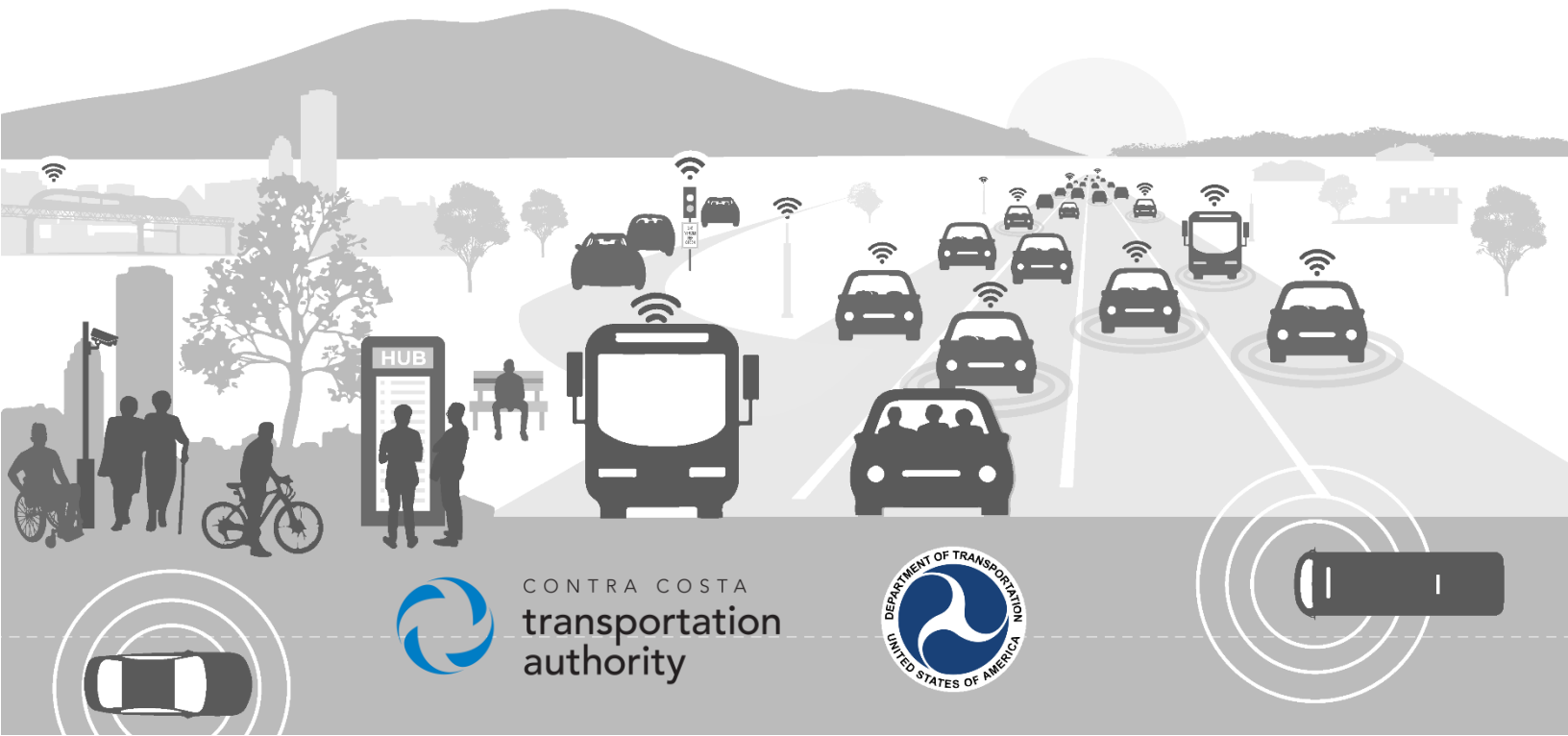


Multimodal Projects Discretionary Grant (MPDG) - Mega

Section 4 | Outcome Criteria

INNOVATE 680
IMAGINE THE POSSIBILITIES

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



CONTRA COSTA
transportation
authority



4 | Outcome Criteria

A Benefit-Cost Analysis (BCA) was conducted to analyze the Combined Project for the period from 2028 to 2050 accounting for 20 full years of operations for each component project. The analysis shows that the benefits amount to \$643.6 million, while the total costs for engineering, construction, and ROW are \$243.8 million—all benefit values in this section are adjusted to discounted 2022 dollars. The Combined Project achieves a Net Present Value (NPV) of **\$399.8 million** and a **BCR of 2.64**. With an **Internal Rate of Return of 12%**, the Combined Project will pay for itself in 12 years, as summarized in [Section 5, Table 13](#) of this application narrative. [Table 6](#) summarizes the Combined Project’s impacts and benefits, while [Section 4](#) expands on the MPDG/Mega grant selection criteria, the qualitative and quantitative benefits of the Combined Project, and each component project. The results of the complete analysis are included in the [BCA Narrative](#).

