



SYNCHING SIGNALS WITH MULTIMODAL COMMUNITIES

By John Lower and Gabe Murillo

How does the operation and maintenance of traffic signals improve the transportation choices and the “quality of life” in our communities? Anaheim California addressed this issue along two arterial highways with the technical assistance of Iteris, Inc.

The City of Anaheim has over 345,000 residents living in diverse neighborhoods, and is also home to Disney theme parks, professional sports team venues, and a convention center. The City is still in growth mode with a 380,000 population expected by 2035 (largely through infill development) as additional residents are attracted by life styles offered within the established urban core of Orange County.

Katella Avenue and the parallel Lincoln Avenue connect many residents to the employment centers, retail, dining and entertainment venues in the City. With a \$1.6 million grant award of Traffic Light Synchronization Program funds, the City focused the operational improvements on moving people, not just vehicles.

“These signal sync projects improve operations of our multimodal transportation system to give people efficient and safe travel choices for accessing the many destinations throughout our City, and that is the top priority of our circulation element” said the City’s recently appointed Traffic & Transportation Manager Jamie Lai.

Smart mobility decisions that improve the environment, support a vibrant economy, and build communities that integrate transit rather than sprawl — these were the desired improvements for resident quality of life. To accomplish this, the City planned for regional benefits. Nine agencies were involved to improve and enhance inter-jurisdictional traffic signal operations along 17 miles of Katella Avenue, and four agencies were involved along the 14 miles of Lincoln Avenue.

Katella Avenue is planned, and Lincoln Avenue is envisioned, to operate as High Quality Transit Corridors with transit choices arriving at least every 15 minutes during peak periods. For transit to become a spontaneous travel choice, travel time reliability is critical.

To improve vehicular traffic flow and keep transit out of congestion, legacy traffic control equipment was replaced with modern traffic signal hardware, HD CCTV surveillance systems and the latest communication systems technology as well as design and implementation of optimized traffic signal timing for improved synchronization along both corridors.

Iteris deployed and integrated the latest Gigabit Ethernet communication technologies with new fiber optic cable installation as well as VDSL hardware utilizing existing twisted-pair interconnect and low latency 5.8Ghz radios to provide end-to-end communication along the entire 14 miles of the Lincoln corridor. Additionally, Bluetooth radios were deployed throughout the Lincoln corridor to verify traffic operations improvements and continuously monitor the corridor for traffic operations performance.



Bikeway crossings of these arterial highways either exist or are planned at several locations. Because bicycle trips can only increase when bikeways are safe, and because 40 percent of bikeway fatalities occur at intersections, it was important for bicycle timing to be provided so that the slower moving bicyclists can safely cross the intersections with green lights.

While these improvements are expected to contribute towards the Caltrans 2015–2020 Strategic Management Plan targets to triple bicycling and double transit, they also benefit the 60,000 existing vehicles traveling along these 30 miles of arterial highways.

Project Benefits include peak period average vehicle speed increases of 17.6% along Katella Avenue and 21% along Lincoln Avenue, and average travel time decreases of about 16% along each corridor. 179,692 gallons of fuel savings, and 3.1

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million pounds of carbon dioxide reductions are expected annually.

These projects also reduce environmental impacts from the transportation system by supporting California's state-wide reduction of Green House Gas (GHG) emissions to 80 percent under 1990 levels by 2050. Over 5.5 million pounds of GHG will not be emitted each year due to these effective and multi-modal traffic signal synchronization projects.