



Staff Report

TO: City Council
FROM: Robert L. Vestal, Public Works Director
Dustin Christensen, Principal Engineer
DATE August 19, 2025
SUBJECT: Smart Technology Feasibility Study Results

Description: Discuss the results of the Smart Technology Feasibility Study.

Background and Analysis:

The Smart Technology at Traffic Signals Feasibility Study (Study) identifies the need, options, and solutions for implementing smart technology to improve traffic flow at signalized intersections throughout the City. The Study serves as a guide to City staff and management specifying the best technological options to invest in, the estimated costs, and the priority streets and intersections.

On November 1, 2024, the City awarded a Professional Services Agreement (PSA) to STC Traffic, Inc. to conduct a feasibility study for implementing smart technology at traffic signals throughout the City. The feasibility focused on the most congested traffic corridors, including Beaumont Avenue and Highland Springs Avenue. STC's scope of work included the following:

- Assessment of Existing Traffic Signals and Equipment:
 - Compilation of an existing equipment list for every traffic signal in the City.
 - Creation of a citywide traffic signal map.
- Evaluation of Available Signal Control Technologies:
 - Recommendations of available AI Detection Systems that could be implemented at traffic signal locations.
 - Recommendations for adaptive signal control technology and a central management system.
- Recommendations for Signal Communication:
 - Cellular radios and IP network deployment.
 - Installation of fiber optic cables.
- Implementation and Deployment Recommendations:

- Estimated costs and phasing plan with prioritization of specific traffic corridors.
- Recommended next steps for design and installation.

Feasibility Study Results:

The City owns and operates 25 traffic signals, eight of which are along Highland Springs Avenue and are operated through a cost-sharing agreement with the City of Banning. Additionally, there are seven Caltrans traffic signals located in the City, and three County traffic signals. The following map shows all the traffic signals in the City:

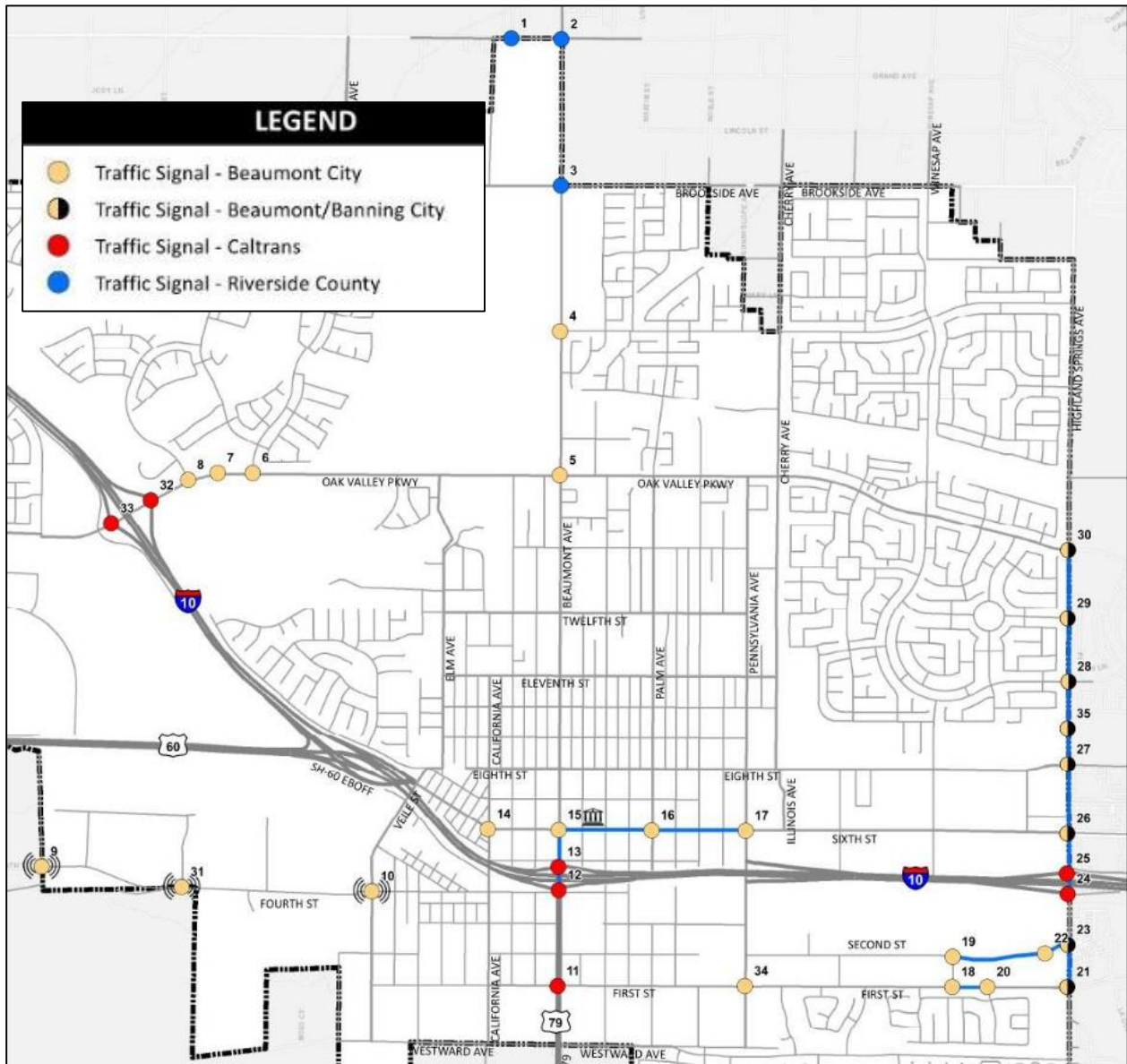


Figure 1- Beaumont Traffic Signals

The assessment of existing equipment showed that the City's traffic signals operated primarily on traffic loops and traffic signal controllers set on specific timing plans. This type of operation does not provide the efficiency that newer smart technologies can provide. The existing traffic signals also lack communication equipment for communicating with other traffic signals.

