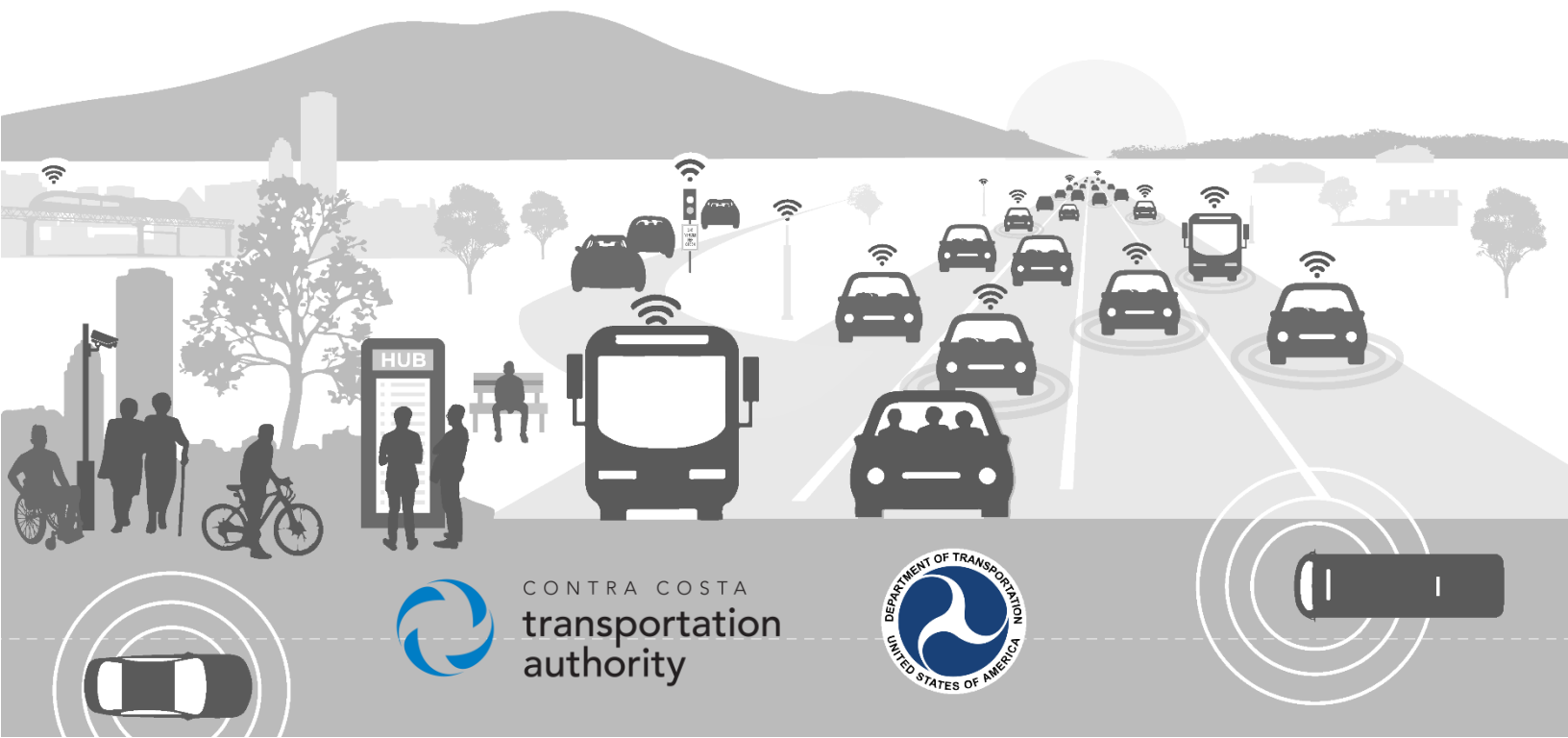


Multimodal Projects Discretionary Grant (MPDG) - Mega

Section 1 | Project Description

INNOVATE 680
IMAGINE THE POSSIBILITIES

Access the *Innovate 680* program resource webpage [here](#).

