Congestion Management Process

Procedures

Updated July 2021

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

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

DVRPC serves strictly as an advisory agency. Any planning or design concepts as prepared by DVRPC are conceptual and may require engineering design and feasibility analysis. Actual authority for carrying out any planning proposals rest solely with the governing bodies of the states, local governments or authorities that have the primary responsibility to own, manage or maintain any transportation facility.

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

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

DVRPC is funded through a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for the findings and conclusions herein, which may not represent the official views or policies of the funding agencies.

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Executive Summary

The Congestion Management Process (CMP) is an ongoing and systematic process that uses performance-based and other measures to identify and prioritize congested locations on the regional transportation network, analyzes potential causes, develops multimodal transportation strategies to mitigate congestion, and evaluates the effectiveness of implemented project strategies to improve mobility and enhance safety across the region. Where more Single-Occupant Vehicle (SOV) road capacity is necessary to mitigate congestion, the CMP includes potential supplemental strategies to reduce travel demand, improve operations, and get the most long-term value from the investment.

New major SOV capacity-adding projects may be appropriate when no other strategies reasonably reduce congestion, but these projects must be developed in an appropriate way. They must include multimodal supplemental strategy improvements to get the most long term value from the investment.

This technical memorandum provides documentation and guidance to Pennsylvania and New Jersey departments of transportation (PennDOT and NJDOT), project managers, county planners, and other agencies on how projects move through the CMP and how to review potential Transportation Improvement Program (TIP) projects for consistency with the CMP. It includes diagrams and checklists, and is a continually evolving document.

Projects that propose to add SOV road capacity using federal transportation funds in the Delaware Valley Regional Planning Commission (DVRPC) region must be consistent with the CMP or they cannot be programmed for Final Engineering on the TIP. DVRPC uses the CMP approach with all TIP projects regardless of funding, as people generally care more about how transportation serves their needs than how the improvements are funded. The easiest way for project managers to proceed to be consistent with the CMP is to contact DVRPC at the start of a study or project that seems likely to add SOV road capacity. The DVRPC approach has considerable flexibility, complies with federal regulations, and helps advance regional goals.

Chapter 1: Introduction

This memorandum includes procedures relating to the CMP at the DVRPC. It complements the *2019 Congestion Management Process* report (DVRPC Publication 20010; hereafter *CMP Report*) and other CMP documents, and provides details about how projects move through the CMP and whether they are consistent with CMP procedures.

A first version of this memorandum was prepared in 2005 and has since evolved to meet the needs expressed by organizations over time. The most significant changes in the past include:

- **clarified how projects move through the CMP:** An overview of steps in the CMP project review process were developed, and then more detailed parts were included as checklists.

- **formalized the review process:** CMP projects were originally reviewed by staff to determine if they involved major SOV capacity-adding components. However, a more formal process was introduced during the 2008-2009 CMP update that follows the Air Quality Conformity Interagency Consultation process. Information and preliminary conclusions about projects that seem likely to be major SOV capacity-adding improvements are circulated to a small project team. After a comment period, a summary of projects is provided to the CMP Advisory Committee.

1.1 Background on the CMP

Federal regulations require that CMPs be implemented as an ongoing part of the metropolitan planning process. Data is collected and analyzed against performance measures, congested locations are prioritized, potential causes of congestion are reviewed, strategies are recommended to mitigate congestion, recommendations are made for implementation, and improvements are evaluated for effectiveness.

Congestion and other CMP objective measures are used to identify and prioritize congested locations, and then a list of strategies are recommended to mitigate congestion based on identifying any known causes, and from guidance from the CMP Advisory Committee. These congested locations are analyzed and mapped by focus roadway corridor, intersection bottleneck, and road segment. Projects that exist at these locations may be given higher priority, but they need to be weighed against the Long-Range Plan and other program plans. The analysis of performance measure results based on CMP objective criteria allows projects to be prioritized based on quantitative measures, with the expectation that higher-priority projects will generate the most benefit to the regional transportation network. The CMP analysis results are utilized by DVRPC staff to help support the project selection process working with PennDOT, NJDOT, counties, and other stakeholders. The CMP is also intended to be used at the project level to help get the most long-term value from an investment.

1.2 Federal Requirements

Federal regulations provide guidance on how Metropolitan Planning Organizations (MPOs), like DVRPC, should address congestion management. The original regulations date back to the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA LU). These regulations were largely unchanged by subsequent federal legislation, including the Moving Ahead for Progress in the 21st Century Act (MAP-21), and the current Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94), which was signed into law in December 2015. The CMP is a requirement under the regulations (23 Code of Federal Regulations [CFR] Parts 450.322 and 500.109) for Urbanized Areas with populations greater than 200,000, known as Transportation Management Areas (TMAs). These regulations specify that the CMP program be implemented as a continuous part of the metropolitan planning process like the other core federal requirements: Long-Range Plan, TIP, and Unified Planning Work Program. According to the regulations, MPOs that serve a TMA must maintain a CMP that provides for:

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

Furthermore, the requirement that SOV capacity-adding projects have supplemental strategies comes from these regulations. A key passage follows below:

> (e) In a TMA designated as nonattainment area for ozone or carbon monoxide pursuant to the Clean Air Act, federal funds may not be programmed for any project that will result in a significant increase in the carrying capacity for SOVs (i.e., a new general purpose highway on a new location or adding general purpose lanes, with the exception of safety improvements or the elimination of bottlenecks), unless the project is addressed through a congestion management process meeting the requirements of this section.
>
> (f) In TMAs designated as nonattainment for ozone or carbon monoxide, the congestion management process shall provide an appropriate analysis of reasonable (including multimodal) travel demand reduction and operational management strategies for the corridor in which a project that will result in a significant increase in capacity for SOVs (as described in paragraph (e) of this section) is proposed to be advanced with Federal funds. If the analysis demonstrates that travel demand reduction and operational management strategies cannot fully satisfy the need for additional capacity in the corridor and additional SOV capacity is warranted, then the congestion management process shall identify all reasonable strategies to manage the SOV facility safely and effectively (or to facilitate its management in the future). Other travel demand reduction and operational management strategies appropriate for the corridor, but not appropriate for incorporation into the SOV facility itself, shall also be identified through the congestion management process. All identified reasonable travel demand reduction and operational management strategies shall be incorporated into the SOV project or committed to by the State and MPO for implementation.

1.3 Coordinating with the Long-Range Plan

CMP objectives flow from the transportation goals of the Long-Range Plan, and roadway and other facility locations that meet more CMP objective criteria than others will be given stronger support for recommended improvements to manage congestion. A primary objective of the CMP is drawn from the Long-Range Plan, specifically to "increase mobility and reliability, while reducing congestion and vehicle miles traveled" on the transportation network. The CMP should help provide strategies to minimize growth in recurring and non-recurring congestion and improve the reliability of the transportation system. The Long-Range Plan contains additional visions and goals that serve as guidance for the CMP. They include: (1) integrate existing and emerging transportation modes into an accessible, multimodal, mobility as a service network, which collects real-time data, and uses it to plan and pay for travel using the best options available. Transit, walking, and biking—including the Circuit Trail system—are integral components of this network; (2) improve global connections—facilitate goods movement and aviation, support the Federal Railroad Administration's Northeast Corridor Future plan, and expand broadband, wi-fi, and 5G cellular infrastructure; (3) rebuild and modernize the region's transportation assets to achieve and maintain a state of good repair, including full ADA accessibility; (4) achieve Vision Zero—no fatalities or serious injuries from traffic crashes by 2050; (5) develop inclusive, healthy and walkable communities; (6) preserve and protect the natural environment; and (7) strengthen transportation network security and cybersecurity.

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

1.4 Coordinating with the TIP

The TIP development process determines the prioritized list of projects proposed for funding in the region. It incorporates a variety of considerations which include the CMP. The TIP is guided by a TIP Committee for each state, whose members are also part of DVRPC's Regional Technical Committee (RTC).

