PROGRAM FOR ARTERIAL SYSTEM SYNCHRONIZATION (PASS) FY13/14 CYCLE

City of Oakland Signal Timing Project

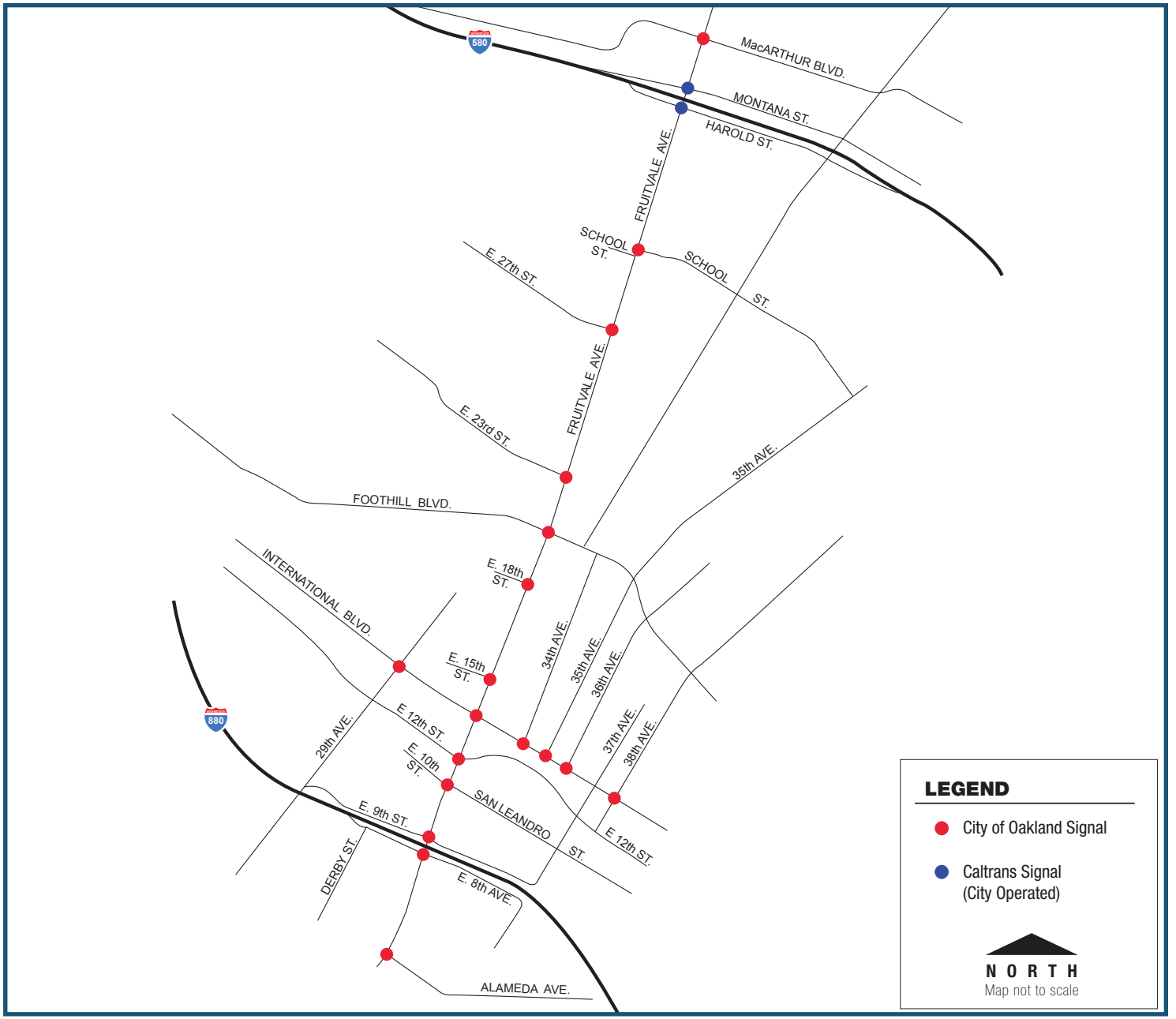
City of Oakland | Caltrans | Metropolitan Transportation Commission

PROJECT OVERVIEW

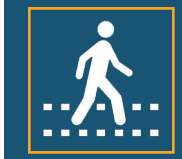
The City of Oakland received a grant from the Metropolitan Transportation Commission's Program for Arterial System Synchronization (PASS) to conduct a signal timing study for 20 traffic signals along various corridors in the City. All project intersections are operated and maintained by the City of Oakland. Two signals are owned by Caltrans, and 18 signals are owned by the City of Oakland.

The goal of the project was to conduct a timing analysis and develop and implement signal coordination plans during the weekdays for the 20 project signals. Timing plans developed and implemented consisted of AM, midday, and PM peak periods on typical weekdays.

