	32	○	○		◑	○
		E	South of Lititz Road	PA 72 - Manheim Pike	1.13	78	○	1.61	74	○	○		◑	○
14	PA 896/PA 741	A	PA 340 - Old Phil Pk	US 30	1.30	36	◑	2.30	25	○	○		◑	◑
		B	US 30	North of Historic Drive	1.24	51	○	2.25	28	○	○		◑	◑
		C	North of Historic Drive	PA 741 - Main Street	1.35	29	◑	2.12	38	○	○		◑	◑
		D	PA 741 - Main Street	East of Paradise Lane	1.21	57	○	1.73	65	○	○		◑	○
		E	Historic Dr (Decatur St)	Historic Dr (PA 741)	1.07	88	○	1.31	90	○	○		○	○
15	PA41	A	US 30	Newport Pike	1.10	84	○	1.53	80	○	○		○	◑
		B	Newport Pike	Zook Road (Chester Co.)	1.17	67	○	1.76	63	○	○		○	○
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	A	PA 462 - King Street	Michelle Drive	1.36	27	◑	1.98	49	○	○		○	○
		B	Edgehill Drive	PA 741	1.15	74	○	1.60	75	○	○		○	○
		C	PA 741	George St	1.25	47	○	1.80	58	○	○		○	○
		D	George St	Frederick St	*No Data Available*			*No Data Available*			*No Data Available*		*N/A*	*N/A*
		E	Frederick St	Duke St (SR 3032)										
17	PA 230/PA 743	A	Harrisburg Pike	Musser Road	1.22	55	○	1.71	68	○	○		○	○
		B	Musser Road	Stern Drive	1.07	88	○	1.48	83	○	○		○	○
		C	Stern Drive	PA 241 - High Street	1.33	33	◑	2.21	32	○	○		◑	○
		D	PA 241 - High Street	PA 283	1.35	29	◑	2.16	36	○	○		◑	◑
18	State Road/ Centerville Road	A	PA 462 - Columbia Ave	Hempland Road	1.97	4	●	3.40	6	●	●	N-E	◑	◑
		B	Old Tree Drive	PA 283	1.38	24	◑	2.11	41	○	○		◑	○
19	PA 462 & SR 1002 - King and Orange Streets	A	Ruby Street	PA 72 - Queen Street	1.16	70	○	1.63	73	○	●	N-E	◑	◑
		B	PA 72 - Queen Street	Broad Street	1.17	67	○	1.69	69	○	●	N-E	○	○
		C	Broad Street	PA 72 - Queen Street	1.21	57	○	1.87	53	○	●	S-W	◑	○
		D	PA 72 - Queen Street	Ruby Street	1.15	74	○	1.59	76	○	●	S-W	◑	○
20	US 222 - Prince, Queen, Church & Lime	A	New Danville Pike	Conestoga Street	1.24	51	○	2.09	43	○	○		◑	◑
		B	Conestoga Street	PA 501/PA 272	1.56	13	●	2.82	14	◑	◑	S-W	◑	◑
21	US 322	A	Sharpe Avenue	PA 272 - Reading Road	1.24	51	○	1.82	56	○	○		○	○
		B	PA 272 - Reading Road	US 222	1.38	24	◑	2.04	46	○	○		◑	◑
		C	US 222	Railroad Ave (SR 1011)	1.34	31	◑	2.27	27	○	○		◑	○

7.3 Evaluating CMP Corridor Congestion Causes

The data and performance measures collected for each CMP corridor can assist with not only identifying the locations of congestion but also contributing factors as to why that congestion occurs. Understanding congestion causes (as highlighted in **Exhibit 18**) is an important factor in determining appropriate and effective mitigation strategies. These causes are often grouped into the recurring (e.g. happens nearly every day) and non-recurring categories as discussed in **Section 2.1**.

Exhibit 18: Example Congestion Causes



The corridor performance measures and data assembled in **Appendix A** provide a basis for discussions on potential causes of corridor congestion. However, additional evaluations and stakeholder outreach are needed to more effectively analyze the causes and needs within each corridor. Future updates to the CMP will focus on improving the assessment of congestion causes. PennDOT is currently working to develop more robust methods to identify and evaluate congestion causes both at a regional and corridor level. These efforts blend information from INRIX travel time, WAZE user-reported information, PennDOT's Road Condition Reporting System (RCRS), work zone construction data, and weather information. Based on this information, the intent will be to produce a pie chart of congestion causes for different corridors in each region. At this time, these data assessments have not been formally released by PennDOT. Draft evaluations have indicated that nearly 60-70% of the total regional traffic congestion is attributable to traffic incidents, roadwork and weather. These numbers point to the potential benefits of incident management strategies, especially along the limited access facilities. Some corridors, including PA 741, PA 340 and PA 501, show high values of recurring congestion indicating key commuting routes with limited capacity. Operational, multi-modal, or other capacity improvement projects are needed to address these congestion causes.

At this time, existing corridor data including the items presented in **Exhibit 17** will be used to inform the strategy assessment process. The information will be integrated with other public and stakeholder comments collected during the MTP and other corridor strategy outreach efforts as discussed later in **Section 9.3** of this CMP report.

8. Monitoring Other Modes of Travel

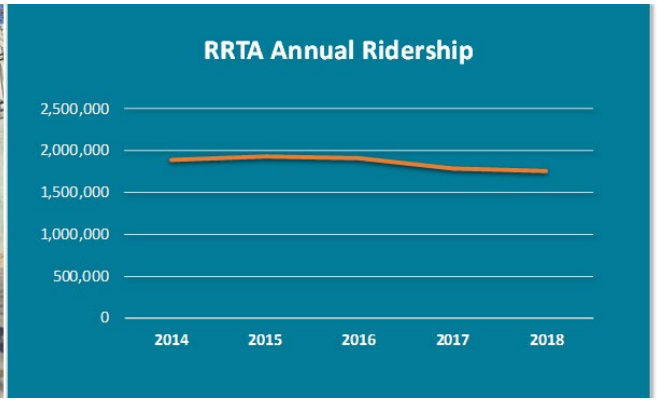
It is important to monitor and evaluate other modes of travel as they play an important role in reducing vehicle trips and traffic congestion. The Lancaster MPO continues to monitor recent ridership and participation trends for bus transit, passenger rail and regional carpooling programs. The evaluation of multi-modal strategies and projects are included in the MPO's process to develop the MTP.

8.1 Transit Ridership

Red Rose Transit Authority (RRTA) is Lancaster County's primary provider of public transportation services. RRTA operates scheduled fixed route bus service within the City of Lancaster and on county bus routes that connect the city to outlying communities[15]. RRTA also operates an on-demand transit service, known as Red Rose Access. RRTA operates a network of 19 fixed routes that operate from 5:00 a.m. to 11:00 p.m. on weekdays and provide limited weekend service. RRTA's major transfer center is Queen Street Station in the City of Lancaster within easy walking distance of many downtown businesses, shops and homes. Ridership trends are monitored within the CMP and other associated planning documents including the MTP.

Although RRTA bus service has seen nearly a 7% reduction in riders since 2014, it provides an important travel option for nearly 2 million riders a year. Service to such areas as Elizabethtown, Columbia, New Holland and the Gap have seen recent increases in ridership. **Exhibit 19 and 20** provide annual passenger trends on the Red Rose system.

Exhibit 19: RRTA Ridership Trends for System



[15] http://www.redrosetransit.com/red-rose-transit/schedules-fares/transit-route

Exhibit 20: RRTA Ridership Trends by Route

Annual Passengers					
Route #	Route Name	FY 2002-03	FY 2007-08	FY 2012-13	FY 2017-18
1	PCA/Southeast	189,915	188,022	170,841	149,187
2	PCB/6th Ward	181,241	202,100	149,975	126,750
3	PCC/8th Ward	232,120	230,783	179,404	151,634
4	Elm/Parkside	88,895	33,418	21,349	0
5	Grandview/Ross	55,749	56,503	47,967	30,545
6	Trolley	0	0	21,205	14,980
10	Lititz	72,484	78,348	83,959	74,784
11	Ephrata	64,075	68,317	69,651	55,899
12	New Holland	88,615	88,887	77,056	90,025
13	White Horse	47,242	53,147	52,387	40,393
14	Rockvale/Paradise	227,530	285,320	270,217	280,835
15	Willow Street	46,860	38,571	35,554	31,115
16	Millersville	167,748	212,953	238,925	200,893
17	Columbia	206,498	232,958	253,577	254,666
18	Elizabethtown	49,295	57,437	49,519	57,885
19	Manheim	73,611	100,610	93,207	93,682
20	Greenfield	59,483	77,148	71,322	58,781
21	Gap	0	0	0	44,932
	Total	1,851,361	2,004,522	1,886,115	1,756,986
Red Rose Access		341,089	339,793	311,467	279,179

8.2 AMTRAK Ridership

Amtrak provides Lancaster County with passenger rail service through its Keystone Corridor, one of the nation's federally-designated high-speed rail corridors, which connects Lancaster County to Harrisburg and Pittsburgh to the west, and Philadelphia and the Northeast Corridor to the east. Significant investments have been made in the rail corridor in recent years to improve the quality and speed of the service between Philadelphia and Harrisburg, propelling Lancaster Station to surpass Harrisburg as the second busiest station.

There are over 700,000 annual AMTRAK riders at stations in Lancaster City, Elizabethtown and Mount Joy. Overall AMTRAK ridership has seen increases since 2014. Ridership at the Lancaster Station spiked after improvements were made to the station. The soon to be opened Mount Joy Station has the potential to yield similar increase in ridership there. **Exhibit 21 and 22** provide annual ridership trends for the Amtrak passengers in Lancaster County.

Exhibit 21: Amtrak Ridership Trends for System

Exhibit 22: Amtrak Ridership Trends by Station

Lancaster County Station Ons and Offs by Federal Fiscal Year							
Station	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	5 Year Total	% by Station
LNC	529,409	541,252	560,257	556,836	562,784	2,750,538	78%
MJY	46,391	50,644	50,751	46,101	45,583	239,470	7%
ELT	108,722	109,834	106,151	101,246	99,549	525,502	15%

** Station LNC = Lancaster; MJY = Mount Joy; ELT = Elizabethtown*

8.3 Regional Carpooling

The MPO also promotes alternative modes through its support of Commuter Services of Pennsylvania[16]. Commuter Services is a professionally staffed organization funded by federal Congestion Mitigation & Air Quality Improvement Program funds. Through their free services, they work to reduce traffic congestion by helping commuters find alternatives to driving alone and by reaching out to employers so they can help their workforce find those options. Information on registered commuters and participating employers in the program is tracked on an ongoing basis by Commuter Services of Pennsylvania. It indicates the level of participation from Lancaster County workers and employers in ridesharing activity. As of January 2018, there are 4,899 Lancaster County residents enrolled with Commuter Services as shown in **Exhibit 23**.