TABLE 6: INNOVATE 680 PROGRAM IMPACTS AND BENEFITS SUMMARY

Benefit	Description	Monetized (Discounted 2022 \$M)
Criterion #1: Safety	Combined Project improvements will enhance safety by synergizing the effects of component projects to smooth traffic flow and promote transit, carpooling, and shared transportation to reduce collisions and enhance overall safety.	179.8 M
Criterion #2: State of Good Repair	The improvements to the Combined Project were evaluated with a 20-year service life to match the analysis period, ensuring safe and smoother operations. The strategic recapitalization investment rejuvenates the CARM component project to a state of good repair. This crucial investment not only prolongs the Combined Project’s lifespan but also bolsters safety measures and sustains operational efficiency, delivering enduring benefits throughout its lifecycle.	-30.8 M
Criterion #3: Economic Impacts	Travel time savings are measured at both corridor and county levels, reflecting the increased efficiency and speed from all projects, with a total reduction of 1.6 million person-hours in the first year and 42.6 million hours over 20 years.	530.4 M
Criterion #4: Climate Change/Environment	Incentive-based mode shift from SOV to HOV, increasing utilization of the transportation network, thereby increasing person-throughput, and reducing congestion and its associated GHG (~142,000 tons of CO ₂), SOX (~1 ton), PM _{2.5} (~11 tons) and NO _x (~88 tons) emissions. Vehicle speeds along the corridor are expected to improve while any induced VMT is mitigated through the Transportation Demand Management (TDM) Program, and SMHs and as a result, emissions level is estimated to decrease over the Combined Project’s duration.	38.5 M
Criterion #5: Equity/Multimodal/Quality of Life	Enhanced facility amenities offer improved ride quality, comfort, and real-time information for various riders.	14.0 M
	Active transportation benefits for all bicyclists due to dedicated bicycle lanes (installation/extension).	1.1 M
	Health benefits for those who switch to biking instead of nonactive transportation modes, within eligible age range.	0.1 M
Criterion #6: Innovation	Implement advanced technologies such as CARM and express lane dynamic pricing to enhance corridor efficiency and capacity. Implement innovative project delivery and multimodal connections to transform corridor operations.	Qualitative



4.1. Safety | [\\$179.8 million in accident savings](#) will be achieved through a combination of innovative transportation technologies and traditional civil roadway infrastructure improvements that will modernize corridor operations to smooth traffic flow, reduce collisions, and provide access to transit and multimodal transportation options. It is estimated that total collisions will decrease by 2,169, including 5 fatal, 700 injury, and 1464 property damage only (PDO) (**Table 7**).

TABLE 7: INNOVATE 680 SAFETY BENEFITS

Project	Safety Feature(s) + Benefit(s)
Shared Mobility Hubs	SMHs will be implemented at the Martinez Amtrak Station, Walnut Creek BART station, and Bollinger Canyon Road in San Ramon. These neighborhood mobility centers will offer personalized travel options to provide first and last-mile connections to transit and may include amenities such as chargers for electric bikes and vehicles, bike lockers, and real-time travel displays. Application of enhanced access facilities, including installation and extension of dedicated bicycle lanes, led to a 27% reduction in collisions based on the Federal Highway Administration (FHWA) Crash Modification Factor (CMF) database. Implementing these improvements will reduce collisions by 225 (0 fatal, 76 injuries, 149 PDO collisions). Reduction of daily auto VMT also leads to additional reduction of crashes across the region due to fewer miles driven.
Express Lane Completion	Conversion of an HOV lane to an express lane would result in a 20% reduction in collisions based on FHWA's CMF applicable to urban site conditions and collisions of all types. The component project will also construct braided ramps, and replace concrete barrier Type 50 with Type 60G, a measure that will protect drivers from opposing headlights and improve driver safety and comfort where the median width is non-standard. Upgraded guardrails, enhanced pavement delineation, and lighting will add to safety benefits. Total collisions will be reduced by 1,301 (4 fatal, 416 injury, 881 PDO collisions).
Coordinated Adaptive Ramp Metering	Installing/upgrading ramps and the adaptive metering will break up the platoons of vehicles entering the freeway to smooth traffic flow, improve productivity, minimize speed changes, and reduce potential collisions. The improvement is anticipated to decrease overall collisions by at least 8%, according to the FHWA's CMF. This reduction translates to 855 collisions (2 fatal, 275 injury, and 578 PDO collisions).

In addition to the civil infrastructure and innovative operational improvements on I-680, the completion of the express lanes throughout the corridor will result in a fully monitored, managed lane network for over 25 miles of I-680 through Contra Costa County. The improved traffic monitoring from CARM and the corridor incident management plan will facilitate quicker response to incidents and expedite access for emergency vehicles. The use of new variable message signs (VMS) to provide real-time traffic conditions and accident warnings also minimizes secondary accidents. Bay Area Infrastructure Financing Authority (BAIFA), which operates the [Bay Area Express Lanes network](#), has executed a Traffic Incident Management Plan with Caltrans that defines the roles, responsibilities, and communication channels involved in managing traffic incidents. Active incident management and coordination with the CHP further improve the safety protocols for the corridor. Proposed Braided Ramps will eliminate the existing unsafe weaving conflicts between vehicle movements at North Main St on-ramp and Treat Blvd off-ramp, as well as trucks entering the weigh station at Treat Blvd off-ramp.



4.2. State of Good Repair | The Combined Project also includes planned routine maintenance activities. Repair and rehabilitation costs throughout its life and a recapitalization investment to restore the CARM component project to its original value ensure an overall state of good repair, extending the lifespan of infrastructure assets, enhancing safety, and improving operational efficiency (**Table 8A**). The Combined Project will repair, upgrade, and replace critical infrastructure elements to ensure they meet current standards and functionality.

These improvements include pavement rehabilitation and additional implementation of safety elements including upgrades to guardrails, new concrete barriers, advanced and reliable traffic detection, and lighting upgrades. The project will install new fiber optics cables and will be connected to new traffic management system elements throughout the corridor, providing the backbone communications system for increased monitoring and traffic management. This recapitalization is essential for sustaining long-term infrastructure viability and minimizing disruptions caused by aging or failing components.

