



YOLO TRANSPORTATION DISTRICT

YOLO 80 MANAGED LANES

EQUITY PLAN LITERATURE REVIEW

Final Draft

June 12, 2025



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ACRONYMS AND TERMS

Acronym or Term	Description
BAIFA	Bay Area Infrastructure Financing Authority
BATA	Bay Area Toll Authority
BRT	Bus Rapid Transit
CA SHC	California Streets and Highway Code
Caltrans	California Department of Transportation
CAPTl	Climate Action Plan for Transportation Infrastructure
CARTA	Capital Area Regional Tolling Authority
CBDTP	Central Business District Tolling Program
CBO	Community-Based Organization
CNT	Center for Neighborhood Technology
CRD	Congestion Reduction Demonstration
CRZ	Congestion Relief Zone
CTC	California Transportation Commission
CTP	California Transportation Plan
DOT	Department of Transportation
DMV	Department of Motor Vehicles
EBT	Electronic Benefit Transfer
EEA	Exploratory Equity Action
EFC	Equity-Focused Community
EJ	Environmental Justice
EPC	Equity Priority Community
ERC	Elizabeth River Crossings
FPL	Federal Poverty Level
GDOT	Georgia Department of Transportation
GES	Globeville and Elyria-Swansea
GHG	Greenhouse Gas
GIS	Geographic Information System
GSU	Georgia State University
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle
H+T	Housing and Technology
INDOT	Indiana Department of Transportation
ITS	Intelligent Transportation Systems
I-	Interstate
KPI	Key Performance Indicator
KYTC	Kentucky Transportation Cabinet
LA Metro	Los Angeles County Metropolitan Transportation Authority
LADOT	Los Angeles Department of Transportation
LIFE	Low Income Fare is Easy
MARTA	Metropolitan Atlanta Rapid Transit Authority
MMIP	Major Mobility Investment Program

Acronym or Term	Description
MTA	Metropolitan Transportation Authority
MTC	Metropolitan Transportation Commission
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
NEPA	National Environmental Policy Act
PM	Postmile
Project	Yolo 80 Managed Lanes Project
PSEP	Project-Specific Equity Plan
REAP	Race and Equity Action Plan
SACOG	Sacramento Area Council of Governments
SMCEL-JPA	San Mateo County Express Lanes Joint Powers Authority
SNAP	Supplemental Nutrition Assistance Program
SWITRS	Statewide Integrated Traffic Records System
TAC	Technical Advisory Committee
TAP	Transit Access Pass
TBL	Triple Bottom Line
TIMMA	Treasure Island Mobility Management Agency
TMP	Tolling Mitigation Plan
UBM	Universal Basic Mobility
UPA	Urban Partnership Agreement
USC	United States Code
US-	United States Route
VDOT	Virginia Department of Transportation
VMT	Vehicle Miles Traveled
Yolo 80	Interstate 80 corridor within Project limits
YoloTD	Yolo Transportation District

1 BACKGROUND

Yolo Transportation District (YoloTD) is advancing the planning and development of the Yolo 80 Managed Lanes Project (“Project”) in coordination with key stakeholders including the California Department of Transportation (Caltrans), the Sacramento Area Council of Governments (SACOG), and the Capital Area Regional Tolling Authority (CARTA). As shown in Figure 1-1, the Project will construct approximately 20.8 centerline miles of High Occupancy Toll (HOT) lanes in each direction of the Interstate 80 (Yolo 80) corridor between postmiles (PMs) 40.7 and R44.7 in Solano County, PMs 0.00 and R11.72 in Yolo County, and PMs M0.00 and M1.36 in Sacramento County; and on the US Route 50 (US-50) corridor between PMs 0.00 and 3.12 in Yolo County and PMs 0.00 and L0.617 in Sacramento County.