Exhibit 23: Residents Enrolled with Commuter Services of Pennsylvania

	2013	2015	2017	2018
Lancaster County	3,736	4,907	4,596	4,899
Pennsylvania	18,489	26,722	26,995	28,495

[16] https://pacommuterservices.org/

9. Assessing Corridor Strategies

The identification and assessment of appropriate congestion mitigation strategies is a component of the CMP but often requires more detailed assessments through other studies and outreach. Three overall strategies are available to address congestion. They are:

- Reducing demand (or demand management) – These strategies attempt to address congestion at the root of the problem by reducing the number of vehicles on the road.
- Managing capacity (or operational improvements) – These efforts are intended to enhance the operation of the transportation system and make it as efficient as possible. They may include signal technology and coordination projects or other Intelligent Transportation System (ITS) strategies like electronic message signs or incident response teams.
- Building capacity (or capacity enhancements) – These projects typically focus on the addition of lanes to existing roadways or the construction of new roads. While there is still an important need for the strategic addition of new capacity, the Lancaster MPO acknowledges that it is not possible to solve all congestion issues through major additions of capacity due to environmental and land use sensitivity and limited funding. Strategic capacity enhancements, designed in the context of the community, may include interchange improvements, the implementation of turn lanes to improve congestion and safety at critical intersections, development of multimodal corridors and improved street connectivity.

All strategies should be consistent with Statewide plans, the MTP and Places2040. Lower-cost solutions are emphasized as a primary congestion mitigation strategy and may include those provided in FHWA's *Recurring Traffic Bottlenecks: A Primer Focus on Low-Cost Operational Improvements*[17].

[17] https://ops.fhwa.dot.gov/publications/fhwahop18013/index.htm

9.1 CMP Strategy Objectives

In order to develop a clear and understandable approach to congestion management, the following objectives and strategies were previously developed by the Lancaster MPO in coordination with the MTP and input from congestion stakeholders and are carried over to this CMP update.

Exhibit 24: CMP Objectives and Strategies

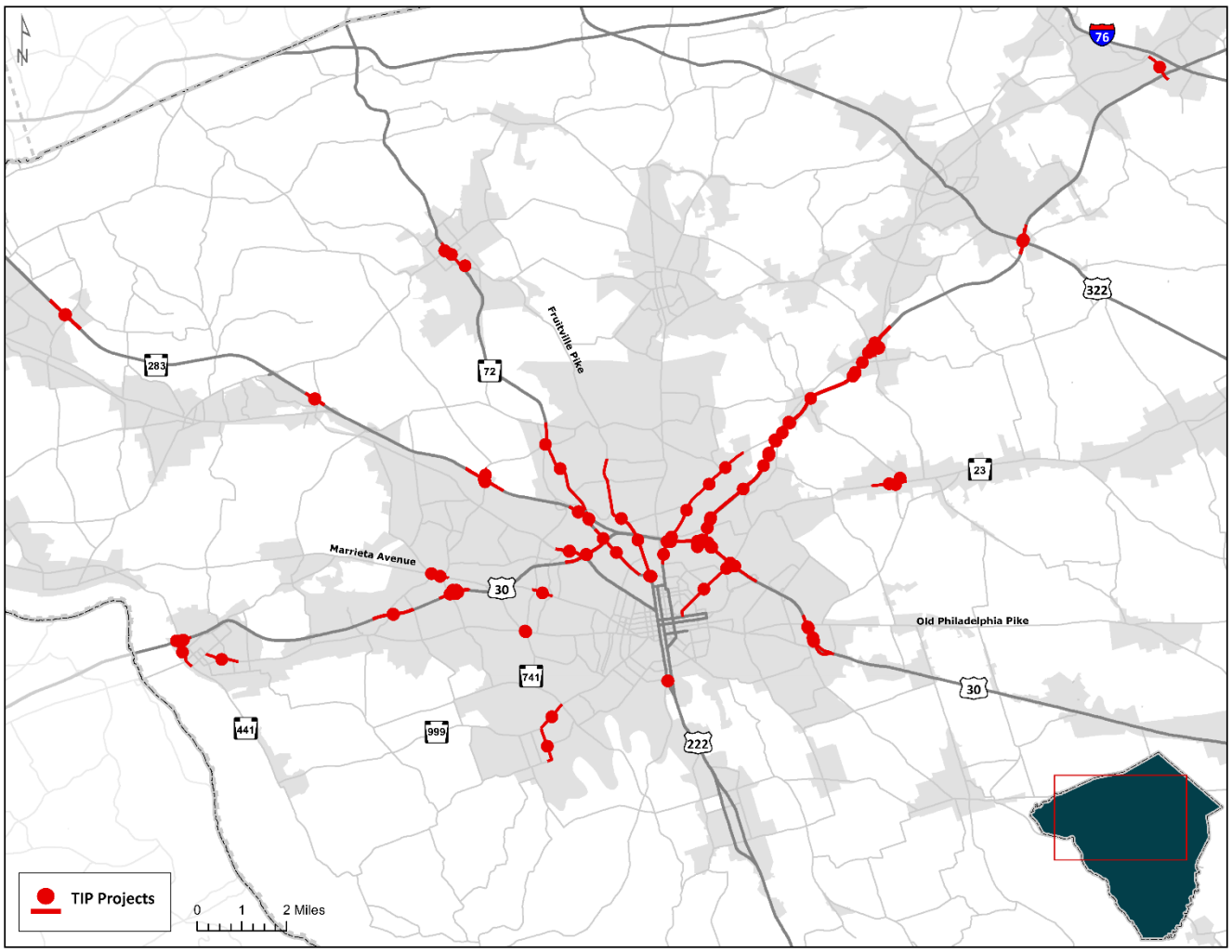
Objective	*Strategy*	
Monitor and prioritize congested areas and identify the causes of recurring and non-recurring congestion.	1. A	Utilize performance measures that assist with identification of projects, programs and/or services that will mitigate congestion and identify acceptable congestion thresholds.
	1. B	Identify congested corridors and isolated congested areas.
	1. C	Identify special events/needs and other causes of non-recurring congestion.
	1. D	Identify all highway user partners and provide a means of communications and collaborate with external agencies to gain a regional perspective.
Improve highway mobility to mitigate congestion and provide an acceptable level of service.	2. A	Undertake corridor studies on congested areas to identify appropriate improvements.
	2. B	Plan for strategic capacity improvements to address congested areas and improve system connectivity and accessibility.
	2. C	Improve the operation of highway intersections through the addition of turning lanes, upgraded traffic signals and signal coordination.
Adequately fund, manage and operate the system to reduce congestion and traveler delays.	3. A	Implement/update the Regional Operations Plan (ROP) and deploy ITS equipment to better manage incidents and inform motorists.
	3. B	Improve communications and coordination with enforcement personnel and emergency responders to better respond to incidents on major corridors.
	3. C	Address signal timing and coordination on selected corridors to maximize throughout.
	3. D	Work with special event coordinators to plan and manage traffic during events.
Plan, provide and promote modal options to give people choices other than driving alone.	4. A	Incorporate modal options in land use planning at the municipal and regional level.

Objective	*Strategy*	
Plan, provide and promote modal options to give people choices other than driving alone.	4. B	Improve public transit services for residents and visitors through marketing and implementation of RRTA's transportation plan.
	4. C	Provide improved public transportation services, such as Amtrak and commuter rail, through coordinated planning and public information/outreach.
	4. D	Develop park and ride lots in conjunction with transit service and promote the use of these lots.
	4. E	Improve parking availability at the county's Amtrak stations.
	4. F	Encourage ridesharing through the support of Commuter Services.
	4. G	Develop safe and convenient bicycle and pedestrian accommodations.
Improve the efficiency of freight movements through and within the county.	5. A	Identify and prioritize rail freight investments in coordination with rail freight providers that can shift freight from highways.
	5. B	Identify, upgrade and enforce designated truck routes to reduce congestion through municipalities.
	5. C	Improve opportunities for intermodal freight transfer.
	5. D	Identify delivery and congestion in core business districts and promote "off peak hour" solutions with businesses.
Promote effective land use planning sensitive to local conditions to manage demand and lessen impact on congested areas.	6. A	Develop and enact access management ordinances to maintain roadway safety and capacity by controlling access to adjacent land uses.
	6. B	Adopt official maps to define roadway networks needed to support municipal land use plans.
	6. C	Concentrate appropriate density and type development in Urban Growth Areas and Village Growth Areas to promote land development oriented to walking, bicycling and public transportation.
	6. D	Maintain or establish connected grid networks of streets, alleys, service roads, sidewalks and paths that provide convenient transportation options in Urban Growth Areas.
	6. E	Incorporate smart land use management with a transportation focus.

9.2 Planned Congestion Relief Projects

The Lancaster County TIP and MTP include transportation projects that focus on traffic congestion relief. **Exhibit 25** provides the coverage of the FY 2019-2022 TIP projects that aim to reduce traffic congestion or reduce the number of incidents. These projects are listed and described in **Exhibit 26**. The full TIP project list can be found on the Lancaster County MPO website.[18]

Exhibit 25: TIP Congestion Relief Project Locations



[18] https://lancastercountyplanning.org/148/Transportation-Improvement-Program

Exhibit 26: TIP Congestion Relief Projects

PennDOT MPMS #	Route #	Project Name	Description	Municipality	On CMP Corridor
94572	----	Rideshare Program	Ridesharing, Vanpooling Programs, and Transit Coordination - Commuter Services of PA	Countywide	Yes
80119	72	PA 72 Corridor Improvements	Intersection improvements at 11 signalized intersections along PA Route 72 and the intersection of State Street (PA 722) and Lemon Street in the Borough of East Petersburg including signal timing and coordination to new signal equipment (new signal poles and mast arms) and minor lane additions (through/right turn lane) at the Commerce Drive/Granite Run Road intersection	City of Lancaster, Manheim Township, and East Petersburg Borough	Yes
89107	72	Traffic Signal Coordination	5 Traffic Signal Coordination Improvements on Fruitville Pike from Buch Avenue to Manheim Pike (PA72) and Keller Avenue, Main Street (PA72/772) and High Street (PA772) in Manheim Boro., Manor Avenue (PA999) and George Street in Millersville Boro., New Holland Avenue from Plum Street to US 30 Ramps, and Oregon Pike from Golden Triangle to Landis Valley Road.	City of Lancaster, Manheim Township, Millersville Borough, Lancaster Township, Manheim Borough	Yes
94910	462	Columbia Ave & Rohrerstown Rd Intersection Improvements	Add lanes and improve signalization at and between the intersections of PA 462 with PA 741 and Good Drive.	East Hempfield Township	Yes
94912	23	Marietta Avenue Intersection Improvements	Intersection Improvements on Marietta Avenue/PA23 from Good Drive to Rohrerstown Road/PA741.	East Hempfield Township	Yes
64767	4057	Centerville Rd Interchange	Interchange reconstruction on Centerville Road (T-408) over US 30.	East Hempfield Township	Yes
64829	722	State Rd Interchange-Amtrak	Upgrade interchange, replace bridge over PA-283 and bridge over Amtrak on PA-722 (State Road).	East Hempfield Township	Yes