Operations and Maintenance | The planning and management of the Combined Project is covered by an [Innovation Team Master Cooperative Agreement](#) to streamline delivery, achieve greater cost efficiency, and improve Combined Project outcomes. Combined Project operations and maintenance responsibilities are also covered by the [Innovate 680 Program ConOps](#). The planning and scoping of the projects follow the strategic guidance from the Technical Advisory Committee (TAC) and the Policy Advisory Committee (PAC) with representation from the partner agencies. Planning, funding and actively managing the operational elements of the program will require a coordinated effort between the various project partners. The program partners are developing plans to secure funds and execute the necessary agreements to operate and maintain the facilities for each Combined Project element (**See Table 8B**).

TABLE 8A: STATE OF GOOD REPAIR BENEFITS

Project	Safety Feature(s) + Benefit(s)
Shared Mobility Hubs	The implementation of multimodal facilities leads to a decrease in daily VMT, as there is a shift towards using transit and other active transportation modes. This shift contributes to less pavement wear and tear. Estimated reduction in daily VMT leads to reduction in overall vehicle operations and maintenance costs across 20 full years of operations.
Express Lane Completion	The expenditures pertinent to routine maintenance and periodic repair costs will ensure state of good repair throughout its lifecycle. Most of the project improvements scoped are expected to have an average service life of 20 years, which matches the 20-year analysis period, leading to an absence of residual value at the end of the period.
Coordinated Adaptive Ramp Metering	The expenditures pertinent to routine maintenance and periodic repair costs will ensure state of good repair throughout its lifecycle. Recapitalization of CARM software and detection infrastructure occurs in 10-year cycles while the analysis period is extended to account for 20 full years of operations.

TABLE 8B: STATE OF GOOD REPAIR OPERATIONS AND MAINTENANCE

Innovate 680 Combined Project	Operations Lead	Operations Funding
SMH	Public owner of Right-of-Way (ROW) (state/local/transit operator)	Secured local/state funding
Express Lane Completion	BAIFA	Toll Revenue
CARM	Joint Caltrans/CCTA	SHOPP

** Existing transit funding is sourced from SB1 funding - State Transit Assistance (STA) Program and State of Good Repair (SGR) Program, ** See Attachment C for detailed funding plan*

CCTA will operate CARM for at least the initial three years and is in discussion with Caltrans over the operations and maintenance of subsequent years. The scope includes a Decision Support System and a county data center to support other advanced freeway and local arterial traffic management systems. BAIFA will manage the express lanes operations through an existing cooperative agreement with Caltrans. Caltrans will be responsible for the operations and maintenance of all traffic management equipment, including cameras, ramp meters, and supporting equipment. Interagency agreements formalizing these operational responsibilities will be executed prior to the project’s completion. The existing sites of the SMHs are currently maintained by the local entities that own them. Maintenance agreements will be executed to define roles and responsibilities for operating the completed SMHs.

The Combined Project improvements are designed with an average of 20-year service life aligning with the 20-year analysis period, ensuring full utilization of various assets. The strategic recapitalization investment is set to rejuvenate the CARM Project Component, securing its original value and ensuring a state of good repair. This crucial investment not only prolongs the assets’ lifespan but also bolsters safety measures and sustains operational efficiency, delivering lasting benefits throughout the project’s lifecycle.

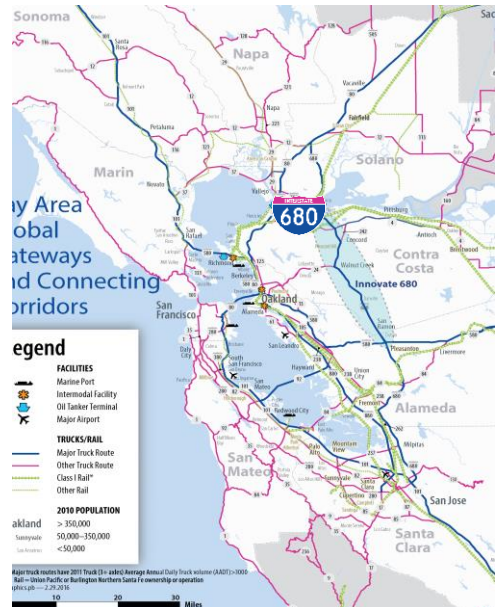




4.3. Economic Impacts, Freight Movement and Job Creation |

[\\$530.4 million in travel times savings](#) to help foster regional economic growth and development, support freight and goods movement, and encourage job creation. All work will be completed in compliance with Buy America.

Contra Costa County is central to the Northern California Megaregion with an extensive transportation network of regional and national significance – including I-80, I-680, and several state routes, BART service, heavy passenger (Amtrak and Capitol Corridor), and freight rail, ferry service, various bus operations, and the Port of Richmond. I-680 is Contra Costa’s backbone corridor and on the Bay Area’s Multimodal highway network ([Figure 3](#)) - making it a critical component of the regions goods movement and commute shed - linking jobs in San Francisco, Oakland, and Silicon Valley with residences lying to the east in Contra Costa County, the Central Valley, and beyond. I-680 extends south to Silicon Valley and north to Solano County. It provides access to scenic recreational areas, popular retail hubs, three colleges, four hospitals, including the County’s Trauma Center, a seniors-only community of over 9,000 residents, and thriving business centers such as 585-acre Bishop Ranch Business Park.



[Figure 3 -Larger View of California Megaregion map](#)

The Combined Project aims to deliver greater access to major job centers and transit hubs along I-680 in San Ramon, Walnut Creek, and Concord for those traveling from transportation-challenged and underserved communities, including those in east Contra Costa County and San Joaquin County (Central Valley) along SR-4. The location contains both urban and rural areas, including Mt. Diablo State Park and dozens of regional parks. It qualifies as an ideal choice for a model program of projects that could be expanded and scaled. See [Section 4.5](#) for expanded information on the characteristics of the Combined Project location related to economic development and equitable access to reduce barriers to opportunity.

