



System Performance Innovation FACT Sheet

Hawk Pedestrian Beacon

Description of the Challenge or Opportunity

Hawk Pedestrian Beacon

Understanding the motivation.

- Describe the pre-existing product/process that is the subject of the innovation:

Prior to constructing our innovative improvements, the Route 35 section of Sloat Boulevard, between Everglade Drive and Route 1 (19th Avenue), in the City of San Francisco, was a six-lane facility (opposing lanes of traffic are separated by a raised median island) with existing sidewalks and parking permitted on both sides of the highway. The posted speed limit along this major arterial was 40 miles per hour, and it accommodated approximately 24,000 vehicles per day in addition to servicing bicyclists and pedestrians from the residential homes within the surrounding community, as well as from nearby schools (e.g. Lowell High School and San Francisco State University). Furthermore, the Sloat Boulevard/Vale Avenue/Forest View Drive intersection, located within this highway segment, was unsignalized and there were existing marked crosswalks across Sloat Boulevard.

- Describe the innovation:

Initially, to try and address vehicular/pedestrian accidents along the Route 35 section of Sloat Boulevard, between Everglade Drive and Route 1 (19th Avenue), as a whole, and at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection, in particular, conventional improvements, such as the installation of traffic signals, were explored. As our investigation determined, however, that traffic signal warrants were not satisfied at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection, nor any of the other unsignalized intersections along Sloat Boulevard, traffic signals could not be considered. As a result, Caltrans and the City of San Francisco partnered on projects to construct new and innovative improvements along Route 35 (Sloat Boulevard), between Everglade Drive and Route 1 (19th Avenue), as a whole, and at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection, in particular, to reduce the number of accidents involving pedestrians.

First, a "Roadway Diet" project was completed in August 2012 which reduced the number of lanes along the Route 35 section of Sloat Boulevard, between Everglade Drive and Route 1 (19th Avenue), from six to four, installed Caltrans' enhanced signing and striping package for the marked crosswalks at the unsignalized intersections along



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Sloat Boulevard, within these limits, to direct motorists to stop their vehicles 20 feet in advance of the marked crosswalk when yielding to crossing pedestrians, and, after conducting an Engineering and Traffic Survey, reduced the speed limit along Sloat Boulevard, within these limits, from 40 MPH to 35 MPH. Respectively, these improvements shortened the crossing distance/decreased the exposure of pedestrians to traffic, increased the off-set distance between stopped vehicles and pedestrians within the marked crosswalk, and forced motorists to travel at slower speeds.

Second, a project to construct "Sidewalk Bulb Outs", an innovative new feature recently approved for use at state highway intersections, was completed at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection in August 2013 to make pedestrians, waiting at the curb returns to cross Sloat Boulevard, more conspicuous to motorists by providing them with a raised sidewalk area where they could safely stand closer to traffic.



Third, in conjunction with the aforementioned project to construct "Sidewalk Bulb-Outs", a project to install a "High-Intensity Activated Crosswalk (HAWK)" beacon, an innovative new technological device that was also recently approved for use at state highway intersections, was completed at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection in August 2013 to provide pedestrians with their own dedicated crossing phase.



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- Was the innovation successful in improving the pre-existing product/process?

We are not aware of any accidents involving pedestrians having occurred along the Route 35 section of Sloat Boulevard, between Everglade Drive and Route 1 (19th Avenue), or at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection since the roadway diet condition/sidewalk bulb-outs/high-intensity activated crosswalk (HAWK) beacon configuration was established at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection in August 2013.

- Criteria for success.

As the purpose of establishing the roadway diet condition along the Route 35 section of Sloat Boulevard, between Everglade Drive and Route 1 (19th Avenue), as well as establishing the roadway diet condition/sidewalk bulb-outs/high-intensity activated crosswalk (HAWK) beacon configuration at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection is to reduce the number of accidents involving pedestrians, this will be used as the barometer to determine whether or not our improvements are successful.



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Information Regarding the Innovation

Defining the need.

- How does innovation support the Department's mission, vision, and goals?

As Caltrans' mission is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability, and as Caltrans has a vision of creating a performance-driven, transparent and accountable organization that values its people, resources and partners, and meets new challenges through leadership, innovation and teamwork, and has, as one of its major goals, an objective of providing a safe transportation system for workers and users, by working in partnership with the City of San Francisco to construct innovative improvements along Route 35 (Sloat Boulevard), between Everglade Drive and Route 1 (19th Avenue), as a whole, and at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection, in particular, for the purpose of increasing pedestrian safety, our project is consistent with Caltrans' Mission, Vision, and Goals.