From the perspective of the CMP, the Long-Range Plan and TIP committees are encouraged to prioritize investments in the transportation system within congested corridors first, then in emerging and regional corridors, and lastly in areas outside of any corridor. The purpose of emerging growth corridors is to preserve their function and character, and to protect them from becoming further congested by using Smart Growth and similar strategies. Emerging growth areas are generally not the most efficient places for new capacity, although new capacity can be evaluated using the checklist for major SOV capacity-adding projects proposed outside congested corridors (see Chapter 3.2).

To encourage sound regional planning, project sponsors of all TIP projects should reference the *CMP Report* at www.dvrpc.org/Products/20010/ and the CMP geographic information system (GIS) website at www.dvrpc.org/webmaps/CMP2019/. The website contains strategies to manage congestion for each CMP corridor area. The strategies are based on the context of the corridor, including if the project is in an urban or rural location, or on a limited or non-limited access roadway. If the strategy selected for a project is not a CMP "Very Appropriate" strategy, then feedback is requested on why Very Appropriate ones were not included to help refine the ongoing CMP process. All MPO partners should provide adopted corridor studies and plans to incorporate into the CMP to facilitate coordination within the CMP corridor areas.

DVRPC coordinates internally and with other partners to implement the CMP. For the four counties in the New Jersey portion of the DVRPC region, CMP input to the TIP has been coordinated through the NJDOT Capital Program Committee and through other efforts with NJDOT. For the Pennsylvania counties, PennDOT has a PennDOT Connects process that helps integrate CMP congestion mitigation strategies for projects in the TIP.

Chapter 2: Review of TIP Projects

All TIP projects will be reviewed with regard to the CMP (1) when they are received for consideration in a TIP update; (2) when the project is amended; or (3) if there is a significant change in a project description. When there are changes to TIP projects that may affect whether they are major SOV capacity-adding, the changes should be shared first with the project sponsor for any clarifications and then with the project team and the CMP Advisory Committee.

Project managers should consider whether a proposed project is sufficient to manage the problem, or whether there is a need for additional projects in the future in the same vicinity to address the specific problem. This consideration may well go to a broader planning level but builds upon addressing 23 CFR 771.111(f) regarding segmentation as discussed in "NEPA [National Environmental Policy Act] Transportation Decisionmaking" (www.environment.fhwa.dot.gov/nepa/trans_decisionmaking.aspx). Developing a set of supplemental strategies for current and anticipated projects at the same time would be more efficient than doing so as separate individual projects.

The CMP review of TIP projects includes: assigning a project category, location type, and consistency status. The project categories include: major SOV capacity-adding, minor SOV capacity-adding, not SOV capacity-adding, and not yet determined. The project location type may be in a congested corridor area, focus roadway corridor, intersection bottleneck, emerging growth corridor area, or not in a corridor. Finally, the project consistency status could be updated as either consistent, for further review, or not consistent. A more detailed analysis for determining the CMP project category is described in the next section.

2.1 CMP Project Category

A CMP project category is used in the TIP/Long-Range Plan Universal Benefit Evaluation Criteria, and ones with major SOV capacity-adding typically attract the most attention. The other categories include minor SOV capacity-adding, not SOV capacity-adding, and not yet determined. As part of federal regulations for major SOV capacity-adding projects, the CMP requires an appropriate analysis of all reasonable travel demand reduction and operational management strategies to determine whether they can be used as alternatives to adding roadway capacity in the corridor. If it is determined that more capacity is needed, then the CMP will be used to help identify which such improvement strategies should be incorporated in the project to manage SOV capacity before federal funds can be programmed for Final Engineering. These improvements are to be incorporated into the project and committed to by the state and MPO for implementation. These steps reflect regulation 23 CFR parts 450 and 500. Regulation 23 CFR 450.320(e) in nonattainment areas for ozone or carbon monoxide states that:

> Federal funds may not be programmed for any project that will result in a significant increase in the carrying capacity for SOV's (i.e. a new general purpose highway on a new location or adding general purposes lanes, with the exception of safety improvements or the elimination of bottlenecks), unless the project is addressed through a congestion management process meeting the requirements of this section.

The regulations do not include a definition of safety improvements or the elimination of bottlenecks, but since almost all SOV capacity-adding projects address both safety and bottlenecks, the DVRPC CMP will apply to all projects that add major SOV capacity. The CMP supports the integrated planning that helps the region advance toward its Long-Range Plan goals, which include reducing congestion and improving reliability.

A CMP project category is determined, in part, by reviewing the air quality conformity project category, and the Long-Range Plan project classifications. Typically, if the project is air quality significant, then the CMP category is major SOV capacity-adding; however, there are exceptions. For example, if a project links two or more traffic signals to coordinate and mitigate congestion, this would be considered air quality significant but not major SOV capacity-adding in the CMP. However, if it involved enough intersections and other minor SOV capacity-adding

pieces along a corridor to substantially affect regional travel patterns, then it would be considered major SOV capacity-adding. Alternatively, there could be an instance where a project could be exempt from air quality but be major SOV capacity-adding, such as a project in the beginning phases where alternative capacity-adding strategies are being considered to mitigate congestion but have not been developed yet. The CMP should be used to start interacting with project partners as soon as possible.

Projects are often a combination of improvements and may sometimes be challenging to determine their CMP category. Research, judgment, and discussion should be used to determine the categories of CMP projects. The project descriptions will be used as a guide in these efforts.

The CMP Advisory Committee has developed a more formal approach over the years for determining the category of projects. The set of new or modified projects that seem to add major SOV capacity are circulated to a small ad hoc CMP project team consisting of the relevant representatives from the Federal Highway Administration (FHWA), state departments of transportation, applicable counties, and any project participants. After a comment period and any revisions, a summary is provided to the CMP Advisory Committee for more general review. If there are remaining questions or concerns, then they may be discussed with FHWA and other agencies, the RTC, or if necessary, the DVRPC Board. A more detailed description of the categories is provided below:

Not SOV capacity-adding: These projects are to a large extent based on whether the regional air quality codes are exempt. These exempt codes include safety projects (S1-S20), mass transit (M1-M11), air quality (A1-A2), and other (X1-X13).[1] Although transit projects may add capacity to move people, they do not add major SOV capacity and are considered exempt. Projects that are generally considered not SOV capacity-adding include the projects listed below:

- bicyclist and pedestrian improvements and programs;
- bridge rehabilitation/reconstruction;
- drainage projects;
- dam improvements;
- landscaping, streetscaping, or historic preservation/restoration improvements;
- noise barriers;
- paving and basic maintenance projects, including basic upgrades of signals;
- shoulder improvements and widenings, guide rail;
- sight distance improvements;
- widening roadways with substandard widths (retain same number of lanes);
- safety improvement projects and programs, and related Safe Routes to School efforts;
- Intelligent Transportation System (ITS) projects oriented toward traffic monitoring, traveler information, and emergency response (such as closed circuit television cameras or variable message signs);
- signage;
- transit projects;
- Traffic Demand Management (TDM) projects;
- railroad crossing improvements;
- non-highway infrastructure (such as parking garages);
- environmental mitigation projects such as wetlands replacements;
- Congestion Mitigation and Air Quality (CMAQ) projects;
- marketing (including outreach, education, and planning) of TDM and transit;
- regional and municipal planning and review of regulations, freight movement planning, GIS mapping and data gathering, and other general planning activities; studies that may result in specific large highway projects (such as an Environmental Impact Statement [EIS]) should go in other categories.

M**inor SOV capacity-adding:** These projects may slightly increase SOV road capacity but are not new through lanes or new roads that are likely to result in capacity increases that would significantly affect corridor or regional travel patterns. In many cases they would be isolated or spot improvements with no other projects nearby. These

[1] *PennDOT Project Review & Classification Guidelines For Regional Air Quality Conformity*, March 2014.

projects are reviewed for consistency with the CMP, including, in which corridor (or emerging corridor) they are located. This category includes the types of projects listed below:

- ITS projects that deal with traffic flow (such as linked arterial signal improvements);
- intersection improvements (such as turn lanes or alignment improvement); if many intersections are involved, then redesignate as major SOV capacity-adding;
- center turn lanes;
- acceleration/deceleration lanes, including approach and turn lanes for access points;
- jughandles;
- ramp revisions at existing interchanges;
- traffic circle at-grade cut-throughs;
- roundabouts;
- bottleneck improvements of a limited scale that do not significantly change corridor travel times or character;
- access management engineering and policy approaches that do not involve building major new capacity.

