DATE: September 9, 2024

TO: Honorable Mayor and Members of the City Council through City Manager

FROM: Jeff Stutsman, TE, PE – Deputy Director of Operation, Public Works & Utilities (PW&U)
Gina Benedetti-Petnic, PE – Interim Director of PW&U

SUBJECT: Resolution Approving the Purchase of Transparity Adaptive Traffic Signal Timing Software from SWARCO McCain, Inc. in the Amount of $76,252.00 and Authorizing the City Manager to Execute all Documents Necessary to Complete the Purchase

## RECOMMENDATION

It is recommended that the City Council adopt the attached Resolution approving the purchase of Transparity Adaptive traffic signal timing software from SWARCO McCain, Inc. in the amount of $76,252.00 and authorizing the City Manager to execute all documents necessary to complete the purchase.

## BACKGROUND

Petaluma has coordinated traffic signal timing in place across several intersections. The intersections that are coordinated include:

- South McDowell from McGregor to Maria (2 intersections)
- North McDowell from Madison to Rainier (5 intersections)
- Washington from Petaluma Boulevard to Kentucky (2 intersections)

Coordinated traffic signal timing synchronizes traffic movement and manages the progression speed along a corridor. It is applied to increase vehicle flow and reduce peak-hour delays. Coordination is accomplished by allocating each signal phase a fixed amount of time to maximize traffic flow benefits for that corridor. Currently, these signals are programmed with a fixed timing plan, which means that traffic signal controllers operate based on predetermined timings. While effective, the current fixed timing plan requires monitoring to ensure performance and to adjust as traffic patterns evolve.

When implemented effectively, coordinated signal timing reduces stop-and-go driving, leading to smoother traffic flow and less congestion, which means fewer cars idling and, therefore, a reduction in GHGs. However, fixed timing plans are not adaptable to changing traffic conditions, such as those caused by special events, road closures, or construction.

## DISCUSSION

Our City uses a central management system to monitor and manage traffic signals across all 52 intersections. This system allows staff to remotely oversee traffic conditions and devices in real-time, analyze performance and trends, adjust timing plans and configurations, and receive immediate notifications about issues such as signal malfunctions or failures.

This central system has been enhanced by recent upgrades from traditional in-pavement inductive loop vehicle detectors to advanced video and radar vehicle detection cameras. These cameras provide real-time data to the central management system, improving our ability to use System Performance Measures (SPM). With the right tools, SPM can be leveraged to better monitor the health and safety of intersections, identify and prioritize optimizations, and ensure the timing is functioning properly and efficiently.

To improve traffic signal coordination and leverage the real-time data from our new cameras, staff propose implementing adaptive signal coordination through the purchase of Transparity Adaptive software. Unlike fixed timing plans, adaptive coordination uses real-time detection data and sophisticated algorithms to dynamically adjust signal timings based on real-time traffic conditions, ultimately improving the efficiency of coordinated corridors.

Additionally, SWARCO McCain, the manufacturer of much of our traffic equipment—including controllers, signal cabinets, and our central management system—offers Transparity Adaptive software. This software is designed to integrate seamlessly with our new controllers and our central management system. This is a sole source purchase as the vendor is the original manufacturer, there are no regional distributors, and the software is not interchangeable with our controller type. Sole source purchases comply with the City's purchasing requirements.

## PUBLIC OUTREACH

This agenda item appeared on the City's tentative agenda document on August 5, 2024, which was a publicly-noticed meeting.

## COUNCIL GOAL ALIGNMENT

The proposed action supports City Council goals and the following workplan items:

- Workplan Item 15 – "Identify funds and develop a plan to improve Petaluma's Streets and Roads"
- Workplan Item 79 – "Improve traffic safety through proactive education, engineering, and enforcement strategies."

## CLIMATE ACTION/SUSTAINABILITY EFFORTS

Adaptive coordination will enhance the synchronization of our corridors, leading to improved timing optimization. This results in smoother traffic flow, reduced vehicle idle times, and lower greenhouse gas (GHG) emissions.

## ENVIRONMENTAL REVIEW

The proposed action is exempt from the requirements of the California Environmental Quality Act (CEQA) in accordance with CEQA Guidelines Section 15378(b)(5), in that purchasing software does not meet CEQA's definition of a "project" because the action does not have the potential for resulting in either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. If this action was a project, it would be exempt pursuant to CEQA Guidelines Section 15301 (Existing Facilities) and Section 15303 (Minor Construction) as the software would be installed to our already existing signals.

## FINANCIAL IMPACTS

The FY24/25 Traffic Signal Timing Project budget has been approved and adopted by the City Council. This budget includes allocations for street funds, which are sufficient to cover the cost of this purchase.

## ALTERNATIVES

As an alternative to acquiring the Transparity Adaptive software, the City can continue to use traditional coordination methods. However, this approach would forgo the potential benefits of improving efficiency across several major corridors.

## ATTACHMENTS

1. Resolution
2. Quote