



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

Glossary

AADT (Annual Average Daily Traffic) – the total volume of traffic passing a point or segment of a highway in both directions for one year divided by the number of days in the year

AM peak – the morning time period when traffic volumes are highest; also referred to as “morning rush hour”; it can often be more than 60 minutes in length; typically falls between 7:00 and 9:00AM in the Pittsburgh region

Average speed – the length of a highway segment divided by the time it takes to traverse that segment, including all delays

Before and after study – a study undertaken to determine the effects of an implemented project, program, or policy change; performance measures are assessed before and after implementation to measure impacts; costs can also be taken into account and compared to benefits in order to gauge cost-effectiveness of the solution

Bluetooth – a wireless technology used in automobiles, cell phones, in-vehicle navigation systems, and hands-free devices that can be used to track travel time and speed by installing reading devices along roadways; each Bluetooth-enabled device has a unique identification code known as a median access control (MAC) address; Bluetooth readers time-stamp the unique MAC address as it passes a given point and matches it with time-stamps from different locations along a corridor to calculate travel times and speeds (data is aggregated and individual MAC addresses are not tracked)

CMP (Congestion Management Process) – a federally mandated program within metropolitan planning areas to address and manage congestion; formerly known as a Congestion Management System

CMS (Congestion Management System) – prior to SAFETEA-LU, CMP was referred to as CMS

Congestion – the level at which transportation system performance is no longer acceptable due to traffic interference. The level of system performance deemed acceptable by State and local officials may vary by type of transportation facility, geographic location (metropolitan area or subarea, rural area), and/or time of day (23 C.F.R. § 500.109)

Corridor Modernization – an objectives-driven, performance based program being led by PennDOT with the objective to better evaluate, prioritize, plan, deploy, and measure the effectiveness of Transportation System Management and Operations (TSM&O) strategies

Crash rate – the frequency with which traffic accidents have occurred along a defined roadway segment over a defined period of time

Delay – the amount of time it takes to traverse a given roadway segment minus the amount of time it would take to traverse that roadway segment at the posted speed limit if there were no interference; values are reported for AM and PM peak hours

Delay per Vehicle per Mile – Delay per Vehicle divided by the length of the roadway segment; this performance measure is used to facilitate the comparison of unequal roadway segments

Diverging diamond interchange – a highway interchange designed to reduce conflict points and more efficiently move large volumes of traffic; the two directions of traffic on the non-freeway road cross to the opposite (i.e. left) side through the interchange area

Expected Travel Time Reliability Index – the percentage of time that the measured travel time for a corridor is within 10% (or below) of the median weekday travel time for that corridor (i.e. how often are you able to travel the corridor in the amount of time you would expect with typical recurring levels of congestion)

Floating vehicle method – traditional data collection method by which a traffic engineer or technician drives up and down the corridor and collects travel time and speed data, initially with a stop watch and later by using a computer connected to a global positioning system (GPS) device; prior to Fall 2012, this was the method used to collect data for SPC’s CMP

HOV (high-occupancy vehicle) lanes – roadway lanes that are restricted for use by vehicles carrying a designated number of passengers (above 1) during peak times of the day

HOT (high-occupancy toll) lanes – roadway lanes that charge a fee during peak times of the day for vehicles not carrying a designated number of passengers (above 1)

Ideal travel time – the amount of time it would take to traverse a given roadway segment at the posted speed limit if there were no interference

Level of Service (LOS) – a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience; can be calculated for roadway segments, intersections, merges, diverges, weaving areas, and other roadway features

Minor arterial – a functional category of a street allowing trips of moderate length within a relatively small geographic area

Modern roundabout – a circular or oval-shaped roadway junction designed to reduce operating speeds and eliminate right angle crashes; traffic flows around a central island and motorists entering the intersection yield to motorists already within the facility; eliminates the need for a traffic signal or stop controls

Negative delay – time periods when it takes less than the ideal travel time to traverse a given roadway segment (i.e. the average speed of vehicles is higher than the posted speed limit)

Node – a defined point along a roadway corridor that marks the beginning and/or end of a segment

Non-recurring congestion – congestion related to short-term or temporary occurrences; examples include special event traffic, construction, and traffic accidents

PDO (Property Damage Only) crash – a reportable crash that did not result in any fatalities or notable injuries

Peak hour volume – the volume of traffic passing a point or segment of a highway during the busiest hour of a typical day

Performance measures – objective measurements and observations to determine the degree of success a project, program, or initiative has had in achieving its stated goals and objectives

PM peak – the afternoon/evening time period when traffic volumes are highest; also referred to as “evening rush hour”; it can often be more than 60 minutes in length; typically falls between 4:00 and 6:00PM in the Pittsburgh region

Posted Speed Reliability Index – the percentage of time that the measured average speed for a corridor is at or near (within 5 mph) the average posted speed for the corridor (i.e. how often are you able to flow freely in the corridor without significant delay)