Example projects include the reconstruction of on- and off-ramps with new acceleration/deceleration lanes and additional enhancements that, taken together, do not change the function of the corridor. Another example project might be redesigning the intersection of two arterials with new through lanes and turning movements in a way that does not significantly change land uses or travel patterns.

Major SOV capacity-adding: These projects result in increases in SOV capacity that will likely impact regional or corridor travel patterns. These projects take into consideration, although are not determined by, projects that are modeled for air quality conformity or studies considered likely to result in non-exempt projects (Air Quality code SDN). They are reviewed for consistency with the CMP, including, which congested corridor they are located in. Other considerations include the Long-Range Plan project category status and state department of transportation project descriptions. A Long-Range Plan project category of "major regional roadway system expansion" would attract the most attention. Major SOV capacity-adding projects usually have project descriptions that likely result in one of the types of projects listed below:

- new roadway or bypass;
- additional through lanes on an existing highway;
- adding capacity to a corridor, where the corridor or regional travel patterns are likely to change: for example, improving many related intersections, along with other components that also add minor capacity;
- new interchange;
- adding missing moves to an existing interchange;
- grade separation of existing intersections;
- part-time shoulder use or flex lanes;
- If an EIS or similar study is underway in which significant alternatives add SOV capacity, it may be categorized as major SOV capacity-adding as a reminder for all partners to work together early on with expectation of further review once an alternative is selected. Otherwise, such a study would go in the not yet determined category. It is productive to include CMP considerations and DVRPC staff in the early stages of studies.

Note that the TIP project descriptions of major SOV capacity-adding projects must briefly list the supplemental commitments that will facilitate their management in the future.

Example projects include constructing a new or grade-separated interchange at an existing intersection to increase capacity and provide access to a major development in the vicinity that will change travel patterns in the corridor; building new travel lanes or using shoulder space by removing parking and other means to create new travel lanes in an existing cartway for a significant distance; or several minor SOV capacity-adding improvements that result in changing the character of the corridor.

Not yet determined: These projects are studies not yet at a point where the resulting project can be categorized. This entry may be used temporarily until more information is available about the project.

Chapter 3: Evaluating Consistency of Projects with the CMP

Projects are reviewed for consistency with the CMP as part of the federal requirements. To be consistent, a project manager should contact DVRPC staff when starting a study or project that is likely to result in adding road capacity. DVRPC staff can help guide the project through the CMP process (see Figure 1). DVRPC is available to assist in developing strategies for minor SOV capacity-adding projects, but major SOV capacity-adding ones are the most important to be reviewed. These projects are evaluated for consistency with the CMP based on various factors, most importantly on whether they are located in CMP congested corridor areas (see Figures 2 and 3). The mapping shows corridor areas by Interstate and Non-Interstate, and they are further categorized by subcorridor area. For example, I-476 is a congested corridor comprising five subcorridors stretching from the Lansdale area to I-95. The corridors and subcorridors can also be viewed on the CMP GIS website at www.dvrpc.org/webmaps/CMP2019. The project needs to be within one of these corridors as a starting point to be consistent. If a project is not located in these areas, then there is a higher burden of proof to move the project along. Other criteria include whether the project identifies reasonable strategies to manage the SOV capacity, whether the project is within a subcorridor where major SOV capacity-adding is a strategy (see Figure 4), whether the project is in a priority corridor (see Figure 5), whether the project ranks highly in a congested focus roadway facility or intersection bottleneck (see Figures 6 and 7), and whether it ranks highly in CMP objective measure criteria (see Figure 8).

3.1 Projects Located in a Congested Corridor

For major SOV capacity-adding projects to be consistent with the CMP, they must first be located within a CMP congested corridor area. A checklist of further criteria needs to be evaluated to determine consistency. This includes:

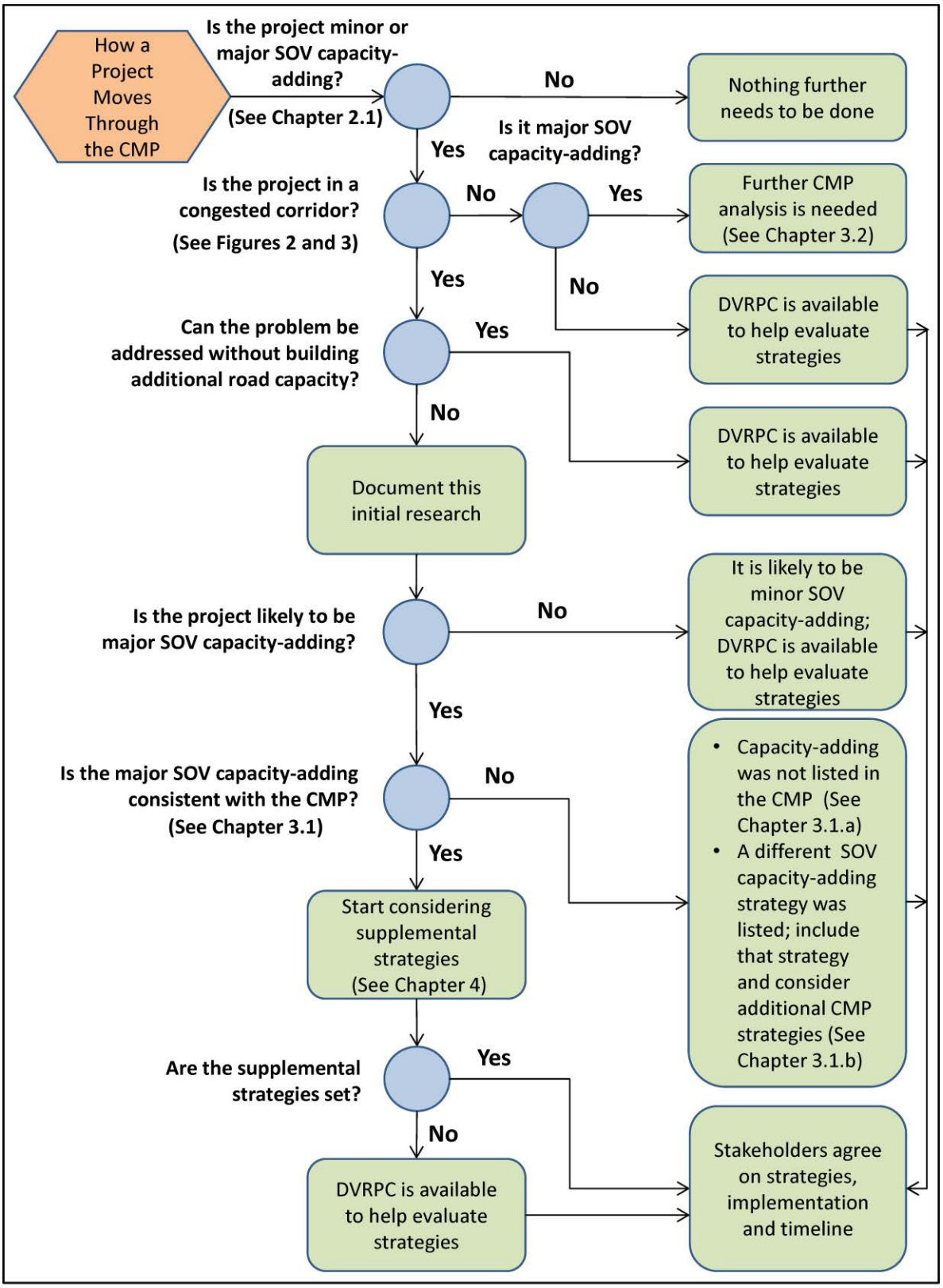
1. **Does the CMP identify major SOV capacity-adding as a strategy in the corridor area**? See Figure 4 for list of CMP corridors with major SOV capacity-adding as a strategy. There are several courses of action to take, depending on the existence of major SOV capacity-adding as a strategy. They include:
   - **a.** If the CMP does not include major SOV capacity-adding as a strategy, then provide technical analysis and develop at least two alternatives using the CMP "Very Appropriate," "Secondary," or "Strategies Appropriate Everywhere" universal strategies. The expectation is to develop at least two alternatives that use the listed strategies other than building new road capacity. This is an ideal time to work with a multimodal stakeholder group, including DVRPC, FHWA, Southeastern Pennsylvania Transportation Authority (SEPTA), New Jersey Transit Corporation (NJ Transit), counties, and other planning partners, such as Transportation Management Associations (TMAs). Draft material should be discussed with DVRPC before an evaluation is completed. The final recommended material will be forwarded to the stakeholder group and CMP Advisory Committee. Agreement on consistency of the project may be determined by consensus of the CMP Advisory Committee and DVRPC. If there are further concerns about the project, it may be discussed with FHWA/Federal Transit Administration (FTA) and, if necessary, with the RTC or DVRPC Board.
   - **b.** If the CMP does include major SOV capacity-adding as a strategy, but the strategy is different than the one proposed for the project, then document why the project strategy should be considered and provide this to DVRPC. A somewhat lighter level of analysis may be applied in changing from one SOV capacity-adding strategy to another, as compared to adding a new one for the first time in a corridor area.
   - **c.** If the CMP does include major SOV capacity-adding as a strategy, and the strategy is the same one that is proposed for the project, then start considering supplemental strategies.
2. **Does the project exist within a priority subcorridor area?** If projects are located within priority subcorridors, then added weight will be given toward moving the project along. See Figure 5 for locations of priority subcorridor areas. The TIP/Long-Range Plan Universal Benefit Evaluation Criteria provides benefits to projects that exist within priority subcorridor areas, which helps to focus where investments need to be made to support the goals of the DVRPC Long-Range Plan. Priority areas are, in part, designated based on whether they

