Vision

The Carson Area Transportation System Management Plan (CATSMP) was initiated as a planning effort for the Carson Area Metropolitan Planning Organization (CAMPO) to establish commonly held operations and management objectives and as an asset management plan to aid in improved transportation system performance for the CAMPO region.

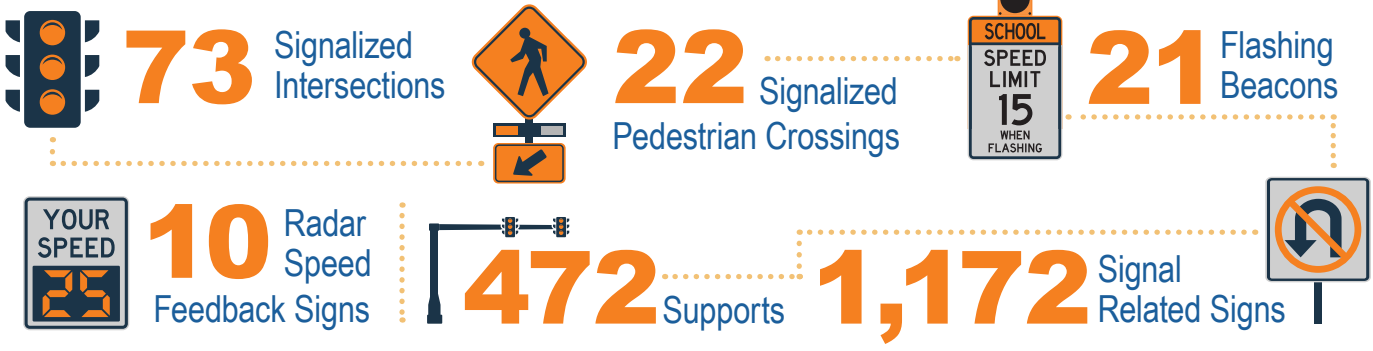
- Establish Objectives
- Inform Future Investments
- Improve Transportation
- Identify Needs

Goals

- Identify key components of the traffic signal system
- Identify life-cycle costs and replacement needs
- Identify and document program deficiencies and potential enhancements
- Understand funding and staffing needs
- Identify performance measures and benchmarks utilizing readily-available data
- Utilize the results of the study to seek more funding for maintenance activities

Process

This plan reviews CAMPO's current transportation system and identifies its needs related to operations and management to inform future investments needed to provide a safe and reliable transportation system for the region. The total number of physical elements collected as part of this project, as of 2021, included:



A Self-Assessment Workshop was conducted to collaboratively engage project stakeholders and promote a process-driven approach to improve transportation systems management and operations which resulted in various action items.

Short-Term (1-2 Years)	11 items
Mid-Term (3-5 Years)	4 items
Long-Term (>5 Years)	4 items
Total Actions	19 items

- Communication Culture
- Performance Measurement
- Systems and Technology
- Business Processes/Regional Collaboration

Improved Transportation Systems Management and Operations Effectiveness

Review Existing Conditions

Needs Assessment

Process

The life-cycle costing analysis quantified the different traffic signal system equipment types, identified a life-cycle timeframe, and recommended a replacement cycle projected **30 years** into the future. Carson City, NDOT, and partner agencies should budget **$8.2 million per year** and should increase the amount from year to year to account for inflation. Therefore, an additional **$7.7 million per year** is needed to provide adequate replacement of equipment.

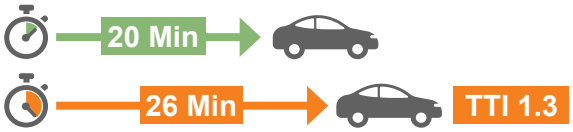
Travel Time Index (TTI) and **Planning Time Index (PTI)** metrics were used to track performance and prioritize future investments for the transportation system.

TRAVEL TIME INDEX (TTI)

Measures the unexpected delay or congestion experienced in a traffic versus a no-traffic situation. The TTI is the ratio of the travel time during the peak period to the time required to make the same trip at free-flow speeds.

SAMPLE SCENARIO

A **TTI** value of **1.3**, for example, indicates a **20-minute** free-flow trip requires **26 minutes**.



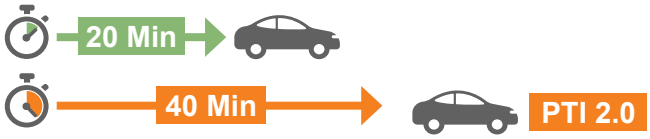
20 Minutes x 1.3 TTI = 26 Minutes

PLANNING TIME INDEX (PTI)

Measures the day-to-day variability of travel time experienced by drivers. It is calculated as the 95th percentile travel time compared to the free flow travel time. The 95th percentile is the 19th worst travel day in a month of 20 travel days.

SAMPLE SCENARIO

A **PTI** value of **2.0** suggests that travelers should budget **double** their free-flow travel time to reach their destination on time 95% of the time.



20 Minutes x 2.0 PTI = 40 Minutes

Reliable	Moderately Unreliable	Unreliable
1.00-1.30	1.31-1.80	1.81-3.00

In 2022, the peak period TTI for all corridors was 1.15, and the peak period PTI for all corridors was 1.42, which indicates travel is "moderately unreliable." The four corridors with the highest TTI and PTI are listed to the right:

Corridor Name	2022 TTI	2022 PTI
Fairview Drive E of 580	1.31	1.63
Downtown Carson*	1.29	1.61
Hwy 50 E*	1.20	1.48
College Pkwy*	1.19	1.47

** Denotes coordinated signal groups*

Outcomes

Recommendations to move the transportation system management activities on a path toward continual, improved outcomes include:

- Provide two additional maintenance staff for proactive maintenance based on the Federal Highway Administration best practices
- Hire a traffic systems engineer/signal operations engineer to oversee the network's performance and optimization
- Maintain an accurate and up-to-date inventory of assets for the physical elements collected as part of this plan
- Establish formal incident and special event management procedures to be adopted by the City
- Ensure consistent language and terms among all signal system agreements with the partnering agencies
- Provide instructions for reading signal timing plans to consultants during signal timing requests
- Implement outcomes from the Self-Assessment Workshop
- Administer corridor performance metrics on a regular basis to monitor the system