

FDOT Multimodal Performance Measures Program Definitions

The following definitions apply to terms used to describe mobility of people and goods in Florida by the following modes: auto/truck, transit, pedestrian, bicycle, aviation, rail and seaports. Some definitions apply only to certain modes - this is either obvious (e.g. "Bikeway") or is indicated in parentheses after the term. Other definitions apply more broadly across modes (e.g. "Benchmark").

Accessibility (a dimension of mobility)

Conceptually the ease in engaging in activities; ability to reach desired destinations, activities, goods, and services – performance measures typically associated with this mobility dimension are:

- Time, distance or cost to reach a destination
- Modal choices/alternatives
- Connectivity
- Number of transfers (transit)

Auto (automobile)

A highway travel mode that includes motor vehicle traffic including motorcycles, passenger cars, and four tire, single units (FHWA Vehicle Category Classification, Classes 1- 3).

Auto/Truck

A combination of the auto and truck modes (FHWA Vehicle Category Classification Classes 1-13).

Average travel speed (for auto/truck modes)

The length of the highway segment divided by the average travel time of all vehicles traversing the segment, including all stopped delay times.

Aviation

A mode relating to the transportation of people and goods by aircraft.

Benchmark

A common reference point used for comparisons for performance measures practices.

Bicycle

A mode comprised of vehicles with two wheels tandem, propelled by human power.

Bikeway

A bicycle path physically separated from motorized traffic by an open space or barrier, either within the highway right-of-way or within an independent right-of-way.

Bottleneck

A segment of a transportation network that consistently experiences significant operational problems such as oversaturated congestion.

Buffer index

A travel time reliability performance measure defined by the ratio of an actual travel time (typically the 95th percentile travel time) to the average travel time; conceptually represents the extra travel time (or time cushion) travelers must add to their average travel time when planning trips to ensure on-time arrival (note: this measure is not recommended for statewide reporting of travel time reliability or in project prioritization).

Bus

A highway travel mode operated by rubber-tired vehicles that follow fixed routes and schedules along roadways (FHWA Vehicle Category Classification Class 4).

Capacity (for auto/truck modes)

The maximum number of vehicles that reasonably can be expected to traverse a point or a uniform section of roadway during a given time period under prevailing conditions.

Capacity (for other modes)

The flow that any particular facility/service can accommodate without serious inconvenience to the users.

Combination truck

A truck consisting of a tractor and trailer (FHWA Vehicle Category Classification Classes 8-13).

Congestion (congested conditions) (for the auto/truck modes)

A condition in which traffic demand causes the level of services (LOS) to be at or below FDOT's LOS standard. Congestion is described as mild, heavy, or severe. Adjectives describing the types of congestion are non-recurring and recurring.

Container

A large, standard sized metal box into which cargo is packed for shipment. (See definition of twenty-foot equivalent unit.)

Context measure

See Indicator.

Corridor

(1) a set of essentially interrelated, parallel transportation facilities for moving people and goods between two points; (2) a geographic area used for the movement of people and goods; (3) highway, rail line, waterway, bikeway and other exclusive-use facilities that connect major origin/destination markets.

Delay

(1) Additional travel time beyond some norm (e.g., LOS C in urbanized areas, LOS B elsewhere) experienced by a traveler; (for auto/truck modes - also known as threshold delay; d_{losC} , d_{losB}); (2) any additional travel time experienced by a traveler; (for auto/truck modes - also known as free flow delay; d_{ffs}).

Demand

The number of persons or vehicles desiring to use a mode or facility.

Demand to capacity ratio

See volume to capacity ratio.

Dwell time

The period of time a vehicle remains idle.

Enplanements

Passenger boardings at airports.

Facility (for auto mode)

A length of roadway composed of points and segments.

Free flow delay

See delay.

Free flow speed (for auto/truck modes)

The average speed of vehicles on a given segment, measured under low-volume conditions, when drivers are free to drive at their desired speed and are not constrained by the presence of other vehicles or downstream traffic control devices; typically 5 mph over the posted speed limit.

Free flow time (for auto/truck modes)

The average time spent by vehicles traveling at the free flow speed over a facility length.

Freeway

A multilane, divided highway with at least two lanes for exclusive use of traffic in each direction and full control of ingress and egress.