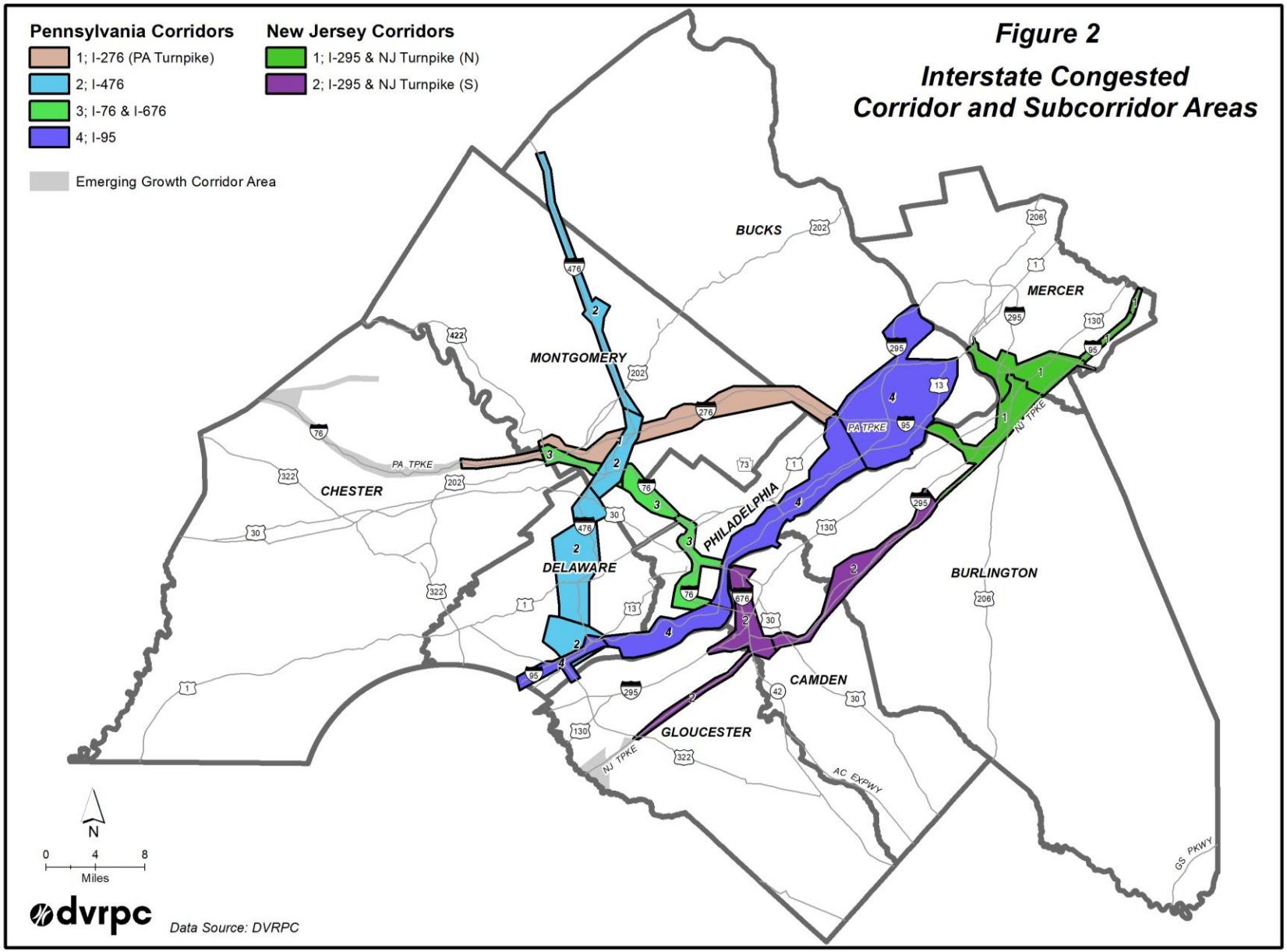
meet more CMP objective criteria than others, but they are also designated based on discussions with the CMP Advisory Committee. For example, congestion on a National Highway System roadway near passenger rail stations with high crash frequency, and within a Long-Range Plan land use center, will receive greater priority than locations where these factors are not present, since it meets more CMP objective criteria.

3. **Does the project exist within a congested roadway facility or intersection bottleneck location?** If so, then what is the peak-hour vehicle or volume delay ranking? See Figures 6 and 7 for congested roadway facilities and intersection bottlenecks, and the *CMP Report* for delay rankings.
4. **Does the project rank very highly or highly in CMP objective measure criteria?** See Figure 8 for CMP objective measure mapping. CMP objective measures flow from the Long-Range Plan goals. The objectives include: increase mobility and reduce congestion, increase reliability and accessibility, rebuild and maintain infrastructure, improve safety, facilitate goods movement, enhance security, support Long-Range Plan principles and land use, and implement the national Transportation Performance Management measures (specifically the Performance Management Rule 3 [PM3] measures). The CMP GIS web mapping can be used to identify the CMP objective measure scoring.
5. **As part of the federal regulations, does the project identify all reasonable strategies to manage congestion effectively (or to facilitate its management in the future)?** Other travel demand reduction and operational management strategies appropriate for the subcorridor, but not necessarily appropriate for the SOV facility itself, shall also be identified. All strategies shall be incorporated into the SOV project or committed to by the state and MPO for implementation with the "parent" project. In addition, commitments by other agencies, such as TMAs, are also accepted in the DVRPC process.
6. **Is the project included in the Long-Range Plan?** If not, and it is smaller in scale, is it compatible with the goals and strategies of the Long-Range Plan? If the project is larger in scale, then it may trigger a Long-Range Plan amendment.
7. **Are there other projects being proposed, scheduled, or underway that may impact this project or serve the same need?** Provide an explanation of how this project will be coordinated with them.
8. **Is the project included in regional, subregional, or locally adopted plans?** A brief explanation.

The checklist can be prepared by the project sponsor, consultants, the host county planning commission, or DVRPC. If the sponsor requests that DVRPC prepare the checklist, then there must be a reasonable amount of time scheduled for the evaluation and review. If the project is first being submitted as part of a TIP update, the submission should be submitted to DVRPC as early as possible with adequate project information. All questions on the checklist need to be completed, but there is proportionality to the level of effort expected based on the project size. Less analysis needs to be completed for a proposal to extend a collector road one mile than to extend a freeway ten miles. As a result of the evaluation, the project may be further refined and the results revised. DVRPC staff is available to assist in revising projects to better fit adopted plans and the CMP, or to suggest other funding sources.

