

CMP TOOLKIT OF STRATEGIES

Appendix B

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Introduction

The Congestion Management Process (CMP) Toolkit of Strategies is a compilation of strategies to address congestion effectively. It contains researched best practices from other model CMPs that could realistically be applied in the Spokane region.¹ Developed in coordination with the CMP Working Group, this Toolkit serves as a resource to guide the development of targeted solutions for congestion issues on the region's CMP Network.

The strategies in the Toolkit are organized into five categories:

1. Travel Demand Management (TDM)

These strategies aim to optimize transportation systems by reducing congestion, improving mobility, and minimizing environmental impacts. Examples include promoting public transit, carpooling, walking, bicycling, flexible work schedules, and telecommuting.

2. Operational Improvements

Enhancements focused on maximizing the efficiency and safety of existing transportation systems. Strategies include traffic signal optimization, incident and access management, and intelligent transportation systems (ITS) to improve traffic flow without major infrastructure changes.

3. Transit Operational Improvements

Targeted efforts to improve the efficiency, reliability, and capacity of public transit systems. Examples include increasing service frequency, transit signal priority, dedicated transit lanes, and upgrading technologies such as real-time passenger information systems.

4. Freight and Goods Movement

Strategies designed to optimize the efficient and reliable transport of goods. These include both operational improvements, such as freight plans or dedicated truck parking, as well as larger capacity improvements.

5. Roadway Capacity Improvements

Strategies that expand or enhance transportation infrastructure to accommodate increased traffic volumes and improve flow. These strategies include adding lanes, constructing new roads, and improving interchanges.

The Toolkit includes 43 strategies grouped into these five categories for organizational clarity. While these categories help structure the content, some strategies may overlap across or within them. It is important to note that the Toolkit is not an exhaustive catalog of congestion mitigation strategies. Instead, it presents proven approaches most relevant to addressing congestion in the Spokane region.

¹ In the development of the Toolkit, SRTC staff reviewed and identified best practices from the following agencies' CMPs: Delaware Valley Regional Planning Council (DVRPC), Denver Region Council of Governments (DRCOG), Mid-Region Council of Governments (MRCOG), and Wilmington Area Planning Council (WILMAPCO); as well as the Washington State Department of Transportation's (WSDOT) <u>Transportation Systems Management and Operations (TSMO) strategies</u> and concepts website.



1. Transportation Demand Management Strategies

1.1 ALTERNATIVE TRAVEL MODE OUTREACH PROGRAMS (GROUP)

Cost: Low-Moderate

Description

Events or programs that promote, encourage, and educate people about alternative travel modes.

Applicable Locations & Situations

Areas with a high concentration of employees working at one worksite or a group of workplaces

Examples

- Bike-to-Work Day
- Employer transportation fairs
- Bike safety programs

1.2 ALTERNATIVE TRAVEL MODE OUTREACH PROGRAMS (INDIVIDUALIZED)

Cost: Low-Moderate

Description

Individualized events or programs that promote, encourage, and educate people about alternative travel modes.

Applicable Locations & Situations

· Areas with a high concentration of employees working at one worksite or a group of workplaces

Examples

• Whatcom Smart Trips (WCOG)

1.3 ALTERNATIVE WORK HOURS

Cost: Low

Description

Arrangement where employees and employers agree to a non-traditional or non-peak work schedule.

Applicable Locations & Situations

- · Areas with employment sectors that offer jobs that allow for flexible arrival or departure times
- · Workplaces with extended daily hours of operation

Examples

- Flexible work schedules
- Staggered shifts and/or compressed workweeks

1.4 BICYCLE IMPROVEMENTS

Cost: Moderate

Description

Improvements that increase safety and convenience for bicyclists, especially those using bicycles for transportation.

Applicable Locations & Situations

• Locations on or connecting to the regional bicycle network

- · On-street bike lanes, pavement markings, signage and off-street trails
- · Intersection improvements



1.5 LOCAL DELIVERY SERVICE

Cost: Low

Description

Businesses delivering products to local customers, which can reduce single-occupancy vehicle trips by making it more feasible to take transit, walk, or bicycle to a store.

