



Overview *of the*

2011 Congestion Management Process





Overview of the CMP

In the DVRPC region, the CMP is a requirement of the federal Surface Transportation Act. For federal CMP regulations, see 23 CFR Parts 450.320 and 500.109.

*Incorporating supplemental strategies can save money in the short term for projects that may reduce the need for new road capacity and in the long term by supporting use of multiple transportation modes. Regulations require projects that add single occupancy vehicle capacity to be consistent with the CMP in order to be eligible for federal funding. However, coordination with the CMP is a good idea for any project. See the **CMP Report** (DVRPC Publication #11042, anticipated publication Summer 2011) and the **Smart Transportation Guidebook** (DVRPC Publication #08030A) for more information.*

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WHAT IS A CONGESTION MANAGEMENT PROCESS (CMP)?

A CMP is a systematic process to manage congestion.

It identifies specific multimodal strategies for all locations in the region to minimize congestion and enhance the ability of people and goods to reach their destinations.

The CMP advances the goals of the Delaware Valley Regional Planning Commission (DVRPC) Long-Range Plan and strengthens the connection between the Plan and the regional Transportation Improvement Program (TIP).



HOW DOES THE CMP WORK?

The CMP identifies congested corridors and multimodal strategies to mitigate congestion.

Where more single-occupancy vehicle (SOV) road capacity is appropriate, the CMP includes potential supplemental strategies to

get the most long-term value from the investment. The CMP also identifies emerging/regionally significant corridors where proactive steps are important to prevent congestion, as well as inexpensive strategies that are appropriate everywhere. The process continues through implementation activities and evaluating effectiveness.





HOW DOES THE CMP HELP THE DELAWARE VALLEY?

- ➔ It helps identify where investments are needed for the whole region to prosper.
- ➔ It improves connections between transportation, land use, economic development, and environmental planning.
- ➔ It is a rational consideration in selecting which projects to include in the TIP.
- ➔ It helps make investments as effective and long-lasting as possible.

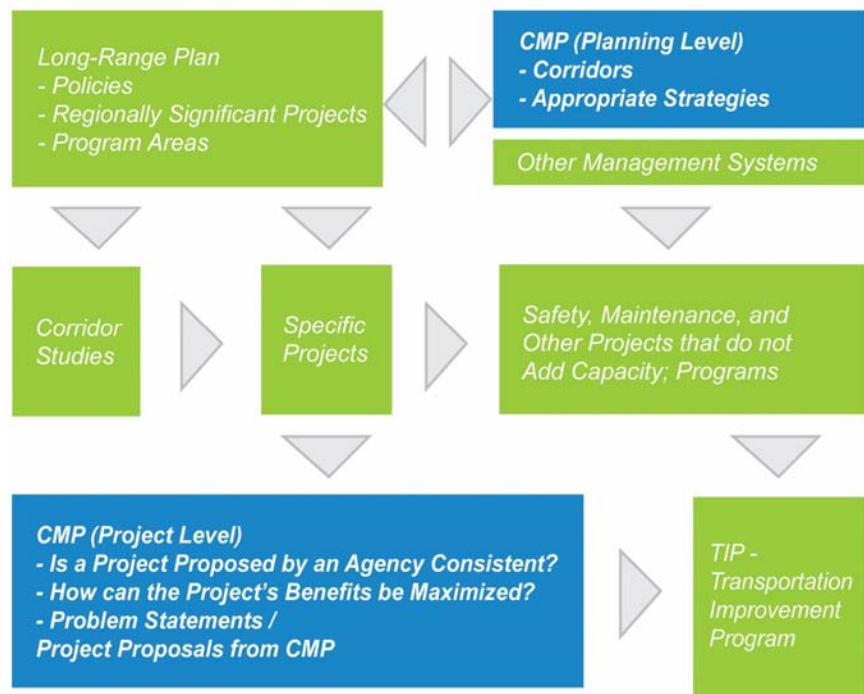
CMP IN THE BROAD PICTURE

The CMP is important at several points in the broad transportation planning picture, including:

- ➔ providing information for updates of the Long-Range Plan;
- ➔ selecting where DVRPC will do its annual corridor studies that lead to TIP projects;
- ➔ suggesting ideas for TIP projects based on analysis; and
- ➔ helping refine ideas for TIP projects from other partners.

If you're working on a corridor study, the CMP Report contains technical analysis, a map of each congested corridor, and appropriate strategies to use as a starting point. The CMP incorporates corridor studies and can help your adopted recommendations get implemented.

CMP in the Broad Picture





Criteria Analysis

If your agency is developing a transportation project, the CMP contains valuable information. Contacting DVRPC staff at an early point can save you time.