Contra Costa County is home to over 1 million people, and the population is expected to grow by 32% by 2055. More than 70% of households rely on personal automobiles, resulting in heavy congestion, unreliable travel times due to delays, and negative environmental impacts. Based on data from the US Census Bureau, Contra Costa County has the longest commute time for all counties in California and ranks as the 33rd longest commute time in the nation. According to the MTC, NB I-680 from Danville to Pleasant Hill (cities along the Combined Project) is the 10th most congested corridor in the entire region as of 2017. During 2018, Caltrans data shows that the I-680 had over 1.3 million vehicle hours of delay, with segments of the I-680 averaging daily traffic totals of nearly 150,000 vehicles. See the [Bay Area Economic Institute Report Analyzing the Regional Economic Importance of I-680 Corridor in Contra Costa County – May 2022](#) for additional economic data related to the region.

Table 9 presents quantified projections of the anticipated economic benefits, enhancements in freight logistics, and potential for new job opportunities.

SUPERCOMMUTER BOOM

The number of people with commutes of 90 minutes or more is not just an out-of-town phenomenon; the increase of traffic congestion has made supercommuters of those who live in the heart of the Bay Area.

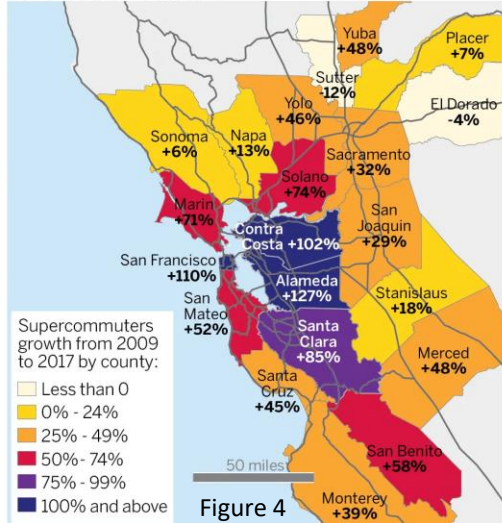


Figure 4

Population and Job Growth | The COVID-19 pandemic has made mobility and innovation investments in I-680 even more important, as housing and work location preferences have shifted to the eastern part of the Bay Area away from the San Francisco metropolitan area. During 2020, Contra Costa County was the only county in the nine-county Bay Area to grow its population—now nearing 1.2 million.

While the cities along the corridor have significant economic activity that the connectivity provided by I-680 enables, their future growth depends on efficient travel through the corridor. Contra Costa County is projected to add 168,000 jobs by 2055, a 41% increase from the 400,000 jobs countywide in 2018, with 60% of that projected employment growth situated along the I-680 corridor³.

As the county continues to grow its population and economic centers, the Combined Project will provide residents and workers with more trip options (Figure 4). According to a recent resident survey, fewer than half of all trips in the corridor were multimodal, and 70% of respondents said their primary mode for trips was an SOV. Both numbers highlight the opportunity for increased efficiency and modal shift.

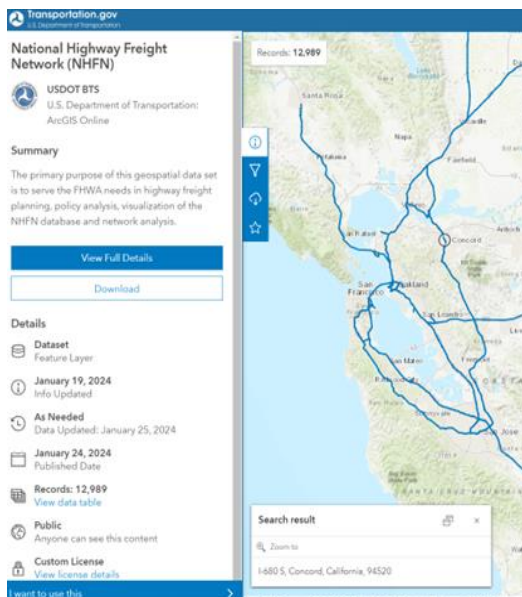


Figure 5

Goods Movement Corridor and Significant Regional and National Improvements to support economic productivity |

The key intraregional truck corridors in Contra Costa County are I-80, I-680, and SR-4. These corridors provide access to the Ports of Oakland, Richmond, Pittsburg, and Benicia and carry up to an average of 6,790⁴ trucks of all classes per day on average, performing both long-haul and short-haul truck moves. In the Combined Project area, there are two truck scales on I-680 and the I-680/SR-4 Interchange, the intersection of two major freight corridors in the Bay Area. I-680 is a part of the National Highway System (NHS) and National Highway Freight Network (Figure 5). I-680 connects with SR-4, an east-west corridor that supports the movement of goods from the Central Valley to and from the ports of Oakland and Richmond with connections to oil refineries and other industries. I-680 also carries heavy truck volumes

connecting San Jose and Silicon Valley to the I-580 corridor, a major gateway for the logistics center in the Central Valley and the I-5 corridor. Daily vehicle counts on I-680 average 189,000, with 9,135 or 4.83% of those accounting for freight volumes.

³ Economic Impacts of Transportation Investments, Bay Area Council of Economic Institute, January 2020.

⁴ Caltrans GIS Truck Data, May 2020.

Create High-Quality Jobs and Increase Workforce Opportunities | Based on [FHWA's Employment Impacts of Highway Infrastructure Investment](#), the Combined Project will create close to **5,070 direct and indirect jobs**. These jobs will not only include high-paying construction jobs, but they will also support regional economic, environmental, and equity goals while building upon existing community characteristics and partnerships and mitigating impacts on areas with less development.

