Traffic 101

Key Traffic Terms:

Build (Model): The analysis conditions that represent future/projected traffic volumes where the project will be constructed. We analyzed years 2020 and 2035, with the CCT in place.

No-Build (Model): The analysis conditions that represent the future/projected traffic volumes where the project will not be constructed. We analyzed years 2020 and 2035, without the CCT in place.

Signal Phasing:

Cycle: The total time for each movement at an intersection to receive a green signal once.

Phase: The time for the signal of one movement to be green.

Concurrent phases: Phases that operate at the same time without interfering with each other. (Example: northbound through and southbound through, or CCT bus with the adjacent through)

Exclusive Left Turn: A left turn that is signalized with arrow signals and has no conflicting phases occurring at the same time. (Example: northbound left turn and southbound left turn have a green arrow signal while the northbound and southbound through movements have red signals)

Permissive Left Turn: Any left turn that is allowed to turn when opposing traffic is not present. (Example: northbound left turns that have a solid green signal turn during the southbound through phase)

Performance Measures:

Travel Times: The time it takes a vehicle to travel between two specific points. This number is usually presented as an average of all vehicles to travel between those two points over a set time period (most often, peak hour). We primarily use measurements of CCT vehicle travel times both between two specific stations, as well as total time to travel the corridor.

Level of Service (LOS): An intersection is assigned a letter grade (A-F) in order to define the quality of the traffic operations generally based on volume-to-capacity ratios and/or delay. LOS 'A' is the best quality; LOS 'E' and 'F' indicate failing traffic operations.

Delay: The amount of time a vehicle spends waiting at the intersection. The delays of all vehicles in a set time period is averaged for one movement (example: eastbound left turn), one approach (example: eastbound), or for a whole intersection. Vehicle delay helps to determine LOS for the intersection. An intersection delay greater than 55 seconds for a signalized intersection corresponds to failing traffic operations.

Queues: In terms of vehicular traffic, the total number of cars that are waiting in line for the green signal. Bus queuing refers to when two or more buses "bunch" together while being delayed at an intersection or station along the corridor.

What is Transit Signal Priority?

Transit Signal Priority (TSP) is a term used for techniques that improve service and reduce delay for buses moving through traffic signals. TSP is NOT the same as signal pre-emption, which would immediately end the conflicting cross street green signal and provide a green signal for the bus. Many applications of signal pre-emption are currently being used for emergency vehicles throughout the county.

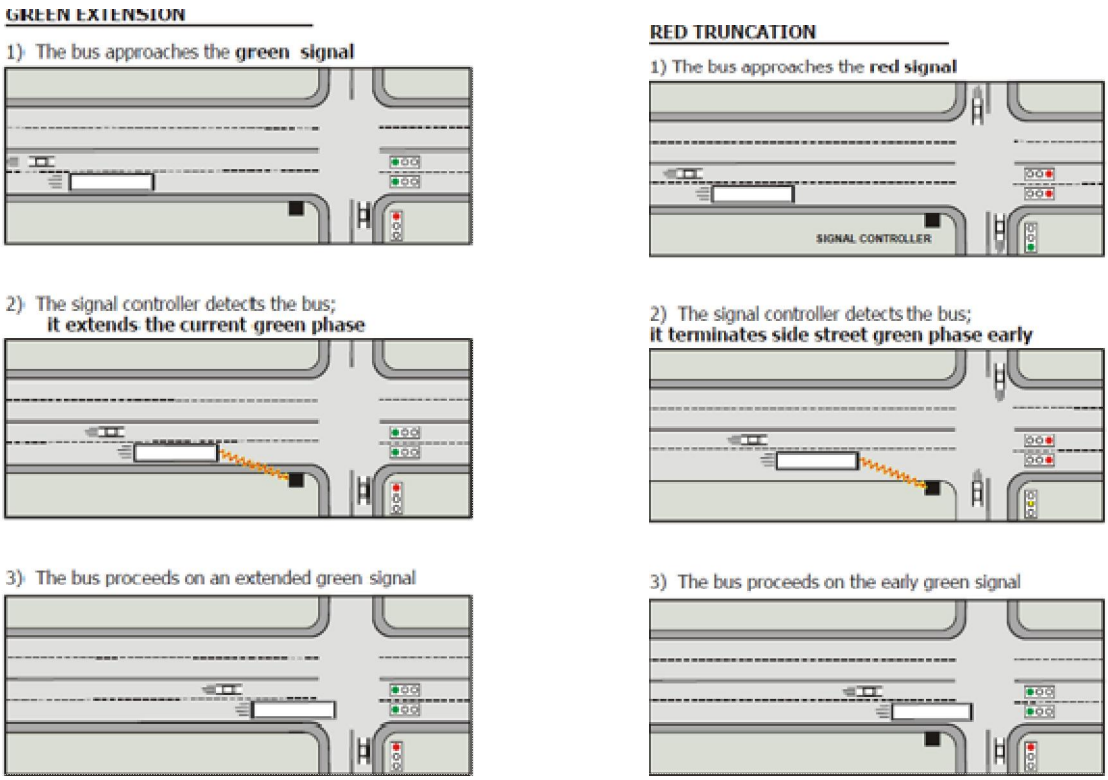
There are two main types of TSP which are currently being considered for use with the CCT: Green Extension and Red Truncation/Early Green.

Green Extension:

As the bus approaches an intersection, TSP would allow the bus to communicate with the signal controller to extend the bus green time. This would allow the bus to pass through the intersection without having to stop.

Red Truncation/Early Green:

When the bus arrives at the intersection, TSP would allow the bus to communicate with the signal in order to shorten the green time for cross-street movements. This would provide a shorter wait time for the bus.



(Fhwa.dot.gov; Traffic Signal Timing Manual, Figure 9-2 Effect of TSP to Adjust Signal Timing)

TSP for the CCT will be used to maintain the headways from the operations table.