Freight

Any commodity being transported.

Goal

The description of a desired outcome. The purpose toward which an endeavor is directed, integral to organization mission. (e.g., provide safe and secure transportation across modes.)

Heavy congestion (for the auto/truck modes)

A condition in which traffic demand is at a level to cause the LOS to be below FDOT's LOS standard.

Heavy vehicle (truck and bus modes)

A vehicle meeting FHWA Vehicle Category Classification Classes 4-13.

Highway

A general term for denoting a public way for purposes of vehicular and people travel, including the entire area within the right-of-way.

Highway modes

Methods of motorized and non-motorized travel that may utilize a highway, specifically auto, bicycle, bus, pedestrian, and truck.

Hub

Ports and terminals in which a significant amount of goods or people move between Florida regions or between Florida and other origin/destination markets in the U.S. and the rest of the world.

Incidents

Events that cause disruption in transportation services.

Indicator (also known as context measure)

A type of mobility performance measure, which is used to identify relevant background conditions and trends.

Intermodal

Related to the connection between two or more modes of transportation.

Intermodal connectors

A highway, rail line, or waterway connecting any two or more freight-related modes of transportation.

Interregional

Relating to the connection between any two or more regions.

Intrastate

Relating to a connection with both ends in Florida.

Level of service (LOS)

A quantitative stratification of the quality of service to a typical traveler of a service or facility into six letter grade levels, with "A" describing the highest quality and "F" describing the lowest quality.

Mild congestion (for auto/truck modes)

A situation in which traffic demand is in the LOS range of FDOT's LOS standard.

Mobility

The movement of people and goods.

Mobility performance measure

A metric that quantitatively describes something about one of the four dimensions of mobility (quantity, quality, accessibility, utilization). Measures can be considered as one of two types:

1. a mobility metric directly tied to achieving a goal or objective or used in a decision making process; or
2. an indicator or context measure which is used to identify relevant background conditions and trends

Mode

A means of moving people or goods.

Motor carrier

A firm engaged in providing commercial motor freight or long distance trucking.

Multimodal

More than one travel mode including potentially the four highway modes (auto/truck, bicycle, bus/transit, and pedestrian), aviation, rail, and seaports.

National Highway System (NHS)

Approximately 160,000 miles of roadway important to the nation's economy, defense, and mobility. The NHS includes Interstate highways and other major roadways, the Department of Defense's Strategic Highway Network (STRAHNET) and major connectors to military installations and intermodal facilities.

Non-recurring congestion (for auto/truck modes)

Congestion caused by unexpected disruptions or other events, particularly lane blocking incidents, adverse weather or work zones.

Objective

A specific, quantifiable statement that clearly relates to a goal; states a desired direction (e.g., reduce the rate of injuries).

On-time arrival

A travel time reliability performance measure defined by a designated travel time (e.g., a travel time based on the posted speed limit); conceptually represents a trip that arrives within a defined travel time.

Paratransit (or demand response)

Forms of transportation service that are more flexible and personalized than conventional fixed route, fixed schedule transit service; typically utilized to accommodate passengers who are older or disabled and unable to use the fixed route service.

Passengers (for aviation, rail, seaports, transit modes)

People in a vehicle making use of a mode.

Peak hour

(1) The hour in which the greatest amount of travel occurs (typically considered 5:00-6:00 p.m. on a weekday); (2) the hour in which the greatest amount of travel occurs for a mode.

Peak period

(1) A multi-hour period in which travel is greatest; and (2) for the auto mode in large urbanized areas the two-hour weekday time period of 4:00-6:00 p.m. at which congestion is typically highest.

Pedestrian

An individual traveling on foot.

Performance based planning

Application of performance management principles to transportation system policy and investment decisions.

Performance measure

A metric directly tied to achieving a goal or objective or used in a decision making process; or an indicator or context measure which is used to identify relevant background conditions and trends.

Planning time index (PTI)

A travel time reliability performance measure defined by the ratio of an actual 95th percentile travel time to the free flow travel time (TTI₉₅). PTI conceptually represents the congested travel time travelers must spend compared to an uncongested travel time to arrive at their destination on time 95% of the time (a value of 3.00 indicates a traveler should allow 60 minutes to make an important trip that takes 20 minutes in uncongested traffic).

