



## Board Report

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### AD HOC CUSTOMER EXPERIENCE COMMITTEE MAY 17, 2018

**SUBJECT: SEVERELY CONGESTED BUS CORRIDORS**

**ACTION: RECEIVE AND FILE**

#### **RECOMMENDATION**

RECEIVE AND FILE status report identifying the most severely congested bus corridors within Metro's service area.

#### **ISSUE**

As part of the NextGen Bus Study, staff has developed a tool that allows us to identify the impacts of traffic congestion on bus speeds. This report describes the methodology used in the tool, and identifies the 20 most severely impacted corridors.

#### **DISCUSSION**

In recent years, there have been a number of studies identifying the most congested highway networks in the United States. Various cities are ranked on the basis of hours of delay experienced by commuters annually. The goal of these studies is to identify opportunities to improve traffic flow.

There are two key metrics used in these evaluations - 1) Threshold Speed defined as the uncongested speed achieved by vehicles on each highway segment, and 2) a Travel Time Index (TTI) which compares the actual travel time at any given time period to its Threshold Speed. For example, if it takes 4 minutes to travel one mile at the uncongested Threshold Speed, but 6 minutes during the congested peak period, then the Travel Time Index is 6 minutes divided by 4 minutes, or 1.5.

These metrics were originally developed at the Transportation Institute of Texas A&M University. The lowest possible value for the TTI is 1.0 which signifies travel at the uncongested speed. The Institute determined that values in excess of 1.25 constitutes severe congestion, and values in excess of 1.5 represents very severe or extreme congestion.

Staff determined that a similar metric is needed to analyze bus speeds along congested corridors in Los Angeles. The goal of this effort is to be able to determine when and where buses experience the most adverse impacts to speeds due to traffic, poor signal coordination, or other factors.

Metro maintains a database of time stamped, locational information on all buses as transmitted by the onboard computers on each bus. Weekday data from October 2017 was downloaded and processed by time of day to determine the uncongested speed of each bus line by segment as well as the average speed by segment for each daily time period (AM Peak, Midday, PM Peak, etc.).

Segments were defined from scheduled Time Point to Time Point. The bus onboard computer saves records a time stamp each time it passes a Time Point. A record is also produced when door open and close at stops. Running times by time period were then analyzed, and a Transit Traveltime Index was calculated for each segment and time of day. A tool was built to allow the user to query the database for each bus line, direction of travel, time of day, jurisdiction and neighborhood.

Using a Transit Travel time Index of 1.5 as an indicator of extreme congestion, bus corridors experiencing these conditions for an extended period of time were identified. There were 20 locations experiencing extreme congestion for 22 or more hours a day (both directions of travel combined).

Table 1 identifies these locations as well as the duration of severe congestion by direction of travel. These corridors are mapped on Attachment A. The two most extreme locations (Santa Monica BI and Ventura BI) experience severe adverse impacts on bus speeds continuously from 6am to 9pm daily. Not only do these conditions increase running time by 50% or more, they also adversely impact on-time performance and serve as an impediment to transit use.

Table 1 - Locations Experiencing Extreme Congestion Impacts on Bus Speeds

Corridor	Daily Hours of Excessive Congestion		Bus Line (s) Impacted
	Dir 1	Dir 2	
Santa Monica BI	15	15	4, 704
Ventura BI	15	15	150, 750
Glendale Av / Brand BI	15	13	92
Venice BI	15	10	33. 733
Fairfax Av	15	9	217, 780
Olympic BI	13	13	28, 728
Martin Luther King BI, Crenshaw BI, Hawthorne Av	13	13	40, 740
Compton Av	13	13	55
Long Beach BI	13	13	60, 760
Cesar Chavez Av	13	13	68
La Cienega BI	13	13	105

Van Nuys Bl	13	13	233
Soto St	13	13	251, 751
Western Av	13	12	207, 757
Wilshire Bl	13	10	20, 720
Jefferson Bl	13	10	35
Central Av	13	10	53
Florence Av	13	10	111
Vermont AV	13	10	204, 754
Sunland Bl	13	10	222

**NEXT STEPS**

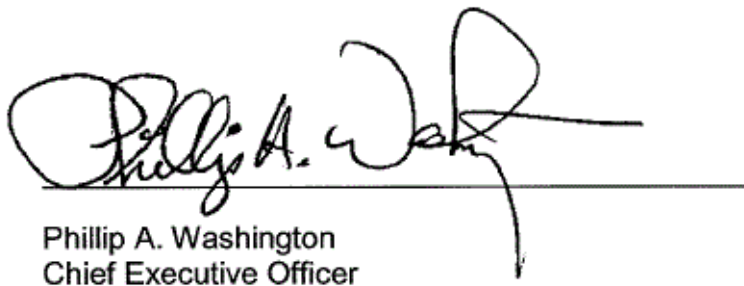
A follow up report for June 2018 will identify one line as a case study to identify congestion hotspots, root cause for the congestion, and a toolbox or improvements to address the congestion.

**ATTACHMENTS**

Attachment A - Congested Bus Corridor Map

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