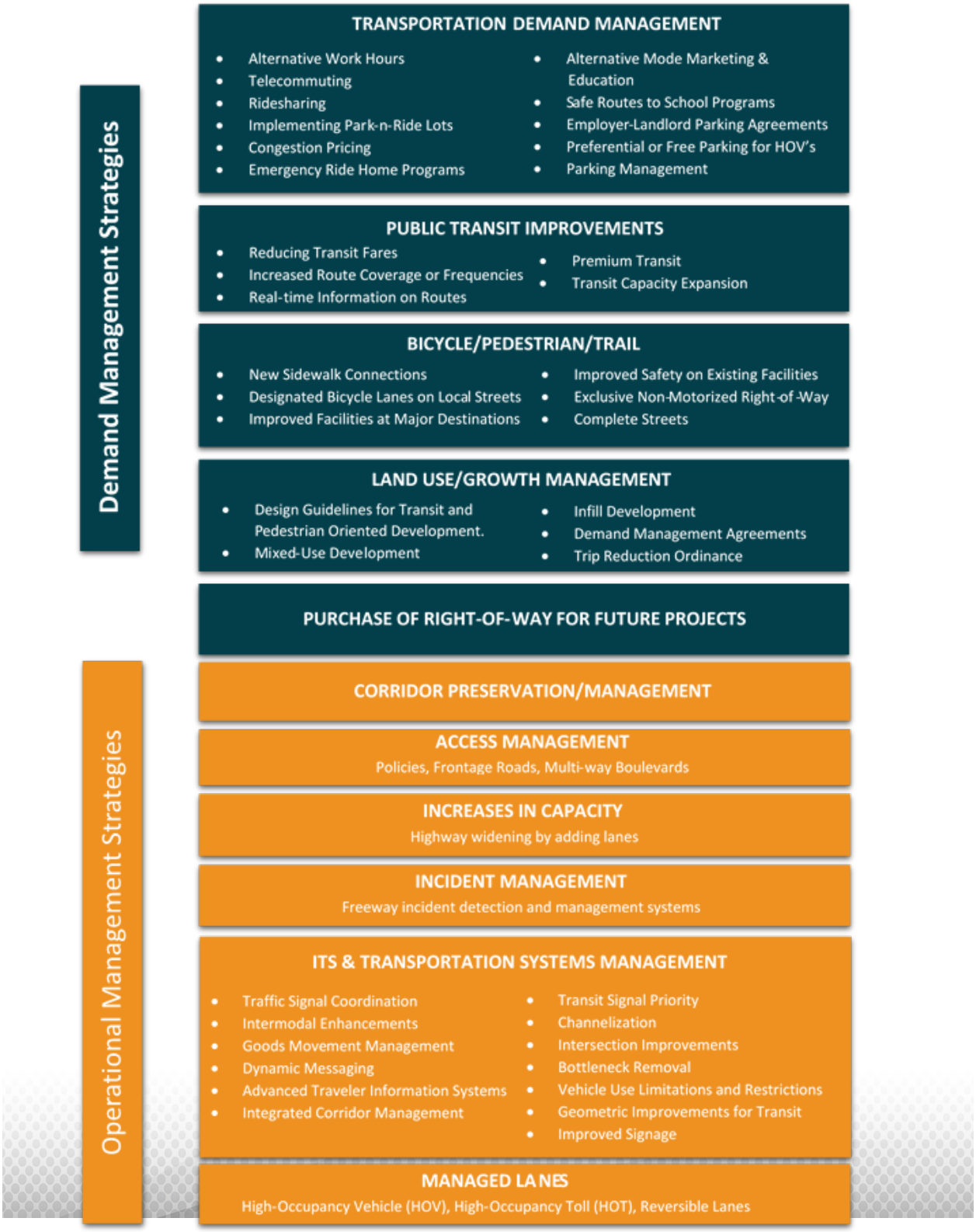
PennDOT MPMS #	Route #	Project Name	Description	Municipality	On CMP Corridor
101505	-----	Centerville Road Widening	Widen Centerville Road to 5 lanes from Marietta Avenue/PA23 to Columbia Avenue/PA462.	East Hempfield Township	Yes
109618	222	US 222 Reconstruction/Widening 1	Reconstruct and widen US 222 to six lanes from US 30 to north of Jake Landis Interchange.	Manheim Township	Yes
109620	222	US 222 Reconstruction/Widening 2	Reconstruct and widen US 222 to six lanes from north of Jake Landis Interchange to PA 772.	Manheim, Warwick and West Earl Townships	No
97013	222	US 222/US30 Interchange Improvements	Improvements at the US222/US30 interchange.	Manheim, Warwick, and West Earl Townships	No
107807	30	US 30/Harrisburg Pike Interchange	Interchange improvements, add turn lanes.	Manheim Township	Yes
110502	30	30/462 Interchange Improvements	Improvements at the US30/PA462 interchange.	East Lampeter Township	Yes
90491	322	US322/US222 Intersection Improvements	Diverging Diamond Interchange at the US322 - US222 interchange.	Ephrata Township	Yes
97250	30	US 30 Improvements	Intersection and safety improvements on Lincoln Highway/US30 from Hartman Bridge Road/PA896 to Newport Road/PA774.	Paradise, East Lampeter, Leacock, and Salibury Townships	Yes
90490	272	PA 272 Intersection Improvements	Intersection improvements at 272/Pennsy Road and at 272/Byerland Church Road.	Providence Township	No
110507	222	PA324/US222/Fairview Ave Roundabout	Intersection Improvement at the Intersection of S. Prince St. and New Danville Pike and Fairview Ave.	City of Lancaster, Lancaster Twp, West Lampeter Twp	Yes

PennDOT MPMS #	Route #	Project Name	Description	Municipality	On CMP Corridor
98280	441	Columbia Borough Signal Coordination	Traffic signal coordination on PA441 from US30 to Locust Street, PA462 from Locust Street to Washington Street, and Locust Street from PA441 to PA462.	Columbia Borough	Yes
97251	1040	Colonel Howard Blvd Improvement	Intersection Improvements on Colonel Howard Blvd from PA 272 to Lesher Road.	East Cocalico Township	No
111717	-----	Strasburg Pike/Millport Road Left-turn signal phase - Green Light Go	Installation of a left-turn signal phase on the northbound approach of Strasburg Pike and Millport Road intersection.	East Lampeter Township	No
109307	4042	Chester Road Left Turn Lane	Intersection Improvement, addition of a Left Turn Lane on Chester Rd at intersection with PA-272.	Manheim Township	Some
90221	300	ITS Phase 2	Installation of Closed Circuit Television cameras (CCTV) at these highway interchange locations: 30/340, 30/462, 283/743, 283/CLOVERLEAF & 283/ESBENSHADE and installation of permanent Dynamic Message Signs (DMS) at these locations: 283W/722, 283E/72, 30W/23, & 30E/441.	East Lampeter, Manheim, Mount Joy, and Rapho Townships and Columbia Borough	Some
106587	30	ITS Phase 4	Installation of Highway Advisory Radio (HAR) or equivalent technology at these highway interchange locations: 222/322, 283/MT. JOY, 283/722, 30/STONY BATTERY, 30/340 & 30/222 for incident response.	East Hempfield, East Lampeter, Ephrata, Manheim, West Earl, and West Hempfield Townships	Yes
104473	23	PA 23 TSM Improvements 2	Install Center turn lane, install curb and sidewalks and signal replacement on PA 23 (Main Street) from Hellers Church Road to Granger Road.	Upper Leacock Township	Yes

9.3 CMP Corridor Strategy Toolbox

The identification and assessment of appropriate congestion mitigation strategies is a component of the CMP. **Exhibit 27** provides a toolbox of strategies for consideration by policy makers and planners in the region. These strategies are grouped into demand management and operational management categories.

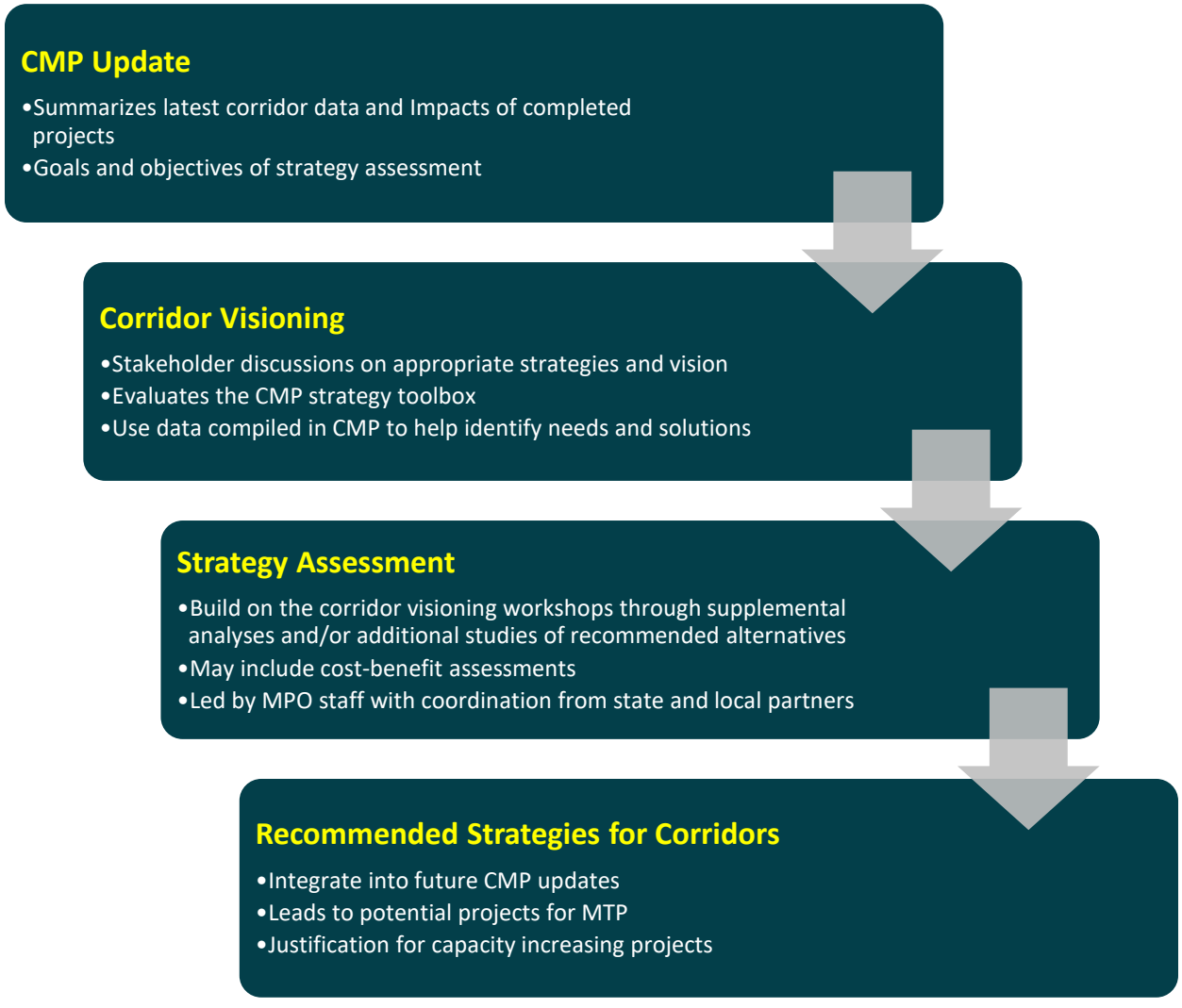
Exhibit 27: CMP Corridor Strategy Toolbox



