The CMP is a regional program to address and manage congestion within the 10-county Southwestern Pennsylvania region in order to facilitate the movement of people and goods.

Congestion Management Process

Strategies

Because each roadway corridor has its own unique characteristics, including the design of the roadway, the amount of traffic it carries, and the travel patterns of the people who use it, congestion management efforts must be tailored to meet the needs of different locations.

Transportation engineers and planners employ a variety of techniques to effectively manage congestion. SPC's CMP defines four major categories in its "congestion management toolbox". These are:

- Demand Management
- Modal Options
- Operational Improvements, and
- Capacity

Demand Management programs attempt to address congestion at the root of the problem by reducing the number of vehicles on the road. These initiatives work to modify driver behavior by encouraging people to make fewer single-occupancy trips, travel in off-peak hours when possible, and support land use policies that reduce the demand for automobile transportation.

Modal Options include techniques to give people transportation choices beyond just driving alone in their cars. These include initiatives to encourage carpooling, vanpooling, transit, bicycle and pedestrian modes of travel.

Operational Improvements are geared toward improving the "supply side" of the transportation system. These efforts are intended to enhance the operation of the transportation system and make it as efficient as possible. Operational Improvements include intersection upgrades, access management, reversible lanes, traffic signal improvements, and Intelligent Transportation Systems.

Capacity projects can include new roadways and roadway widening for additional single-occupancy vehicle lanes (SOVCAP). Capacity improvements are typically the last measures transportation professionals consider, because they are the most expensive and can have adverse community impacts, such as environmental and right-of-way impacts. Capacity projects also have the effect of inducing additional travel, which may result in the roadway becoming congested.

Within these four major categories, the CMP includes twenty-five different strategies for addressing congestion. These strategies are described in more detail below.

Demand Management Techniques

Employer-Based Programs – encouraging telecommuting, flexible or staggered work schedules, company-run carpool/vanpool programs, promotion of transit usage, and parking management at the job site

Parking Management – public policies or facilities that encourages multi-modal travel and discourage SOV use through adjustments in the pricing and availability of parking; could include event-related parking management to address non-recurring congestion

Congestion Pricing – pricing of transportation services to encourage travel at non-peak hours including fares and tolls

Public Relations & Education for TDM – education and publicity that discourages single-occupancy vehicle travel during peak hours and provides information on alternate modes of travel and ways to minimize travel

Growth Management – public policies to manage the location and nature of development in a way that optimizes transportation efficiency

Transit-Oriented Development (TOD) Policies – public policies that encourage concentrated development adjacent to transit stops or stations and easy access to these transit facilities

Public Relations & Education for Transportation-Supportive Development – educational programs for policy makers and the general public about the impact of development decisions on transportation systems in order to promote informed decision-making

Modal Options

Improved Transit Service – new routes and/or expanded schedules, but not including new facilities

Rideshare Programs – programs to facilitate carpooling and vanpooling such as SPC's CommuteInfo

Park-n-Ride & Other Inter-modal Facilities – outlying parking lots that encourage transit use, carpooling and vanpooling or other facilities that facilitate transfer from one mode of travel to another

HOV & HOT lanes – facilities that are restricted for use by vehicles carrying a certain number of passengers during peak times of the day or that may be used by single-occupancy vehicles for payment of a toll

Pedestrian Facilities & Information – sidewalks, crosswalks, paths, pedestrian signals, pedestrian bridges, maps and signage to promote walking as a viable mode of transportation

Bicycle Facilities & Information – bike lanes, paths, signals, lockers, maps and signage to promote bicycling as a viable mode of transportation

Transit Capital Improvements – new transit facilities such as busways, dedicated bus lanes, bus pull-offs, light-rail lines, and light-rail stations to increase transit accessibility and usage

Operational Improvements

Traffic Signal Improvements – signal hardware upgrades, signal software upgrades, signal timing, signal coordination, or (in conjunction with intersection improvements) channelization of turning movements such as SPC's Regional Traffic Signal Program.

Intersection / Geometric Improvements – addition or reconfiguration of turning lanes, lane widenings, realignment of intersecting streets, improved acceleration or deceleration lanes at interchange ramps, construction of roundabouts, single point urban intersection, new and/or improved traffic control devices (signs and markings).

Elimination of Bottlenecks – removal of a physical constriction which delays travel, such as widening an underpass, providing lane continuity (i.e. replacing a two-lane bridge that connects pieces of four-lane roadway), or eliminating a sight barrier.

One-way Streets – establishing, or removing, pairs of one-way streets in place of a standard two-way street; this could include modifying the one-way or two-way nature of side streets in order to impact traffic patterns on a mainline corridor

Reversible Lanes – establishing signals, signage, and pavement markings which permit the direction of travel to be changed during peak travel hours.

Ramp Management – includes strategies such as ramp metering (installing signals at points where ramps enter a freeway, which regulates the rate and spacing of traffic entering the freeway based on actual conditions), ramp widening, ramp closures, and signing and pavement marking changes.

Incident Management Systems – technology and programs for detecting crashes, disabled vehicles, or other incidents that impede travel and resolving or removing the obstructions such as SPC's Traffic Incident Management program.

Access Management – policies, design criteria, and facilities that minimize the number of driveways and intersecting roads accessing a main thoroughfare; includes parallel service roads, shared driveways, median barriers, and curb cut limitations.