The PASS project involved the completion of the following tasks: collect turning movement counts, including vehicular, pedestrian, and bicycle counts; conduct travel time surveys; review collision history; develop and implement coordination plans for the study periods; and conduct the "before" and "after" travel time surveys to assess the performance of the new plans. The field fine-tuning was conducted and minor adjustments were made to the offsets and splits based on observed traffic conditions.



Benefits to Various Modes



Benefits to Pedestrians: The Walk timing and Flash Don't Walk clearance timing parameters were also updated to provide adequate time for children and seniors to safely cross the study intersections to accommodate the new walking speed of 3.5 feet/second, as specified in 2012 California MUTCD standards. The Walk times and the Flashing Don't Walk clearance times were adjusted for 11 project intersections.

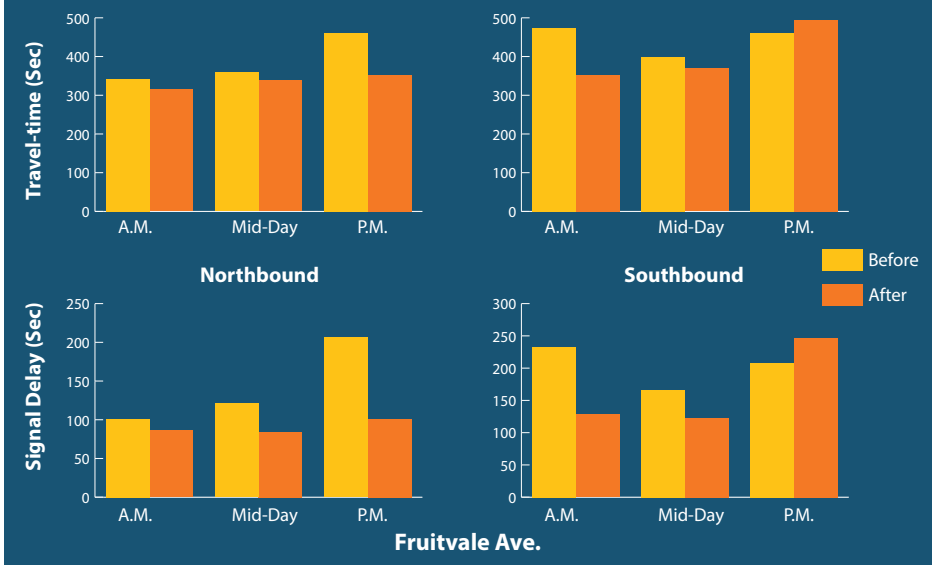
Benefits to Traffic Safety: The yellow clearance timing parameters were updated based on posted speed limits along the study corridors at three project intersections and no changes were made to all red clearance timing parameters.

Project Costs	
Consultant Costs (Basic Services/ Plans)	$54,000
Consultant Costs (Additional Plans, TSP, IM Flush Plans, etc.)	$13,070
Other Project Costs (GPS Clocks, Communications equipment, etc.)	$7,500
Agency Staff Costs (Estimate)	$13,500
Total Costs	**$88,070**

Project Benefits

Measures	*First Year*		*Lifetime (5 Years)*	
	Savings	*Monetized Savings*	*Savings*	*Monetized Savings*
Travel Time Savings	21,584 hrs.	$421,218	57,900 hrs.	$1,129,940
Fuel Consumption Savings	46,604 gal.	$175,993	122,335 gal.	$472,112
ROG Emissions Reduction	0.17 tons	$216	0.46 tons	$579
NOx Emissions Reduction	0.11 tons	$1,898	0.28 tons	$5,090
PM2.5 Emissions Reduction	0.01 tons	$1,774	0.02 tons	$4,758
CO Emissions Reduction	1.25 tons	$96	3.34 tons	$258
		Total Lifetime Benefits		**$1,612,738**

Overall Project Benefits	Auto
Average Decrease in Travel Time	**11%**
Average Speed Increase	**17%**
Average Fuel Savings	**8%**
Average Reduction in Signal Delay	**6%**
Average Reduction in Number of Stops	**18%**
Overall Benefit-Cost Ratio	**22:1**



Project Benefits Summary

Average Reduction in Auto Signal Delay: 6%

Average Reduction in Number of Stops: 18%

Auto Fuel Consumption Savings: 8% or 122,335 gallons

Total Emissions Reduced (ROG, NOx, PM2.5, CO): 4.1 tons

Auto Travel Time Savings: 11% or 57,900 hours

Overall Project Benefit-cost Ratio = 22:1

For more info, please contact:

Ganesh Karkee (MTC)

Arterial Operations Program Coordinator

Phone: 510.817.5625 • Email: GKarkee@mtc.ca.gov

Ade Oluwasogo (Oakland)

Supervising Transportation Engineer

Phone: 510.238.6103 • Email: aosogo@oaklandnet.com

Project Consultant:

TJKM Transportation Consultants