CRITERIA USED FOR CMP ANALYSIS

A critical step in the CMP is analysis of the performance of the regional transportation system. The criteria used in the 2011 CMP were a refinement of those used in 2009. Criteria are developed with significant input by the CMP Advisory Committee.

The CMP criteria flow from the goals of the Long-Range Plan:

- ➔ reduce congestion;
- ➔ increase mobility and accessibility;
- ➔ create a safer, more secure transportation system;
- ➔ ensure that transportation investments support the Plan's principles of managing growth; protecting resources; creating livable communities; building an energy-efficient economy; and establishing a modern, multimodal transportation system; and
- ➔ limit transportation impacts on the natural environment.

The CMP also feeds technical analysis back into the update of the Plan.

The Plan goals lead to CMP objectives and to the criteria.

There is much more detail in the *CMP Report*, but briefly, the current CMP criteria used in selecting corridors and considered in developing strategies are:

- ➔ roads with current peak-hour congestion measured by high volume-to-capacity (V/C) ratios;



- ➔ locations where comparison of the current and future travel model simulations suggest high growth in peak-period V/C ratios;
- ➔ roads with high duration of congestion based on archived operations data;
- ➔ areas where transit might succeed in 2035 based on demographic forecasts, regardless of whether there is transit service now;

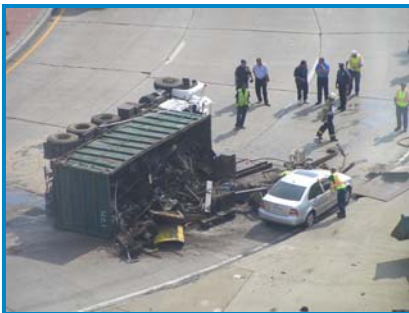




- ➔ major roads, existing transit service (bus, trolley, or train) and important freight facilities;



- ➔ roads where high crash rates lead to unexpected congestion;



- ➔ critical population and employment centers, bridges, and other facilities or venues of special concern to be prepared for major events and incidents of any type;



- ➔ current or future development areas and Land Use Centers identified in the Plan; and
- ➔ areas of high and low environmental impact, with low impacts being preferred for transportation investments; for areas with high anticipated environmental impacts, the CMP can help provide information to better connect and streamline planning and National Environmental Policy Act processes.



DVRPC on the Cutting Edge

Changing technology made it possible to measure congestion in a new, much improved way for this update of the CMP.

The I-95 Corridor Coalition contracted with INRIX, a private company that provides speed and travel time for various information providers.

The data comes from GPS units and other sources. This real-time data is archived. As a first step, DVRPC analyzed all 2009 weekday data for 5 to 6 PM on the region's freeways. Congestion was defined as when average speed for the hour fell below 70 percent of the posted speed limit. The measure was how much of this generalized peak hour was congested.





Strategies and Corridors

The DVRPC Board has adopted the following order of priorities for transportation projects and programs:

1. Maintain and modernize;
2. Manage demand;
3. Increase capacity of the existing multimodal system, limiting the addition of through-travel lanes;
4. Add new capacity where necessary, limiting the addition of new roads.

Source: CMP Report

FULL RANGE OF STRATEGIES

The *CMP Report* offers over 100 congestion-fighting strategies appropriate to the region. Strategies range from policy approaches to programs and capital improvements. A brief explanation of each is also provided.

The full range of strategies helps planners and engineers meet federal regulations. In accordance with federal regulations, other means of solving congestion problems must be considered before using federal funds to build major new road capacity. When major new road capacity is appropriate, a set of supplemental multimodal strategies scaled to the size of the project must be incorporated.

The strategies are grouped into the following categories. The order in which they are listed reflects Board-adopted priorities:

- ➔ Operational Improvements, Transportation System Management, and Intelligent Transportation Systems;
- ➔ Travel Demand Management, Policy Approaches (such as Complete Streets and Transit-Oriented Development), and Smart Transportation (to provide better conditions for using modes other than driving alone);
- ➔ Public Transit Improvements first and then New Investments, if necessary;
- ➔ Road Improvements first and then New Roads, if necessary; and
- ➔ Goods Movement.





MOVING FROM ANALYSIS TO STRATEGIES TO PROJECTS

Congested corridors were divided into subcorridors where, at a regional planning scale, similar sets of strategies were appropriate. Strategies for each subcorridor were developed using a multistep process based on analysis, reviews by the CMP Advisory Committee, and adopted studies. The strategies provide a starting point for project managers. Strategies Appropriate Everywhere should also be considered. A sample set of strategies is provided in the table to the right.

Strategies For a Sample Subcorridor

US 1 and US 206, Trenton Area (Subcorridor NJ 4A) Very Appropriate Strategies

Signal Improvements
(Range of strategies from basic to sophisticated that improve the efficiency of signals individually and in systems. Includes specific applications such as signal preemption for emergency vehicles or buses.)

