

Transit Signal Priority (TSP)



TSP software maintains proper coordination, while servicing the transit vehicle, without interruption to the active coordination plan

TSP - Theory of Operation

- Transit vehicles can use either a “check-in” and “check-out” detection technology, or a continuous input technology.
- If the transit “check-in” and “check-out” both occur within the coordinated movement, there is no modification of the coordination timings.
- Once a TSP has been serviced, the controller will not allow another TSP call for the rest of the current cycle or optionally during the next cycle.
- If TSP does modify the coordination timing, all of the non-transit vehicle phases are serviced during the cycle and none are skipped. The timing for these non-transit phases is programmed by the traffic engineers to minimize or eliminate the effect of TSP on drivers approaching the intersection from other directions.
- If the transit vehicle “check-out” is not detected, or is very late, the coordinator will terminate TSP operation and service the remaining phases in the coordinated cycle in order to return to “Local Zero” in time. The goal is to not skip any phase and to remain in coordination.

At A Glance

- Studies have proven that TSP can reduce intersection delay for transit vehicles by 20-40%
- Reduction of total travel time of up to 8% has been shown when using TSP
- TSP results in increased ridership and customer satisfaction
- TSP increases the return on investment in transit vehicle costs
- Fewer stops result in less wear-and-tear on brakes and transmissions, and lowered fuel consumption

Objectives

- Reduce transit vehicle delays without causing unnecessary disruptions to signal system coordination
- Improve public transit schedule consistency to increase ridership
- Minimize the effects of transit operation on system coordination

Software/Controller Options

- Econolite's TSP software is currently available in all of the following controllers:
 - Cobalt series ATC controllers
 - 2070 controllers running Econolite ASC/3-LX software
 - ASC/2 Series NEMA controllers
 - ASC/2070 software for 2070L controllers
 - ASC/3 Series NEMA controllers
 - 2070 controllers running Econolite ASC/3/2070 software

Software Benefits

- TSP software maintains proper coordination, while servicing the transit vehicle, without interruption to the active coordination plan
- Only one TSP vehicle is permitted each cycle
- User has the option to allow phases to be skipped or to prevent phases from being skipped
- Splits are modified during TSP to accommodate detected transit vehicles
- TSP events are logged in the controller for engineering and transit authority analysis
- When using an intelligent transit vehicle emitter, TSP will only be activated when the vehicle is behind schedule