Applicable Locations & Situations

• Areas where vehicle ownership is low

Examples

· Encouraging businesses to deliver products to customers

1.6 PARKING FACILITY MANAGEMENT INFORMATIONAL SIGNS

Cost: Moderate

Description

Signage notifying travelers of the remaining number of unoccupied parking spaces at a public or private parking lot.

Applicable Locations & Situations

• Park and ride lots or downtown parking lots

Examples

- Signage to notify remainder of parking spots
- Guides to available parking

1.7 PARKING MANAGEMENT

Cost: Low-Moderate

Description

Initiatives or strategies designed to provide, control, regulate, or restrict parking space.

Applicable Locations & Situations

- Activity centers or other locations where parking is in short supply
- · Locations where mode shift occurs and with high levels of pedestrian activity

Examples

- Redevelop/remove surface parking
- Remove on-street parking
- Time-of-day restrictions
- Adding parking structures to encourage mixed-use development
- · Add on-street parking to reduce speed & improve pedestrian safety

1.8 PEDESTRIAN IMPROVEMENTS

Cost: Low - Moderate

Description

Improvements that increase safety and convenience for pedestrians of all types, especially those who need to walk to get places.

Applicable Locations & Situations

• Improvements should be selected to fit the level of development and population

Examples

- Sidewalks
- Paths and trails

1.9 REGIONAL COMMUTER BENEFIT PROGRAM

Cost: Low

Description

A program that offers incentives or assistance to employees who use public transit, carpool, bike, or take other non-single occupancy vehicle modes to get to work.

Applicable Locations & Situations

· These programs could be expanded beyond major employers in Spokane

Examples

Commute Trip Reduction (CTR)

1.10 PUBLIC EDUCATION CAMPAIGNS

Cost: Low - Moderate

Description

Initiative aimed at informing the public about strategies to reduce traffic congestion and encourage behaviors that can help manage and alleviate congestion-related issues.

Applicable Locations & Situations

 Particularly effective in address situations where congestion-related issues directly impact people's daily lives and easy-to-adopt solutions can be offered to improve these issues.

Examples

- · Campaign to improve traffic safety
- Informing the public about the benefits of remote work, trip chaining, and/or traveling during off-peak hours

1.11 RIDESHARING SERVICES & RIDE MATCHING

Cost: Low-Moderate

Description

Employees sharing a vehicle to and from the same or nearby worksites, reducing congestion and overall vehicle miles traveled.

Applicable Locations & Situations

- · Areas with a high concentration of employees working at one worksite or a group of workplaces
- Schools with a large number of students not served by school buses
- · Residential areas outside transit service districts with a high number of long-distance commuters

Examples

- Carpool/Vanpool
- Car Sharing
- <u>Share-A-Ride Program (DVRPC)</u>

1.12 TELECOMMUTING

Cost: Low

Description

Work arrangement where employees use technology solutions to work from home or another location.

Applicable Locations & Situations

· Workplaces that perform tasks or services that can be completed from remotely

Examples

- Remote work
- Hybrid work schedules

1.13 UNIVERSAL ACCESS TRANSIT PASS PROGRAM

Cost: Low-Moderate

Description

Program that provides students enrolled in a participating institution with unlimited access to local transit.

Applicable Locations & Situations

Areas with colleges or universities.

- Cooperative pass programs
- Corridor pass programs



2. Operational Improvements

2.1 ACCESS MANAGEMENT

Cost: Moderate

Description

Planning and design strategies used to control vehicle access points—such as driveways, intersections, and medians—to improve safety and improve mobility by strategically managing where and how vehicles enter and exit the road network.

Applicable Locations & Situations

• Existing or future high-volume corridors with a significant amount of commercial development resulting in traffic congestion and safety concerns

Examples

- Consolidating and/or improving access points along a corridor
- Median treatments and left-turn lanes

2.2 CIRCULATION IMPROVEMENTS

Cost: Low-High

Description

Strategies designed to reduce traffic congestion and improve the flow of vehicles, pedestrians, and bicyclists within the transportation network.

Applicable Locations & Situations

Congested areas and bottlenecks, particularly those with limited connectivity or other know circulation
 issues

Examples

- Street circulation patterns
- Vehicle use limitations and restrictions
- Reversible lanes
- Road connectivity
- Roundabouts
- · Isolated bottleneck removal

2.3 COMMUNICATION NETWORKS

Cost: Moderate

Description

Base infrastructure required to support all operational activities, allow remote roadway surveillance and system control from a traffic management center.