9.4 Process for Strategy Recommendation

This update to the Lancaster CMP introduces a more formal process to identify and evaluate applicable strategies for each of the CMP corridors. Techniques for evaluating and selecting strategies include the use of committees or group consensus, the refinement of strategies based on local characteristics, and staff-level technical analysis. Information collected through monitoring of implemented strategies can be helpful in evaluating the success of individual strategies and targeting specific strategies to applications where they have demonstrated success. This feedback loop provides a continuous refinement of the strategies considered for congestion management in different situations. **Exhibit 28** summarizes the strategy assessment process. Some components of this process may be integrated into the MTP development process.

Exhibit 28: Process for Recommending Strategies for CMP Corridors



As highlighted above, a key component of the strategy identification process is to first identify a vision for the corridor. This vision will likely lead to potential strategies and improvements that will be supported by the community and regional stakeholders.

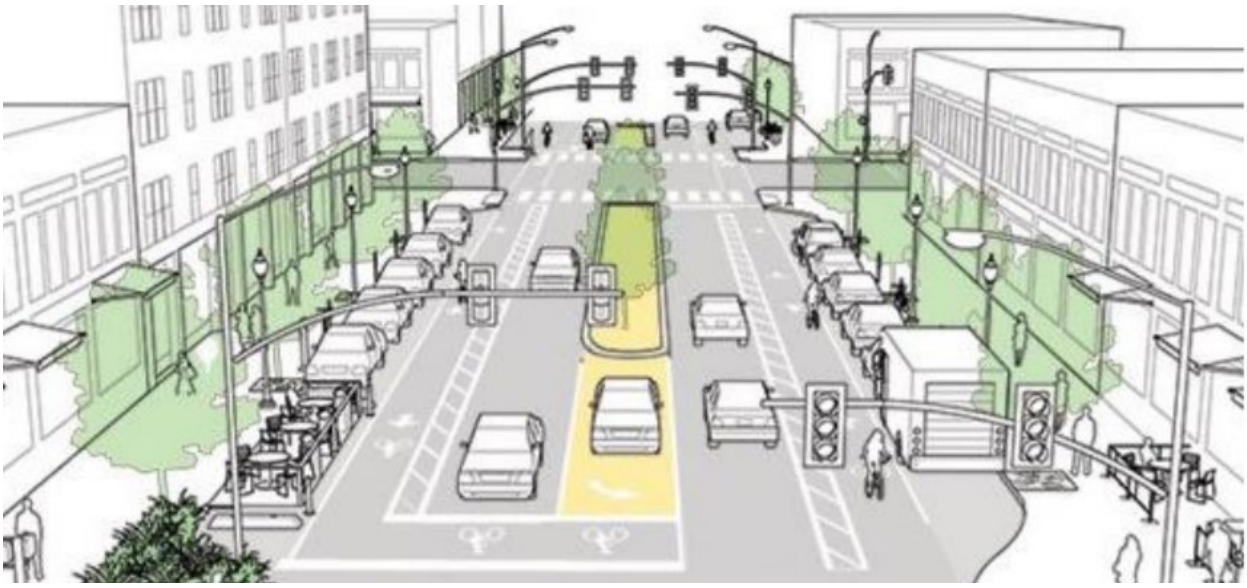
An important part of the visioning process for each corridor is to put it in the context of places2040, the Lancaster County Comprehensive Plan. The chosen approach should focus on implementing the big ideas, policies, and catalytic tools in the plan, as well as the priorities outlined in the Lancaster County Future Land Use and Transportation Map that forms a part of that plan.

Places2040 emphasizes a place-based approach to implementation, so the strategies for any particular corridor should relate to this approach. At the highest level are countywide priorities defined on one hand by the big ideas, policies, and catalytic tools, and on the other by the character zones and priority places highlighted on the Future Land Use and Transportation Map. The character zones create a framework for consistent land-use policy, and strategies for CMP corridors should be sensitive to the different character zones along them. Priority places are communities, corridors, and landscapes that residents identified as particularly important to the county as a whole. Regional priorities represent the next level of place-based planning. To facilitate implementation of places2040, LCPC divided the county into six planning areas. Lancaster City and the surrounding growth area form one area, and the others surround it. Although each planning area plays a role in implementing countywide priorities, the emphasis in each area is slightly different.

The seven catalytic tools in places2040 play a role in implementing the plan at all levels of place-based planning, and were included in the plan because they have the greatest potential to move Lancaster County toward the future that residents want to see. These tools should be central to the process of evaluating and selecting strategies for CMP corridors.

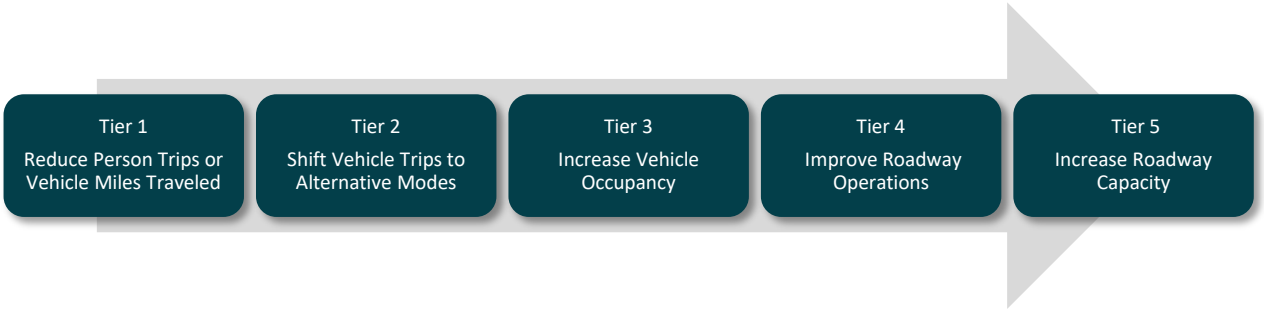
In some areas, this vision may aim for a Complete Streets[19] approach that may discourage major capacity increases within the corridor. Identifying this future vision may also assist in defining short term improvements to address existing congestion needs while not jeopardizing future corridor improvements.

[19] https://lancastercountyplanning.org/177/Complete-Streets-for-Lancaster-County



In addition, the CMP stresses the importance of applying the strategy toolbox in a way that addresses the regional goals and objectives that have been established. As such, the toolbox can be arranged so that strategy types are prioritized. **Exhibit 29** provides a tiered approach that promotes the growing sentiment in today's transportation planning arena and follows FHWA's clear direction to consider all available solutions before recommending additional roadway capacity.

Exhibit 29: Tiered Approach for Assessing CMP Corridor Strategies



10. Monitoring Project Impacts

Evaluation of strategy effectiveness is an essential and required element of the CMP that is often overlooked. Its primary goal is to ensure that implemented strategies are effective at addressing congestion as intended, and to make changes based on the findings as necessary. Evaluations can be conducted at a regional, corridor, or project level. Advancements in the collection, processing, and storage of GPS travel time data will provide a valuable data source for assessing completed project impacts in the future.

Historical travel time data before 2017 is only available for select roadways in Lancaster County, which inhibits a comprehensive assessment of congestion relief projects completed over the last five years. Assessments of project benefits requires travel times before and after project completion covering similar time periods (e.g. season, month, day etc.). The Travel Time Index (TTI) and Planning Time Index (PTI) measures discussed previously are used to illustrate the levels of traffic congestion and reliability before and after project completion. The higher those index values are the worse the congestion and reliability. Travel time data is available for the following project locations, which serve as examples in evaluating project impacts on congestion.

PA 896 and Rockvale Road Improvements

In October 2016, intersection improvements including the addition of a new traffic signal and pavement markings were completed at the US-30/PA-896 and PA-896/ Rockvale Road intersections in East Lampeter Township. The project resulted in minor improvements to traffic reliability (as measured by Planning Time Index) during the PM peak hours and slightly worsened reliability during the morning hours on weekdays.

	Before				After			
	10/1/2014 - 10/1/2015				10/1/2016 - 10/1/2017			
	Planning Time Index		Travel Time Index		Planning Time Index		Travel Time Index	
	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM
Monday	1.27	1.40	1.07	1.16	1.32	1.40	1.04	1.09
Tuesday	1.27	1.46	1.09	1.22	1.51	1.48	1.07	1.18
Wednesday	1.29	1.52	1.09	1.27	1.48	1.48	1.06	1.13
Thursday	1.36	1.73	1.10	1.28	1.37	1.42	1.04	1.14
Friday	1.31	2.10	1.09	1.38	1.28	1.57	1.03	1.16
Saturday	1.17	1.95	1.06	1.34	1.07	1.30	1.00	1.11
Sunday	1.20	1.33	1.05	1.13	1.09	1.17	1.00	1.02
Weekends	1.23	1.67	1.05	1.23	1.09	1.28	1.00	1.06
Weekdays	1.31	1.63	1.09	1.26	1.37	1.48	1.05	1.14
All Days	1.29	1.63	1.08	1.25	1.32	1.40	1.03	1.12

** Green = indicates improvements to PTI and TTI values; * Red = indicates worsening PTI and TTI values*

Aerial of PA-896 Improvements at US 30 and Rockvale Road Intersections

Gap Bottleneck Improvement

In late 2016, a new two-lane roadway was constructed north of existing US 30 between PA 41 and PA 772 in Salisbury Township to carry westbound traffic. The existing US 30 now serves eastbound vehicles. The project resulted in significant improvements to congestion performance measures.