The imbalance between housing, jobs, and employed residents shows insufficient jobs located within the county for the size of the workforce housed in Contra Costa. Regional commute patterns show growth in the number of people relying on the Contra Costa transportation system, necessitating innovative, multimodal investments to limit congestion. Half of Contra Costa County's resident workforce is employed outside the county. Therefore, I-680 is crucial to enable intraregional trips that expand labor sheds and connect to job opportunities. Bishop Ranch, a 585-acre business park in San Ramon, is the headquarters for major Fortune 500 companies like Chevron and AT&T. It is a significant employment hub, including minimum-wage workers in local hotels and retail. It is primarily accessed via I-680 in the Combined Project area.

The county's Northern Waterfront is home to many of Contra Costa's more than 40,000 manufacturing jobs, and the I-680 corridor provides a critical artery for the movement of both workers and goods to support these manufacturers. The Northern Waterfront Economic Development Initiative is a regional cluster-based economic development strategy dependent on a functional I-680, with a goal of creating 18,000 new jobs by 2035.

I-680 also provides access to [GoMentum Station](#) in the City of Concord, a secured proving ground for connected autonomous vehicles (CAV) and other transportation technologies. GoMentum Station is acknowledged both nationally and internationally for its significant potential to bolster the local economy and enable the United States to remain competitive in the global economy. The test site is expected to enhance economic development in Concord and the surrounding communities by attracting high-quality jobs in autonomous vehicle (AV) testing, research, and development.

In addition to spearheading groundbreaking advancements and innovation, GoMentum Station is also part of the future planned housing development within the [Concord Community Reuse Plan](#). Over the next 30 years, this project aims to redevelop the former 5,000-acre Concord Naval Weapons Station, adding 12,000 housing units, which will accommodate approximately 28,000 new residents, with 25% of the units designated as affordable housing.

The Reuse Project intends to incorporate 6.1 million square feet of office, retail, and light industrial spaces, along with 2.3 million square feet allocated for higher education and/or research and development (R&D) facilities. Moreover, the development will feature parks, recreation areas, and sports facilities.

TABLE 9: SUPPORT ECONOMIC IMPACTS, FREIGHT MOVEMENT AND JOB CREATION

Project	Strategy + Benefits
Shared Mobility Hubs	<p>Housing is growing along the corridor. Integrated land use to influence a more balanced distribution of jobs and housing is needed to alleviate crowding on roads and provide direct access to transit networks. For example, Walnut Creek BART station is undergoing redevelopment, with the surrounding surface parking lots being converted to a Transit-Oriented Development (TOD), including 596 multi-family housing units and 27,000 square feet of retail space. A new intermodal bus facility was also constructed at the station in 2019. In addition, the City of San Ramon has approved the future construction of 4,900 residential units within a few blocks of the Bollinger Canyon SMH. The SMHs will help provide nearby residents seamless and improved access to bus transit, rail, active transportation, and shared modes for their commute to jobs, academia, and other opportunities. The reduction of daily auto VMT will lead to congestion reduction, benefiting the commuters in the corridor and the overall county.</p>
Express Lane Completion	<p>This component project will complete the express lane to provide a continuous express lane from the border of Contra Costa/Solano County, through Alameda County, and into Santa Clara County/Silicon Valley. It encourages the use of transit and shared transportation options, leading to better multimodal transportation systems and operations. The efficiency of this corridor will be significantly improved, reducing travel time. The savings in travel time are measured for both the entire corridor and individual counties, with increased capacity and faster speeds attributed to the conversion of HOV lanes into express lanes. This improvement is expected to cut down on 1.8 million hours of travel time in the first year and a total of 26.2 million hours over 20 years.</p>
Coordinated Adaptive Ramp Metering	<p>Upgrading ramp-metering systems significantly improves freeway operations and reliability by reducing accidents and delays. This is especially beneficial for the logistics and manufacturing industries. The enhancements lead to a smoother traffic flow and higher speeds, resulting in at least 2% decrease in travel time during morning peak hours and at least 10% decrease during evening peak hours. Adjusted for future corridor demand, this results in a significant reduction of travel time, amounting to 1.2 million person-hours in the initial year and an impressive 15.4 million hours over a span of 20 years of operation, underscoring the long-term value of these enhancements.</p>



4.4. Climate Change, Resiliency, and the Environment | [\\$38.5 million in emissions savings](#) to directly support the USDOT's Climate Action Plan through combined investments in innovative transportation technologies, zero-emission transit, and improved connections to transit, active transportation, clean mobility options as shown in **Table 10**.

Mode Shift Toward Sustainability | Seventy percent of residents living along the I-680 corridor reported driving at least once per week within the corridor. Of these drivers, 91% indicated that their preferred mode of travel is driving alone in a personal vehicle. This trend leads to increased time spent in cars, which subsequently reduces overall quality of life while also contributing to the emission of harmful greenhouse gases (GHGs). One of the key *Innovate 680* program objectives is to shift solo drivers to shared or non-auto modes to improve sustainability and resiliency with clean mobility options. The Combined Project includes strategies that make transit more attractive to use and incentivize drivers to shift modes. SMHs that support ZEH I-680 Express Bus with first/last mile connectivity to other non-auto modes will result in a high-quality public transportation option that will reduce the region's transportation GHG emissions. The SMHs will also include better sidewalk and bike lanes connectivity for a more complete zero-emission journey. In addition, the Express Lanes Completion project will provide a more reliable travel time for buses that travel on the I-680 corridor, making transit a more attractive option.

