

# MEMORANDUM

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Date: January 18, 2021

Subject: US 41 Transit Choices Study – Evaluation Framework

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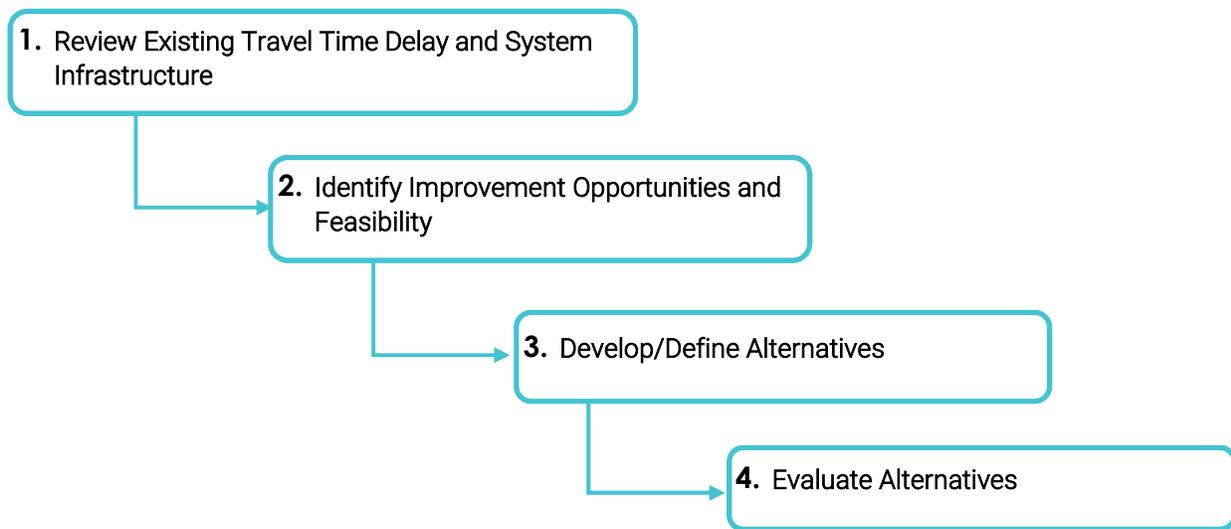
A framework for evaluation of bus priority technology and capital improvements is presented in this memorandum. The US 41 Transit Choices Study evaluation framework will guide the identification of candidate locations with corresponding and feasible capital and technology enhancements to improve the speed and efficiency of the Route 99/US 41 transit service. Furthermore, the evaluation framework establishes criteria for the comparative evaluation of corridor-wide transit concept alternatives that will incorporate resulting bus priority enhancements. The evaluation framework consists of four major steps and this memo describes each step including the supporting data, data sources, and decision criteria.



## US 41 Transit Choices Study Evaluation Framework

The evaluation framework will guide the development and identification of capital and technology enhancements that will improve the speed and efficiency of the Route 99/US 41 transit service. The evaluation framework consists of four major steps which are illustrated in Figure 1. This memo describes each step of the evaluation framework including supporting data, data sources, and decision criteria.

**Figure 1: US 41 Alternatives Evaluation Framework**



### **Step 1: Review Existing Travel Time Delay and System Infrastructure**

The review of existing conditions will consist of two parts: 1) Identification of problem areas within the study corridor where bus service is delayed and 2) Review of system infrastructure, including planned improvements and signal system technology.

US 41 signalized intersections and roadway segments will be evaluated in terms of the travel time delay experienced by the Route 99/US 41 transit service. In this manner, priority locations are established from among all of the signalized intersections and roadway segments in the corridor. Additionally, travel flow data will be reviewed to further assist in the identification of priority locations and to develop comparisons between transit travel times and travel times for other modes.



The review of system infrastructure will assist in the identification of programmed improvements in the corridor and will include an assessment of the traffic signal system. Together, the review of travel time delay, travel flows, and system infrastructure will support the effort to identify candidate locations to be carried forward into Step 2.

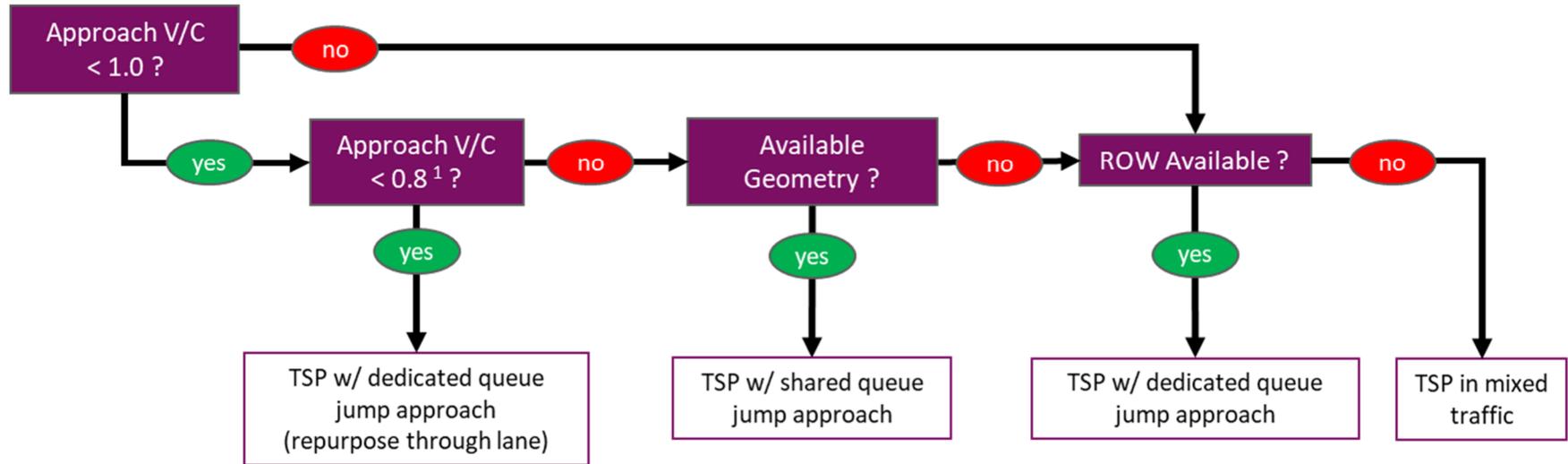
Supporting data for Step 1 include the following:

