



CONSENT CALENDAR

City of San Bernardino Request for Council Action

Date: November 20, 2024

To: Honorable Mayor and City Council Members

From: Rochelle Clayton, Acting City Manager;
Lynn Merrill, Director of Public Works, Operations, and
Maintenance

Department: Public Works

Subject: **Approval of Agreement for the Purchase and
Implementation of SWARCO McCain's Transparency
Intersection Management System Software (All
Wards)**

Recommendation:

It is recommended that the Mayor and City Council of the City of San Bernardino, California, adopt Resolution No. 2024-225:

1. Authorizing the City Manager or designee to approve the award of an Agreement with SWARCO McCain for the purchase of Transparency Intersection Management System (IMS) licensing and data services for \$246,663., and 2070LX Controllers for \$22,598.25, for a total of \$269,261.25; and
2. Authorizing the Director of Finance and Management Services to amend the FY 2024/25 Capital Improvement Project (CIP) budget to utilize funding from specific projects for the traffic management system. Allocate \$97,473.68 from the Highland Interconnect Project, \$93,723.77 from the Baseline Interconnect Project, and \$78,063.80 from the Traffic Management Center project budget, funded with local regional circulation monies, for a total project budget of \$269,261.25; and
3. Authorizing the Director of Finance and Management Services to amend the FY 2024/25 Capital Improvement Project (CIP) budget to include the necessary adjustments for funding the traffic management project; and
4. Authorizing the City Manager or designee to execute all documents with SWARCO McCain necessary for the project.

Executive Summary:

SWARCO McCain's Transparency Intersection Management System will enhance real-time traffic monitoring, optimize mobility, and improve road safety by integrating all

signalized intersections for seamless communication and proactive congestion management. The total project cost is \$269,261.25, covering \$224,913 for software licensing, \$22,598.25 for 2070LX Controllers, and \$20,000 for SQL Licensing. Funding includes \$78,063.80 from the Traffic Management Center budget, with the remaining \$97,473.68 from the Highland Interconnect budget and \$93,723.77 from the Baseline Interconnect budget, as these projects are congruent with and complement the Traffic Management Center system. There is no general fund impact with this action.

Background

The City of San Bernardino faces significant challenges related to traffic congestion, road safety, and mobility. Traffic delays and accidents have increased in key areas, affecting both daily commuters and emergency services. As the city continues to expand, the need for advanced traffic management tools becomes essential for improving traffic flow, reducing congestion, and enhancing overall safety. With a growing number of vehicles on the road and a network of over 300 signalized intersections, San Bernardino requires a robust Traffic Management System (TMS) to effectively manage traffic signals, optimize mobility, and address road safety concerns.

To meet these growing demands, the City of San Bernardino proposes implementing SWARCO McCain's Transparity Intersection Management System (IMS) to replace the outdated Quinet McCain software. Transparity IMS is designed to manage both legacy traffic controllers and modern National Transportation Communications for Intelligent Transportation System Protocol (NTCIP)-compliant systems, ensuring the city's traffic control infrastructure remains adaptable and up to date with national standards.

Transparity Licensing software is an automated traffic signal performance measurement tool that gathers and analyzes high-resolution traffic controller data, converting it into actionable insights for improving traffic flow and safety. One key focus area is the dilemma zone, the critical point at an intersection where a driver, seeing a yellow light, is unsure whether to stop or continue through. This split-second uncertainty can lead drivers to either speed up to avoid stopping or brake suddenly. If a driver chooses to proceed but the light turns red before they exit the intersection, it greatly increases the risk of a broadside collision. These types of collisions, which occur when a vehicle runs a red light and is struck by another vehicle, are some of the most dangerous traffic accidents.

