DATE: March 20, 2018

TO: City Council

THROUGH: Scott Whitney
Interim City Manager

FROM: Rosemarie Gaglione
Public Works Director

SUBJECT: Intelligent Transportation Systems Update (10/10/5)

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RECOMMENDATION:

That City Council receive an update on the City’s Intelligent Transportation System.

BACKGROUND

In May 2008, the City of Oxnard finalized its Intelligent Transportation System (ITS) Master Plan, which established the roadmap for deployment of ITS strategies throughout the City. Since adoption, the City has installed approximately 38 miles of underground conduit with 32 miles of fiber optic cable, 6 miles of twisted-pair copper cable, and 38 fixed wireless links to connect all of the City’s traffic signals to a central traffic management center (TMC).

Phase 1 deployment was completed in 2013 and included:
- Connected approximately 140 traffic signals;
- Replaced old and outdated traffic signal controllers with advanced traffic controllers (ATC);
- Installed and connected 18 closed-circuit television (CCTV) traffic cameras; and
- Installed and connected 16 video detection systems to the network.

Phase 2 deployment was completed in 2016 and included:
- Connected approximately 25 traffic signals;
Replaced old and outdated traffic signal controllers with ATC; and
Installed and connected 6 CCTV traffic cameras; and
Connected three City buildings to the network.

CURRENT STATUS

The TMC is currently being utilized to identify and troubleshoot traffic signal and intersection lighting issues received by phone, 311 or routine monitoring. Using the centralized software, the Transportation Division is able to identify loop detector issues, video detection issues, traffic signal timing and coordination issues, and network issues. While the system has the ability to notify staff automatically of any problems in the field, the software is not currently set up to do so. Staff will be working with the contractor to program the software within the next three months.

During the recent activation of the emergency operations center, Public Works was able to view live feeds of CCTV cameras at the City’s major intersections to monitor traffic issues. This capability is immensely valuable, especially in emergencies or other unforeseen events.

To date, the ITS has achieved 90% of the potential that was envisioned in 2008. Because technology has progressed so quickly, the City is only using about 50% of what is now possible with the most recent developments. Through careful planning and deployment, the City has a valuable asset that can grow and increase in value as technology continues to evolve.

This Transportation Policy Committee heard this item on February 22, 2018, and unanimously recommended that it be heard before the full City Council.

FUTURE PRIORITIES

The ITS network still partially consists of twisted-pair copper on the extreme portions of the City, especially north of U.S. 101. Twisted-pair copper is extremely low bandwidth (information is transmitted more slowly with copper) compared to fiber optic and creates a bottleneck for data back to the TMC. While traffic signals can be monitored and the timing updated remotely, our current software does not support the capability to dynamically change the timing at particular intersection or corridor. Therefore, future priorities for the City’s ITS include:

- Replacing all twisted-pair copper with fiber optics (approximately 6 miles);
- Installing conduit to River Park by way of Wagon Wheel Road and Ventura Road to cross U.S. 101;
- Upgrading existing integration software to enhance existing capabilities, including centralized reporting of performance measures, tracking assets and inventory, and enabling connected vehicle infrastructure; and
- Deploying an adaptive traffic signal system to dynamically alter signal cycles, splits, and phasing to traffic demands on heavily traveled corridors.
Further enhancements and strategies that could be supported by the surplus bandwidth (additional data transmission capabilities) of the network include:

- Additional CCTV camera installations;
- Intersection vehicle detection enhancements;
- Transit priority using existing emergency vehicle preemption equipment;
- Smart-City initiatives to monitor intersection safety lighting;
- Data collection (Bluetooth) systems to monitor Average Daily Traffic (ADT) and corridor travel times in real time; and
- Dynamic message signs with real-time traffic information throughout the City.

STRATEGIC PRIORITIES

This agenda item supports the Infrastructure and Natural Resources strategy. The purpose of the Infrastructure and Natural Resources strategy is to establish, preserve and improve our infrastructure and natural resources through effective planning, prioritization, and efficient use of available funding. This item supports the following goals and objectives:

Goal 4. Ensure proper construction and maintenance of infrastructure to provide maximum benefit with lowest life cycle cost following CIP plans.

FINANCIAL IMPACT

None at this time.
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