



Plum Creek Parkway Intersection Improvements – Active Traffic Management System

AGENCY AND DEPARTMENT: Town of Castle Rock Public Works Department

CATEGORY OF NOMINATION: Transportation

COMMUNITY CATEGORY: Medium

ACCOMPLISHMENT: Implementation of an Active Traffic Management System (ATMS)

As part of the 2016 Plum Creek Parkway Intersection Improvement Project between Perry Street and I-25, an Active Traffic Management System (ATMS) was implemented. The ATMS provides for time of day lane use assignments, which allows for dealing with varying capacity demands without additional lane construction. The ATMS allows for a double right turn onto northbound I-25 from 4:00 am to 9:20 am to help alleviate congestion during the morning rush hour. This is accomplished with a shared through/right turn lane and a right turn lane at the Plum Creek Parkway and northbound I-25 on-ramp. Only a single right onto northbound I-25 is permitted for the remainder of the day with a through lane and a shared through/right lane. The system also has a “transition” time of day plan that runs for two cycles to minimize the potential for collisions if drivers approach the intersection while the day plan is changing. This plan has one through lane and one right turn lane.

CRITERIA PARTICIPATION:

- **Innovation:**

Roadway capacity is adjusted by time of day, versus overbuilding the street with lanes that are underutilized during most hours. The implementation of the ATMS allows vehicles traveling west on Plum Creek Parkway to have a double right turn onto the northbound I-25 on-ramp during the morning rush from 4:00 am to 9:20 am. The ATMS also will allow the Colorado Department of Transportation (CDOT) to have a triple left off of the southbound I-25 off-ramp, and the requisite three eastbound through lanes on Plum Creek Parkway to accommodate the triple left, when this traffic change is warranted. The improvements also accommodate the additional turn lane that was added at the Plum Creek Parkway and Wilcox intersection and provides the most efficient use of the existing pavement and number of lanes.

- **Achievement:**

The use of the ATMS provides congestion relief without requiring the Plum Creek Bridge to be widened or the existing sidewalk to be removed in order

to accommodate an additional vehicle lane in the future. With the help of an extensive community outreach program, the traveling public was able to adapt to the new traffic patterns with minimal negative impacts. Town staff monitored the system in action and reacted to feedback as the public got used to the traffic pattern changes.

- **Transferable:**

For locations where traffic peaks create congestion, and constraints exist that preclude more conventional solutions such as street widening or right-of-way acquisition, the ATMS is an innovative alternative. While the proper outreach and public education is vital, an ATMS could be a viable solution in almost any community.

- **Cooperation:**

The ATMS idea came about during the design process of the project. Originally the project design would have eliminated the existing median to create a new left turn lane thereby providing space for an additional right turn lane onto the I-25 northbound on-ramp. This would preclude any other lane modifications that could be necessary in the future. CDOT and the Town searched for a solution that would mitigate congestion on Plum Creek Parkway for early morning commuters, while not precluding lane modifications to accommodate a future triple left off of the southbound I-25 off-ramps. The design of the system required the traffic signal controller at the northbound I-25 ramps to be responsible for sending the signal to the changeable lane use signs of the ATMS. CDOT agreed to relinquish, and the Town agreed to take on, operational and maintenance responsibilities of both I-25 ramp terminals. An intergovernmental agreement was created between the Town of Castle Rock and CDOT that would have the Town's traffic signal equipment control both I-25 ramp terminals and the ATMS signs along the Plum Creek Parkway corridor, while CDOT retains ownership of the signals. The cooperation between the Town of Castle Rock and the Colorado Department of Transportation was instrumental in coming up with a solution to the traffic concerns in the area while keeping the project on schedule.

SUMMARY:

Implementation of the ATMS system on the Plum Creek Parkway and I-25 interchange was an innovative solution to a complex challenge. The project was able to meet the needs of the traveling public, with cooperation between state and local authorities, while preparing for future needs of the corridor. The Town of Castle Rock is proud to find creative and economical answers to today's transportation challenges.