Improve Circulation
(Range of strategies to move more vehicles through the existing road system, often using engineering approaches.)

Economic Development-Oriented Transportation Policies

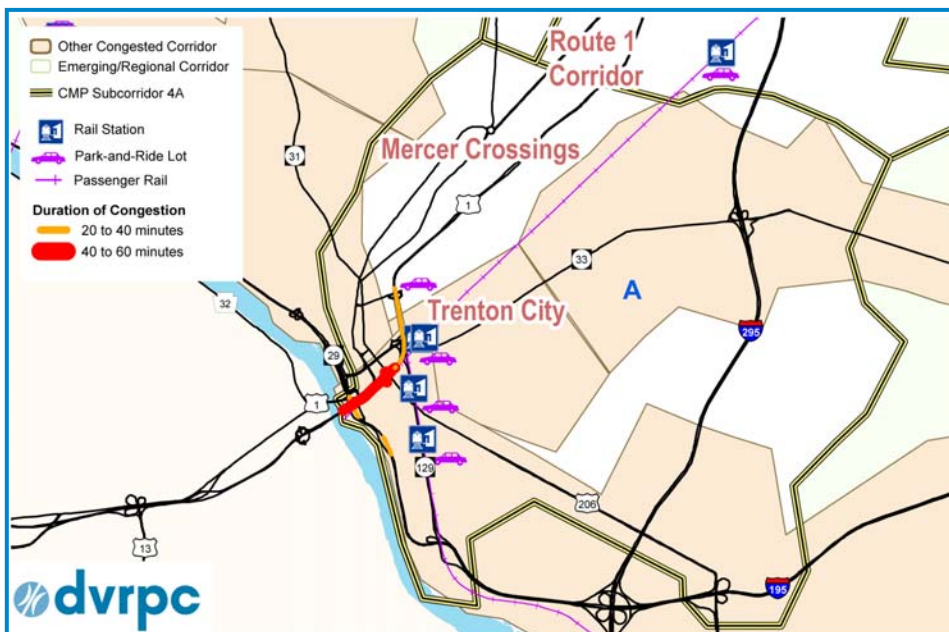
Park-and-Ride Lots

Modifications to Existing Transit Routes and Services

Analysis of the performance of the regional transportation system helps answer the question, "Where should we invest in appropriate multimodal strategies to achieve regional goals?"

The map on this page illustrates a sample subcorridor, NJ 4A, which recommends strategies for US 1 and US 206 in the Trenton area. The table shows the Very Appropriate Strategies for this subcorridor, which are a starting point for developing transportation improvements.

CMP Corridor NJ 4 – US 1 and US 206, Trenton Area (Subcorridor 4A)



For example, in this subcorridor, with its significant transit assets, modifications to existing services and additional park-and-ride capacity could have a significant impact.





OVERVIEW OF CMP MAPS

Three overview maps are included on the pages that follow. The maps included are:

➔ Next Page: **Congested Interstate Corridors in 2011**

The map on the next page shows just the congested corridors focused on interstates. In general, CMP corridors represent flows of people and goods on parallel and intersecting roads and rail lines. These flows are broader than just single facilities.

➔ Centerfold: **Relationship Between CMP Corridors and Development Centers** (With Centers from the DVRPC Year 2035 Long-Range Plan and Cities in the Surrounding Region)

The centerfold map provides context for the DVRPC region as well as areas beyond the borders of the nine-county, two-state area that comprises Greater Philadelphia. DVRPC is the Metropolitan Planning Organization (MPO) for these nine counties, but the impacts of traffic and land development extend beyond any jurisdictional boundaries. DVRPC includes representatives from neighboring MPOs on the CMP Advisory Committee to help facilitate interregional coordination.

➔ Back of Centerfold: **Congested Non-Interstate Corridors in 2011**

The map on the back of the centerfold shows the rest of the congested corridors in the region. They are treated the same as corridors focused on interstates, and are only separated here for enhanced visual presentation.



Congested Interstate Corridors in 2011

NJ Corridors

- 1 -- I-295 & NJ Turnpike (N)
- 2 -- I-295 & NJ Turnpike (S)