Applicable Locations & Situations

- · Locations of new roadway construction or major capital improvement projects
- High volume locations or roadways with safety considerations where an incident may be particularly disruptive to regional travel
- Roadways identified for comprehensive ITS implementation

Examples

- Roadway surveillance and control system
- Base ITS infrastructure—fiber, telemetry, etc.

2.4 HIGH OCCUPANCY VEHICLE (HOV) LANES–NEW OR CONVERTED

Cost: Moderate-High

Description

New or converted lane that serves high-occupancy vehicles and other approved users.

Applicable Locations & Situations

- Interstates or other long-distance limited-access corridors
- · Highly congested corridors with extensive bus service



Examples

 May serve buses, motorcycles, high-occupancy vehicles, toll-paying vehicles, and/or low-emission or hybrid vehicles

2.5 INCIDENT MANAGEMENT

Cost: Low-Moderate

Description

Operation plans and regional efforts defining roles, rules, procedures, and protocols for agencies and personnel in the event of an incident.

Applicable Locations & Situations

• Regionwide programs

- Major travel corridors with multiple emergency, jurisdiction, law enforcement, and transportation responders
- Highways with limited shoulder width, construction zones, locations with frequent incidents

Examples

- Incident management plans
- Regional effort to respond to nonrecurring congestion

2.6 INCIDENT RESPONSE (COURTESY PATROL)

Cost: Low

Description

Service for stranded freeway travelers that assists with vehicle breakdowns, stalls, and crashes.

Applicable Locations & Situations

- Regionwide programs
- Freeways with heavy volumes and/or documented history of incidents or regional facilities with limited shoulder width
- Major construction zones

Examples

· Service to stranded freeway travelers

2.7 LIMITED INTERSECTION IMPROVEMENTS

Cost: Low-Moderate

Description

Minor intersection enhancements improving safety and/or mobility.

Applicable Locations & Situations

· Situations where congestion and/or safety issues are present but do not require full intersection redesign

Examples

- Minor isolated intersection widening and lane re-striping
- Auxiliary turn lanes (right or left)
- Widened shoulders

2.8 MAINTENANCE MANAGEMENT

Cost: Low-Moderate

Description

Employment of strategies to minimize the congestion caused by maintenance and construction activities.

Applicable Locations & Situations

• Part of program planning done by the implementing agency

Examples

• Traffic Management Plan (TMP)



2.9 RAMP METERING

Cost: Low-Moderate

Description

Active traffic management strategy that uses traffic signals at freeway on-ramps to control the number of vehicles entering the freeway to keep vehicles moving more efficiently.

Applicable Locations & Situations

- Existing high volume freeway and expressway facilities
- · On-ramps with heavy platoons of vehicles released from arterial/ramp intersections

Examples

- · Traffic signal controlling stream of merging traffic
- Bus or HOV vehicle bypass

2.10 SIGNAL IMPROVEMENTS

Cost: Low-Moderate

Description

Upgrading or optimizing traffic signals to enhance safety, efficiency, and flow of traffic.

Applicable Locations & Situations

- High volume urban corridors with multiple signalized intersections
- Streets with high transit volumes and bus stop activity

Examples

- Expanded timing and coordination
- Signal modernization and surveillance
- Transit or emergency vehicle signal priority

2.11 TRAFFIC MANAGEMENT CENTER

Cost: Moderate

Description

Control center where regional transportation operations are coordinated and information from local networks and other sources is collected and distributed.

Applicable Locations & Situations

- · Jurisdictions that own equipment, collect data, and manage traffic
- A strategic, centralized location serviced by major communication lines

Examples

- Spokane Regional Traffic Management Center (SRTMC)
- Acquiring data and devices to support Traffic Management Center operations

2.12 TRAVELER INFORMATION SERVICES

Cost: Moderate

Description

Mechanisms that provide relay information to assist traveler make decisions regarding trip departures, route selection, and travel mode.

Applicable Locations & Situations

- Heavily traveled freeways or arterials with frequent incidents or travel delays
- · Locations before major interchanges and route decision-making points

Examples

- Message signs
- Mobile device applications
- Online services

2.13 TURNING MOVEMENT ENHANCEMENTS

Cost: Low-High

Description

Modifying intersections or roadways to improve the safety and efficiency of turning movements.