Design for Climate Resiliency | According to [Adapting to Rising Tides-Bay Area](#), a regional sea level rise vulnerability and adaptation study prepared by Bay Conservation and Development Commission (BCDC), the northern limit of the Express Lanes Completion Project is vulnerable to sea-level rise (SLR) impacts due to the area's low roadway elevations and vicinity to Suisun Bay. Drainage improvements will be designed for 100-year tide to address the potential SLR impacts in this area.

Considerations of Climate Change and Environmental Justice | Similar to the USDOT, California realizes the importance of addressing climate change and resiliency through a significant and sustained reduction in GHG emissions. Senate Bill 375 is the state's mandate to reduce transportation related GHG emissions through coordinated land use and transportation planning across cities and counties. As such, CCTA, Caltrans, and MTC include considerations of climate change and environmental justice in their respective long and short-range planning and project delivery efforts. Together, the *Innovate 680* program strategies will contribute to meaningful environmental and climate gains, at the local and regional levels; supporting Contra Costa's Climate Action Plan and [MTC's Plan Bay Area 2050](#) and [Climate Initiatives Program](#).

CCTA collaborates closely with Disadvantaged Communities, Areas of Persistent Poverty and Opportunity Zone neighborhoods in Concord, Martinez, Pittsburg, and Bay Point where there are large industrial sectors, refineries, and freight corridors, to ensure that these initiatives provide the maximum benefit to reducing GHGs. Combined Project initiatives are coordinated with the findings, concerns and priorities of these communities based on [Community-Based Transportation Plans](#) (CBTPs) that were developed by CCTA; including associated environmental justice efforts.

For the last 20 years, CCTA's countywide TDM program known as [511 Contra Costa](#), has employed innovative strategies to encourage the use of transit, rideshare, walk, bike, and telework to reduce congestion and improve quality of life. New strategies are constantly being piloted that provide incentives to change mode choices and expand mobility options,

particularly to Disadvantaged Communities, Areas of Persistent Poverty, and Opportunity Zone neighborhoods. CCTA proposes to use this platform to support education and outreach for the SMHs that will support a new ZEH I-680 Express Bus service. In the summer of 2023, CCTA began the development of a countywide [Integrated Transit Plan](#) to study and implement strategies to improve equity in transit service and support climate initiatives throughout the county.

The Combined Project uses innovative strategies and technology to minimize potential environmental impacts and maximize the efficiency of the existing transportation system rather than pursuing expansion that may disrupt or even uproot established communities. Environmental impacts of each component project are currently being evaluated through the CEQA and NEPA environmental review process, and efforts will be made to reduce, avoid, and mitigate impacts to the environment.

TABLE 10: STRATEGIES TO SUPPORT CLIMATE GOALS AND RESILIENCY

Project	Strategy + Benefits
Shared Mobility Hubs	Reduced auto daily VMT together with increased speeds lead to corresponding reduction in GHG (23,700 tons of CO ₂), NO _X (2.8 tons), and SO _X (0.2 tons) emissions benefiting communities across the corridor. It also leads to regional-level emission reductions.
Express Lane Completion	Incentive-based mode shift from SOV to express lanes increases utilization of the transportation network, boosts person-throughput, and cuts congestion and related emissions, including approximately 98,000 tons of CO ₂ , 0.6 tons of SO _X , and 70.1 tons of NO _X . Improved vehicle speeds and a comprehensive TDM Program are expected to further reduce emissions over time.
Coordinated Adaptive Ramp Metering	Install and upgrade ramp metering to improve operational efficiencies to smooth traffic flow which will decrease congestion, idling, accidents and GHG emissions. CARM reduces weaving congestion and results in more stable speeds. The project also improves disaster preparedness and incident management. CO ₂ emissions are reduced by over 29,600 metric tons, as well as 0.02 tons of SO _X and 18 tons of NO _X .

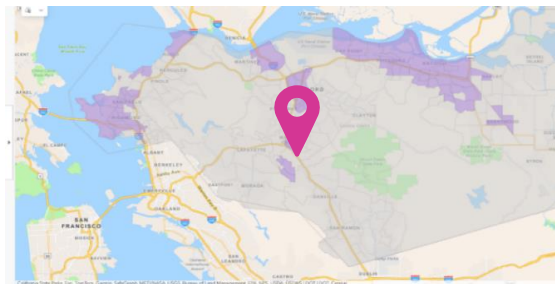


4.5. Equity, Multimodal Options, and Quality of Life | In addition to the \$530 million in time savings, the project will also generate \$15.2 million in health and active transportation benefits. This will enhance equity and quality of life, especially for low-income drivers in disadvantaged census tracts where approximately 20% of daily trips on NB I-680 conclude.

The disparity between housing availability, job opportunities, and the number of employed residents highlights a deficiency in job availability within Contra Costa County relative to the size of its resident workforce. Regional commute patterns indicate a steady increase in the reliance on the Contra Costa transportation system on a daily basis. This underscores the need for innovative, multimodal investments aimed at alleviating congestion. With half of Contra Costa County's resident workforce employed outside of the county, I-680 plays a crucial role in facilitating intraregional trips, expanding labor sheds, and connecting residents to job opportunities. According to the USDOT Equitable Transportation Community (ETC) Explorer ([Figure 6](#)), over one-third of the population in Contra Costa County is living in disadvantaged census tracts that spread across northern Contra Costa County and include tracts along the I-680 corridor in Martinez, Concord, and Walnut Creek.

The I-680 corridor is the primary highway route connecting residents of northern and eastern Contra Costa County to job centers in central and southern Contra Costa County, and in Alameda and Santa Clara Counties. A review of Replica data for trips along NB I-680 indicates 37,800 trips (per day) that use the corridor end in the disadvantaged census tracts. This represents about 20% of all trips using NB I-680 daily ([Figure 7](#)).