Figure 1


How a Project Moves Through the CMP
Is the project minor or major SOV capacity-adding?
(See Chapter 2.1)
No
Nothing further needs to be done
Yes
Is it major SOV capacity-adding?
Is the project in a congested corridor?
(See Figures 2 and 3)
No
Yes
Further CMP analysis is needed (See Chapter 3.2)
Yes
No
DVRPC is available to help evaluate strategies
Can the problem be addressed without building additional road capacity?
Yes
No
DVRPC is available to help evaluate strategies
Document this initial research
Is the project likely to be major SOV capacity-adding?
No
It is likely to be minor SOV capacity-adding; DVRPC is available to help evaluate strategies
Yes
Is the major SOV capacity-adding consistent with the CMP? (See Chapter 3.1)
No
• Capacity-adding was not listed in the CMP (See Chapter 3.1.a)
• A different SOV capacity-adding strategy was listed; include that strategy and consider additional CMP strategies (See Chapter 3.1.b)
Yes
Start considering supplemental strategies (See Chapter 4)
Are the supplemental strategies set?
Yes
No
DVRPC is available to help evaluate strategies
Stakeholders agree on strategies, implementation and timeline


Pennsylvania Corridors
1; I-276 (PA Turnpike)
2; I-476
3; I-76 & I-676
4; I-95
Emerging Growth Corridor Area
New Jersey Corridors
1; I-295 & NJ Turnpike (N)
2; I-295 & NJ Turnpike (S)
Figure 2
Interstate Congested Corridor and Subcorridor Areas
BUCKS
MONTGOMERY
CHESTER
DELAWARE
PHILADELPHIA
MERCER
BURLINGTON
CAMDEN
GLOUCESTER
PA TPKE
NJ TPKE
AC EXPWY
GS PKWY
N
0 4 8
Miles
dvrpc
Data Source: DVRPC

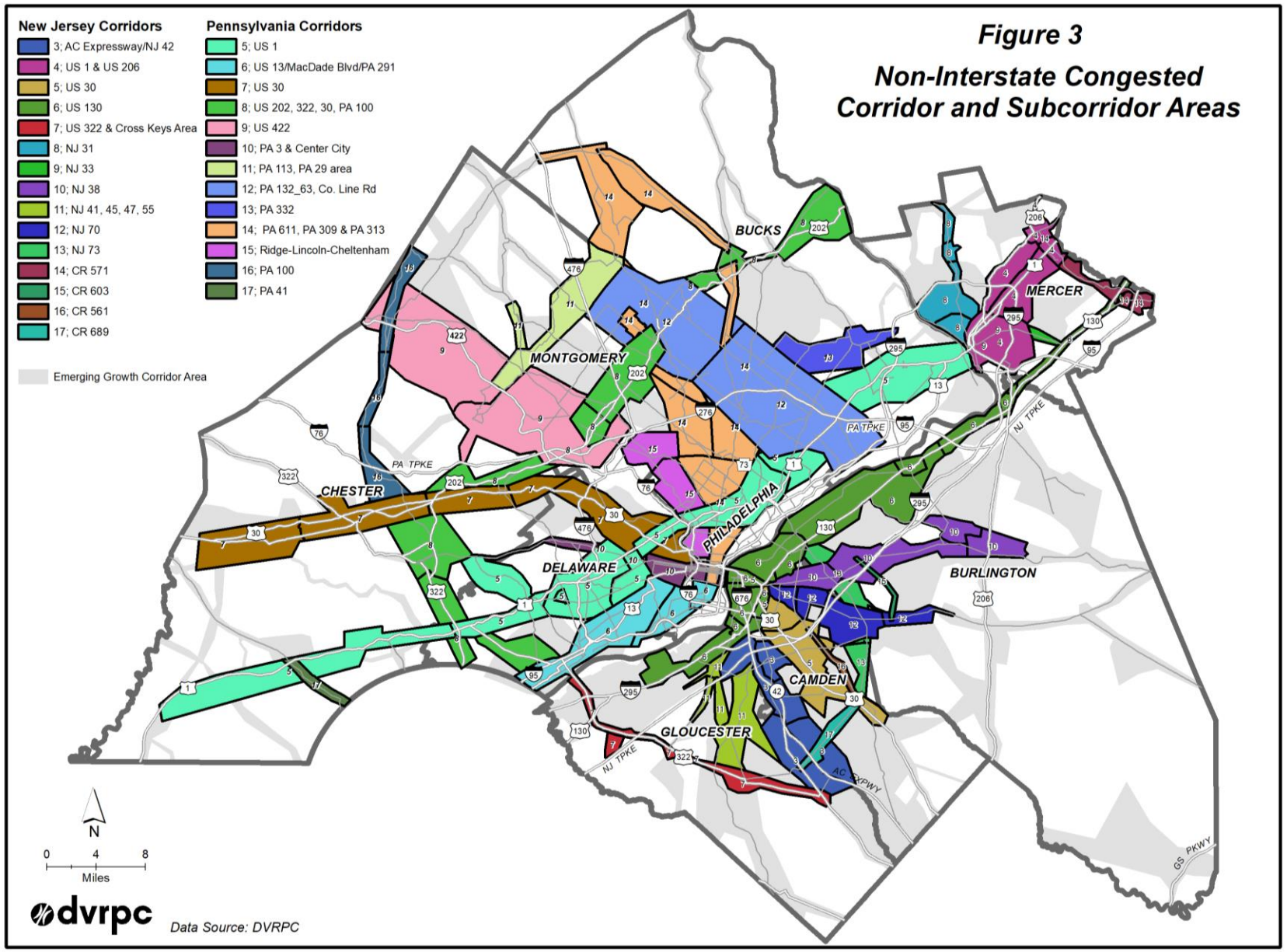


Figure 3
Non-Interstate Congested Corridor and Subcorridor Areas
New Jersey Corridors
3; AC Expressway/NJ 42
4; US 1 & US 206
5; US 30
6; US 130
7; US 322 & Cross Keys Area
8; NJ 31
9; NJ 33
10; NJ 38
11; NJ 41, 45, 47, 55
12; NJ 70
13; NJ 73
14; CR 571
15; CR 603
16; CR 561
17; CR 689
Pennsylvania Corridors
5; US 1
6; US 13/MacDade Blvd/PA 291
7; US 30
8; US 202, 322, 30, PA 100
9; US 422
10; PA 3 & Center City
11; PA 113, PA 29 area
12; PA 132_63, Co. Line Rd
13; PA 332
14; PA 611, PA 309 & PA 313
15; Ridge-Lincoln-Cheltenham
16; PA 100
17; PA 41
Emerging Growth Corridor Area
BUCKS
MONTGOMERY
CHESTER
DELAWARE
PHILADELPHIA
MERCER
BURLINGTON
CAMDEN
GLOUCESTER
PA TPKE
NJ TPKE
AC EXPWY
GS PKWY
N
0 4 8
Miles
dvrpc
Data Source: DVRPC