PA Corridors

- 1 -- I-276 (PA Turnpike)
- 2 -- I-476
- 3 -- I-76 & I-676
- 4 -- I-95

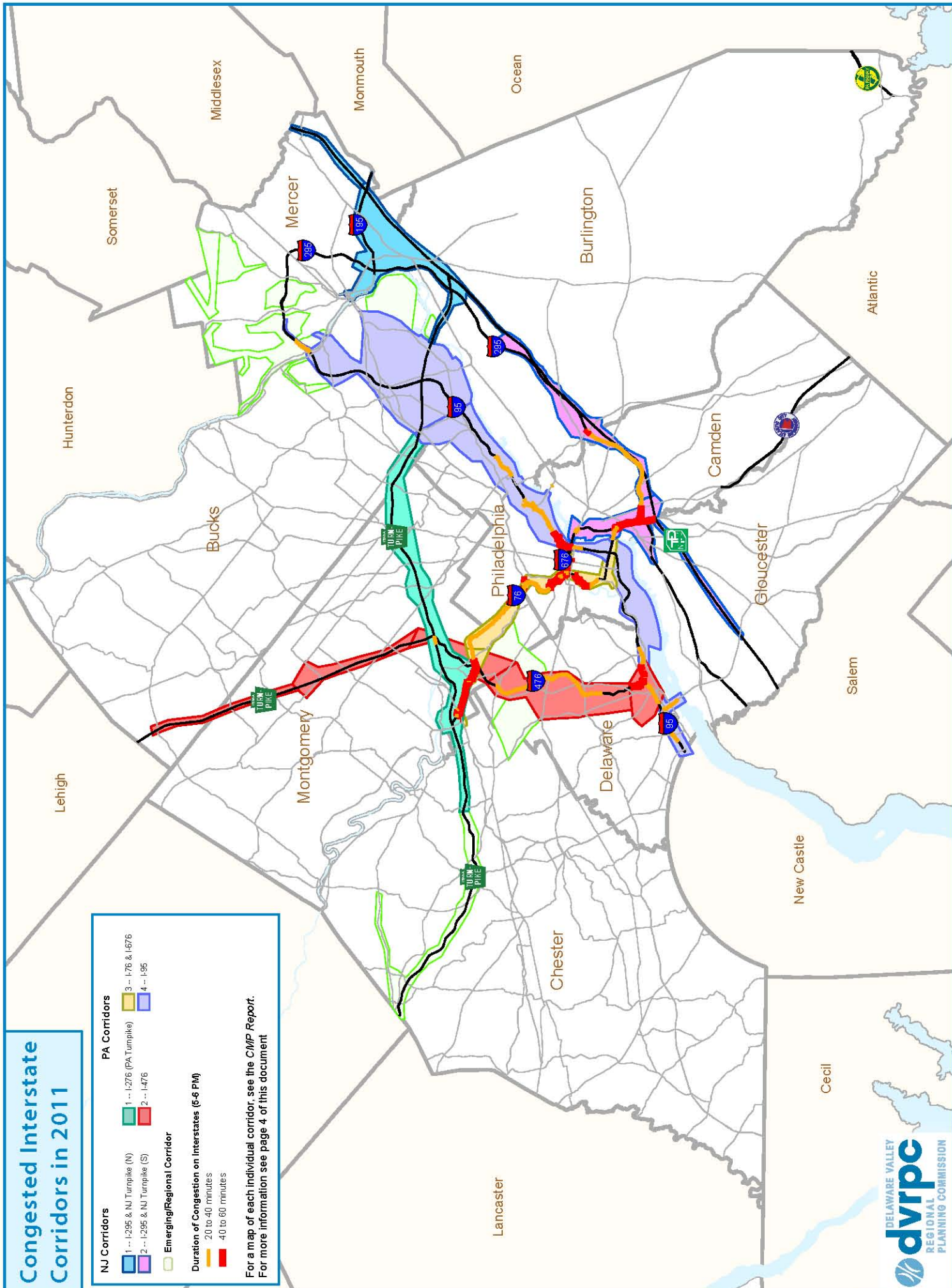
Emerging/Regional Corridor

- TURN PIKE

Duration of Congestion on Interstates (5-6 PM)