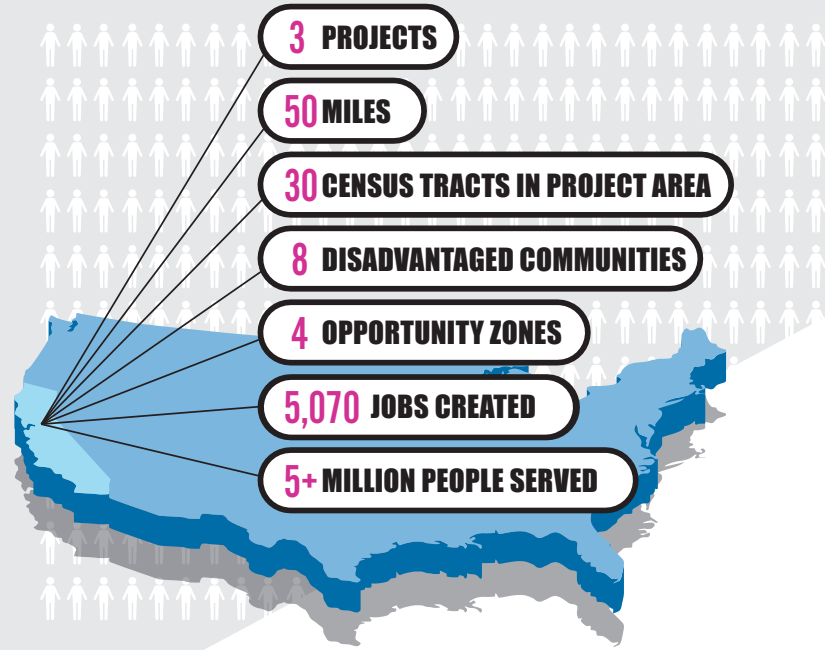


CONTRA COSTA
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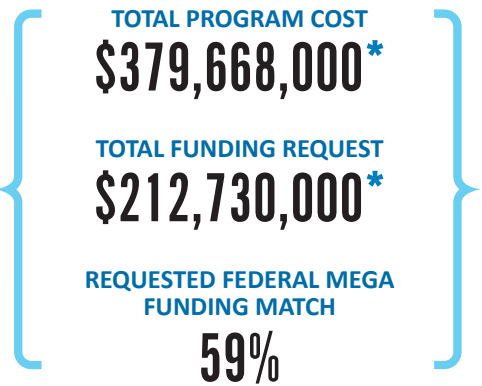
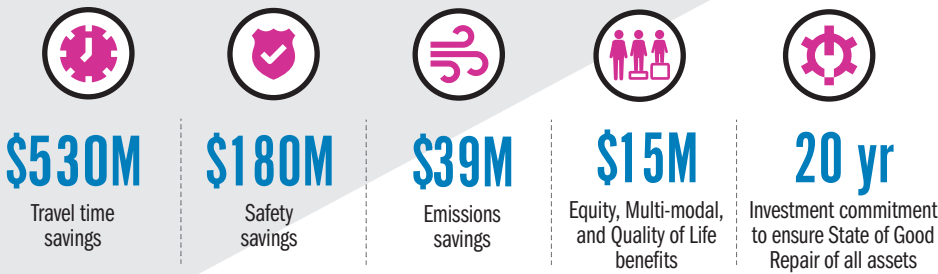


WHY INVEST IN INNOVATE 680?

Transportation challenges of the Interstate 680 corridor in Contra Costa County cannot be addressed by a one-size-fits-all solution. The Innovate 680 Program includes cutting-edge technologies in **coordinated adaptive ramp metering; shared mobility hubs that complement zero emission transit; and completion of express lanes.** These elements are designed to work together to enhance travel along Interstate 680, a critical corridor for the region.



Innovate 680 will benefit society.



Innovate 680 meets the USDOT grant criteria.