	Before				After			
	12/1/2013 - 12/1/2014				12/1/2016 - 12/1/2017			
	Planning Time Index		Travel Time Index		Planning Time Index		Travel Time Index	
	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM	6:00 AM - 9:00 AM	4:00 PM - 7:00 PM
Monday	2.85	3.70	1.50	1.82	1.17	1.44	1.00	1.00
Tuesday	2.92	3.80	1.56	1.85	1.24	1.33	1.00	1.00
Wednesday	2.92	3.93	1.54	1.90	1.18	1.40	1.00	1.01
Thursday	3.32	4.09	1.59	2.02	1.18	1.63	1.00	1.03
Friday	3.45	4.50	1.69	2.20	1.21	1.51	1.00	1.05
Saturday	1.82	3.20	1.19	1.72	1.18	1.91	1.00	1.05
Sunday	1.34	2.28	1.06	1.33	1.11	1.63	1.00	1.02
Weekends	1.61	2.90	1.13	1.52	1.13	1.87	1.00	1.03
Weekdays	3.14	4.09	1.58	1.96	1.21	1.45	1.00	1.02
All Days	2.73	4.09	1.45	1.83	1.18	1.48	1.00	1.02

** Green = indicates improvements to PTI and TTI values; Red = indicates worsening PTI and TTI values*

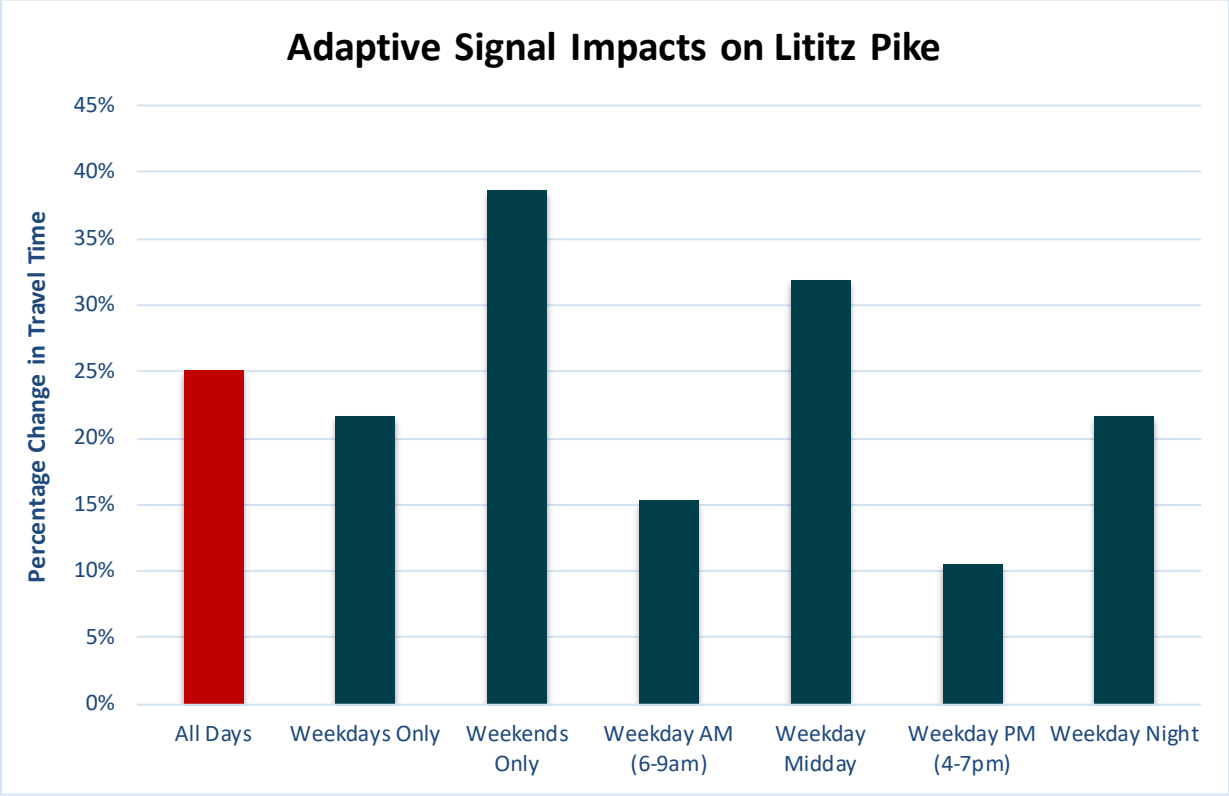
Aerial of Gap Bottleneck Improvement – Google Earth

Adaptive Signal Technology Improvements

New technology is providing the opportunity to gain more benefits from signal timing projects. Adaptive traffic signals adjust the timing of their green light cycles to match current traffic conditions on the ground. They are constantly collecting data about approaching vehicles and creating new timing sequences to match them. Adaptive technology has been implemented in Lancaster County on Lititz Pike in 2015 and on Harrisburg Pike in 2016. In addition, the technology has been implemented in nearby counties including on US 30 in York County.

Travel time data obtained by PennDOT can be used to measure the benefits of adaptive signal technology implemented along Lititz Pike. **Exhibit 30** highlights the percentage benefits for different day and time periods. Signal technology has provided nearly a 25% improvement in average daily travel time for individual vehicles using this corridor. The benefits are highest during times of variable traffic or outside of the typical morning and evening commute times.

Exhibit 30: Adaptive Signal Impacts on Lititz Pike (based on INRIX Travel Times)



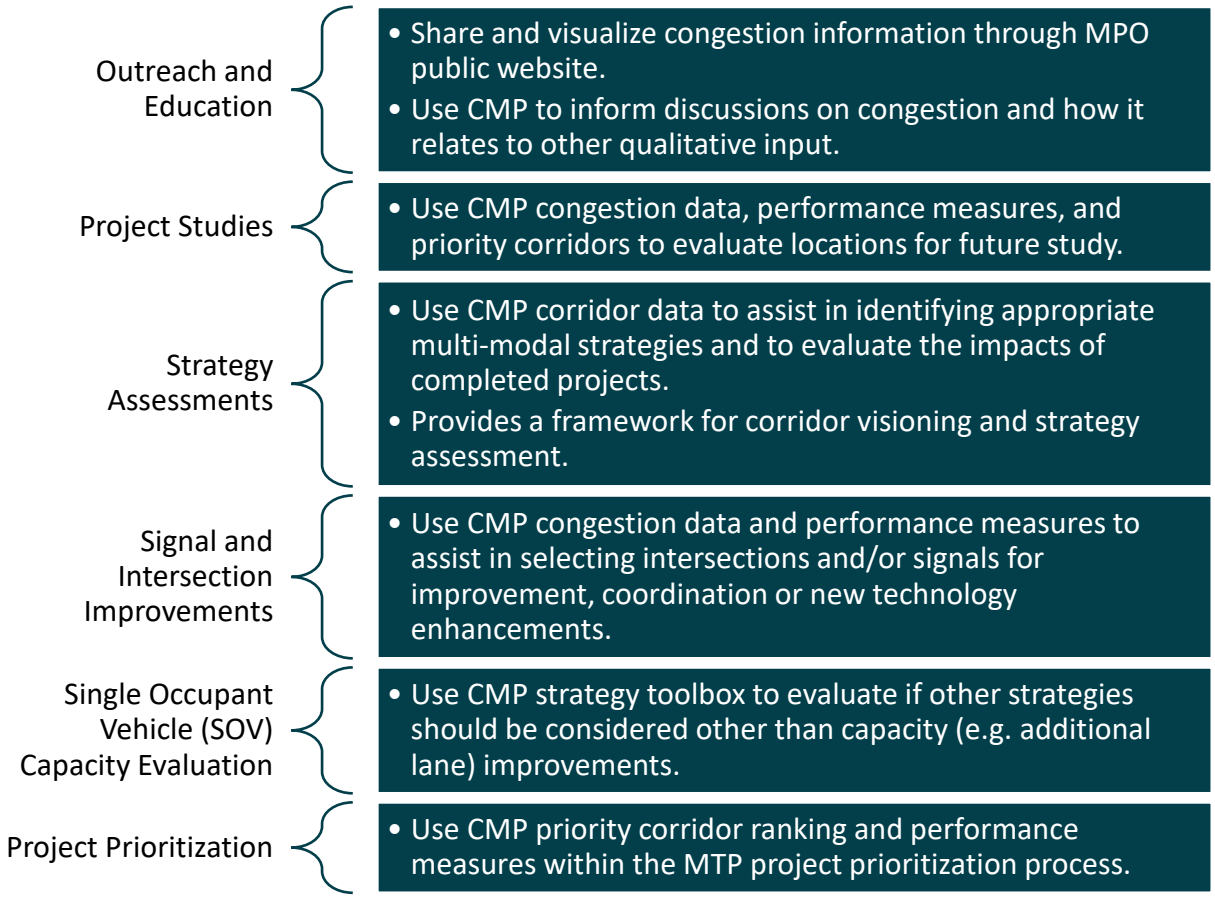
11. Integration and Update of CMP Data

Within the overall transportation planning process, the CMP provides quantitative congestion information that can be used by decision-makers at the MPOs, local governments, and PennDOT. The CMP is a critical element of an objectives-driven, performance-based planning approach, and the integration of the CMP data with the MTP and TIP is an important part of project decision making.

11.1 CMP Integration

Across the country, MPOs have developed unique methods of implementing the CMP. Some have integrated the CMP with the long-range planning process to the extent that the CMP is not identifiable as a standalone process. In many cases, the CMP data and performance measures directly influence project prioritization. **Exhibit 30** highlights how the Lancaster CMP will be used within the MPO planning process.

Exhibit 30: CMP Integration



11.2 Single Occupancy Vehicle Capacity (SOV) Increasing Projects

In TMAs that are designated as non-attainment or maintenance areas for ozone or carbon monoxide federal regulations require certification that any project resulting in a significant increase in SOV carrying capacity (with the exception of safety improvements and bottleneck elimination projects) be consistent with the recommendations and data within the CMP. To demonstrate that consistency the following questions can be used for the evaluation process:

Capacity Project Evaluation

- Is the project located within a CMP priority corridor?
- Does the CMP identify that type of major SOV capacity-adding strategy as a potential strategy for that corridor?
- Does the project advance the goals and strategies of the regional MTP and of adopted plans of the municipality(s) or county?
- Is the facility or nearby road congested?

11.3 Future CMP Enhancements

The Lancaster MPO is always looking for ways to make the CMP better. This includes learning from what other communities are doing across the nation and using new data sources as they become more readily available. Future CMP updates will be coordinated with PennDOT's ongoing efforts to develop better data for assessing congestion causes and to incorporate the results of corridor visioning and strategy assessments. In addition, the Lancaster MPO will be evaluating use of their regional travel model that is currently being updated and addressing ways to evaluate and rank specific intersections as done in the past. The CMP is to be updated every 2 years to support coordination with the MTP and TIP.

