

NAME OF PROJECT: McHENRY AVENUE TEMPORARY ROUNDABOUT

EXECUTIVE SUMMARY

OVERVIEW: On any given day people from different communities travel long distances to go to work. This phenomenon is true in major US cities as well as in rural towns. Commuters of McHenry Avenue corridor, between the rural town of Escalon and the urban city of Modesto, are no exception to this daily travel ritual that subjects them to significant travel delays. In addition to commuters, there is significant truck traffic on this corridor moving goods in and out of the local farms, contributing mightily to the region's economy. Reducing traffic congestion is not an uncommon challenge for the engineers and planners who are used to applying their years of conventional wisdom to solve this type of problem. But, the roundabout project described below was born out of an unconventional solution to relieve the commuters' pain and address truck-traffic temporarily.

THE CHALLENGE: The McHenry Avenue corridor currently is a two-lane undivided highway carrying approximately 8,000 vehicles per day. This corridor is crossed by River Road, another highly traveled roadway, with approximately 6,000 vehicles per day. Before March 2016, the intersection at McHenry Avenue and River Road, in San Joaquin County, was controlled by stop signs (All-Way Stop Control). This intersection is located at the beginning of the bridge over the San Joaquin River, one of the three river crossings, and is a significant traffic bottle neck. Anticipating growth in traffic that would further compound the problem, San Joaquin County, in cooperation with Stanislaus County, developed a project to signalize the intersection and widen McHenry Avenue Bridge to four through lanes and a left-turn lane. This project was under design and was

The temporary roundabout solution:

- Reduced delay by 7,000 vehicle-hours
- \$344,000 fuel savings
- Reduced 10 Tons of CO emission

anticipated to begin construction this year – until an environmental issue threw the project off course and delayed construction by two years!

In the meantime, with the current All-Way Stop Control, commuters in the morning and evening peak hours had to spend over 20 minutes in stop and go traffic to cross this intersection. County staff received several complaints from businesses and commuters regarding the severe delay conditions. The residents of Escalon, especially, were calling for relief from this daily waste of their time during the commute hours. The news of a two-year delay to the widening project added to the motorists' anxiety, making them short-tempered and intolerant, resulting in some road rage situations.

INNOVATIVE SOLUTION & ORIGINALITY: To improve the situation, staff brainstormed several "quick-fix" alternative (temporary) intersection treatments that would maintain public safety, meet acceptable standards, accommodate trucks, minimize throw-away costs, reduce the overall cost of the temporary solution, avoid environmental impacts/delays, and gain public acceptance. Solutions ranging from alternative route suggestions and peak-hour-flagging to temporary signals were analyzed, but none were found to meet the objectives stated, considering the short time frame before the widening project was set to begin. Upon review of other similar high volume intersection situations in the region, staff identified a

"temporary roundabout" solution. The transportation engineers met with the maintenance, environmental, design and construction team to engineer a single-lane roundabout geometry that would remain completely within the existing pavement boundaries, and would accommodate the McHenry/River Road traffic volume. The result was an "odd geometry" roundabout that would meet the objectives, including the standard truck turns. Knowing that roundabouts had not gained wide public acceptance in the rural areas of our county, staff reached out to the public to receive their input. While the public sorely wanted an immediate solution, over 90% opposed the roundabout – even after successfully addressing every concern raised. Fully aware that the temporary roundabout was to be constructed using just paint, a few temporary delineators and rubber curbing, and being so confident of staff's solution, the County Public Works Director offered a compromise – that the temporary roundabout would be removed and stop signs restored if the temporary roundabout did not provide the expected improved traffic flow. The public agreed and the engineers went to work to layout the geometry and prepare for the one-day weekend construction by the County's maintenance crew.

This solution is very innovative and unique because temporary roundabouts are rarely used in California. In fact there is only one known prior example, in Modesto, CA. County staff designed the temporary roundabout in-house using current State and Federal guidelines. The intersection geometry, as well as the adjacent river crossing and irrigation canal dictated the unique bean shape (hence "Beanabout") rather than the traditional circular roundabout. The construction of the Beanabout was solely undertaken by county engineering and maintenance staff, and completed within a single-day closure of the intersection. This cost-effective unique "temporary" solution gained acceptance from the

(originally doubtful) public based on the assurance that the original condition could be easily restored should the solution fail.

COST EFFECTIVENESS: The capacity analysis comparison between the stop control and the Beanabout shows that the delay for motorists has reduced by 19 vehicle-hours per day! This equates to approximately 7,000 vehicle-hours over the course of one year, which translates into 133,000 gallons (\$344,000) in fuel savings. In addition, improved traffic flow is estimated to benefit the environment by the reduction of approximately 10 tons of CO emissions and reducing motorist delay worth hundreds of thousands of dollars. The material cost for the Beanabout was less than \$40,000, which yields a net savings of nearly \$305,000 and a benefit-to-cost ratio of 9 to 1.

RESULTS: The Beanabout has been in operation since the end of March, and has been very well received by the motorists. The half a mile traffic backups have completely disappeared. Staff has received several phone calls and emails appreciating the Beanabout. Initially, people were skeptical that the Beanabout would be a success, and that trucks would be able to negotiate it. Those fears and doubts have now been dispelled, and replaced by "likes" of the "Beanabout". There has been a private blog site "WeEscalon" on Facebook that has been placing pictures and videos of the Beanabout, and logging travel time savings each day. The site has received overwhelming endorsements for the Beanabout from the public. Thus ended a story of rage and disappointment into a great success and benefit to the community!

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