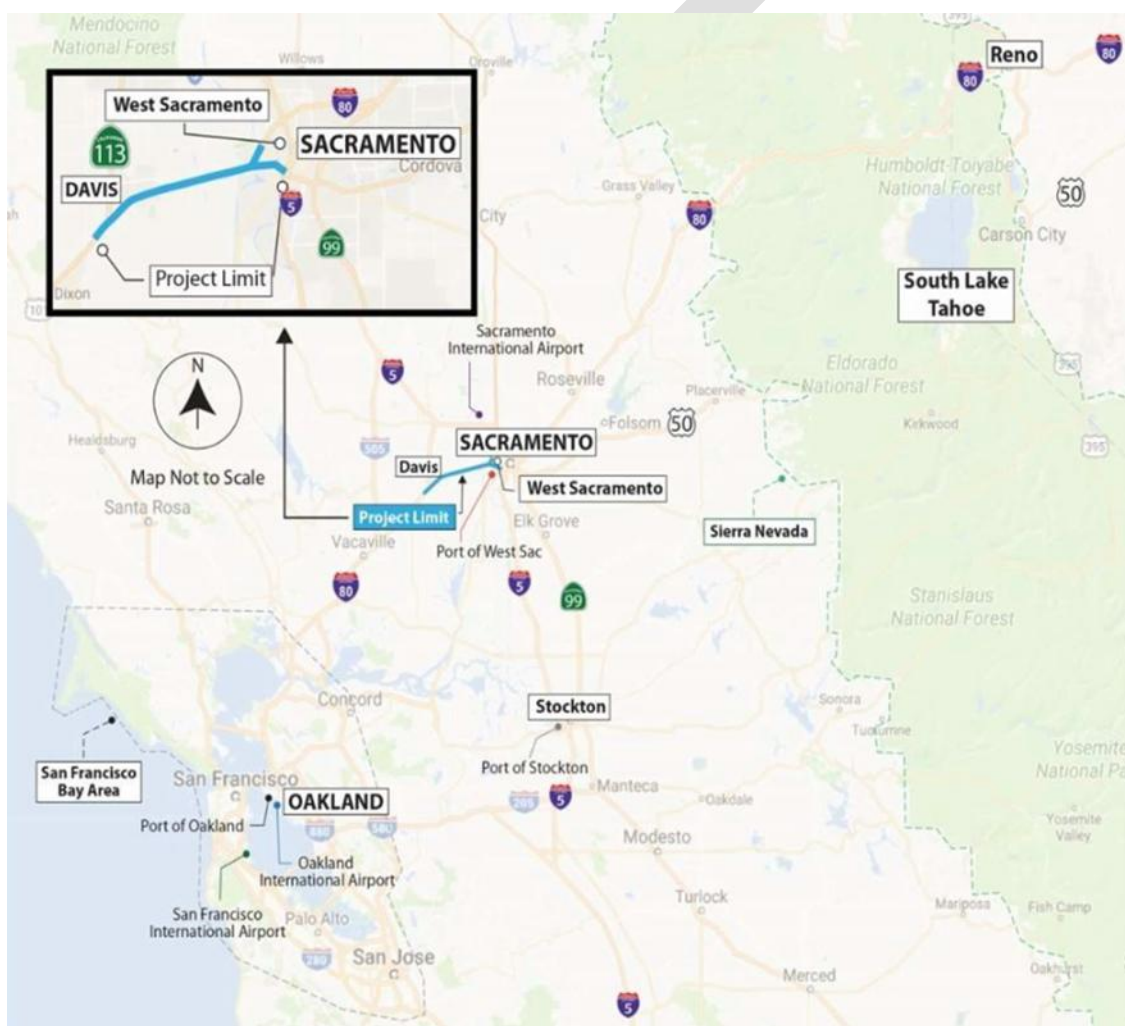


Figure 1-1: Geographic Context of the Project in the Sacramento Region

The managed lanes on Yolo 80 and US-50 will be constructed by restriping existing highway infrastructure to add an additional lane within the same footprint, as well as shoulder and median reconstruction. The improvements will also include expansion and modification of existing Intelligent Transportation Systems (ITS) such as ramp meters,

fiber-optic conduit, and overhead signs. Additionally, the Project will feature improvements to direct connectors, pedestrian/bicycle facilities and park-n-ride elements.

The goals and outcomes that the Project seeks to achieve include:

- 1 Reducing congestion by providing the needed capacity to improve throughput and travel time reliability;
- 2 Improving freeway traffic operations on the mainline, ramps and interchanges with enhanced roadway design;
- 3 Supporting reliable transport of goods and services throughout the region;
- 4 Incentivizing multimodal transportation by prioritizing transit, carpool and pedestrian/ bicycle modes to minimize greenhouse gas (GHG) emissions and improve travel time reliability;
- 5 Providing expedited travel information and monitoring systems to improve roadway incident response and awareness, and decrease non-recurring congestion;
- 6 Enhancing safety by improving weaving/merging areas and reducing cut-through traffic on local streets and rural roads; and,
- 7 Supporting equity by reinvesting toll revenue to local communities, with priority given to environmental justice communities.