APPENDIX A

Data Collected for CMP Corridors

CMP Corridor: Physical Characteristics

#	Corridor	Seg	LENGTH		LANES	Oneway (Yes)	Turn Lanes	# Intersections with Turn Lane	Center Turn Lane (length in feet)	# Traffic Signals	Speed Limit	ITS
1	PA 501 - Lititz Pike	A	0.6 Miles	3012 Feet	4	No	0	0	1,733	2	35	
		B	2.2 Miles	11583 Feet	2	No	7	4	7,674	5	35-40	
		C	2.9 Miles	15494 Feet	2-4	No	17	7	3,534	7	35-40	
		D	2.0 Miles	10532 Feet	2	No	11	6	1,825	7	35	
		E	0.7 Miles	3453 Feet	2	No	2	2	3,429	2	45	
2	PA 272 - Oregon Pike	A	0.7 Miles	3564 Feet	2-4	No	6	2	2,217	3	35	
		B	1.8 Miles	9318 Feet	2	No	10	4	-	4	40	
		C	5.0 Miles	26348 Feet	2	No	10	4	3,913	4	45	
		D	3.0 Miles	15911 Feet	2	No	5	3	117	4	35-45	
		E	1.6 Miles	8680 Feet	2-4	No	6	2	-	3	35	
		F	1.4 Miles	7306 Feet	2-4	No	17	6	3,022	6	35	
3	PA 23 - New Holland Pike/Avenue	A	1.7 Miles	9063 Feet	2-4	No	10	5	-	7	25-35	
		B	3.3 Miles	17263 Feet	2	No	6	4	-	6	35-40	
		C	1.2 Miles	6341 Feet	2	No	5	3	-	4	35-40	
		D	2.6 Miles	13529 Feet	2	No	4	3	-	4	40-45	
		E	2.5 Miles	13296 Feet	2	No	1	1	-	1	45	
		F	2.7 Miles	14101 Feet	2	No	15	9	-	10	35	
		G	1.4 Miles	7217 Feet	2	No	3	3	-	3	35	
		H	1.2 Miles	6173 Feet	2	No	3	2	-	3	40	
4	PA 340 - Old Philadelphia Pike	A	1.3 Miles	6992 Feet	2	No	3	2	2,843	4	35-40	
		B	2.7 Miles	14088 Feet	2	No	11	6	878	6	40	
		C	4.7 Miles	24817 Feet	2	No	2	1	638	3	40-55	
		D	0.9 Miles	4763 Feet	2	No	2	2	2,076	2	35	
5	US 30	A	4.5 Miles	23738 Feet	4	No	0	0	-	0	55	2 Cameras
		B	4.5 Miles	23549 Feet	4	No	0	0	-	0	55	2 Cameras
		C	3.6 Miles	18918 Feet	4-8	No	0	0	-	0	55	3 Cameras
		D	7.5 Miles	39681 Feet	4-6	No	0	0	-	1	50-55	
		E	2.4 Miles	12679 Feet	4	No	29	11	12,683	11	40	
		F	5.2 Miles	27706 Feet	2-4	No	4	2	19,900	2	35-40	
		G	5.2 Miles	27343 Feet	2-4	No	7	4	23,479	4	45	
		H	0.7 Miles	3901 Feet	4	No	3	1	1,748	1	45	
6	King Street (PA 462 East)	A	1.2 Miles	6233 Feet	4	No	7	4	931	5	35	
		B	1.9 Miles	10137 Feet	2-4	No	4	4	5,930	6	35	
7	US 222/PA 272 - Willow Street Pike	A	3.9 Miles	20784 Feet	2-4	No	4	2	3,402	3	35-45	
		B	1.8 Miles	9417 Feet	2	Yes	2	1	-	2	35	
		C	2.0 Miles	10507 Feet	2	Yes	0	0	-	2	35-50	
8	PA 741 - Rohrerstown Road	A	0.6 Miles	3130 Feet	2	No	5	3	-	3	40	
		B	2.1 Miles	10990 Feet	2	No	3	2	464	3	35	
		C	1.0 Miles	5056 Feet	2	No	13	5	456	5	35	
		D	0.6 Miles	3129 Feet	2	No	11	4	-	4	35	
		E	0.6 Miles	2939 Feet	2	No	4	3	1,539	3	45	
		F	1.5 Miles	8042 Feet	2	No	5	2	1,965	3	45	
		G	1.4 Miles	7129 Feet	2	No	1	1	-	3	35	
9	PA 462/PA 441 - Columbia Avenue	A	2.4 Miles	12451 Feet	2	No	20	9	10,941	9	25-35	
		B	2.6 Miles	13833 Feet	2	No	12	5	11,306	5	40-45	
		C	1.2 Miles	6517 Feet	2	No	1	1	-	2	35	
		D	1.3 Miles	6786 Feet	2	No	3	1	1,589	1	35-45	
		E	1.4 Miles	7312 Feet	2	No	1	1	4,054	2	40	
		F	1.5 Miles	7722 Feet	2	No	5	3	1,603	5	35	
		G	0.5 Miles	2590 Feet	2	No	1	1	-	1	35-40	
10	PA 23 - Marietta Pike	A	0.6 Miles	3413 Feet	1-2	Yes	1	1	-	4	25-35	
		B	1.8 Miles	9581 Feet	2	No	4	3	-	3	35	
		C	2.4 Miles	12462 Feet	2	No	7	3	-	5	35-45	

CMP Corridor: Physical Characteristics (continued)

#	Corridor	Seg	LENGTH		LANES	Oneway (Yes)	Turn Lanes	# Intersections with Turn Lane	Center Turn Lane (length in feet)	# Traffic Signals	Speed Limit	ITS
11	Harrisburg Pike (SR 4020)	A	0.8 Miles	4274 Feet	2	No	12	6	4,081	5	25-35	
		B	1.4 Miles	7221 Feet	2-4	No	11	7	4,866	7	35-40	
		C	1.4 Miles	7435 Feet	4	No	14	7	121	7	40	
		D	1.6 Miles	8564 Feet	2	No	4	3	428	3	35-40	
		E	4.6 Miles	24397 Feet	2	No	6	4	785	4	35	
12	Manheim Pike (PA72)	A	1.2 Miles	6413 Feet	2-4	No	7	3	5,990	3	35	
		B	1.5 Miles	8164 Feet	4	No	7	4	-	7	35	
		C	2.5 Miles	13090 Feet	2-4	No	16	7	1,343	9	25-35	
		D	4.5 Miles	23963 Feet	2	No	15	5	-	6	40-55	
		E	0.7 Miles	3741 Feet	2	No	7	4	-	4	25	
13	Fruitville Pike (PA 772/SR4011)	A	0.2 Miles	1189 Feet	4	No	2	1	318	1	35	
		B	1.7 Miles	8763 Feet	4	No	22	7	1,702	7	40	
		C	2.1 Miles	11195 Feet	2-4	No	8	4	-	5	35-40	
		D	1.7 Miles	9172 Feet	2	No	8	3	-	4	40	
		E	3.5 Miles	18415 Feet	2	No	1	1	-	1	35-40	
14	PA 896/PA 741	A	1.2 Miles	6416 Feet	2-4	No	2	2	-	2	45	
		B	2.3 Miles	12086 Feet	2-4	No	6	3	-	3	45	
		C	0.6 Miles	3004 Feet	2	No	4	2	-	2	25	
		D	1.7 Miles	9126 Feet	2	No	3	1	-	3	25	
		E	0.9 Miles	4711 Feet	2	No	6	3	-	3	25	
15	PA 41	A	2.4 Miles	12473 Feet	2-4	No	3	2	5,139	2	45	
		B	1.1 Miles	5872 Feet	2	No	4	1	3,417	1	45	
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	A	1.6 Miles	8419 Feet	2	No	11	5	4,283	7	25-40	
		B	1.1 Miles	5741 Feet	2	No	2	1	-	1	40	
		C	0.7 Miles	3736 Feet	2	No	4	3	-	4	25	
		D	1.5 Miles	7814 Feet	2	No	2	2	-	3	25	
		E	1.0 Miles	5273 Feet	2	No	0	0	-	1	25	
17	PA 230/PA 743	A	5.2 Miles	27337 Feet	2	No	21	9	3,985	9	35-45	
		B	2.7 Miles	14135 Feet	2	No	4	1	13,269	1	45-55	
		C	1.7 Miles	8849 Feet	2	No	15	8	7,631	8	25-40	
		D	3.1 Miles	16450 Feet	2	No	5	5	408	9	25-45	
18	State Road/Centerville	A	0.7 Miles	3597 Feet	2	No	8	4	-	4	25	
		B	3.1 Miles	16597 Feet	2	No	15	7	-	8	25	
19	PA 462 & SR 1002 - King and Orange Streets	A	0.8 Miles	4115 Feet	2	Yes	3	3	-	5	25	
		B	1.0 Miles	5223 Feet	2	Yes	2	1	-	7	25	
		C	1.1 Miles	5719 Feet	2	Yes	3	2	-	8	25	
		D	0.8 Miles	4008 Feet	2	Yes	3	2	-	5	25-35	
20	US 222 - Prince, Queen, Church &	A	1.9 Miles	9820 Feet	2-3	Yes	3	3	-	9	25-35	
		B	3.6 Miles	19016 Feet	2-3	Yes	13	10	1,537	26	25	
21	US 322	A	1.9 Miles	10008 Feet	2	No	8	4	-	5	35	
		B	2.7 Miles	14338 Feet	2-4	No	15	9	483	11	35	
		C	2.7 Miles	14448 Feet	2-4	No	5	3	-	4	45	

CMP Corridor: Travel Volume Range

#	Corridor	Seg	Daily Traffic Volume Range	Truck Percentage Range
1	PA 501 - Lititz Pike	A	17,922 - 22,923	4-5
		B	17,922 - 24,248	4-5
		C	20,178 - 22,125	4-6
		D	13,542 - 20,178	4-1
		E	15,345	1
2	PA 272 - Oregon Pike	A	14,367	2
		B	16,127 - 21,348	2-3
		C	9,236 - 14,685	2-8
		D	18,120 - 20,418	4-5
		E	15,388 - 17,959	4-5
		F	15,333	6-8
3	PA 23 - New Holland Pike/Avenue.	A	12,814 - 17,274	2-5
		B	19,003	6
		C	17,442 - 18,442	9
		D	14,577 - 17,973	6-12
		E	14,692 - 15,703	5-9
		F	12,086 - 14,045	5-12
		G	11,262	5
		H	8,321 - 8,804	8-11
4	PA 340 - Old Philadelphia Pike	A	11,788 - 12,830	4-7
		B	14,809 - 18,927	5-12
		C	10,209 - 13,009	6
		D	7,811 - 15,503	6-9
5	US 30	A	78,462	13-14
		B	60,349 - 76,908	7-14
		C	104,482 - 113,374	10-14
		D	38,540 - 84,894	7-18
		E	32,002	23
		F	17,573 - 19,654	17-33
		G	14,323 - 18,741	14-19
		H	25,069	10-26
6	King Street (PA462 East)	A	19,340 - 22,408	2-3
		B	10,919 - 20,042	2-6
7	US 222/PA 272 - Willow Street Pike	A	17,815 - 20,028	6-11
		B	10,357 - 12,120	4-12
		C	9,736 - 10,752	4-9
8	PA 741 - Rohrerstown Road	A	16,105	5
		B	24,037	10
		C	22,978	6
		D	23,683	5
		E	13,937	5
		F	16,154	4-7
		G	8,548 - 13,026	2-5