Various technologies were recommended in the feasibility study to improve signal operations, including:

- Updated signal controllers.
- A central management system with cloud-based access to remotely monitor and control the traffic signals throughout the city.
- AI detection equipment using advanced cameras to detect traffic and provide intersection control in real time.

A phasing plan is provided for implementing all recommended smart technology upgrades throughout the City. The phasing plan prioritizes the most congested corridors and provides equipment and cost estimates for implementing the proposed upgrades along those corridors. The following is the proposed phasing and respective cost (the itemized cost estimates can be found in the Study provided in Attachment A):

- Phase 1 Signals along Highland Avenue (\$683,250).
- Phase 2 Signals along Beaumont Avenue, First Street, Second Street, and Sixth Street (\$1,018,500).
- Phase 3 Signals along Oak Valley Parkway and Fourth Street (\$382,500).

The Study outlines the next steps that the City needs to take to move forward with the recommended implementation plan. This includes the procurement of a professional consultant to provide detailed standardized equipment and design plans, as well as construction support for the installation of the proposed smart technology. The City can then advertise construction bids for installation and implementation of the proposed equipment.

Staff recommends moving forward with the final design for all phases as well as a construction award for Phase 1, utilizing the \$2M budget from CIP R26-05 Smart Technology Traffic Signal Upgrades.

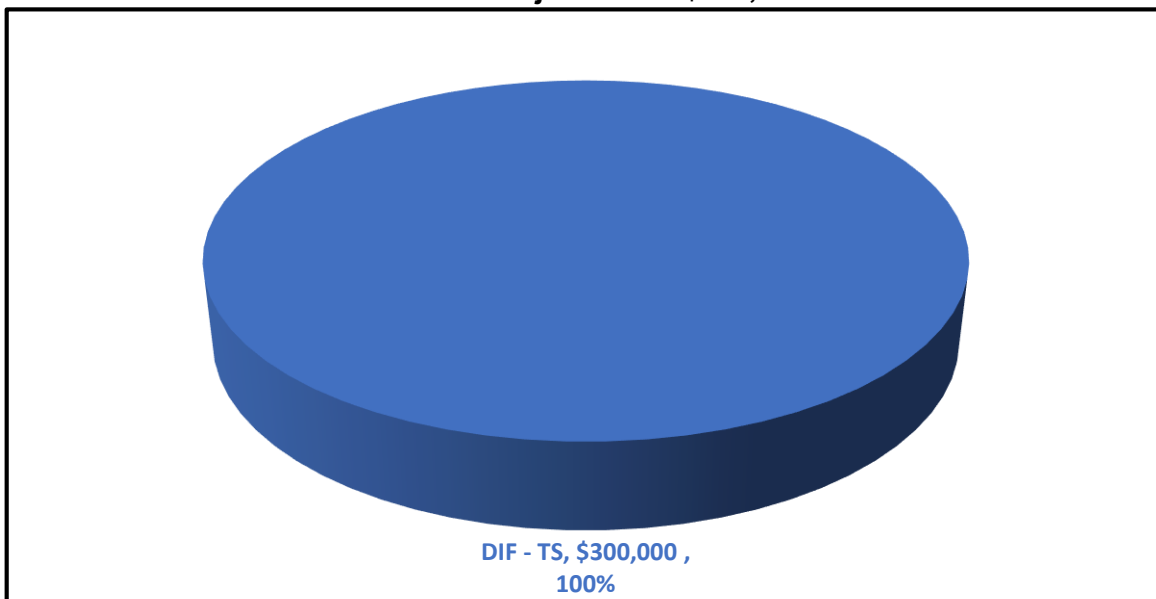
Fiscal Impact:

The cost to prepare this staff report is estimated to be \$350.

Future implementation of the Study will be paid from CIP R26-05 Smart Technology Traffic Signal Upgrades. A future item will be brought to City Council for design award and construction award.

The following table is a summary of the funding and budget for the feasibility project CIP R25-08 Smart Technology Feasibility Study:

CIP R25-08 Smart Technology Feasibility Study Project Funding Summary
Estimated Project Cost= \$300,000



CIP R25-08 Smart Technology Feasibility Study Project Budget Summary

Project Component	Budget	Encumbered	Paid to Date	Remaining Budget
Project Management				
Preliminary Services	\$300,000	\$(74,620)	\$(72,670)	\$225,380
Environmental				
Design				
Permits				
Right-of-Way				
Construction				
Construction Management				
Equipment				
Total	\$300,000	\$(74,620)	\$(72,670)	\$225,380

Recommended Action:

Direct City staff to move forward with the design of all phases and implementation of Phase 1 in agreement with the Smart Technology at Traffic Signals Feasibility Study.

Attachments:

- A. 2025 Smart Technology at Traffic Signals Feasibility Study
- B. Presentation