- 20 to 40 minutes
- 40 to 60 minutes

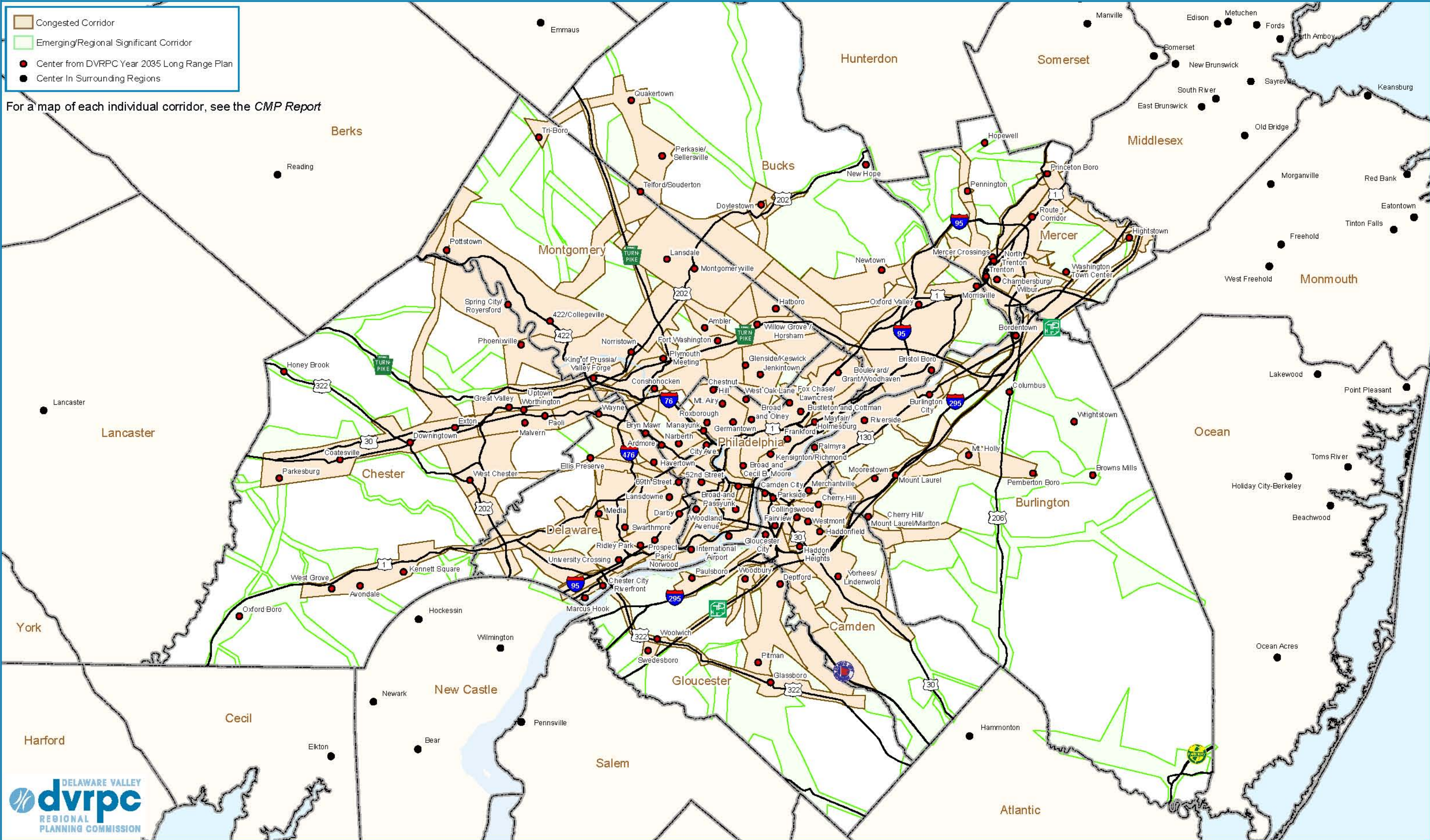
For a map of each individual corridor, see the *CMP Report*.
For more information see page 4 of this document



Relationship Between CMP Corridors and Development Centers

- Congested Corridor
- Emerging/Regional Significant Corridor
- Center from DVRPC Year 2035 Long Range Plan
- Center In Surrounding Regions