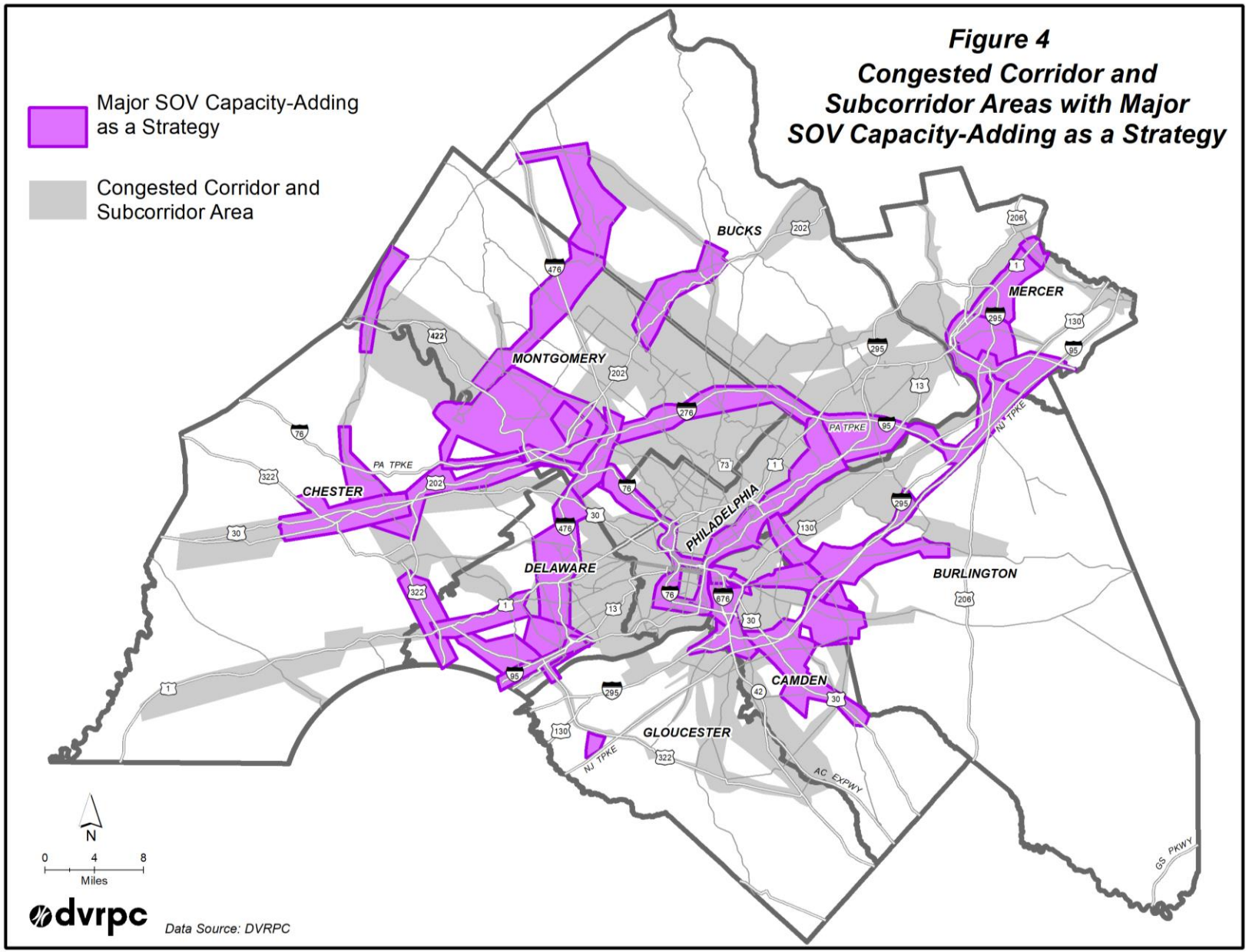


Figure 4
Congested Corridor and Subcorridor Areas with Major SOV Capacity-Adding as a Strategy
Major SOV Capacity-Adding as a Strategy
Congested Corridor and Subcorridor Area
BUCKS
MONTGOMERY
CHESTER
DELAWARE
PHILADELPHIA
MERCER
BURLINGTON
CAMDEN
GLOUCESTER
PA TPKE
NJ TPKE
AC EXPWY
GS PKWY
N
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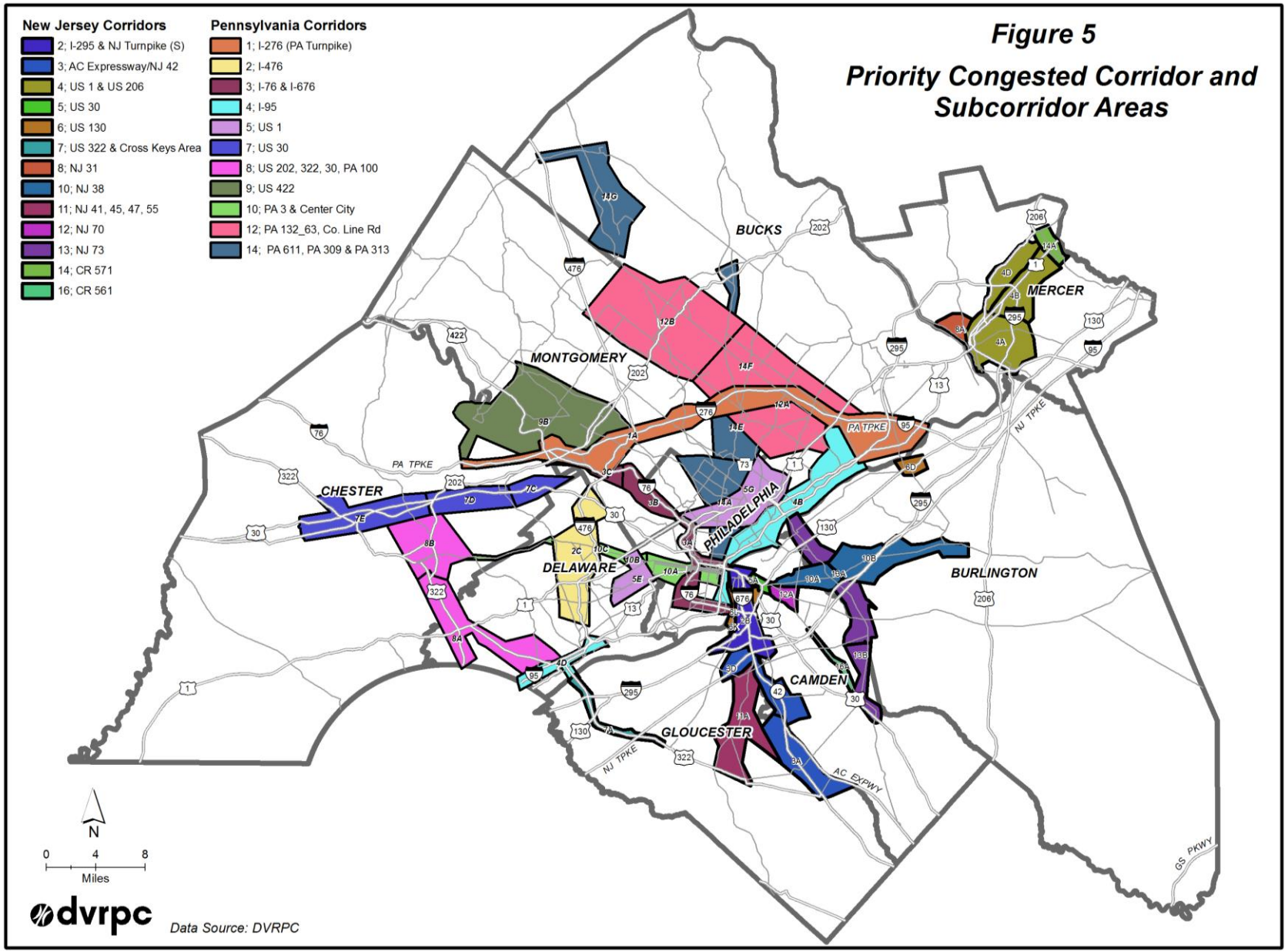
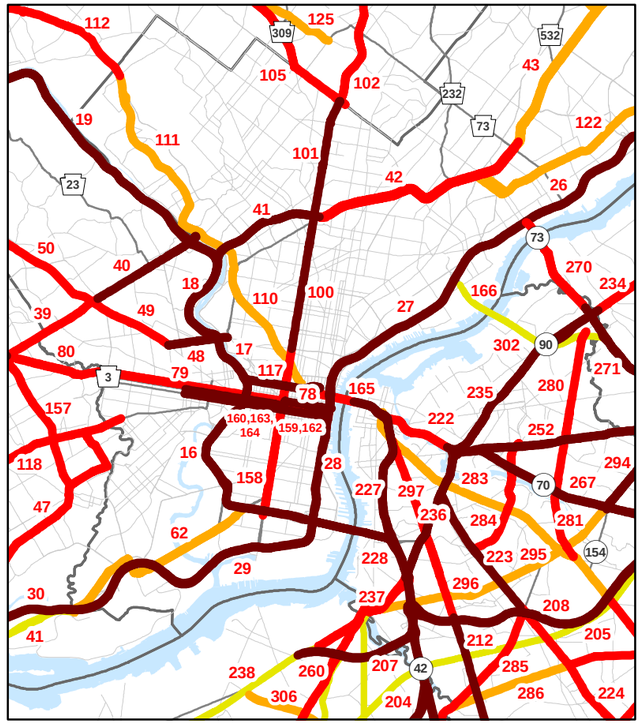