The Capital Improvement Project (CIP) "Advanced Dilemma Zone Detection System." targeting high-accident arterial roads received a federal grant specifically aimed at addressing these types of dilemma zones. The project seeks to mitigate the dangers of these intersections by installing advanced traffic signal control systems that adjust signal timing dynamically. One of the key safety features of this project is the ability to extend the red-light phase if a vehicle is detected entering the intersection after the signal has turned red, thus reducing the likelihood of broadside collisions.

SWARCO McCain's Transparency system stood out not only for its ability to meet the complex requirements of the dilemma zone mitigation but also for offering the most competitive pricing. The system is capable of dynamically adjusting signal timing based on real-time traffic conditions and driver behavior at intersections, ensuring safer decision-making for drivers approaching a yellow light. This solution is a critical component of the CIP's overall goal of reducing traffic accidents, specifically broadside collisions, by providing drivers with clearer guidance during the yellow signal phase and ensuring intersection safety through intelligent signal timing adjustments.

The system's compliance with national standards such as NTCIP 1201 and 1202 ensures that SWARCO McCain's Transparency IMS will evolve alongside the City of San Bernardino's growing transportation needs. These standards, part of the NTCIP framework, are critical for ensuring long-term functionality and interoperability. NTCIP 1201 defines global object definitions for Intelligent Transportation Systems (ITS), allowing all components within the traffic management system to communicate seamlessly. NTCIP 1202, on the other hand, focuses specifically on traffic signal controllers, establishing standardized data formats and protocols for their operation, management, and control.

By adhering to these protocols, Transparency IMS will provide the city with a flexible, scalable solution that will reduce congestion, improve safety, and enhance overall mobility, ensuring the city's traffic management system remains efficient and adaptable in the years to come.

Discussion

The City of San Bernardino proposes the purchase and implementation of SWARCO McCain's Transparency Intersection Management System (IMS) licensing to enhance traffic signal management across its network of approximately 300 signalized intersections. This advanced system will enable transportation staff to monitor and manage traffic in real-time, audit timing parameters, and conduct remote diagnostics, allowing for faster responses to traffic incidents and more efficient maintenance through wireless connectivity. This system is currently being installed at 49 signalized intersections under the Capital Improvement Project "Advanced Dilemma Zone Detection System." The proposed purchase will license the remaining 251 signals into the system, allowing for seamless communication across all intersections. This will significantly improve traffic flow, road safety, and overall mobility within the city.

The total cost for the purchase of the Transparency IMS software and data licensing from SWARCO McCain is \$246,663. for SQL licensing and physical data systems to support the system's database needs, including up to 2TB of data storage and backup capacity. This SQL software is essential for managing the large volumes of traffic data generated by the system, ensuring the integrity and availability of historical traffic logs and timing parameters.

Staff also recommends the purchase of five spare 2070LX Controllers for approximately \$22,598.25 to be installed at intersections where existing controllers fail after the warranty period. These controllers work seamlessly with the Transparency IMS,

ensuring that all components of the city's traffic management system function cohesively. The 2070LX Controllers, adhering to Caltrans standards, provide a higher-performance platform while integrating smoothly with existing hardware, eliminating the need for costly replacements. Their compatibility with Transparency is crucial, as it allows for real-time monitoring and control, ensuring all intersections communicate effectively. This unified system approach will enhance traffic flow, improve road safety, and enable efficient responses to incidents, making it vital for the city's traffic operations to have components that work together seamlessly.

The rationale for selecting SWARCO McCain and the Transparency IMS software is built on prior competitive bidding results from the "Implement Advanced Dilemma Zone TC20-008" project. This earlier project was competitively bid, and the lowest bidder selected Transparency for its superior value and functionality over other traffic management software solutions. The decision to use SWARCO McCain's system was based on extensive market research conducted during the competitive bidding process, which concluded that Transparency offered the best combination of cost efficiency and operational capability to meet the city's needs for managing traffic at 49 signalized intersections.