Applicable Locations & Situations

- · Intersections with a high number of turning vehicles and/or rear-end crashes
- · Areas with a high number of merging or weaving vehicles



Examples

- Channelization
- Left-turn lanes
- Center turn lanes
- Jughandles
- Deceleration lanes
- Roundabouts

2.14 VARIABLE SPEED LIMITS & DYNAMIC ADVISORY SPEEDS

Cost: Moderate

Description

Active traffic management strategy that uses dynamic speed limit signs to slow traffic before and through adverse conditions to improve safety and keep traffic moving efficiently.

Applicable Locations & Situations

- Freeways or other major corridors that have frequent congestion
- Collision hot spots, traffic bottlenecks, or specific locations with known issues related to adverse weather or construction and maintenance activities

- Congestion-responsive variable speed limits (VSL)
- Weather-responsive VSL
- Speed harmonization
- Dynamic speed limits



3. Transit Operational Improvements

3.1 FIXED GUIDEWAY TRANSIT OR DEDICATED TRANSIT LANES

Cost: Moderate-High

Description

Exclusive guideways, such as light rail and commuter rail, and dedicated street travelways, like bus rapid transit or roadway lanes reserved exclusively for buses.

Applicable Locations & Situations

- Densely developed urban corridors or station areas
- ROW adjacent to severely congested freeways or arterial streets

Examples

- Exclusive guideways (light rail, heavy/commuter rail)
- Street travel ways (BRT)
- Bus-only lanes
- Business Access and Transit (BAT) lanes

3.2 GENERAL TRANSIT INFRASTRUCTURE IMPROVEMENTS

Cost: Low-Moderate

Description

Upgrading facilities and systems that support public transportation, such as enhanced stops, covered bus shelters, and improved fare collection systems.

Applicable Locations & Situations

- Bump outs
- Smart Cards
- Covered bus shelters

Examples

- Enhanced amenities and safety
- Improved access
- Improved fare collection system

3.3 PARK AND RIDE FACILITIES—NEW OR IMPROVED

Cost: Moderate

Description

Designated parking lots where commuters can park their vehicles behind and access public transit.

Applicable Locations & Situations

- High ridership transit corridors
- Suburban settings with too little density for local transit service but can generate enough transit users in a
 concentrated location to make transit both efficient and beneficial in terms of air quality and congestion
 reduction
- Location upstream of congestion in order to reduce congestion and provide easy access to transit users

- Adding a new park and ride
- Expanding the capacity of an existing park and ride
- Adding amenities, such as lighting or additional seating, to an existing park and ride



3.4 TRANSIT-ORIENTED DEVELOPMENT

Cost: Low-High

Description

Transit-Oriented Development (TOD) is a planning approach that promotes high-density, mixed-use neighborhoods near transit facilities, making it easier for people to access transit and reducing vehicle dependency.

Applicable Locations & Situations

- New developments on previously vacant or undeveloped sites, or redevelopment of existing sites
- · Locations with the potential to capitalize on proximity to a transit station

Examples

- Areawide policies and strategies that result in more transportation-efficient regional land use patterns
- Localized planning and zoning strategies that result in more transportation efficient developments

3.5 TRANSIT SERVICE EXPANSION

Cost: Moderate

Description

Adding new bus routes or extending the service and/or frequency, or improving the reliability, of existing routes.

Applicable Locations & Situations

- · Areas with growing concentrations of residential, commercial, or business activity
- Existing bus routes that are operating near capacity
- Route locations that offer increased access to major transit stations

Examples

- · New bus routes and/or extension of existing service
- Increased frequency and/or extending operating hours
- Flexible routing
- Transfer improvements

3.6 TRANSIT SIGNAL PRIORITY

Cost: Low

Description

Traffic management strategy that adjusts signal timing to prioritize transit vehicles, reducing delays while improving their travel times and reliability.

Applicable Locations & Situations

- · Heavily traveled corridors with multiple traffic signals & frequent transit stops
- · Locations where a bus may need a head start to merge into or cross general-purpose lanes of traffic

Examples

- Extending green light phase to allow transit vehicles to pass through
- · Adjusting signal timing during peak hours or when transit ridership exceeds a certain threshold
- Queue Jump Lanes

3.7 TRANSIT VEHICLE TRAVEL INFORMATION

Cost: Moderate

Description

Real-time or scheduled data about transit vehicle locations, arrival times, and service status, provided to passengers to enhance trip planning and improve the travel experience.