Figure 5
Priority Congested Corridor and Subcorridor Areas
New Jersey Corridors
2; I-295 & NJ Turnpike (S)
3; AC Expressway/NJ 42
4; US 1 & US 206
5; US 30
6; US 130
7; US 322 & Cross Keys Area
8; NJ 31
10; NJ 38
11; NJ 41, 45, 47, 55
12; NJ 70
13; NJ 73
14; CR 571
16; CR 561
Pennsylvania Corridors
1; I-276 (PA Turnpike)
2; I-476
3; I-76 & I-676
4; I-95
5; US 1
7; US 30
8; US 202, 322, 30, PA 100
9; US 422
10; PA 3 & Center City
12; PA 132_63, Co. Line Rd
14; PA 611, PA 309 & PA 313
BUCKS
MONTGOMERY
CHESTER
DELAWARE
PHILADELPHIA
MERCER
BURLINGTON
CAMDEN
GLOUCESTER
PA TPKE
NJ TPKE
AC EXPWY
GS PKWY
N
0 4 8
Miles
dvrpc
Data Source: DVRPC

Figure 6: Focus Roadway Facilities



11 Focus Roadway Facility ID

Peak Hour Volume Delay Rank

- Most Delayed
- Somewhat Delayed
- Somewhat Not Delayed
- Least Delayed
- Congested Corridor and Subcorridor Area
- Emerging Growth Corridor Area

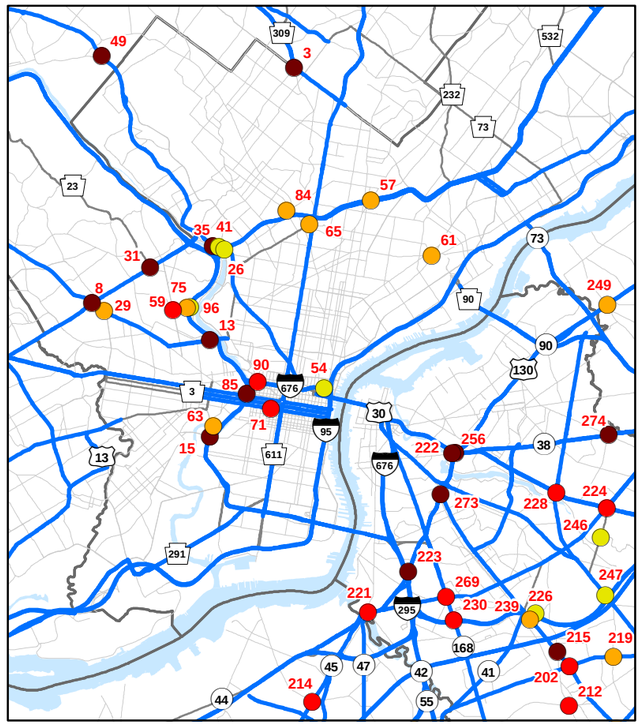
N

0 4 8
Miles

dvrpc

Data Source: DVRPC

Figure 7: Focus Intersection Bottlenecks



11 Bottleneck ID

Peak Hour Volume Delay Rank

- Most Delayed
- Somewhat Delayed
- Somewhat Not Delayed
- Least Delayed
- Focus Roadway Facility
- Congested Corridor and Subcorridor Area
- Emerging Growth Corridor Area

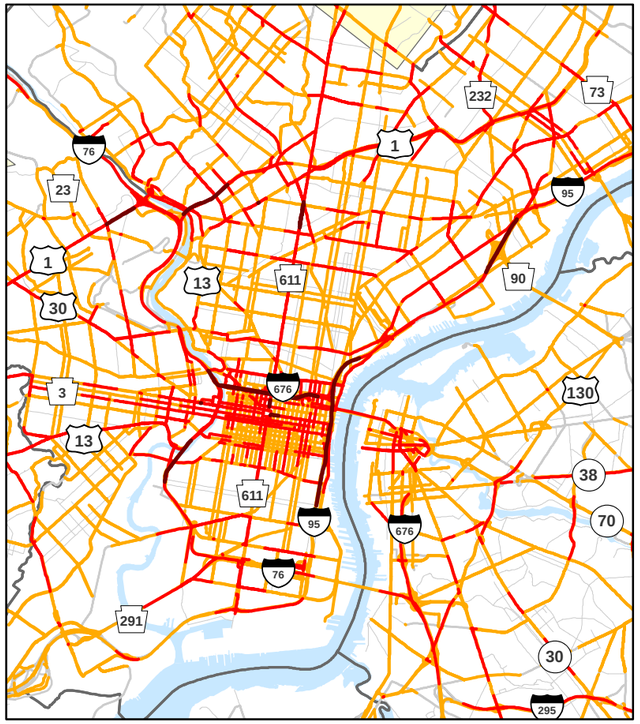
N

0 4 8
Miles

dvrpc

Data Source: DVRPC

Figure 8: CMP Objective Measure Score Totals



Measure Score Totals

- Very High
- High
- Medium
- Low
- Congested Corridor and Subcorridor Area
- Emerging Growth Corridor Area

Point totals based on CMP measure criteria that flow from CMP Objectives and Long-Range Plan (LRP) Transportation goals. They include:

- Increase Mobility and Reduce Congestion
- Increase Reliability and Accessibility
- Rebuild and Maintain Infrastructure
- Improve Safety
- Facilitate Goods Movement
- Enhance Security
- Support LRP Principles and Land Use
- Implement National Performance Measures (PM3)

N

0 4 8
Miles

dvrpc

Data Source: DVRPC

3.2 Projects Located Outside a Congested Corridor

If a proposed project adds major SOV road capacity outside of CMP congested corridors, then it faces a higher burden of proof to move forward. Detailed CMP analysis must be conducted that evaluates the project. The TIP development process will consider this analysis and how it compares to other capacity-adding projects listed on the TIP and Long-Range Plan. For such a project, the project manager should first contact DVRPC as early as possible and provide the project name, location, problem to be addressed, general scope and strategies, and sponsoring agency/municipality. DVRPC will clarify what further steps are necessary for the project to be considered. These steps may range from project refinements to analysis leading to the proposal of an amendment to the CMP.

Further technical analysis must be completed to evaluate such projects. This analysis can be prepared by the project sponsor, consultants, the host county planning commission, or DVRPC. If DVRPC is requested to prepare the evaluation, there must be a reasonable amount of time scheduled for review. The project sponsor would likely need to find funding for DVRPC to perform a full study, and it would likely need to be incorporated into DVRPC's Work Program. The analysis could also be incorporated into a corridor study or similar study. The work must be done with a multimodal steering committee that should include DVRPC and other relevant parties. Where appropriate, the formal adoption of the study recommendations by stakeholders gives added authority for the project to move forward. Normally, such resulting corridor studies by DVRPC or its member agencies are incorporated in the updates to the CMP.

The following questions need to be addressed in the technical analysis:

1. **Does the project advance the goals and strategies of the regional Long-Range Plan and adopted plans of the municipality(s) or county(s)?** A brief explanation.
2. **Does the facility or nearby road contain a Travel Time Index greater than 1.5, and a Planning Time Index greater than 3.0 for the peak hour?** A brief explanation.
3. **Is the volume/capacity (V/C) ratio of the facility, or nearby road, equal to or greater than 0.85 for the peak hour**? The work for this task involves using the DVRPC Travel Demand Model and the current and Long-Range Plan horizon year no-build traffic volumes.
4. **Is the project in an emerging growth corridor?** See the CMP GIS website.
5. **Will congested conditions be remedied by the proposed project?** This should include V/C ratio change analysis comparing the no-build and build current and horizon year scenarios. Analysis or discussion of potential induced traffic would be helpful.
6. **How will congestion along the larger facility or corridor area change under the no-build and build scenarios?** If there are other projects being proposed, scheduled, or underway that address similar problems in the area, explain how these efforts are being coordinated.
7. **What are the probable land use changes attributable to the project, and how would these changes likely impact future traffic?** Provide sketch-level estimates of probable effect on air quality and major environmental impacts. This analysis should reference master plan and Long-Range Plan land use maps.
8. **As part of the federal regulations, does the project identify all reasonable strategies to manage SOV capacity effectively (or to facilitate its management in the future)?** All identified reasonable travel demand reduction and operational management strategies shall be incorporated into the SOV project or committed to by the state and MPO for implementation. Other travel demand reduction and operational management strategies appropriate for the corridor, but not included in the SOV facility, itself shall also be identified. The development of strategies should consider the list of strategies appropriate in all corridor types included in the *CMP Report*. Sketch planning and other techniques, such as the Emissions Analysis Techniques, should be used. The TIP/Long-Range Plan Universal Benefit Evaluation Criteria may be useful in comparing different investment scenarios.
9. **How will the strategies evaluated be chosen?** FHWA, state departments of transportation, DVRPC, and the applicable counties should be included in mailing lists for such work. For more information on this, see Chapter 4 "Developing Supplemental Projects."