Economic resilience and equity of travel hinge on the ability to access any service in the area as conveniently and affordably as possible. Providing access to a robust and affordable multimodal network and encouraging travelers to shift to active transportation options directly correlates to improved health and quality of life. **Table 11**, details specific program elements that directly support a holistic approach to achieving key regional economic, environmental, and equity goals, while building upon existing community characteristics and partnerships, and mitigating impacts on areas with less development.



Total Population Living in the Selected Project Area	Total Population Living in Disadvantaged Census Tracts in the Selected Project Area	% of Disadvantaged Census Tracts in Selected Project Area
1.1M	375k	32%

[Figure 6 –Disadvantaged Census Tracts in Contra Costa County | USDOT ETC Explorer](#)

The Combined Project brings important transportation benefits to disadvantaged communities through access to more reliable transit and multimodal travel options. Bishop Ranch business park in San Ramon, which is adjacent to the Bollinger Canyon SMH, is the largest employment center in the County and provides thousands of jobs to minimum-wage earners working in hotels and retail establishments located in the area, with I-680 as the primary access point within the Project limits.

The county's Northern Waterfront is home to many of Contra Costa's more than 40,000 manufacturing jobs, and the I-680 corridor provides a critical artery for the movement of both workers and goods to support these manufacturers. The [Northern Waterfront Economic Development Initiative™](#) is a regional cluster-based economic development strategy, dependent on a functional I-680, with a goal of creating 18,000 new jobs by 2035.

The Combined Project’s ability to reduce congestion and travel times along the corridor will directly benefit all users, especially those residents of disadvantaged census tracts who use the corridor daily.

By helping residents connect with multiple modes of transportation, SMHs, working together with the ZEH I-680 Express Bus service, will reduce dependence on SOVs, create mode shifts, and improve the travel experiences of those already using alternative transportation. This would be supplemented by 511 Contra Costa, which incentivizes transit and non-motorized travel and provides discounted fares to increase accessibility.

With the implementation of SMHs, transit users will benefit from improved frequency and reliability of Express Bus services to connect residents of disadvantaged census tracts to jobs. The bicycle and pedestrian improvements proposed at the SMHs will also increase walkability and accessibility.

The ability of the Express Lane Completion and CARM component projects to optimize productivity of the freeway to sustain higher, more reliable, and stable traffic flows will reduce the impact of traffic diverting into neighborhoods along I-680 corridor to avoid freeway congestion, especially in the disadvantaged census tracts located in Concord and Walnut Creek.

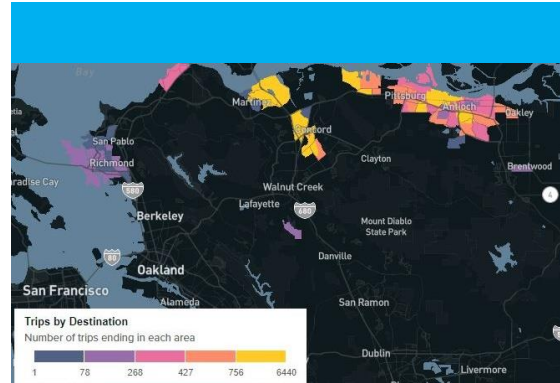


Figure 7 – Number of Daily Trips on NB I-680 that End in Disadvantaged Census Tracts in Contra Costa County | Source: Replica

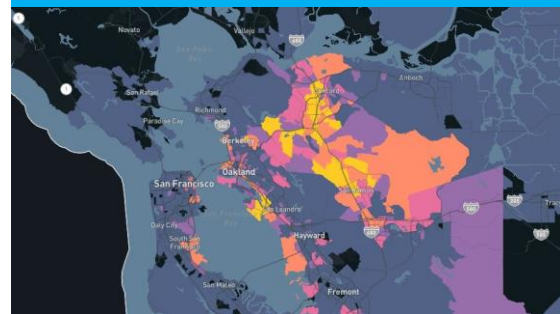


Figure 8 – Origin of Daily Trips on NB I-680 that End in Disadvantaged Census Tracts in Contra Costa County | Source: Replica

TABLE 11: SUPPORTING EQUITY, MULTIMODAL OPTIONS AND QUALITY OF LIFE

Project	Improvement
Shared Mobility Hubs	The project creates multimodal transportation hubs with services and amenities for easier transit connections, shared micromobility, and improved bike/pedestrian access. These hubs proactively address equity and barriers by leveraging their proximity to major employment and retail centers. Noise reduction from less SOVs benefits communities adjacent to I-680. Enhanced amenities and health benefits for bicyclists contribute to a \$15.2 million quantifiable benefit beyond travel time savings.
Express Lane Completion	The project improve travel time reliability. MTC/BAIFA is planning to pilot an equity/affordability means-based express lanes toll discount on the regional express lanes. The 511 Contra Costa Program would offer transit and non-motorized travel incentives, as well as discounted fares to enhance equity.
Coordinated Adaptive Ramp Metering	Innovative adaptive ramp metering will smooth traffic flow and reduce congestion on interregional highway network, minimize diversion to local arterials and corridors in neighboring disadvantaged communities, and support prioritizing the Express Bus during peak periods.

Areas Of Persistent Poverty, Historically Disadvantaged Communities + Opportunity Zones |

As a vital regional connector, the Combined Project supports Contra Costa County with 32% of the census tracts designated as Disadvantaged by the USDOT ETC Explorer mapping tool ([Figure 6](#)). The Combined Project area traverses 30 census tracts, 8 of which are federally designated DACs according to USDOT Grants Project Location Verification Tool (Shown in orange/light pink areas in [Figure 9](#)). Lastly, the Combined Project supports four federally designated Opportunity Zones in Pleasant Hill and Concord, also known as the “Monument Corridor;” a Bay Area Community of Concern and Priority Development Area (PDA), shown in [Figure 10](#). MTC funded a [CBTP⁵](#) effort for these priority communities in line with [Lifeline Transportation Network](#) and environmental justice initiatives that identified strategies to meet the mobility and accessibility needs of minority, low-income, and senior residents and individuals with disabilities.