Principal arterial – a major surface street with relatively long trips between major points and with through-trips entering, leaving, and passing through an urban area

Qualitative – involving distinctions based on qualities rather than something that can be measured with numbers

Quantitative – involving distinctions based on measurements

Recurring congestion – the level of congestion that results from typical daily traffic volumes and travel patterns

Reportable crash – a traffic accident where someone was injured or where one of the vehicles had to be towed from the scene

SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) – federal legislation authorizing highway, safety, transit and other surface transportation programs from 2005 through 2009; maintained many initiatives from ISTEA and TEA-21 with increased emphasis on certain areas such as highway safety

Segment – the portion of a highway corridor between two defined points

Single point urban interchange (SPUI) – a highway interchange designed to reduce conflict points and more efficiently move large volumes of turning traffic; similar to a traditional diamond interchange, but the two intersections are compressed into a single intersection (either over or under the free-flowing roadway) to allow left turns from the ramps to move simultaneously

Severity index – a weighted measure of the relative economic cost to society of the injuries and fatalities related to traffic crashes along a defined roadway segment [disclaimer]

SOVCAP (Single Occupancy Vehicle Capacity Adding Project) – a transportation project which significantly increases the carrying capacity of a roadway. This includes new facilities (a new roadway or bypass, a new interchange, ramps that add missing moves at a previously incomplete interchange, an access road, new bridge, or new connector) or the addition of new, general-purpose lanes to an existing facility. Exempt from this definition, and consequently exempt from CMP review, is any project that adds less than one lane-mile of general-purpose roadway. Also exempt are realignments which replace rather than supplement previous roadways for through traffic, turning lanes, acceleration/deceleration lanes, climbing lanes, bridge replacements, widening without adding new travel lanes, and facilities that are primarily

for use by modes other than SOVs (such as bus lanes, HOV lanes, truck lanes, and bicycle and pedestrian facilities). In areas that are considered to be in non-attainment for air quality, a SOVAP may not receive federal funding beyond the preliminary engineering phase unless consistency with the regional CMP has been demonstrated

Spot speed – the speed of a vehicle at a particular moment in time; different from average speed because it is a snapshot of a particular moment rather than speed over a certain distance

TEA-21 (Transportation Equity Act for the 21st Century) – federal legislation authorizing highway, safety, transit, and other surface transportation programs from 1998 through 2003; maintained many initiatives from ISTEA; superseded by SAFETEA-LU.

Tier 1 – Interstates and other limited-access freeways and expressways on the CMP network are grouped into this category; vehicle probe data is used to track congestion performance measures on these roadways

Tier 2 – Non-limited-access arterial corridors on the CMP network are grouped into this category; Bluetooth data is used to track congestion performance measures on these roadways

Total Delay – Delay per Vehicle multiplied by the peak hour volume on that roadway segment; expressed in vehicle-hours; this performance measure facilitates the comparison of corridors by considering the number of vehicles impacted by the congestion (e.g., Corridor A and Corridor B both have 5 minutes of delay per vehicle; however, Corridor A impacts 100 vehicles and Corridor B impacts 1,000 vehicles, suggesting Corridor B is a more significant problem); values are reported for AM and PM peak hours

Total Delay per Mile – Total Delay divided by the length of the roadway segment; this performance measure is used to facilitate the comparison of unequal roadway segments and corridors; values are reported for AM and PM peak hours

Total Peak Hour Delay – Total Delay for the AM peak plus Total Delay for the PM peak; this performance measure facilitates the comparison of corridors by considering both directions of travel in both peaks

Total Peak Hour Delay per Mile – Total Peak Hour Delay divided by the length of the roadway segment; this performance measure is used to facilitate the comparison of unequal roadway segments and corridors

TDM (travel demand management) – programs and initiatives that attempt to address congestion by reducing the number of vehicles on the road

Travel time – the amount of time, measured in the field, that it takes to traverse a given roadway segment

“Typical day” – a weekday that exhibits travel patterns which occur on a regular basis; standard practice is to collect data on Tuesdays, Wednesdays, and Thursdays of weeks without holidays or other occurrences that may influence travel patterns

Typical park-n-ride utilization – the average usage level of park-n-ride lots serving a given corridor on a typical day; usage can vary considerably between lots based on a variety of factors such as transit availability

V/C ratio – volume-to-capacity ratio is a measure of the amount of traffic on a given roadway in relation to the amount of traffic the roadway was designed to handle

Vehicle-hour – equivalent to one vehicle delayed for one hour

Vehicle probe data – traffic data amassed through a wide variety of public and private sources such as roadway sensors, commercial fleets, in-car navigation systems, and cell phone apps; this data is typically collected and synthesized by private companies and sold as a product; the data is aggregated so individual vehicles are not trackable

**For more information about
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