- **Transit Vehicle Running Time** – Actual bus running times will be compared to scheduled running times. Sarasota County Area Transit (SCAT) and Manatee County Area Transit (MCAT) track running times between timepoints for every trip of the day via their Automatic Vehicle Location (AVL) or Automatic Passenger Counter (APC) system.
- **Travel Time Reliability** – The MPO Congestion Management Plan (CMP) identifies roadway segments and intersections with a high Level of Travel Time Reliability (LOTTR >1.5). Additionally, the CMP identifies Prioritized Segments using a combination of reliability and safety information. Unreliable segments, unreliable intersections, and CMP Priority Locations will be identified for the US 41 corridor.
- **Streetlight Data** – Streetlight data will be reviewed to assess travel flows along US 41 using average trip duration and average trip speed. The average duration will be compared to Route 99 timepoints. Origin-Designation (O-D) analyses for Transportation Analysis Zones (TAZ) will be reviewed to identify the top O-D pairs near US 41.
- **Planned and programmed improvements** – Improvements will be reviewed to determine the ability to pair potential bus service enhancements with signal system, roadway, and/or intersection geometry modifications. Sources include:
  - FDOT Work Program FY2021-2025
  - FDOT Draft Tentative Work Program FY 2022-2026
  - Manatee County Capital Improvement Plan (CIP) FY2021-2025
  - City of Sarasota Financial Plan FY2021
- **Traffic Signal System Infrastructure** – Existing signal infrastructure will be reviewed for the ability to accommodate Transit Signal Priority (TSP) and queue jump functions with or without minimal new technology. Some of the elements to be considered include:
  - Signal controllers
  - Management software
  - Maintenance and ownership of signal system components





Figure 2: Intersection Improvements Flow Chart



<sup>1</sup>TCRP Bus and Rail Transit Preferential Treatments in Mixed Traffic

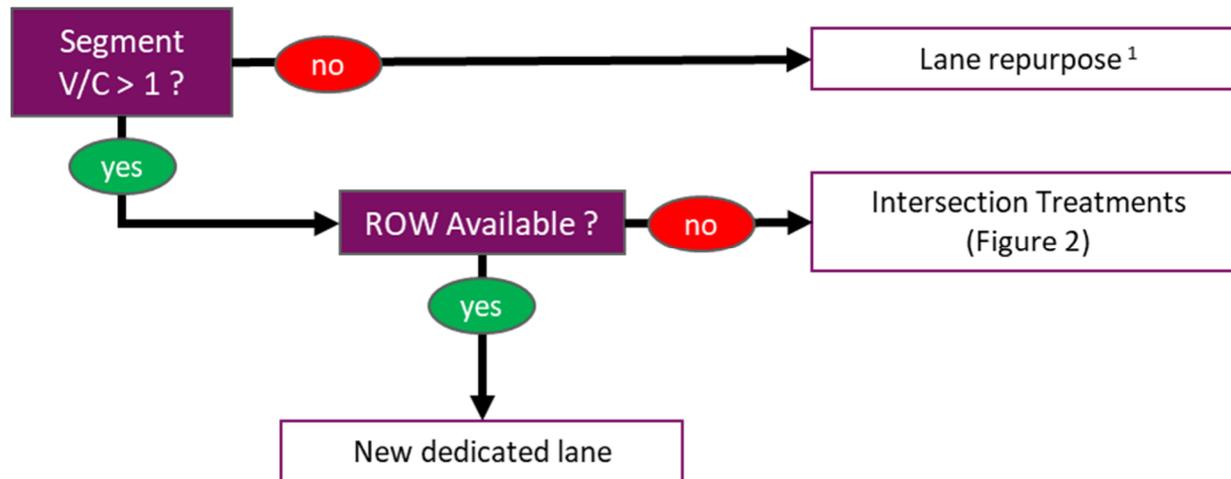
TSP – Transit Signal Priority

V/C – Volume-to-Capacity Ratio

ROW – Right-of-Way



**Figure 3: Roadway Segments Flow Chart**



<sup>1</sup> V/C will be reevaluated based on the reduced capacity with lane repurposing

V/C – Volume-to-Capacity Ratio

ROW – Right-of-Way

