CITY OF BEVERLY HILLS
STAFF REPORT

Meeting Date: November 16, 2010

To: Honorable Mayor & City Council

From: Aaron Kunz, Deputy Director of Transportation AK
Bijan Vaziri, Traffic Engineer

Subject: SMART Traffic Signals

Attachments: None

INTRODUCTION

This report provides an update on the City's "SMART" traffic signal program.

DISCUSSION

Through successful applications for grant funding since 1993, the City has received over $5 million in grant funds to upgrade traffic signals and provide a central signal control network. Through this funding, the City has upgraded 85 of 99 traffic signals with pattern matching technology. The City has also secured a grant of $1.3 million to upgrade the remaining 14 signals that are located along North Santa Monica Boulevard. Design is currently underway and staff plans to forward a recommendation for construction in early 2011.

With present technology, signal timing is based on traffic volume detected by inductive loops. Based on traffic volumes, signal plans are implemented to provide lengthened or shortened green time at signal to optimize traffic flow. In addition, the City has a 'Traffic Signal Priority' system implemented in 2007 that provides buses the capability to extend existing green time when approaching an intersection.

A key element of the "pattern-matching" signal timing plans is that installation of nine CCTV cameras on Olympic, Wilshire and Sunset Boulevards. The California Department of Transportation (Caltrans) awarded the City $391,000 for installation of the cameras (City local match was $211,000). Caltrans approved the City to begin operating the cameras in April 2010. With these cameras, staff will be able to detect traffic congestion, accidents and other obstacles. Using pre-defined "pattern-matching" signal timing plans, traffic signals can be adjusted to respond to changing traffic conditions and results be monitored and refined with CCTV cameras.

Over the past two years, staff has been developing a series of pre-defined "pattern-matching" signal timing plans as traffic volume information becomes updated and available. To date, staff has implemented the following:

- Four plans were developed for Wilshire Boulevard pertaining to AM and PM peak, off peak hours, night time and weekend and Transit priority timing cycle
- Night time low cycle plans were developed for Sunset, Lexington and Burton Way signals.
- Traffic patterns at isolated intersections (for example, adjacent to the High School and Coldwater Park).

For the next step, staff will concentrate on construction signal timing patterns for Olympic and Wilshire Boulevards to mitigate traffic impacts from lane closures associated with Street Lighting Master plan project.

The upgrading of the traffic signals on Santa Monica Boulevard in 2011 will complete the upgrading of the City's traffic signals to the same technology. The upgrade will include installation of a number of signal detection cameras. By upgrading the Santa Monica Boulevard signals, the City will be able to fully utilize its Traffic Control System and maintain operations of the Transit Signal priority system.

Once the upgrade of Santa Monica Boulevard Signals is completed, staff will continue to develop and adjust signal timing plans to reflect changing conditions. Most upgrades will be intersection specific, such as utilizing new photo-enforcement cameras or installing protective left-turns where warranted. Staff is also using camera detection technology instead of loops under the pavement for North Santa Monica Boulevard and when streets are repaved. These cameras are a true example of "Smart" signals as they provide more features and have reduced maintenance costs compared to loop detection technology that requires replacement every time street is repaired or re-paved.

At this time, there does not appear to be feasible technology to upgrade the entire traffic signal system. Areas of Los Angeles have tested "Adaptive Control traffic signal system with mixed results. This type of system requires extensive detectors be installed at every intersection and signal timing changes are automatically implemented in respond to current traffic demand. Due to the high cost of the 'Adaptive' Control system and marginal benefits for many intersections in Beverly Hills that already operate at capacity, it does not appear that this technology will be cost effective (and be eligible for grant funding) in the near term.

FISCAL IMPACT

None

RECOMMENDATION

Informational only.

DG David Gustavson
Approved By