

## CITYWIDE TRAFFIC SIGNAL TIMING UPDATE

### Public Works Department

#### Meeting

Transportation Board: October 2, 2024

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## BACKGROUND

1. As part of the "Bylaws of the Transportation Board of the City of Riverside", The Public Works Department, Traffic Engineering Division will provide an update of the City's traffic signal timing and coordination efforts and projects to expand and/or upgrade signal communications.



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## DISCUSSION

1. Traffic Monitoring
2. Current Activities
3. Signal Timing and Coordination Efforts
4. Evaluation Process
5. Notable Synchronization Efforts
6. Awarded Grant Projects and Look Ahead



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## TRAFFIC MONITORING

1. City maintains 409 signalized intersections with an estimated half of the signals having coordinated timings.
2. Replacing and updating equipment to monitor signals and major streets from the Traffic Management Center (renovated 2018).
3. Make temporary signal timing adjustments based on current conditions, roadway incidents, special events and construction projects.



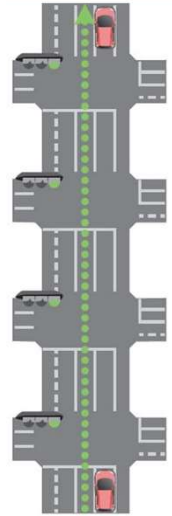
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## CURRENT ACTIVITIES

1. Respond to public services requests for signal timing operational adjustments and safety concerns.
2. Procure networking equipment for 63 locations to upgrade and maintain continuous communications from Traffic Management Center (TMC) to field.
3. Assist Information Technology (IT) Department with the installation, operation and maintenance of 37 Closed Circuit Television (CCTV) network for signalized intersections.



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## SIGNAL TIMING AND COORDINATION EFFORTS

1. The Process of optimizing the operations of signalized intersections and updating signal timing as required.
2. One of the most cost-effective ways to improve traffic movement.
3. Benefits include improved travel time, delay reduction, and fuel savings.



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## EVALUATION PROCESS

1. Corridor signal synchronization evaluation:
  - a. Existing conditions studies are conducted at peak hour time of days (Morning, Midday, Evening)
  - b. Traffic conditions and volumes are modeled using Synchro computer program to optimize signal timing and coordination
  - c. New coordination timing is generated and implemented
  - d. A follow-up field study is then conducted to fine-tune the corridor
  - e. Before and after studies are compared using a Corridor Synchronization Performance Index (CSPI) report to analyze improvements



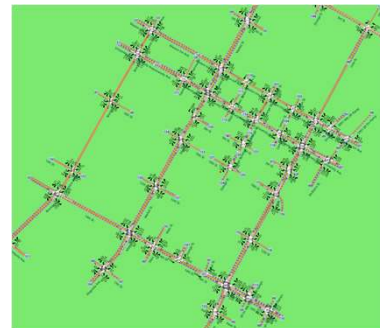
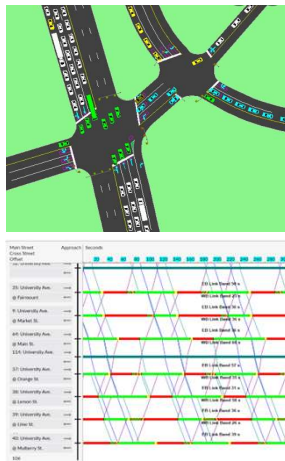
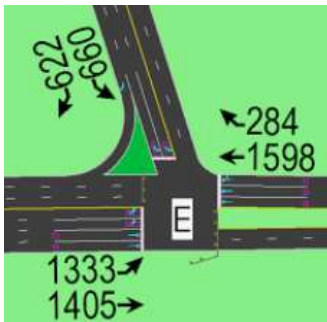
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## EXAMPLE SLIDE

1. Synchro computer program modeling example



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## NOTABLE SYNCHRONIZATION EFFORTS

1. Central & 91 Ramps Synchronization (from Riverside to Olivewood):
  - Traffic counts collected for analysis
  - Optimized timings (AM,MD,PM) developed in Synchro.
  - Caltrans coordination & deployment including GPS clock installed
  - LPI safety feature implemented.
2. La Sierra & 91 Ramps Synchronization (from Magnolia to Arizona):
  - Traffic counts collected for analysis
  - Optimized timing plans (AM,MD,PM) developed in Synchro.
  - Coordination with Caltrans & cycle length modifications.



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## NOTABLE SYNCHRONIZATION EFFORTS (CONT.)

3. Market @ University & Market @ Mission Inn:
  - Pedestrian Scrambles (deployed exclusive pedestrian phase)
  - Facilitate pedestrian diagonal crossings and improve safety.
  - No Right Turn On Red restriction (additional safety measure).
4. Newly constructed traffic signal Watkins Dr & Big Springs:
  - developed initial timing plans



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## AWARDED GRANT PROJECTS AND LOOK AHEAD

Highway Safety Improvement Program (HSIP) Cycle 8 (\$2M) – In Progress

- At 247 locations, install new controllers, controller software, and new central system for the TMC to monitor signals. Update basic timing and Leading Pedestrian Interval (LPI) parameters at these locations.

HSIP Cycle 11 (\$9M) – In Progress

- Implement Leading Pedestrian Interval (LPI) and update basic timing parameters at signalized intersections citywide (409 locations).

SiFi Networks Riverside, LLC

- Development agreement for a Citywide Fiber Optic Network at no cost to the City (Council Meeting May 17, 2022)



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## STRATEGIC PLAN ALIGNMENT



### Infrastructure, Mobility & Connectivity

Ensure safe, reliable infrastructure that benefits the community and facilitates connection between people, place and information.

6.2.

Maintain, protect and improve assets and infrastructure within the City's built environment to ensure and enhance reliability, resiliency, sustainability, and facilitate connectivity.

### Cross-Cutting Threads

This item aligns with each thread.



Community Trust



Fiscal Responsibility



Sustainability & Resiliency



Equity



Innovation



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## RECOMMENDATIONS

That the Transportation Board:

1. Receive and file this presentation



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