For a map of each individual corridor, see the *CMP Report*

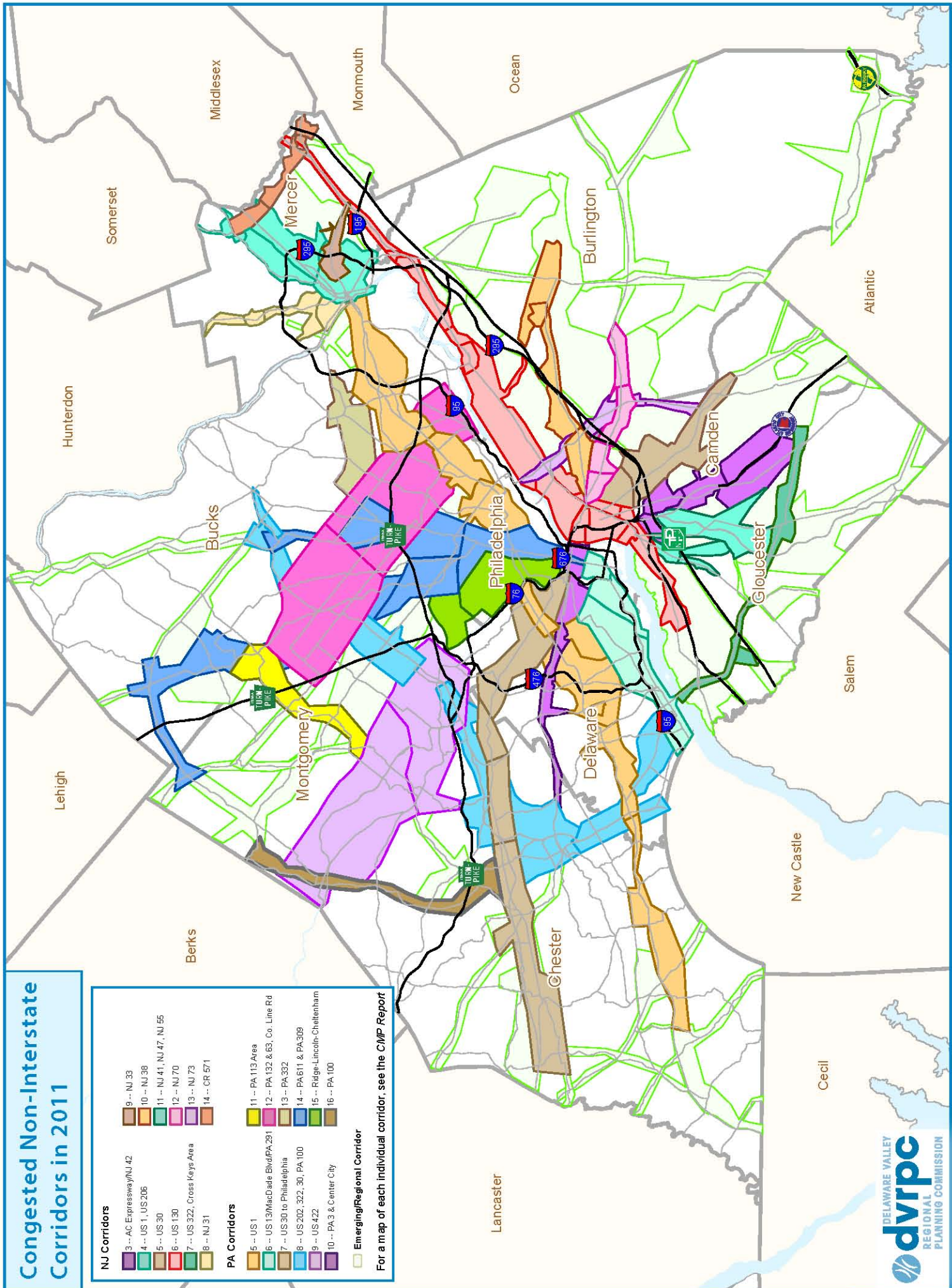


Congested Non-Interstate Corridors in 2011

NJ Corridors	
3 -- AC Expressway/NJ 42	9 -- NJ 33
4 -- US 1 - US 206	10 -- NJ 38
5 -- US 30	11 -- NJ 41, NJ 47, NJ 55
6 -- US 130	12 -- NJ 70
7 -- US 322, Cross Keys Area	13 -- NJ 73
8 -- NJ 31	14 -- CR 571
PA Corridors	
5 -- US 1	11 -- PA 113 Area
6 -- US 13/MacDade Blvd/PA 291	12 -- PA 132 & 63, Co. Line Rd
7 -- US 30 to Philadelphia	13 -- PA 332
8 -- US 202, 322, 30, PA 100	14 -- PA 611 & PA 309
9 -- US 422	15 -- Ridge-Lincolnton-Cheltenham
10 -- PA 3 & Center City	16 -- PA 100

Emerging/Regional Corridor

For a map of each individual corridor, see the [CMP Report](#)





IMPLICATIONS

The CMP helps decision-makers assess where and how to make transportation investments, and that, in turn, affects the region's future land development patterns. One of the most substantial ways the CMP affects the future is by making decisions about where to recommend strategies to add limited additional road capacity. Procedures for how additional locations may be added are described on the next page.

The CMP helps to achieve the goals of the Plan, but it is also pragmatic. Only approximately one-third of congested subcorridors contain any kind of road capacity-adding strategy. The CMP does not encourage development in rural areas. However, it does incorporate the need for transportation capacity in some areas that have developed more recently than the center of the region.

The map on this page illustrates 2011 CMP subcorridors where road capacity-adding strategies are listed.

Build New Roads Strategies include:

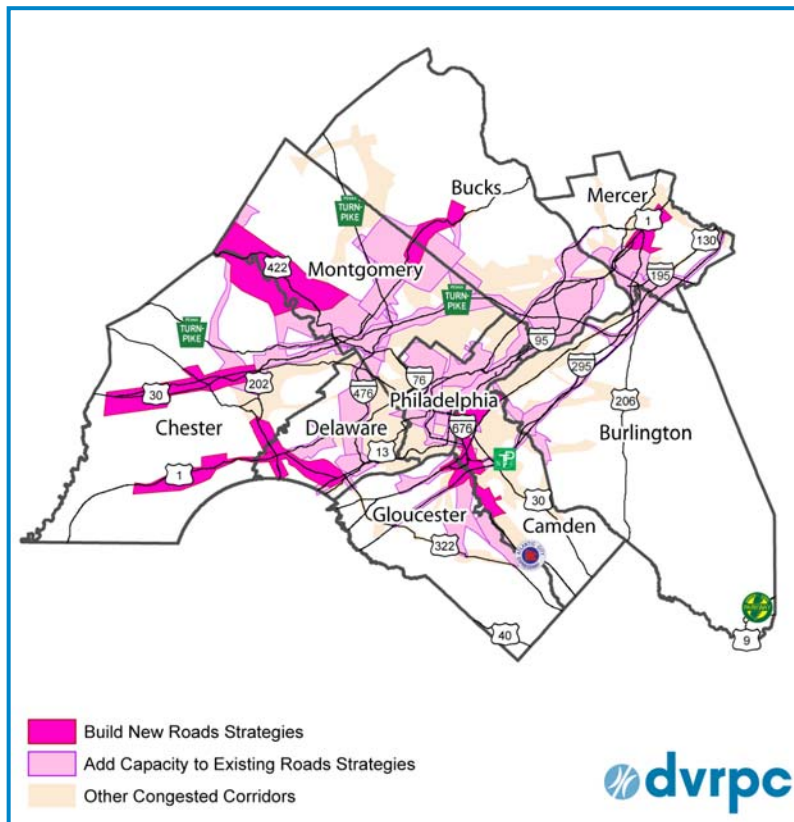
- Arterial or Collector Road;
- Limited Access Highway; and
- Bypass.

Add Capacity to Existing Roads Strategies include:

- Interchange with Related Road Segments; and
- General Purpose Lanes.

See the CMP Report for prioritization and definitions of strategies. Adding road capacity is a last resort per federal regulations and DVRPC policy. See page 5 for more information.

CMP Subcorridors with Adding Road Capacity as a Strategy





Projects and the CMP

Final engineering for major SOV capacity-adding projects will not be listed in the TIP without a table of supplemental strategies. DVRPC staff is available to provide technical and process support to project managers.

*For a more detailed version of the flowchart about how a project moves through the CMP, see CMP Procedures. Steps are included that instruct the project sponsor on how to meet the higher burden of proof for considering capacity where it is not a strategy listed in the CMP.

Summary of How a Project Moves Through the CMP

<p>Is the problem in a congested subcorridor? Is the problem in an emerging / regional corridor?</p>	<p><input type="checkbox"/> if YES... Document.</p>	<p><input type="checkbox"/> if NO... It may not matter, depending on the project. *</p>
<p>Can the problem be addressed without building more road capacity?</p>	<p><input type="checkbox"/> if YES... DVRPC is available to help evaluate strategies.</p>	<p><input type="checkbox"/> if NO... Document this initial research.</p>
<p>If new road capacity is an alternative, is it likely to be Major SOV Capacity?</p>	<p><input type="checkbox"/> if YES... Go to next question.</p>	<p><input type="checkbox"/> if NO... Keep the project description current in TIP listings; DVRPC is available to help.</p>
<p>Is the new Major SOV Capacity consistent with the CMP?</p>	<p><input type="checkbox"/> if YES... Start considering supplemental strategies.</p>	<p><input type="checkbox"/> if NO... A different SOV Capacity-adding strategy was listed - Include that strategy in an alternative, include other CMP strategies as alternatives. Adding Major SOV Capacity was not listed - Use the CMP Very Appropriate, Secondary, and Strategies Appropriate Everywhere to develop alternatives. The project is not in a congested subcorridor - See "Evaluating Projects Outside of Congested Corridor" and checklist. *</p>
<p>Are the supplemental strategies set?</p>	<p><input type="checkbox"/> if YES... Stakeholders agree on strategies, implementation, and timeline.</p>	<p><input type="checkbox"/> if NO... DVRPC remains available to help.</p>





SUPPLEMENTAL STRATEGIES

The figure to the right provides a real-world example of how a major SOV project can incorporate multimodal supplemental strategies to reduce congestion, get the most value from investments, and meet federal requirements.

The I-76/Henderson Road Improvements project is planned for three phases. Phase I includes construction of a new I-76 westbound off-ramp and relocated on-ramp from/to the South Gulph and Henderson roads intersection. Later phases include roadway and intersection improvements along South Gulph Road. The project includes roadway widening and major intersection improvements. A sample of the supplemental strategy commitments is provided at right. It should be noted that many of the strategies are low cost in comparison to widening and intersection reconstruction, and that others qualified for funding sources such as the Mobility Alternatives Program and Job Access Reverse Commute program.