	Increases Safety	Facilitates a state of good repair	Generates positive economic impacts	Supports climate resiliency and the environment	Improves equity, multimodal options, and quality of life	Delivers Innovative solutions
Shared Mobility Hubs	✓	✓	✓	✓	✓	✓
Express Lane Completion	✓	✓	✓	✓	✓	✓
Coordinated Adaptive Ramp Metering	✓	✓	✓	✓	✓	✓

✓ Meets Project Outcome Criteria ✓ Exceeds Project Outcome Criteria

*Dollar amounts are approximate. Please refer to the application and corresponding BCA memorandum for exact amounts in discounted 2022 dollars.

I | Project Description

Interstate 680 (I-680) is a backbone corridor for Contra Costa County, which boasts significant economic activity with a gross domestic product (GDP) of \$95 billion in 2022, the 11th highest in California. I-680 is also a *regionally* significant corridor, with the county’s geographic location at the center of the nine-county San Francisco Bay Area, as well as the broader Northern California Megaregion that is the national leader in innovation with a GDP of \$1.3 trillion.

In particular, the I-680 corridor plays a pivotal part in the movement of people and goods into, out of, and within the county, northern California, and beyond. It provides a critical link for the region’s freight and commute connections to the Central Valley and Silicon Valley, as well as key ports, international airports, and business centers in San Francisco, Oakland, and San Jose ([Figure 1](#)). Residents, businesses, and regional commuters depend on I-680 for daily travel, and increased traffic congestion has led to significant delays.



[Figure 1: I-680 Corridor Location Map.](#)

CONNECT + MODERNIZE TO ADDRESS TRANSPORTATION CHALLENGES

Contra Costa Transportation Authority (CCTA) has taken the lead role and joined forces with state, regional, and local partners to develop the **Innovate 680 program**, a visionary, holistic, multi-jurisdictional corridor-wide approach that combines transit improvements, congestion relief strategies, and innovative technologies that work in harmony to improve safety, smooth traffic, and increase access for all users of I-680.

PURPOSE AND NEED | I-680 is a key north-south freeway artery connecting Solano, Contra Costa, Alameda, and Santa Clara Counties, supporting heavy traffic between the East and South Bay. It has 23 northbound (NB) and 27 southbound (SB) interchanges in Contra Costa County, with significant junctions at SR-24, SR-242, and SR-4. Ranked among the top ten for congestion in the Northern California Megaregion, I-680 experiences both recurring and non-recurring congestion, causing delays, inconsistent travel times, and a higher collision rate. Capacity expansion is not viable due to environmental concerns and the developed nature of the corridor. With these challenges expected to persist, CCTA is implementing *Innovate 680*, which includes technological and multimodal strategies to improve traffic management and leverage existing infrastructure through a more cost-effective and sustainable approach.

The [Innovate 680 program](#) is a top Bay Area Regional Priority to pursue funding from the United States Department of Transportation’s (USDOT) Multimodal Project Discretionary Grant (MPDG) program. It is being implemented under an [Innovation Team Master Cooperative Agreement](#) in collaboration with the California Department of Transportation (Caltrans) and the Metropolitan Transportation Commission (MTC), the region’s Metropolitan Planning Organization (MPO), to ensure a coordinated approach to enhancing the corridor’s efficiency and mobility. Local cities and other regional agencies, such as California Highway Patrol (CHP) and transit operators, are also key strategic partners in implementing Innovate 680.

VISION + GOALS OF INNOVATE 680 ALIGN WITH MEGA

- **SAFETY** | Improve safety and operational efficiencies with innovative adaptive ramp metering technology, braided ramps to address weaving, and a new express lane.
- **MAXIMIZE EFFICIENCY OF EXISTING INFRASTRUCTURE** | Maximize the efficiency of existing infrastructure through advanced traffic operating systems, effective monitoring devices, ramp metering technologies, and enhanced transit connections/options.
- **ECONOMIC IMPACTS, FREIGHT MOVEMENT + JOBS** | Increase efficiency and operations of multimodal freight corridor and improve access to employment centers and vital services through express lanes, intelligent transportation systems, active traffic management, and strategic upgrades to existing infrastructure.
- **CLIMATE, RESILIENCE, AND THE ENVIRONMENT** | Reduce congestion, increase access to reliable transit and alternative hydrogen fueling, and improve non-motorized transportation options to positively impact climate change.
- **EQUITY, MULTIMODAL OPTIONS + QUALITY OF LIFE** | Investing in multimodal connections, building mobility hubs, and investing in affordable transit benefits disadvantaged communities and will give members in equity-priority areas more transportation options.
- **INNOVATION** | Utilize the latest proven transportation technologies to maximize efficiency, improve safety, and collect, analyze, and share real-time data for the development of the transportation system’s safety and performance measures.