- How does the innovation improve safety and system performance?

As the innovative improvements that were constructed along Route 35 (Sloat Boulevard) will increase the safety of pedestrians, and as these improvements were constructed through projects developed, in partnership, between Caltrans and the City of San Francisco, our project is consistent with Caltrans' safety and system performance goal of utilizing leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.

- To what extent is the innovation being used in the originating district?

Since the roadway diet condition/sidewalk bulb-out/high-intensity activated crosswalk (HAWK) beacon configuration was established at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection in August 2013, we are not aware of any other state highways locations within California where this configuration has been established. However, our district is currently developing several projects to install high-intensity activated crosswalk (HAWK) beacons for the existing marked crosswalks at dozens of state highway unsignalized intersections.



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- Have you been approached by other districts interested in implementing the candidate innovation?

During the Caltrans District-4 2014 Innovation Fair, Caltrans Director Malcolm Dougherty, as well as several directors from other districts, visited the Division of Operations' booth to view the Office of Traffic's presentation on roadway diets, sidewalk bulb-outs, and high-intensity activated crosswalk (HAWK) beacon.

- Is the implementation scalable?

We are not aware of any district having constructed a roadway diet project, built a sidewalk bulb-out, or installed a high-intensity activated crosswalk (HAWK) beacon on any of the state highways under their jurisdiction since our innovative project was completed in August 2013.

Estimating the cost.

- Cost to implement the innovation in originating district?

In total, the cost to construct the roadway diet project along the 0.8 mile segment of Route 35 (Sloat Boulevard), between Everglade Drive and Route 1 (19th Avenue), and build sidewalk bulb-outs/install a high-intensity activated crosswalk (HAWK) beacon at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection was approximately \$700,000.

- Estimated lifecycle/maintenance costs?

There will be costs associated with maintaining the striping and signing placed on Route 35 (Sloat Boulevard) as a part of the roadway diet project, as well as maintaining the sidewalk bulb-outs and high-intensity activated crosswalk (HAWK) beacon placed at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection.

- Were you able to identified supporting resources?

As Caltrans and the City of San Francisco partnered on the projects that constructed the innovations on Route 35 (Sloat Boulevard), both agencies shared in the cost for these improvements. To the best of our knowledge, the City of San Francisco's contribution did not include federal funds.



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- How long did it take to implement the innovation in your district?

As design work on the roadway diet project began around August 2010, and the sidewalk bulb-outs/high-intensity activated crosswalk (HAWK) beacon were in place by August 2013, it took approximately three years to construct our innovative improvements.

Quantifying the benefits.

- Estimated annualized benefits to the originating district?

As the innovative improvements that we've constructed on Route 35 (Sloat Boulevard) will reduce pedestrian accidents, and as most pedestrian accidents involve injuries and/or fatalities, we estimate the annualized benefit of our innovative improvements to our district to be enormous.

Understanding the risks.

- Barriers to implementation of the innovation?

We did not incur any barriers during the process of implementing our innovative improvements. As we installed the very first high-intensity activated crosswalk (HAWK) beacon within the State of California, there is a risk that drivers will be confused initially by the HAWK.

What lessons were learned?

- Lesson learned – What would you do differently?

As a result of the knowledge gained from this experience, our District's Public Information Office has greatly enhanced their public outreach efforts on all projects.

- Do you believe that the innovation is best propagated to other districts by staff or contractor?

We believe that it would be best if it were staff that propagated the innovative improvements that we implemented on Route 35 (Sloat Boulevard) to the other districts.

Other considerations.



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- Are there any similar processes or products that you considered, but determined to be inappropriate?

Minimal consideration was given to installing a Rectangular Rapid Flashing Beacon at the Sloat Boulevard/Vale Avenue/Forest View Drive intersection. However, as it does not provide pedestrians with their own dedicated crossing phase, it was determined to be inappropriate.

- Did the innovation follow a System Engineering process?

The projects that Caltrans and the City of San Francisco partnered on to construct the innovative improvements on Route 35 (Sloat Boulevard) adhered to the System Engineering Process guidelines.

About the Originating Author/Team

- Describe the author and/or the team.

Caltrans' Office of Traffic, Office of Special Projects, Office of Maintenance Permits, Maintenance Striping and Signing Crews, and the City and County of San Francisco Department of Public Works all were involved with developing and implementing the projects that constructed the innovative improvements on Route 35 (Sloat Boulevard).