2 PURPOSE

YoloTD is developing a local Equity Framework for the Project to identify ways to establish important dialogues with local stakeholders, community-based organizations (CBO), and communities and develop a shared baseline understanding of local equity priorities through research and data analysis. The local Equity Framework will inform and support an expected regional equity planning framework to be developed by CARTA. This Literature Review Memorandum is the first step and reference point towards the development of the Project-Specific Equity Plan (PSEP). Its purpose is to:

- **Document existing equity policies and approaches** at the state and regional levels to inform the creation of a project-specific tolling equity approach;
- **Present equity analysis frameworks and methodologies** to ensure that the framework's approach to data analysis is grounded in best professional practices; and
- **Capture industry case studies and develop a menu of equitable tolling strategies** from peer agencies and inform a prioritization methodology to bring forward to future discussion and research on potential ways to promote equity in tolling.

Throughout the Literature Review, sources supporting these objectives will be described. Each section will begin with a brief discussion of the reasoning for including the sources and relevance to the Project, as well as a high-level summary of key takeaways from the sources. Each section will also end by restating how the sources will be incorporated into the Project's Equity Framework.

In the broader Equity Task for the Project, the Literature Review will be used in conjunction with Geographic Information System (GIS)-based analysis of communities in the project area and input from local stakeholders and communities on county- and regional-level equity priorities to develop a menu of tolling-focused equity policies and programs called Exploratory Equity Actions (EEA). It is important to state that these EEAs are not intended to be used as recommendations for equity programs to implement. Rather, EEAs will identify potential equity strategies for further research and regional coordination over the course of the Project's planning, development, and implementation phases.

3 EQUITY APPROACHES AND POLICIES

Yolo 80 will be the first tolled facility in the Sacramento region. Without local precedent, Yolo 80's approach to equity will set the stage for similar regional tolling projects in the future. In the context of Yolo 80, an **"equity approach"** refers to the **overarching strategy and guiding framework** that will ensure that **tolling policies, impacts, and equity program/investment decisions** are designed and implemented in a way that is **fair and inclusive**, particularly for communities that have historically faced **barriers to access, mobility, and economic opportunity**.

An equity approach refers to the **overall philosophy, values, and intentions** guiding how equity is considered in a project or process and tends to be **broad and strategic**. Developing an equity approach for Yolo 80 supports:

- **Alignment with policy and regulatory expectations** by ensuring that Yolo 80 is compliant, aligned with broader goals, and eligible for potential future funding.
- **Building credibility and consistency** by demonstrating due diligence in scanning relevant efforts, following recognized best practices, and demonstrating consistency with proven strategies
- **Applying lessons learned in local strategy development** by examining how local peer agencies work within state and regional frameworks to operationalize equity within their local contexts
- **Avoiding pitfalls and duplicating efforts** by learning from peers with similar demographics, infrastructure, and institutional arrangements
- **Fostering collaboration** by incorporating potential future partners in a broad educational process that incorporates diverse approaches

The Project's equity approach will be informed by the following Key Takeaways, which summarize themes from the case studies in this section that have developed equity approaches at the State, Regional, and Local levels.

Key Takeaways

State, regional, and local equity approaches emphasize related desired goals and outcomes, with some key differences:

- Approaches at all levels included themes focusing on historically marginalized communities, increasing accessibility to different modal choices and opportunities, and meaningful stakeholder and public participation in planning.
- State-level approaches also focused on the integrated operations of the express lane by addressing express lane affordability, toll revenue reinvestment, violations, and enforcement. These approaches often aligned with broader State goals, including as climate and resilience, and integrated the use of specific equity data and analysis tools, as well as small business partnership.
- In addition to reinforcing state goals like climate and resilience, regional-level approaches also emphasized public health and pollution exposure. Ensuring that both qualitative and quantitative data sources were used in equity analysis and decision-making.
- Local-level approaches focused on meeting the needs of communities close to the corridor, expanding active transportation, and enhancing customer experience. These approaches also considered project value by emphasizing on project implementation, alignment with overall express lane goals, and how strategies can adapt to changing community needs over time.