INNOVATE 680 | The *Innovate 680* program (Combined Project) includes technology and transit projects that significantly improves the mobility of people and goods in the region. The Combined Project includes **Shared Mobility Hubs (SMH), Express Lanes Completion, and Coordinated Adaptive Ramp Metering (CARM)**. With a Benefit Cost Ratio (BCR) of 2.64, the Combined Project meets statutory selection requirements and offers economic, mobility, and safety advantages. The Combined Project aligns with national goals related to safety, congestion reduction, system reliability, economic vitality, and environmental sustainability ([Figure 2](#)). As discussed below and in [Section 7](#), each component project meets all statutory selection requirements, including cost-effectiveness, having secure and stable matching funds, as well as achieving national goals.

INNOVATE 680 FEATURED PROJECTS



Figure 2: *InnoVate 680* Program Location map.

CCTA has a long history of delivering complex transportation programs and projects for the county and is the lead agency to complete the Combined Project under this grant application.

1. SHARED MOBILITY HUBS



Three SMHs will be implemented along I-680 at the stops of the new Zero Emission Hydrogen (ZEH) I-680 Express Bus Service, namely Bollinger Canyon Road in San Ramon, the Walnut Creek Bay Area Rapid Transit (BART) Station, and the Martinez Amtrak Station ([access map here](#)). This new bus service addresses the existing rail gap on I-680 that was identified in the 2018 State Rail Plan, providing the much-needed connection for travelers on Amtrak’s national network and the Capitol Corridor and San Joaquin routes with regional rail service such as the BART and Altamont Commuter Express (ACE) rail networks. The ZEH I-680 Express Bus Service will be operated with ZEH Fuel Cell Electric Buses (FCEB) by County Connection and Livermore Amador Valley Transit Authority (LAVTA), who are constructing hydrogen fueling and maintenance infrastructure at their respective sites to support the FCEBs.

These three SMHs work in tandem with the ZEH I-680 Express Bus service and are crucial to its success. SMHs are places of connectivity for transit-oriented housing, business parks, and medical facilities, and where different travel options – biking, transit, carpooling, ride-sourcing, and micro transit – come together, providing first/last-mile connection options to the Express Bus riders and other users that stop at the SMHs. In addition to providing an integrated suite of mobility services, the hubs offer a variety of amenities to incentivize mode shift to non-auto modes, such as enhanced waiting areas, bike and electric vehicle charging stations, and wi-fi. The SMHs, together with the new ZEH I-680 Express Bus service, will promote the use of transit and shared modes to reduce congestion on the I-680 corridor and the connecting roadways and arterials. This coordinated suite of transit alternatives will be developed following the [Regional Mobility Hub Implementation Playbook](#) developed by MTC, which is a model that can be replicated throughout the region.

Design Status | The [Innovate 680 SMH Feasibility Study](#) was completed in January 2023. Environmental and design phases for Martinez Amtrak Station and Bollinger Canyon Road SMHs will begin in the summer and fall of 2024, respectively, with secured funding from other sources. The environmental and design phases for Walnut Creek BART SMH will start in early 2025. The preliminary design of the SMHs can be found here in [Attachment E, Concept Plans](#).