Applicable Locations & Situations

• Transit stations and major bus tops, as well as major event and activity venues adjacent to transit stations

- Vehicle detection and monitoring devices
- Mobile device apps and online public information sources



4. Freight & Goods Movement

4.1 FREIGHT CAPACITY IMPROVEMENTS

Cost: High

Description

A range of strategies to expand capacity and enhance the efficiency of freight transportation in the region.

Applicable Locations & Situations

- Identified freight facilities, including interstates
- Local freight delivery routes

Examples

- New or expanded freight rail
- Freight intermodal center/yard
- Port facility expansion
- Hill-climbing lanes

4.2 FREIGHT OPERATIONAL IMPROVEMENTS

Cost: Low-Moderate

Description

A range of strategies to optimize operations and enhance the efficiency of freight transportation in the region.

Applicable Locations & Situations

- Identified freight facilities, including Interstates
- Local freight delivery routes

- Dedicated truck route or truck parking
- Freight plans/coordination logistics
- Upgraded roadway infrastructure to permit truck/freight movement
- Adding bicycle and pedestrian improvements that separate these modes to reduce potential conflicts with
 freight

5. Roadway Capacity Improvements

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5.1 ADDING CAPACITY/WIDENING

Cost: High

Description

Adding new travel lanes along an existing roadway.

Applicable Locations & Situations

- Severely congested roads with a clear capacity or safety deficiency
- · Locations that experience link congestion rather than intersection congestion
- Location with limited appropriate alternative routes

Examples

- New general purpose lanes
- Interchange with related road segments
- Hard shoulder running

5.2 GRADE-SEPARATED INTERSECTIONS

Cost: High

Description

Overpasses or underpasses that allow roadways to bypass cross streets, eliminating direct intersections.

Applicable Locations & Situations

- Very high-volume and congested intersections
- Locations with limited ROW or physical constraints to expanding the width of the intersection approaches

Examples

· Overpass or underpass for cross street

5.3 GRADE-SEPARATED RAILROAD CROSSINGS

Cost: High

Description

Overpasses or underpasses that allow roadways to bypass railroad tracks, eliminating direct crossings.

Applicable Locations & Situations

- Roadways with a high daily traffic volume
- Locations with either a high frequency of trains crossing road or long-time durations of multi-car trains blocking the road
- High traffic-generating land uses on either side of tracks
- Locations with a documented crash rate higher than established thresholds

Examples

5.4

Roadway underpass or overpass

HILL-CLIMBING LANES

Cost: Low-Moderate

Description

Additional roadway lanes designed to assist slower vehicles in ascending steep grades.

Applicable Locations & Situations

- Generally in rural areas with steep or rolling hills (freeways or rural highways)
- · Locations that experience high peak direction volumes of recreational or weekend traffic
- Urban or suburban freeways with steep climbing up-grades

Examples

• Used by trucks and slower traffic to let faster traffic pass



5.5 MAJOR INTERSECTION IMPROVEMENTS

Cost: Moderate-High

Description

Significant upgrades to enhance safety, capacity, and traffic flow at intersections.

Applicable Locations & Situations

• Severely congested intersections on regionally significant corridors

Examples

- Realigning or reconfiguring intersections
- Adding or widening turn lanes to increase capacity

5.6 MINOR ROAD EXPANSIONS

Cost: Moderate-High

Description

Major roadway reconstruction with minor capacity additions.

Applicable Locations & Situations

 Major reconstruction projects for existing roadways or intersections that require minor capacity additions to meet current design standard

Examples

• Widening lanes and/or shoulders to meet current design standards

5.7 NEW OR EXTENDED ROADWAYS

Cost: High

Description

Constructing a new roadway or extending an existing roadway to complete a network.

Applicable Locations & Situations

- · Locations that serves areas experiencing new development or anticipating development soon
- · Location that would divert traffic from an existing severely congested corridor
- Unimproved roads with safety issues or development potential

- Arterial
- Bypass
- Limited Access Highway