The results of the technical analysis may be used in consideration of an amendment to the CMP, which would likely result in the creation of a new congested corridor area that would include the proposed project. Proposed amendments to the CMP will be reviewed first by the CMP project team and then the CMP Advisory Committee before going to the RTC and DVRPC Board for action.

Chapter 4: Developing Supplemental Projects

A range of relevant stakeholders should work together to identify and commit to supplemental CMP strategies for major SOV capacity-adding projects in order to manage the SOV facility effectively and to coordinate its management in the future. Depending on the scale of the project, the stakeholders may include the project sponsor, impacted municipalities and/or counties, state departments of transportation, transit agencies, TMAs, FHWA, DVRPC, and others. This process requires discussion and coordination to agree upon strategies that are both effective and that can be realistically implemented. Appropriate public outreach and inclusion is important. This must be completed for major SOV capacity-adding projects that seek federal transportation funding before the Final Engineering phase, or they will not be programmed on the TIP. It would help to develop supplemental projects for all major SOV capacity-adding projects regardless of the funding source to get the most long-term value from the investments.

4.1 Steps in Developing Supplemental Projects

The basic steps in considering strategies to manage congestion and developing supplemental projects are described below:

1. **Prepare a broad list of potential strategies, including Transportation System Management and Operations, ITS, TDM and Multimodal, that are appropriate for the facility or corridor area.** The CMP strategies for the corridor with emphasis on "Very Appropriate," "Secondary," and universal strategies are starting points, although not the only ones. Review locally adopted plans and those of relevant agencies and organizations. The process, though scaled to the project, should include appropriate multimodal partners. DVRPC is available to assist in identifying and convening stakeholders, and facilitating meetings. In the event there are questions or problems, information may be discussed with the CMP Advisory Committee, RTC, or FHWA/FTA. Stakeholders should be comfortable with supplemental projects being multimodal, inclusive, and considerate of land use-transportation coordination. DVRPC should be informed of, or involved in, the process.
2. **Strategies with very limited support due to costs or other issues should be dropped, and the remaining ones should be further refined.** The process should be documented, which may help streamline the future NEPA process if the project ends up needing one.
3. **Discuss, draft, revise, and finally agree upon a list of strategies to update into a table, including descriptions, estimated costs, mechanisms for implementation, sponsors, and general timeline.**
4. **Provide the table to the DVRPC CMP staff.** Staff prepares an annual *Status of Supplemental Strategies Memorandum Report* on the CMP website at www.dvrpc.org/CongestionManagement/NewsAndTech/, which includes major SOV capacity-adding projects and their supplemental project tables. The tables are reviewed by the CMP Advisory Committee and then presented to the RTC. They are adopted by the RTC, or possibly the DVRPC Board based on discussions between the CMP Advisory Committee, DVRPC staff, and other parties. As part of the federal regulations and the DVRPC process, the supplemental projects must result in commitments, inclusive of adequate funding mechanisms, to ensure implementation.

4.2 Further Information About Supplemental Projects

There are three general mechanisms for implementing supplemental projects: (1) they can be constructed as part of the SOV capacity-adding project; (2) they can be independent projects that proceed on their own track; or (3) they can be projects that are most effectively implemented through other ongoing programs, such as CMAQ, and ones run by TMAs. In each case the projects will be monitored for completion as part of the CMP.

The extent of the supplemental strategies for a project should be proportionate to the scale of the major SOV capacity-adding project. The specifics will likely vary by location, stakeholder enthusiasm, needs, and other factors. Following are a few examples based on actual approved projects. First, a one-mile extension of a collector road was

constructed that improved grid connectivity of a Long-Range Plan center and access to a train station with accompanying bicycle and pedestrian improvements. Such a project is clearly in keeping with Smart Growth principles. CMP actions included checking with municipal, county, and transit providers on whether there were any other related efforts to note or coordinate. Second, a U.S. route was reconstructed for five miles, including adding a lane in each direction along with ramp improvements. The project was developed with ITS elements (including variable message signs) and off-site intersection improvements. Early and continuing work with the local TMA included a website to communicate information regarding the project, and focused outreach to nearby employers regarding ride matching and alternative work hours as a result of the construction. Since this was just one of many projects along the corridor, additional nearby transit service was added and a shuttle was funded as supplemental projects during the period of construction of the related projects. Third, a partial grade-separated interchange was upgraded to a full interchange with new ramps, realignment of existing ramps, and new adjoining collector-distributor roads and new lighting. Supplemental projects included enhancements to bicycle mobility and sidewalks on nearby facilities; upgrades and coordination of traffic signals in the vicinity; driveway access controls; and enhanced focus on TDM strategies, such as ride matching and signage with contact information for carpooling. A full list of supplemental strategies can be found in the *CMP Report*, or a list of supplemental strategies is available by CMP corridor area on the CMP GIS website.

4.3 Tracking Supplemental Projects

In addition to assisting in the development and adoption of supplemental projects, federal regulations require that DVRPC track the status of these projects. DVRPC staff coordinates with PennDOT, NJDOT, and county transportation department project managers to gather information on the status of these projects. A database of CMP supplemental project commitments are maintained, including project title, description, lead agencies, project and commitment status (planning, programmed, completed/ongoing, no action, other), status notes, and next steps. DVRPC prepares a draft *Status of Supplemental Strategies Memorandum Report*, which provides an update on supplemental projects, including ones that are proposed for adoption. The draft report is then provided to NJDOT, PennDOT, and other agencies/organizations as appropriate for feedback. If commitments have fallen significantly behind for a SOV capacity-adding project, then a meeting should be scheduled to review the next steps. A fallback would be to replace the project with another similarly scaled one through consensus of the stakeholders. The draft *Status of Supplemental Strategies Memorandum Report* is distributed to the CMP Advisory Committee and proceeds through the appropriate DVRPC committees for approval. Once adopted, the *Status of Supplemental Strategies Memorandum Report* is made available on the CMP website at www.dvrpc.org/CongestionManagement/NewsAndTech/

ABSTRACT

Title: Congestion Management Process Procedures

Publication Number: 21010

Date Published: July 2021

Geographic Area Covered: The nine-county Philadelphia metropolitan area, which includes the counties of Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.

Key Words:
Capacity, Congestion Management Process (CMP), Corridors, Criteria, Goods Movement, Long-Range Plan, Multimodal, Operations, Regional Transportation Planning, Single-Occupant Vehicle (SOV), Strategies, Traffic, Transportation, Transportation Improvement Program (TIP), Long-Range Plan, Benefit Evaluation Criteria

Abstract:
This technical memorandum provides guidance to Pennsylvania and New Jersey departments of transportation project managers, consultants, and other agencies. It covers how projects move through the Congestion Management Process (CMP) and how to review potential Transportation Improvement Program (TIP) projects for consistency with the CMP. Projects that propose to add Single-Occupant Vehicle road capacity using federal transportation funds in the Delaware Valley Regional Planning Commission (DVRPC) region must be consistent with the CMP, or they cannot be funded in the TIP for Final Engineering. The memorandum includes diagrams and checklists. The DVRPC approach has considerable flexibility, complies with federal regulations, and helps advance regional goals. See other CMP documents, such as the *2019 Congestion Management Process* (DVRPC Publication 20010), for more information.

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