Intelligent Transportation Systems (ITS) – the use of technology to improve traffic flow.

Capacity

Lane Additions – new travel lanes on an existing roadway designed to increase the capacity of the facility; does not including turning lanes, acceleration/deceleration lanes, climbing lanes, or specialized lanes for use by modes other than single-occupancy vehicles

New SOV Facilities – new roadways, interchanges, or ramps that increase single-occupancy vehicle lane-mileage on the transportation network

Evaluating Congestion Management Mitigation Strategies

New, emerging technologies such as Bluetooth and INRIX data collection have simplified SPC's data collection for CMP corridors.

Each of the 25 strategies in SPC's Congestion Management Toolbox is evaluated for suitability and potential benefit within each of the region's CMP corridors. Suitability ratings qualitatively account for the environmental, financial, right-of-way, manpower, and other requirements that would be necessary to implement a given congestion management strategy.

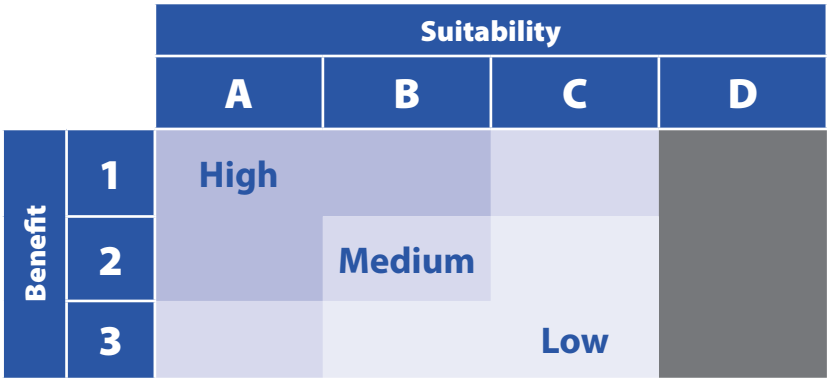
The suitability of each congestion management strategy is given a letter rating as follows:

- A – Techniques that are feasible and would be relatively easy to implement
- B – Techniques that are feasible and could be implemented with a moderate amount of effort
- C – Techniques that are feasible but would be very difficult to implement
- D – Techniques that would not be appropriate for a particular corridor

The potential benefit of strategy implementation is rated as follows:

- 1 – Techniques that are expected to have a significant impact on reducing congestion
- 2 – Techniques that are expected to have a moderate impact on reducing congestion
- 3 – Techniques that are expected to have little impact on reducing congestion

Note that certain techniques may have benefits beyond just reducing congestion, but for CMP purposes the strategies are rated strictly on their potential benefit for congestion relief. This rating of suitability and potential benefit results in a matrix that helps determine which strategies should be high, medium and low priorities.



SOVCAPs

SOVCAPs are Single-Occupancy Vehicle Capacity Adding Projects – basically, the addition of new capacity to the roadway network. SOVCAP projects are particularly important in regions like Southwestern Pennsylvania that are designated as non-attainment areas for air quality. In non-attainment areas, SOVCAP projects cannot receive federal funding beyond the Preliminary Engineering stage unless consistency with the regional CMP has been demonstrated.

It is the responsibility of the project sponsor to address consistency with the CMP as part of the environmental review for the SOVCAP project. For a SOVCAP designed to address congestion, the environmental document should identify CMP corridor(s) affected by the project, review the CMP strategies identified as appropriate for the affected corridor(s), indicate that capacity strategies are among the potential strategies identified for the affected corridor(s), indicate why other strategies cannot meet the need for the project, and include a commitment by the project sponsor or other agencies to implement other appropriate congestion management strategies in conjunction with the SOVCAP.

A new capacity project proposed to meet needs other than congestion (i.e. safety, system continuity, access to a particular site identified as a regional priority in SPC's long-range transportation plan, etc.) may be considered consistent with the goals of the CMP if the SOVCAP has no adverse congestion impact on a CMP corridor. This technique for demonstrating consistency with the regional CMP should still be fully documented in the environmental document for the project.

Strategy Implementation & Monitoring Effectiveness

This section includes studies, reports, and other tools that can help to highlight, analyze, and evaluate the effectiveness of various congestion management strategies implemented in the SPC region.

Demand Management

- Employer-Based Programs
- Parking Management
- Congestion Pricing
- Public Relations & Education for Travel Demand Management
- Growth Management
- Transit-Oriented Development (TOD) Policies
- Public Relations & Education for Transportation-Supportive Development

Modal Options

- Improved Transit Service
- Rideshare Programs
- Park-n-ride & Other Inter-modal Facilities
- HOV & HOT lanes
- Pedestrian Facilities & Information
- Bicycle Facilities & Information
- Transit Capital Improvements

Operational Improvements

- Traffic Signal Improvements
- Intersection / Geometric Improvements
- Elimination of Bottlenecks
- One-way Streets
- Reversible Lanes
- Ramp Metering
- Incident Management Systems
- Access Management
- Intelligent Transportation Systems (ITS)

Capacity

- Lane Additions
- New SOV Facilities

For more information about our Congestion Management Process please contact:

Domenic D'Andrea
ddandrea@spcregion.org
(412) 391-5590 X341

Evan Schoss
eschoss@spcregion.org
(412) 391-5590 X338

PD100042 12/19