2. EXPRESS LANE COMPLETION



The **I-680 NB Express Lane Completion (Phase 1) (Express Lane Completion) project** aims to fill the last remaining express lane gap on NB I-680, alleviate corridor congestion, and address operational challenges on NB I-680. The component project involves constructing a NB express lane from just north of State Route 24 (SR-24) to State Route 242 (SR-242) and converting the existing NB High Occupancy Vehicle (HOV) Lane from SR-242 to north of Arthur Road near Martinez into an express lane. The project will also construct a [braided ramp system](#) between North Main Street and Treat Boulevard interchanges in Walnut Creek to address an existing bottleneck caused by weaving at this location, including a Caltrans truck scale/weigh station. Completing the I-680 express lane network through Contra Costa County will improve travel time for those who travel by bus, carpool, vanpool, or motorcycle and solo drivers who choose to pay to use the express lane. Additionally, the proposed braided ramps, which physically separate on-ramps and off-ramps, will elevate the new Treat Blvd off-ramp above the North Main Street off-ramp to eliminate the existing weaving movements that pose safety risks to drivers and trucks. By eliminating these unsafe weaving areas, the project aims to enhance safety, especially for vehicles entering the truck weigh station at the Treat Blvd off-ramp.

The project will improve mobility and freight movement throughout the region.¹ I-680 is a key corridor in the regional Bay Area Express Lane Network, which is planned to grow from 215 lane-miles today to 600 by 2050². Regionwide, 45 lane-miles of express lanes are currently under construction. This extensive network of managed lanes is an example of a multi-agency coordination initiative to improve traffic flow and reduce congestion, which can be replicated on a national level. There is more on the component project [here](#).

Design Status | CCTA, in partnership with MTC and Caltrans, is currently working on the preliminary design and environmental clearance phase. The 45-day public review of the draft environmental document began on May 8, 2024. The design phase will commence after the Final Environmental Document is completed in June 2025.

3. COORDINATED ADAPTIVE RAMP METERING

The project will construct **CARM** (Segments 1 and 3A) on a 19-mile segment of NB I-680 between Alcosta Blvd in San Ramon and Olympic Blvd in Walnut Creek (Segment 1) and between North Main St and Willow Pass Rd in Concord (Segment 3A), along with implementation of ramp metering at all other I-680 ramps in Contra Costa to proactively manage recurrent and non-recurrent congestion. CARM is the latest ramp metering technology that uses real-time traffic information to dynamically adjust ramp meters in real-time on a system level. The project will supplement and upgrade the existing Caltrans Traffic Operations Systems (TOS) by adding traffic detection, domain awareness, communication bandwidth, and necessary ramp modifications. This will increase vehicle throughput, smooth travel speeds, reduce collisions, and improve travel time reliability, which is critical for goods movement. Active monitoring, data collection, and analysis will assist in the refinement of the system operational parameters to maximize the benefits of the system. Data on system operations and impacts on safety and other performance measures will be made available for the development of similar projects on other freeways throughout the state. The advanced ramp metering and TOS will provide a model that can be expanded throughout the region for active transportation management and monitoring. CARM will be constructed under two contracts to simplify and integrate construction work with related projects to reduce cost and minimize construction risks. Access the component project location map [here](#).

Design Status | A [CARM Feasibility Study](#) identified three segments for implementation. Segments 1 and 3A were found to be most beneficial to implement first. **Segment 1:** The preliminary engineering and design were developed to a 30% level to support the environmental review, which has been approved. The design includes ramp widening, intelligent transportation systems (ITS) work, and modification of one bridge abutment. A Preliminary Foundation Report and an Advanced Planning Study were completed, and the final design will begin in June 2024. **Segment 3A:** The [conceptual plan](#) and [estimate](#) for this segment have been developed and are included in [Attachment E](#). The approved [California Environmental Quality Act \(CEQA\)/ National Environmental Policy Act \(NEPA\) Categorical Exemption/Exclusion \(CE/CE\)](#) for ramp metering construction along I-680 will be updated to reflect the Segment 3A improvements. The I-680 Advanced Technology Project [CARM Concept of Operations \(ConOps\)](#) and [CARM System Engineering Management Plan \(SEMP\)](#) ([Attachment E, Resource Documents](#)) are undergoing final review. A detailed statement of work for each project is included in [Section 3: Project Budget](#) with a status summary included in [Section 6: Project Readiness and Environmental Risk](#).

¹ MTC's Regional Transportation Plan – Plan Bay Area 2050, October 2021