Sample CMP Commitment Table

I-76/Henderson Road Improvements	
Sample of Commitments	Lead Agency / Organization
→ Video detection with traffic adaptive features installed on traffic lights at South Gulph and Henderson Road interchange	→ PennDOT
→ Construct and expand park-and-ride lots and intermodal connections in corridor	→ PennDOT
→ Construct Chester Valley Trail, Cross County Trail, and Schuylkill Trail from Perkiomen Creek to PA 29	→ PennDOT, Chester and Montgomery counties
→ Continue to investigate expanding transit service in the corridor	→ PennDOT, SEPTA, DVRPC

The photos below illustrate some of the supplemental strategies from the Sample CMP Commitment Table.

Signal Improvements



Expand Park-and-Ride



Construct Trail



New Transit Service





Evaluation and Communication

EVALUATION

The CMP provides analysis about the performance of the transportation system. However, additional types of analysis are also important.

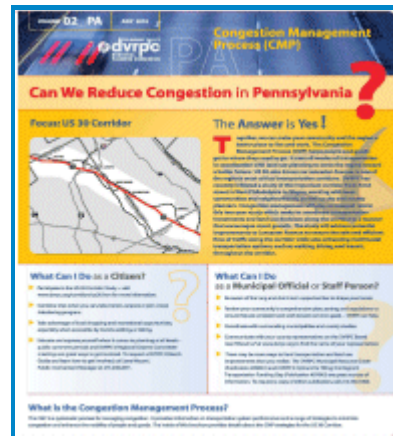
The CMP has performed multiple regression analyses on constructed projects in the past to analyze their effectiveness. Analysis of a reconstruction and ITS project on I-295 in Cherry Hill and Mount Laurel, NJ, for example, indicated about 30 percent of the reduction in V/C ratios near the project could be attributed to the investment. Going forward, the archived operations data used for the first time with the duration of congestion analysis is expected to fill in data gaps that have been a barrier to analyzing implemented projects.

It is also important to understand the anticipated effectiveness of potential improvement strategies in order to do good planning. For more about this topic, see the sidebar to the left.

*Before a project is designed, the CMP can help evaluate strategies at a sketch level, in order to determine which solutions are likely to be cost effective and successful. While the software to make this analysis possible is still in its infancy, it has shown promise. For more information, see **Software to Evaluate Anticipated Effectiveness of CMP Strategies** (DVRPC Publication #10023, anticipated publication Summer 2011.)*

COMMUNICATION

Communicating with a range of audiences is an essential element of the CMP. Newsletters, magazine articles, web pages, interactive mapping, technical reports, and face-to-face meetings are all used. In addition, the CMP website includes a selection of before-and-after studies to help planning partners and project managers understand the effects of implemented projects. The image below depicts a sample CMP newsletter. The newsletters are oriented toward municipal officials and members of the public. All publications are available on the DVRPC website (www.dvrpc.org). Staff contacts are listed on the final page of this document.





CLOSING THOUGHTS

The CMP analyzes the multimodal transportation network of the region, lists strategies for all locations that minimize costs and advance regional goals, and then helps the strategies advance. It involves a wide range of participants, and reinforces the links among various other processes. For example, the CMP lists existing studies for each subcorridor to reduce duplicating work, as well as strengthening the link between the Long-Range Plan and TIP.

The CMP is useful for transportation project managers, policy-makers, municipal and county officials, businesses, and citizens concerned about transportation solutions. Addressing congestion is an ongoing process, and is most effective with participation from everyone. Together we can advance toward a better future for the Delaware Valley.



*If this Overview of the CMP helps with your work, you may want the full **CMP Report** (DVRPC Publication #11042, anticipated publication Summer 2011) or the technical memorandum, **CMP Procedures** (DVRPC Publication #TM09029, anticipated publication Summer 2011). Both are available from the DVRPC website in the Products and Services section, under Publications.*





Advisory Committee

Special thanks to the CMP Advisory Committee.

It consists of representatives from:

- ➔ each DVRPC county;
- ➔ PennDOT and NJDOT;
- ➔ transit authorities;
- ➔ federal partners;
- ➔ transportation management associations;
- ➔ other committees, including the Regional Citizens Committee and the Goods Movement Task Force;
- ➔ other MPOs; and
- ➔ other participants as invited or who asked to join.





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The Delaware Valley Regional Planning Commission is dedicated to uniting the region's elected officials, planning professionals and the public with the common vision of making a great region even greater. Shaping the way we live, work and play, DVRPC builds consensus on improving transportation, promoting smart growth, protecting the environment, and enhancing the economy. We serve a diverse region of nine counties: Bucks, Chester, Delaware, Montgomery and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester and Mercer in New Jersey. DVRPC is the federally designated Metropolitan Planning Organization for the Greater Philadelphia Region – leading the way to a better future.

DVRPC fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. DVRPC's website may be translated into Spanish, Russian, and Mandarin online by visiting www.dvrpc.org. Publications and other public documents can be made available in alternative languages or formats, if requested. For more information please call (215) 238-2871.





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