CMP Corridor: Travel Volume Range (continued)

#	Corridor	Seg	Daily Traffic Volume Range	Truck Percentage Range
9	PA 462/PA 441 - Columbia Avenue	A	15,438 - 18,330	2-3
		B	13,139 - 15,093	3-12
		C	9,224 - 10,988	3-4
		D	9,315	4
		E	16,006	3
		F	7,667 - 12,894	3-6
		G	10,058	4
10	PA 23 - Marietta Pike	A	2,484 - 6,903	1-5
		B	13,588	1
		C	9,657 - 16,934	2
11	Harrisburg Pike (SR 4020)	A	12,796	2
		B	19,990	5
		C	10,984	3
		D	5,832	3
		E	4,304 - 7,254	3-8
12	Manheim Pike (PA72)	A	12,992 - 15,504	5-8
		B	20,469	5
		C	14,001 - 16,698	10-11
		D	11,556 - 15,775	7-11
		E	11,402 - 13,070	5-10
13	Fruitville Pike (PA 772/SR4011)	A	21,173	8
		B	17,656 - 30,854	2-7
		C	19,492	2
		D	13,251	2
		E	5,083 - 5,652	3-6
14	PA 896/PA 741	A	7,607	5
		B	13,866	5
		C	5,787 - 13,866	4-5
		D	5,882 - 7,871	5-6
		E	5,894	12
15	PA41	A	14,656 - 15,925	11-18
		B	12,903 - 14,656	24-27
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	A	12,501 - 17,135	2
		B	17,135	2
		C	14,930	3
		D	3,496 - 5,816	2
		E	3,496	2
17	PA 230/PA 743	A	8,020 - 14,558	3-9
		B	8,883 - 13,774	5-6
		C	15,894 - 21,456	3
		D	6,547 - 15,894	5-6
18	State Road/ Centerville Road	A	13,548	3
		B	11,969 - 19,288	1-5
19	PA 462 & SR 1002 - King and Orange Streets	A	7,860 - 12,715	2-4
		B	8,418 - 8,939	3
		C	6,374 - 9,319	1-2
		D	6,236 - 9,703	2
20	US 222 - Prince, Queen, Church & Lime	A	22,827	3-7
		B	21,920 - 24,373	2-8
21	US 322	A	13,100 - 14,914	9-13
		B	15,082 - 20,590	4-6
		C	17,268 - 21,922	4-10

CMP Corridor: Crashes and Fatalities

#	Corridor	Seg	Rank	Total Crashes	Fatality	Injury	Pedestrian Fatality	Bike Fatality
1	PA 501 - Lititz Pike	A	30	146	0	124	0	0
		B	7	249	0	178	0	0
		C	16	196	1	118	1	0
		D	38	130	0	68	0	0
		E	88	27	0	20	0	0
2	PA 272 - Oregon Pike	A	45	110	0	93	0	0
		B	40	127	1	95	1	0
		C	18	187	2	154	1	0
		D	11	218	1	176	0	1
		E	73	60	1	35	0	0
		F	59	76	0	49	0	0
3	PA 23 - New Holland Pike/Avenue.	A	6	269	2	191	0	1
		B	14	212	2	157	0	0
		C	77	50	1	26	1	0
		D	45	110	1	68	0	0
		E	52	89	1	58	0	0
		F	43	113	1	60	0	0
		G	78	49	0	22	0	0
		H	84	36	0	23	0	0
4	PA 340 - Old Philadelphia Pike	A	53	87	1	80	0	0
		B	31	145	0	106	0	0
		C	49	104	3	105	1	0
		D	87	31	1	24	1	0
5	US 30	A	40	127	0	58	0	0
		B	15	209	1	114	0	0
		C	2	313	0	208	0	0
		D	5	279	0	206	0	0
		E	4	286	1	236	0	0
		F	18	187	4	177	1	0
		G	27	159	4	144	0	0
		H	82	41	0	38	0	0
6	King Street (PA462 East)	A	35	138	1	126	0	0
		B	10	219	1	224	0	0
7	US 222/PA 272 - Willow Street Pike	A	25	165	3	94	2	0
		B	62	68	1	59	1	0
		C	63	67	0	39	0	0
8	PA 741 - Rohrerstown Road	A	72	61	0	34	0	0
		B	26	160	0	103	0	0
		C	42	125	0	72	0	0
		D	76	52	0	36	0	0
		E	75	57	0	48	0	0
		F	20	185	4	138	0	0
		G	63	67	0	37	0	0
9	PA 462/PA 441 - Columbia Avenue	A	3	305	0	219	0	0
		B	22	172	2	122	1	0
		C	67	64	0	36	0	0
		D	83	39	0	38	0	0
		E	69	63	0	61	0	0
		F	60	75	1	31	1	0
		G	85	33	1	16	0	0

CMP Corridor: Crashes and Fatalities (continued)

#	Corridor	Seg	Rank	Total Crashes	Fatality	Injury	Pedestrian Fatality	Bike Fatality
10	PA 23 - Marietta Pike	A	78	49	0	35	0	0
		B	70	62	0	35	0	0
		C	57	79	0	62	0	0
11	Harrisburg Pike (SR 4020)	A	73	60	0	52	0	0
		B	29	149	0	119	0	0
		C	48	106	1	80	0	0
		D	65	65	0	38	0	0
		E	50	90	0	63	0	0
12	Manheim Pike (PA72)	A	54	85	0	56	0	0
		B	37	134	0	108	0	0
		C	13	213	0	144	0	0
		D	22	172	1	143	0	0
		E	80	46	0	22	0	0
13	Fruitville Pike (PA 772/SR4011)	A	91	14	0	5	0	0
		B	12	215	0	156	0	0
		C	34	139	0	82	0	0
		D	81	43	0	26	0	0
		E	54	85	1	50	1	0
14	PA 896/PA 741	A	86	32	0	31	0	0
		B	65	65	1	60	1	0
		C	94	10	0	5	0	0
		D	88	27	0	19	0	0
		E	91	14	0	10	0	0
15	PA41	A	58	77	0	58	0	0
		B	95	9	0	7	0	0
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	A	16	196	0	156	0	0
		B	67	64	0	54	0	0
		C	70	62	0	25	0	0
		D	90	22	*0*	*9*	*0*	*0*
		E	93	13	*0*	*4*	*0*	*0*
17	PA 230/PA 743	A	21	181	0	125	0	0
		B	61	70	1	49	0	0
		C	32	144	0	89	0	0
		D	24	169	0	94	0	0
18	State Road/ Centerville Road	A	50	90	0	64	0	0
		B	9	220	0	107	0	0
19	PA 462 & SR 1002 - King and Orange Streets	A	47	107	1	82	0	0
		B	36	137	0	120	0	0
		C	28	154	0	115	0	0
		D	44	112	0	77	0	0
20	US 222 - Prince, Queen, Church & Lime	A	39	128	1	83	0	0
		B	1	400	0	288	0	0
21	US 322	A	56	83	0	39	0	0
		B	8	224	1	142	0	0
		C	33	143	0	84	0	0

CMP Corridor: Transit Line Overlap

#	Corridor	Seg	% Length overlapping with transit line
1	PA 501 - Lititz Pike	A	100%
		B	100%
		C	100%
		D	100%
		E	100%
2	PA 272 - Oregon Pike	A	100%
		B	61%
		C	100%
		D	100%
		E	0%
		F	0%
3	PA 23 - New Holland Pike/Avenue.	A	100%
		B	100%
		C	100%
		D	100%
		E	100%
		F	100%
		G	0%
		H	0%
4	PA 340 - Old Philadelphia Pike	A	100%
		B	100%
		C	100%
		D	100%
5	US 30	A	0%
		B	0%
		C	0%
		D	0%
		E	100%
		F	100%
		G	52%
		H	0%
6	King Street (PA462 East)	A	100%
		B	100%
7	US 222/PA 272 - Willow Street Pike	A	100%
		B	55%
		C	0%
8	PA 741 - Rohrerstown Road	A	0%
		B	100%
		C	100%
		D	100%
		E	27%
		F	0%
		G	0%
9	PA 462/PA 441 - Columbia Avenue	A	100%
		B	100%
		C	100%
		D	100%
		E	89%
		F	0%
		G	0%

CMP Corridor: Transit Line Overlap (continued)

#	Corridor	Seg	% Length overlapping with transit line
10	PA 23 - Marietta Pike	A	100%
		B	100%
		C	100%
11	Harrisburg Pike (SR 4020)	A	31%
		B	100%
		C	50%
		D	0%
		E	60%
12	Manheim Pike (PA72)	A	57%
		B	32%
		C	100%
		D	100%
		E	30%
13	Fruitville Pike (PA 772/SR4011)	A	100%
		B	100%
		C	0%
		D	0%
		E	0%
14	PA 896/PA 741	A	0%
		B	0%
		C	0%
		D	0%
		E	0%
15	PA41	A	0%
		B	0%
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	A	62%
		B	100%
		C	100%
		D	100%
		E	25%
17	PA 230/PA 743	A	100%
		B	100%
		C	100%
		D	0%
18	State Road/ Centerville Road	A	0%
		B	0%
19	PA 462 & SR 1002 - King and Orange Streets	A	48%
		B	94%
		C	100%
		D	0%
20	US 222 - Prince, Queen, Church & Lime	A	0%
		B	32%
21	US 322	A	0%
		B	58%
		C	0%

CMP Corridor: Overlap with Priority Places Identified in Places 2040

#	Corridor	Seg	% Urban Growth	# intersecting Cities/ Boroughs	% Priority Corridor	# Primary or Secondary Mobility Hubs	Nearby Existing or Proposed Trail
1	PA 501 - Lititz Pike	A	100		100	1	
		B	100		100		
		C	86		100		
		D	100	1	50	1	
		E	100		0		
2	PA 272 - Oregon Pike	A	100		100	1	
		B	100		100		
		C	62		100		1 Existing
		D	100	1	76		1 Existing
		E	100		100		1 Existing
		F	100		100		1 Proposed
3	PA 23 - New Holland Pike/Avenue.	A	100	1	87		1 Proposed
		B	87		100		1 Proposed
		C	100		100		1 Proposed
		D	100		100	1	1 Proposed
		E	71		100		1 Proposed
		F	100	1	42	1	1 Proposed
		G	100		0		1 Proposed
		H	61		100		1 Proposed
4	PA 340 - Old Philadelphia Pike	A	100		0		
		B	90		7		
		C	30		100		
		D	99		100		
5	US 30	A	100		0		
		B	100		0		
		C	100		0		
		D	100		0		
		E	100		0	1	
		F	62		0		
		G	86		100		
		H	84		0		
6	King Street (PA462 East)	A	100		100		
		B	100		100		
7	US 222/PA 272 - Willow Street Pike	A	87		0		1 Proposed
		B	100		0		1 Proposed
		C	86		0		1 Proposed
8	PA 741 - Rohrerstown Road	A	100		0		
		B	100		0		
		C	100		0		
		D	100		0		
		E	100		0		
		F	100		0		
		G	100	1	0	1	
9	PA 462/PA 441 - Columbia Avenue	A	100	1	7		
		B	100		100		
		C	100	1	60		
		D	100	1	80		
		E	81		100		
		F	100	1	49	1	
		G	63	1	7		

