National Mobility/Congestion Measures Selection Matrix

DRAFT - FOR REVIEW ONLY

Measure	Recommended National Set?	Definition	Transit	Time Interval	When to Use	Required Data	Data Source	Geographic Targets	Calculation Formula
Travel Delay	Yes	Total delay is the sum of lost time due to congestion.	Yes	Monthly, Annual, Trends	Planning	Travel Time, Volume	Travel Time, Planning Models, Roadway Inventory Data Sets	Statewide, Regional, Corridor	$\text{Total Delay}\ (\text{person–hours}) = \left[\text{Actual Travel Time}\ (\text{minutes}) - \text{FFS or PSL Travel Time}\ (\text{minutes})\right] \times \text{Vehicle Volume}\ (\text{vehicles}) \times \text{Vehicle Occupancy}\ (\text{persons/vehicle}) \times \frac{1\ \text{hour}}{60\ \text{minutes}}$
Travel Time/ Travel Delay Per Commuter	Yes	Sum of the time lost divided by number of the individuals in congestion.	Yes	Annual, Trend	Planning	Travel Time, Volume	Travel Time, Planning Models, Roadway Inventory Data Sets	Statewide, Region	$\text{Total Delay per traveler or per capita}\ (\text{person–hours}) = \frac{\left[\text{Actual Travel Time}\ (\text{minutes}) - \text{FFS or PSL Travel Time}\ (\text{minutes})\right] \times \text{Vehicle Volume}\ (\text{vehicles}) \times \text{Vehicle Occupancy}\ (\text{persons/vehicles}) \times \frac{1\ \text{hour}}{60\ \text{minutes}}}{\text{Number of peak-period travelers or population}}$
Congestion Cost	Yes	A measure of the cost of the congestion problem.	Yes	Annual, Trend	Planning, Operations	Travel Time, Volume	Travel Time, Planning Models, Roadway Inventory Data Sets	Statewide, Region, Corridor	$\text{Annual Passenger Vehicle Delay Cost} = \text{Daily Passenger Vehicle Hours of Delay} \times \text{Value of Person Time}\ (\$\ /\ \text{hour}) \times \text{Vehicle Occupancy}\ (\text{persons/vehicle}) \times 250\ \text{Working Days}$
Travel Time Index	Optional State and Region Use	A calculated estimate of the conditions faced by travelers.	Yes	Monthly, Annual, Trends	Planning, Operations	Travel Time, Volume	Travel Time, Planning Models, Roadway Inventory Data Sets	Statewide, Regional, Corridor	$\text{Travel Time Index} = \frac{\text{Peak Travel Time}}{\text{Free Flow Travel Time}}$
Maximum Throughput Travel Time Index	Optional State and Region Use	Compares peak period travel time to travel time with maximum volume.	Yes	Monthly, Annual, Trends	Planning, Operations	Travel Time, Volume	Travel Time, Planning Models, Roadway Inventory Data Sets	Statewide, Regional, Corridor	$\text{Max Throughput Travel Time Index} = \frac{\text{Peak Travel Time}}{\text{Max Throughput Travel Time}}$
Buffer Index	Optional State and Region Use	The amount of extra time needed to be on time for 95% of the trips.	Yes	Monthly, Annual, Trends	Planning, Operations	Travel Time, Volume	Travel Time/Speed Monitoring	Statewide, Region, Corridor	$\text{Buffer Index}\ (\%) = \left[\frac{95\text{th Percentile Travel Time}\ (\text{minutes}) - \text{Average Travel Time}\ (\text{minutes})}{\text{Average Travel Time}\ (\text{minutes})}\right] \times 100\%$
Total Travel Time	Optional State and Region Use	Illustrates effect of land use and trans. Improvements.	Yes	20 year plan, Periodic Updates	All Roads, All Travel	Travel Time for all trips and modes	Planning Models	Statewide, Region	
Economic Benefits	Optional State and Region Use	Direct / Indirect Benefits or Economic value of mobility investments to businesses.	Yes	Annual, Project	Planning, Before-After, Project Analysis	Travel Time, Volume, Economic Profile, Demographics	Travel Time, Planning Models, Roadway Inventory, Eco. & Demo. Data Sets	Statewide, Regional, Corridor	
Border Crossing Time	Optional State and Region Use	A measure used to illustrate the effect of combined operations of companies at Int. border checkpoints.	No	Monthly, Annual, Trends	Planning, Operations	Travel Time, Volume	Travel Time	Crossing, Corridor	