Community and Regional Support | From 2018-2020, CCTA engaged in an extensive [CBTP process](#) with two low-income and underserved communities along the I-680 corridor – [Martinez](#) and the [Monument Corridor](#) community in Concord. The input from these two communities influenced the planning of corridor improvements such as CARM and highlighted the need for SMHs and Express Bus service to better serve transit-dependent residents. A sample of the multi-lingual engagement efforts undertaken as part of this CBTP process can be accessed [here](#). The next round of CBTP will begin later this year, which will continue to inform future project planning and development.

Recently, CCTA conducted a multi-lingual travel behavior survey to obtain diverse perspectives from communities throughout the corridor. The [survey results](#) are being used to guide the design of and communication about current and future projects.

The *Innovate 680* TAC and PAC, along with community feedback, were essential in determining the Combined Projects direction, methods, and technology to align with local needs. As *Innovate 680* development continues, the Combined Project will continue a multi-year robust public engagement process that focuses on community-based participation that ensures voices of minority, low-income, under-represented, and disadvantaged communities are prioritized. The Combined Project has received significant local, regional, state, and community support, see [Attachment D, Letters of Support](#).

Figure 9: Disadvantaged Communities Map using the Grant Project Location Verification tool

Census Tracts: 3160, 3170, 3280, 3361.04, 3361.03, 3362.01, 3362.02, 3381.01

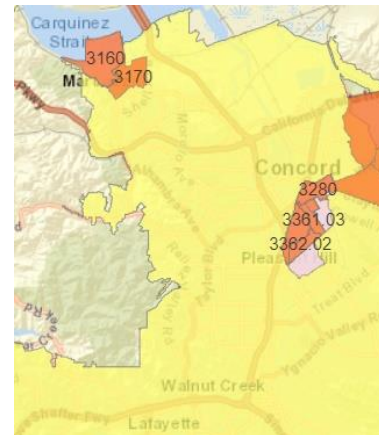
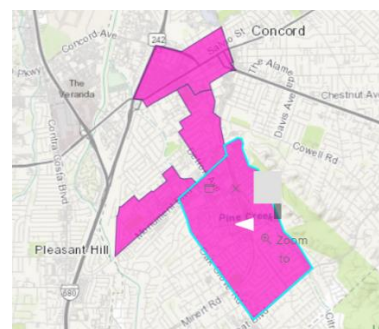


Figure 10: Federally Designated Opportunity Zones along the Monument Corridor in Concord: Bureau of Land Management Esri database:

3372, 3280, 3361.01, 3362.02



⁵ Monument Corridor Community Based Transportation Plan, Nelson Nygaard (February 2020).



4.6. Innovation Areas | Implement advanced technology, innovative project delivery and multimodal mobility options to transform corridor operations.

Innovative Technology | The CARM component project will use technology to transform the I-680 corridor with improved efficiency without freeway expansion. The SMH component project will improve multimodal options, where the availability of real-time transit information via travel displays and connectivity to a mobile application will allow travelers to make informed decisions about their journey. All projects within the Combined Project are necessary for an integrated approach to maximize the efficiency of the corridor. (See **Table 12**).

TABLE 12: INNOVATIVE TECHNOLOGIES TO MAXIMIZE CORRIDOR EFFICIENCY

Project	Innovative Strategy Towards Optimal Efficiency
Shared Mobility Hubs	<p>Innovative Technology The SMHs will use technology to enhance the users’ experience in the hubs to provide system efficiencies and to make transit as an attractive mode choice. The SMH will include charging facilities for electric bicycles and electric vehicles, TSP to provide buses with more reliable travel time, and traveler information displays that will provide users with real-time travel information for better trip planning. In addition, the three SMHs will be integrated and data from each hub will be shared and available on the Mobility on Demand (MOD) mobile application that CCTA is developing. As noted earlier in the application, the SMHs work together with the ZEH I-680 Express Bus service to provide a low carbon travel option.</p> <p>Innovative Delivery CCTA intends to explore public private partnerships with private vendors to provide services at SMHs, such as food/cafes and carshare/bikeshare options.</p>
I-680 Northbound Express Lane	<p>Innovative Technology Using dynamic pricing, express lanes make the best use of existing capacity to improve system efficiency and operations. Express lanes encourage the use of carpools, vanpools, and express buses, provide reliable travel times, and give solo drivers the choice to pay a toll to use the lanes. The reduced tolls offered to electric vehicle drivers promote the use of clean air vehicles in the corridor. In addition, BAIFA, which operates and maintains the express lanes in Contra Costa, is committed to having robust cyber security to protect users’ information as outlined in their Privacy Policy.</p>
Coordinated Adaptive Ramp Metering	<p>Innovative Technology One of the first deployments in the nation and the Bay Area, CARM operations will optimize ramp meter throughputs across a series of onramps on a system level based on a dense network of advanced traffic detection devices to manage traffic in real-time and to alleviate congestion. This system would modulate upstream ramps to allow downstream ramps with limited storage to function adequately without costly widening that may also result in environmental impacts. The detection system utilizes solar power to minimize construction costs and impacts. The detection network allows any incident to be detected and captured quickly so that the necessary response can be affected immediately to minimize the impacts of accidents.</p> <p>Innovative Delivery Aligning Segment 3A construction with the Express Lanes project will yield more efficiency and better outcomes for I-680 communities.</p>