CMP Corridor: Overlap with Priority Places Identified in Places 2040 (continued)

#	Corridor	Seg	% Urban Growth	# intersecting Cities/ Boroughs	% Priority Corridor	# Primary or Secondary Mobility Hubs	Nearby Existing or Proposed Trail
10	PA 23 - Marietta Pike	A	100	1	46		
		B	100		100		
		C	100		100		
11	Harrisburg Pike (SR 4020)	A	100	1	52		1 Proposed
		B	100		100		1 Proposed
		C	100		100		
		D	100		100		
		E	90		100		
12	Manheim Pike (PA72)	A	100		100		
		B	100		100		
		C	100	1	71		
		D	47	2	98		
		E	100	1	0	1	
13	Fruitville Pike (PA 772/SR4011)	A	100		100		
		B	100		100		
		C	100		100		
		D	94		100		
		E	55		100		
14	PA 896/PA 741	A	93		0		
		B	53		0		
		C	100	1	0		
		D	66	1	86		
		E	67	1	0		
15	PA41	A	100		11		
		B	94		0		
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	A	100	1	64		
		B	100		100		
		C	100	1	68		
		D	100	1	0	1	
		E	100		0	1	
17	PA 230/PA 743	A	91	1	85	1	
		B	89		100		
		C	100	1	76		
		D	96	1	0		
18	State Road/ Centerville Road	A	100		0		
		B	100		0		
19	PA 462 & SR 1002 - King and Orange Streets	A	100	1	0		
		B	100	1	17		
		C	100	1	0		
		D	100	1	0		
20	US 222 - Prince, Queen, Church & Lime	A	100	1	0		
		B	100	1	25	2	
21	US 322	A	100		0		
		B	100	1	0	1	
		C	49		0		

CMP Corridor: Area Character Using Area Information From Places 2040[20]

#	Corridor	Seg	Natural		Agriculture		Rural Community		Suburban	Urban	Urban Core		Special District		Buildable Land
			Preservation	Conservation	Preservation	Conservation	Core	Other Developed			Borough	City	Airport	Industrial	
1	PA 501 - Lititz Pike	A							100%						
		B							89%	11%					
		C			14%				57%	5%			23%		
		D							38%	44%	16%			2%	
		E							45%					55%	
2	PA 272 - Oregon Pike	A							100%						
		B							100%						
		C		3%	14%	21%	1%	10%	42%						
		D							72%	1%	9%			19%	
		E		10%					72%					6%	12%
		F							94%					0%	6%
3	PA 23 - New Holland Pike/Avenue.	A							31%	38%				31%	
		B		5%	13%				68%	14%					
		C							83%	9%				8%	
		D							27%	72%					1%
		E			29%				56%	15%					
		F							55%	17%	24%				3%
		G							91%						9%
		H			39%				52%						
4	PA 340 - Old Philadelphia Pike	A							99%					1%	
		B				10%	21%	7%	62%						
		C			68%	2%	21%	6%							
		D			1%		76%	6%							
5	US 30	A							100%						
		B		6%					89%					5%	
		C							85%					15%	
		D		3%					84%					13%	
		E							100%						
		F		7%	38%		16%	36%	3%						
		G			14%		20%	66%							
		H			16%			84%							
6	King Street (PA462 East)	A		21%					62%	17%					
		B		1%					99%						
7	US 222/PA 272 - Willow Street Pike	A		20%	2%	11%			56%	11%				0%	
		B							85%	15%					
		C				14%			86%						

[20] https://www.places2040.com/characterzones

CMP Corridor: Area Character Using Area Information From Places 2040 (continued)

#	Corridor	Seg	Natural		Agriculture		Rural Community		Suburban	Urban	Urban Core		Special District		Builable Land
			Preservation	Conservation	Preservation	Conservation	Core	Other Developed			Borough	City	Airport	Industrial	
8	PA 741 - Rohrerstown Road	A							46%						
		B		10%					90%						
		C							100%						
		D							100%						
		E							55%						45%
		F		38%					36%					26%	0%
		G		11%					18%	10%	6%			43%	12%
9	PA 462/PA 441 - Columbia Avenue	A		5%					74%	20%					
		B							98%						
		C							62%	17%	21%				
		D							94%	5%	2%				
		E				19%			73%						
		F							19%	53%	10%			18%	
		G	20%							6%				36%	
10	PA 23 - Marietta Pike	A								86%					14%
		B		6%					92%	2%					
		C							100%						
11	Harrisburg Pike (SR 4020)	A							49%	0%					35%
		B							66%	7%				26%	1%
		C		15%					71%						5%
		D							100%						0%
		E		11%	3%				40%	26%				19%	1%
12	Manheim Pike (PA72)	A												100%	
		B							79%					21%	
		C		10%					63%	12%	14%			1%	
		D		5%	34%	19%			39%	1%				2%	
		E							0%	51%	49%				
13	Fruitville Pike (PA 772/SR4011)	A							23%					77%	
		B							99%					1%	
		C							100%						
		D			3%	3%			94%						
		E		5%	40%	6%			47%						
14	PA 896/PA 741	A				7%	2%	22%	69%						
		B		12%	46%				38%						
		C							57%	34%	10%				
		D			34%				47%	16%	3%				
		E			33%				42%						

CMP Corridor Area Character Using Area Information From Places 2040 (continued)

#	Corridor	Seg	Natural		Agriculture		Rural Community		Suburban	Urban	Urban Core		Special District		Buildable Land
			Preservation	Conservation	Preservation	Conservation	Core	Other Developed			Borough	City	Airport	Industrial	
15	PA41	A					17%	25%	30%						
		B							53%						
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	A							44%	48%				0%	8%
		B							100%						
		C							1%	64%	35%				
		D							3%	73%	7%			17%	
		E							9%	47%	16%				29%
17	PA 230/PA 743	A				9%			38%	16%	15%			16%	
		B			11%				86%						
		C							54%	26%	20%				
		D		32%		1%			38%	9%	21%				
18	State Road/ Centerville Road	A							73%					27%	
		B							80%					13%	
19	PA 462 & SR 1002 - King and Orange Streets	A								81%		19%			
		B								65%		24%			11%
		C								85%		15%			
		D								80%		20%			
20	US 222 - Prince, Queen, Church & Lime	A		1%						93%				6%	0%
		B							31%	47%		16%			7%
21	US 322	A							80%	20%					
		B		5%					50%	25%	17%				2%
		C		18%	38%				44%						

CMP Average Trip Lengths Based on StreetLight Data

#	Location	Corridor	Distance								
			0-1 mi	1-2 mi	2-5 mi	5-10 mi	10-20 mi	20-30 mi	30-40 mi	40-50 mi	50+ mi
1	PA 501 - Lititz Pike	1B	0%	1%	20%	37%	31%	8%	2%	1%	1%
		1D	2%	8%	22%	29%	29%	7%	1%	1%	1%
2	PA 272 - Oregon Pike	2B	1%	3%	22%	28%	29%	10%	4%	1%	1%
		2D	0%	1%	7%	19%	49%	16%	5%	1%	1%
3	PA 23 - New Holland Pike/Avenue	3D	1%	4%	11%	22%	42%	15%	4%	1%	1%
4	PA 340 - Old Philadelphia Pike	4B	1%	2%	1%	22%	32%	19%	9%	3%	1%
5	US 30	5D	0%	0%	5%	23%	41%	22%	7%	1%	1%
		5E	1%	4%	13%	22%	25%	19%	11%	4%	1%
6	King Street (PA462 East)	6A	1%	5%	36%	32%	18%	6%	1%	1%	1%
7	US 222/PA 272 - Willow Street Pike	7A	0%	1%	15%	30%	27%	17%	5%	3%	1%
8	PA 741 - Rohrerstown Road	8B	1%	3%	18%	29%	32%	12%	3%	1%	1%
		8C	2%	6%	20%	28%	28%	11%	3%	1%	1%
		8D	1%	3%	18%	29%	32%	12%	3%	1%	1%
9	PA 462/PA 441 - Columbia Avenue	9A	2%	5%	29%	37%	21%	4%	1%	0%	1%
10	PA 23 - Marietta Pike	10B	1%	3%	23%	40%	27%	5%	1%	0%	1%
11	Harrisburg Pike (SR 4020)	11D	0%	2%	25%	35%	27%	7%	2%	1%	1%
12	Manheim Pike (PA 72)	12C	1%	5%	20%	28%	29%	12%	3%	1%	1%
14	PA 896/PA 741	14C	1%	4%	19%	20%	32%	14%	6%	4%	1%
15	PA 41	15A	1%	2%	11%	15%	27%	20%	12%	11%	2%
16	PA 999 & SR 3029 - Millersville Pike, George/Frederick Sts.	16B	0%	2%	34%	39%	18%	4%	1%	0%	1%
17	PA 230/PA 743	17A	1%	3%	20%	43%	22%	7%	2%	1%	1%
18	State Road/ Centerville Road	18B	0%	3%	22%	31%	34%	8%	1%	0%	0%
19	PA 462 & SR 1002 - King and Orange Streets	19C	5%	15%	34%	25%	14%	5%	1%	1%	1%
20	US 222 - Prince, Queen, Church & Lime	20B	2%	8%	28%	23%	22%	11%	3%	2%	1%
21	US 322	21C	0%	2%	5%	21%	41%	19%	9%	2%	1%

CMP Completed Studies

Study	Corridor	Date	Link
222/30 Interchange (PennDOT)	PA 272 – Oregon Pike	(In Process)	
Lincoln Highway Streetscape Plan Phase 2	US 30	2015	https://lancastercountyplanning.org/DocumentCenter/View/544/Final-Route-30-Streetscape-Plan?bidId=
Rohrerstown Road and Good Drive Traffic Study	PA 741 – Rohrerstown Road	2006	https://lancastercountyplanning.org/DocumentCenter/View/1303/Rohrerstown-Rd-Good-Drive-Traffic-Study?bidId=
SR 283/230 Corridor Study	PA 230/PA 743	2018	https://lancastercountyplanning.org/DocumentCenter/View/1046/SR-283230-Corridor-Study