Quality (a dimension of mobility)

Conceptually how well people or goods are being transported. Performance measures typically associated with this mobility dimension are average travel speed, travel time reliability, vehicle delay, and level of service.

Quality of service

A user based perception of how well a service or facility is operating.

Quantity (a dimension of mobility)

Conceptually the number of people or goods being transported. Performance measures typically associated with this mobility dimension are person trips, person miles traveled, vehicle miles traveled, truck miles traveled, and tonnage.

Rail

Relating to the transportation of people and goods by train.

Recurring congestion (for auto mode)

The routine presence of congestion on a facility.

Reliability

See travel time reliability.

Seaport

Relating to the transportation of people and goods by waterborne vessels.

Severe congestion (for auto mode)

A condition in which traffic demand exceeds the capacity (LOS F).

Single unit truck

A truck without a trailer (FHWA Vehicle Category Classification Classes 5-7).

Stable flow

A flow of traffic on freeways, which is not stop-and-go.

State Highway System (SHS)

A network of approximately 12,000 miles of highways owned and maintained by the State of Florida or state created authorities. Major elements include Interstate highways, Florida's Turnpike and other toll facilities operated by transportation authorities, and arterial highways.

Strategic Intermodal System (SIS)

Florida's transportation system composed of facilities and services of statewide and interregional significance, including appropriate components of all modes.

System

A combination of facilities or services forming a network or being selected for analysis.

Target

A value of a performance measure representing the level of desired performance reflecting an agency's goals and objectives.

Threshold

The point from which to start measuring.

Threshold delay

See delay.

Throughput

The maximum number of people or vehicles that reasonably can be expected to traverse a point or a uniform transportation facility section during a given time period under prevailing conditions.

Transit

a travel mode in which vehicles (including busses, streetcars, light rail, metro rail, and commuter rail) stop at regular intervals along the roadway or exclusive right-of-way to pick up and drop off passengers.

Travel time

The total time spent getting from one point to another.

Travel time index

A performance measure defined by the ratio of an actual travel time to the free flow travel time; conceptually represents the congested travel time travelers must spend compared to an uncongested travel time.

Travel time reliability

Conceptually, the ability to reach a destination on time. (1) The percent of trips that succeed in accordance with a predetermined performance standard for time or speed; and/or (2) the variability of travel times that occur on a facility or a trip over a period of time - frequently used performance measures of variability are median travel time index (TTI⁵⁰), , planning time index (TTI⁹⁵), and buffer index.

Travel time variability

See travel time reliability.

Truck

A vehicle engaged primarily in the transport of goods and materials (FHWA Vehicle Category Classification Classes 5-13).

Twenty-foot equivalent unit (for freight – seaport and rail modes)

The eight-foot by eight-foot by twenty-foot intermodal container used as a basic measure used for container cargo.

Utilization (a dimension of mobility)

Conceptually how efficiently the system is being used- performance measures typically associated with this mobility dimension are volume to capacity ratios, percent miles severely congested, and percent travel severely congested.

Vehicle

A motorized mode of transportation.

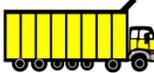
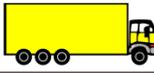
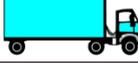
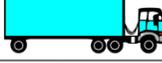
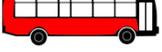
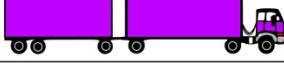
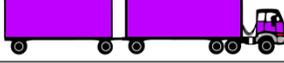
Vehicle miles traveled (for auto/truck modes)

The total number of miles traveled by vehicles using a highway system.

Volume to capacity ratio

The ratio of demand to capacity.

Figure 1. FHWA Vehicle Category Classification

Class 1 Motorcycles		Class 7 Four or more axle, single unit	
Class 2 Passenger cars		Class 8 Four or less axle, single trailer	
			
			
			
Class 3 Four tire, single unit		Class 9 5-Axle tractor semitrailer	
			
			
Class 4 Buses		Class 10 Six or more axle, single trailer	
			
		Class 11 Five or less axle, multi trailer	
Class 5 Two axle, six tire, single unit		Class 12 Six axle, multi-trailer	
			
		Class 13 Seven or more axle, multi-trailer	
			