The current purchase to license the remaining 251 intersections builds on the city's prior investment and ensures that all intersections are integrated into the same system. This single-source purchase is essential for maintaining system compatibility and avoiding the costs associated with replacing existing hardware. Choosing a different vendor for the remaining intersections would require replacing the current physical equipment, which would incur significantly higher costs for hardware replacement and installation.

By using SWARCO McCain for the entire traffic management system, the city avoids the complications of integrating multiple vendors' systems, which could lead to compatibility issues and higher maintenance costs. A unified system will ensure smoother operations, reduced downtime, and lower long-term costs, ultimately enhancing the efficiency of the city's traffic management network. The expansion of the Transparency system also leverages discounted pricing from SWARCO McCain, further solidifying it as the most cost-effective solution for the City of San Bernardino's traffic management needs.

It is recommended that the Mayor and City Council of San Bernardino approve the award of an agreement with SWARCO McCain for the purchase and implementation of Transparency IMS software at a total cost of \$246,663. and \$22,598.25 for the purchase of 2070LX Controllers, bringing the total project cost to \$269,261.25

Costs	Amounts
SWARCO	\$246,663.00
2070LXController	\$22,598.25
Total Cost	\$269,261.25

The project will be funded with \$78,063.80 from the Traffic Management Center project budget. The remaining \$191,197.45 will be covered by reallocating \$97,473.68 from the Highland Interconnect Project and \$93,723.77 from the Baseline Interconnect Project for a total project budget of \$269,261.25. Both of these projects are congruent with and complement the Traffic Management Center system, as the new Transparity IMS software takes the place of the previously budgeted systems, allowing the funds to be used for this updated and integrated solution. This ensures efficient use of existing resources while upgrading the city's traffic management infrastructure.

Projects	Amounts
Traffic Management Center	\$78,063.80
Highland Interconnect	\$97,473.68
Baseline Interconnect	\$93,723.77
Total Budget	\$269,261.25

In summary, this purchase is critical for ensuring seamless communication across all signalized intersections in the city. It allows the City of San Bernardino to maximize the benefits of the Transparity software and equipment already in place while avoiding the inefficiencies and costs associated with managing a fragmented traffic system with one another. This unified system approach will enhance traffic flow, improve road safety, and enable efficient responses to incidents, making it vital for the city's overall traffic operations to have components that work together seamlessly.

2021-2025 Strategic Targets and Goals

Authorizing the execution of this amendment aligns with Key Target No. 3 Improved Quality of Life by providing improved traffic flow, road safety, and mobility for all residents and visitors.

Fiscal Impact

There is no General Fund impact associated with this action. This project will be funded with Local Circulation Funded Projects with \$78,063.80 from the Traffic Management Center project budget. An additional \$191,197.45 will be covered by reallocating \$97,473.68 from the Highland Interconnect Project and \$93,723.77 from the Baseline Interconnect Project, for a total project allocation of \$269,261.25.

Conclusion

It is recommended that the Mayor and City Council of the City of San Bernardino, California, adopt Resolution No. 2024-225:

1. Authorizing the City Manager or designee to approve the award of an Agreement with SWARCO McCain for the purchase of Transparity Intersection Management System (IMS) licensing and data services for \$246,663., and 2070LX Controllers for \$22,598.25, for a total of \$269,261.25; and
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Attachments

Attachment 1	Resolution 2024-225
Attachment 2	SWARCO Quote & Scope of Work
Attachment 3	SWARCO Quote for 2070LX Controllers
Attachment 4	Sole Source Justification Form
Attachment 5	Project Location Map
Attachment 6	Belco Elecnor Guarantee to Deliver Transparency Licenses/Software for Advanced Dilemma Zone Project

Ward:

All Wards

Synopsis of Previous Council Actions:

June 1, 2022	Resolution No. 2022-102 of the Mayor and City Council of the City of San Bernardino Approving and Adopting the City's annual operating budgets and Capital Improvement Plan (CIP) for FY2024 and establishing the City's appropriation limit.
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