



City of Arts & Innovation

Transportation Committee

TO: TRANSPORTATION COMMITTEE MEMBERS DATE: JULY 11, 2019

FROM: PUBLIC WORKS DEPARTMENT WARDS: ALL

SUBJECT: FLASHING YELLOW LEFT-TURN ARROW INDICATIONS – PILOT PROJECT ASSESSMENT UPDATE

ISSUE:

Receive and file an assessment update of the City's Flashing Yellow Left-turn Indication Pilot Project.

RECOMMENDATIONS:

That the Transportation Committee:

1. Receive and file the assessment update of the City's Flashing Yellow Left-turn Indication Pilot Project; and
2. Support the Public Works Department's continued use of Flashing Yellow Left Turn Arrow indications as an optional alternative to traditional 5-section protected/permissive left turn signalization.

BACKGROUND:

On June 1, 2016, the Transportation Board (Board) reviewed a proposal to consider a pilot project to install upgraded flashing yellow left-turn vehicular indications at up to seven traffic signals equipped with traditional protected/permissive operations. The Board reviewed the matter and voted unanimously in favor of recommending Transportation Committee approval of the pilot project.

On September 8, 2016, the Transportation Committee (Committee) reviewed and recommended that the City Council approve the proposed pilot project. The Committee requested that the Public Works Department assess the new equipment for up to a year and return to Committee with updated information and recommendations regarding expansion or termination of the project.

On November 8, 2016, City Council approved proceeding with the proposed Flashing Yellow Left-turn Indication Pilot Project.

On July 12, 2018, the Transportation Committee received an interim update on the pilot program. This update confirmed the installation of flashing yellow left turn arrows at six pilot locations and

recommended a full report following a one-year assessment period.

DISCUSSION:

The Public Works Department selected six intersections to retrofit and upgrade from traditional protected/permissive traffic signal systems to flashing yellow left-turn indications to allow for assessment of the improvements including impacts to safety, motorist understanding, and overall operations following a one-year deployment period. Traffic volumes, movements, and collision histories were considered when selecting the pilot project locations.

In April 2018, the Public Works Department completed installation of flashing yellow left-turn indications at the following signalized intersections:

1. La Sierra Avenue at Vista Terrace / Ralphs Shopping Center;
2. Magnolia Avenue at Overland Street;
3. Market Street at First Street;
4. Market Street at Ninth Street;
5. Market Street at Tenth Street; and
6. Market Street at Third Street.

Upgrades included replacement of existing “Left Turn Yield On Green Ball” protected/permissive signs with “Left Turn Yield On Flashing Yellow Arrow” signs on the traffic signal mast arms. An informational video about flashing yellow arrows was uploaded to the Traffic Division website; signs with a short link to the video were posted on A-frames near pilot intersections. Calls and requests for signal timing service have diminished over the course of the pilot assessment program.



Figure 1: New Left Turn Sign

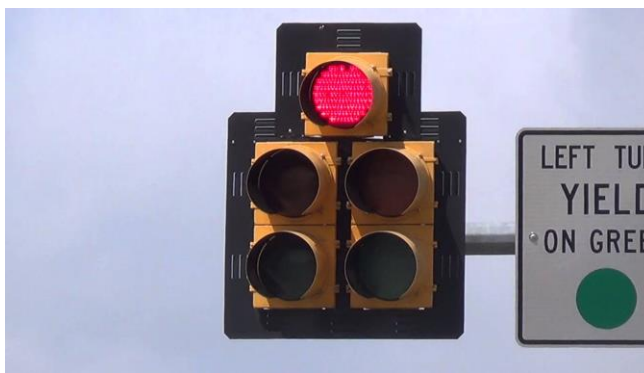


Figure 2: Traditional Protected/Permissive Indication

Analysis:

The five-year collision history for each pilot location was used to assess the impact of the new flashing yellow indications. It is important to note that studies of locations with low collision rates are prone to show significant percent increases or decreases in collisions per year. For example, two left turn related collisions involving left-turn motorists occurred at Market Street and Ninth Street over a four year period prior to installation of the pilot improvements, and one collision occurred during the pilot period. Assessing the average number of left turn related collisions per year during the ‘before’ and ‘after’ period shows a significant increase, especially since the pilot

period of one year is a short period compared to approximately four years of prior history.

Table 1: Collision Rates Analysis At Pilot Locations

Reflective Yellow Pilot Locations	Left Turn Collisions Per Year Before	Left Turn Collisions Per Year After	Total Collisions Per Year Before	Total Collisions Per Year After	Change in Left Turn Collisions		Change in Total Collisions	
La Sierra Ave at Vista Terrace	0.00	0.00	2.30	0.92	—	0.0%	↓	59.8%
Magnolia Ave at Overland St	2.04	0.92	3.83	1.85	↓	54.8%	↓	51.8%
Market St at Third St	2.81	1.85	7.40	4.62	↓	34.3%	↓	37.7%
Market St at First St	0.00	0.92	1.79	1.85	—	N/A	—	0.0%
Market at Ninth St	0.51	0.92	1.02	2.77	↑	80.8%	↑	171.2%
Market at Tenth St	0.26	0.92	2.04	4.62	↑	261.5%	↑	126.0%
Total	5.62	5.53	18.38	16.62	↓	1.4%	↓	9.6%

*Before Period is from May 25, 2014 to April 24, 2018 (47 months)

**After Period is from April 25, 2018 to May 25, 2019 (13 months)

Table 1 demonstrates that across pilot locations, left turn related collision rates were reduced by 1.4% per year and overall collisions were reduced by almost 10% per year. Even though six left turn related collisions took place across the pilot locations, five of the collisions took place in the initial 2 months after equipment installation. The collision data indicates that the public quickly adjusted to the new flashing arrow indications and through time may be more effective at reducing accidents and improving safety.

Left turn related collisions were reduced at locations previously experiencing two or more left turn related collisions per year. The reduction in collisions may be attributed to the unique operations of the flashing yellow left turn arrows which enable the 'permitted' left turn movement to be omitted during specific times of day. At the location of Market Street and Third Street, there is significant southbound left turn demand during the evening peak hour of traffic. Restricting the permitted movement at this location during the evening peak eliminated improves safety as there are significantly fewer gaps in traffic to accommodate the permissive movement. Because the permitted movement was difficult to accomplish during peak traffic hours, its restriction has had little impact on congestion at Market and Third.

The intersection of La Sierra Avenue at Vista Terrace did not experience left turn related collisions during either the 'before' or 'after' period. Nonetheless, this location was selected to better define intersection right-of-way and reduce near misses. Westbound motorists exiting the residential community often times did not yield to oncoming traffic as the eastbound direction is low in volume and most motorists exiting the shopping center turn left or right. The operational efficiency and safety at this location has improved when entering La Sierra Avenue from the side streets.

FISCAL IMPACT:

There is no fiscal impact associated with this pilot project assessment.

Prepared by: Kris Martinez, Public Works Director
Certified as to
availability of funds: Edward Enriquez, Chief Financial Officer/Treasurer
Approved by: Rafael Guzman, Assistant City Manager
Approved as to form: Gary G. Geuss, City Attorney

Attachments:

1. Flashing Yellow Left-Turn Indication Pilot Project – Public Information Video
2. Presentation
3. Collision Rates