As a member of CARTA, an organization which incorporates all these governance levels, the Project's equity approach would benefit from carefully considering the interplay of all these major themes and consulting with partners when deciding which to emphasize. This was a key strategy for the Study's initial Goals and Outcomes Workshop.

3.1 STATE-LEVEL APPROACHES

Key Takeaways

Incorporating Caltrans equity approaches into the creation of a project-specific equity approach is critical to ensure that the Project is compliant with State requirements and in alignment with broader goals and planning efforts. State-level equity guidance includes:

- **Caltrans Equity Statement (2020)** focuses on the concept of environmental justice: acknowledging the disproportionate burdens that transportation infrastructure has had on communities of color and historically underserved communities and the responsibility to proactively correct those injustices. Caltrans commits to making improvements in its workforce, projects, and contracting practices, and further ties efforts to environmental goals.
- **Caltrans Equity Considerations for Toll Facilities (2021)** focuses on incorporating equity into tolling projects specifically. It notes the regressive impacts of tolling on customers with low incomes and states the importance of proactively considering equity in planning practices, rather than reactively, by emphasizing data-driven analysis, participatory planning, cross-agency coordination, and public accountability.
- **The Caltrans Strategic Plan (2024-2028)** embeds equity among four other key goals: safety, climate action, prosperity, and employee excellence. While strategies under the equity goal focus on investing and engaging with underserved communities and integrating equity tools throughout planning practices, equity strategies are also threaded throughout all other goals.

3.1.1 Caltrans Strategic Plan (2024-2028) (California Department of Transportation, 2024)

The 2024-2028 Strategic Plan developed by Caltrans serves as a compass to guide innovative solutions surrounding the state's transportation infrastructure. This plan identifies five distinct goals: Safety, Equity, Climate Action, Prosperity, and Employee Excellence (California Department of Transportation, 2024).

Under the Equity principle, the framework reflects a strong commitment to addressing historical inequities in California's transportation system. The goal is to ensure fair and inclusive access for all by eliminating barriers and delivering meaningful improvements to underserved communities. Through equity-centered planning, design, and investment, the framework aims to build a transportation network that enhances quality of life and promotes justice and inclusion.

The plan outlines the following strategies to enhance equity:

- Leverage investments to support, benefit, and connect underserved communities.
- Integrate intentional engagement and collaboration throughout programs and projects.
- Enhance opportunities for small and disadvantaged businesses and community-based organizations.

- Integrate equity tools into Caltrans practices.

In addition to the strategies listed under the Equity principle, the other four areas, although focused on all Californians, do include specific strategies to elevate underserved communities. These include:

- **Safety:** Enhance collaboration with partners and underserved communities to improve safety.
- **Climate Action:** Prioritize transportation projects that provide multimodal options, encouraging fewer and shorter car trips to reduce GHG emissions.
- **Prosperity:** Advance equitable and reliable multi-modal transportation solutions that cultivate healthy and livable communities.
- **People Excellence:** Improve diversity and equity in hiring, career advancement, training, and retention.

These strategies aim to achieve the Equity goals that this framework outlines. Specific outcomes that Caltrans aims to achieve by adhering to the strategies of the plan include:

- Strengthened relationships and trust with communities through direct, meaningful, and transparent collaboration.
- Reduced transportation disparities and improved multimodal connectivity in underserved communities.
- Increased investments in small and disadvantaged businesses and underserved communities.

3.1.2 Caltrans Equity Statement (2020)

In 2020, Caltrans issued an *Equity Statement* acknowledging that communities of color and underserved communities experience fewer benefits and a greater share of negative impacts associated with the state's transportation system. They identify that some of these disparities reflect a history of transportation decision-making, policy, processes, planning, design, and construction that "quite literally put up barriers, divided communities, and amplified racial inequities, particularly in our Black and Brown neighborhoods (California Department of Transportation, 2020)." As a response, Caltrans has taken on a responsibility to eliminate barriers to provide more equitable transportation for all Californians. As part of the Race & Equity Action Plan (REAP), Caltrans has committed to the following:

- 1 **People** : Create a workforce at all levels that is representative of the communities Caltrans serves by improving recruitment, hiring, contracting, and leadership development policies and practices.
- 2 **Programs & Projects** : Engage communities most impacted by structural racism in the creation and implementation of the programs and projects that impact their daily lives by creating more transparent, inclusive, and ongoing consultation and collaboration processes. Commitments will be achieved through an engagement process where everyone is treated with dignity and justice. This includes the reform of programs, policies, and procedures based on this engagement to avoid harm to frontline and vulnerable communities. Projects that improve access for and provide meaningful benefits to underserved communities will be prioritized.
- 3 **Partnerships** : Leverage transportation investments to increase pathways to opportunity for minority-owned and disadvantaged business enterprises, and for individuals who face systemic barriers to employment.
- 4 **Planet** : Combat the climate crisis and its disproportionate impact on frontline and vulnerable communities — such as Black and Indigenous peoples, communities of color, the people experiencing homelessness, people with disabilities, and youth. The way Caltrans plans, designs, builds, and maintains their transportation

investments will be changed to create a more resilient system that more equitably distributes the benefits and burdens to the current and future generations of Californians.

3.1.3 Caltrans Equity Considerations for Toll Facilities (2021)

Caltrans presented its *Equity Considerations for Toll Facilities* in the October 2021 California Transportation Commission (CTC) Meeting. The accompanying presentation (California Department of Transportation, 2021) and memorandum (California Department of Transportation, 2021) articulate the need to address the disproportionate impacts tolls can have on low-income and underserved communities. Tolling's primary function is to manage congestion, improve travel time reliability, and reduce greenhouse gas emissions. Secondly, tolling generates revenue, which is the result of pricing strategies that could disproportionately impact drivers with low incomes. Caltrans emphasizes that equity must be an integral consideration in both the planning and implementation of toll facilities, in light of the fact that pricing strategies may disproportionately impact low-income drivers. Caltrans is collaborating with other agencies to determine how to maximize benefits to these communities and address historic or systemic inequities.

Key strategies adopted across agencies include requiring equity analyses for managed lane projects, developing assistance programs to subsidize tolling and transit access for low-income users, and enhancing community engagement to inform policy decisions. Potential strategies identified include free transponders, transit fare discount programs, and reinvesting excess revenues to target toll relief and improved transit access within tolled corridors. When determining the equity programs across communities, it is important to engage in community and stakeholder engagement and develop options based on community input and data.

These initiatives highlight the importance of moving from reactive mitigation of toll impacts to proactive promotion of equitable transportation outcomes. Equity-focused planning frameworks—such as those developed by the Metropolitan Transportation Commission (MTC) and embedded in the California Transportation Plan (CTP) 2050 and Climate Action Plan for Transportation Infrastructure (CAPTI)—emphasize data-driven analysis, cross-agency coordination, and accountability mechanisms. Together, these efforts form a foundation for integrating structural equity into toll policy and project delivery statewide.

3.2 REGIONAL-LEVEL APPROACHES

Key Takeaways

In addition to encouraging alignment with regional priorities and planning efforts, incorporating regional considerations into the creation of a project-specific equity approach will help foster collaboration with future CARTA members and ensure consistency across future connected corridors. Regional-level equity guidance includes:

- **SACOG's 2025 Blueprint Triple Bottom Line Policy Framework**, which puts promoting equity on equal footing by promoting the economy and encouraging environmental sustainability in transportation planning.
- SACOG's equity-focused goals include increasing accessibility to opportunities, evaluating and addressing disparities in crash rates in historically underserved communities, increasing transit service, and participatory planning.

- **SACOG's Mobility Zones Program**, which uses four goals to improve access, quality of life, feasibility, and equity to help prioritize projects in targeted communities. This program is **also** an excellent example of tying goals to a well-defined methodology to identify Equity Priority Communities for inclusion in the program.
- **MTC's Equity Platform (2023)**, which is another example of a regional equity approach in Northern California. It includes four high-level "pillars" and specific strategies to support the goals of those pillars. Unlike SACOG's pillars of Equity, Economy, and Environment, the MTC pillars are less organizationally tied to MTC strategies and stand more independently. MTC is also distinct in that its county transportation agencies have already implemented their own tolling equity platforms.

3.2.1 2025 Blueprint Triple Bottom Line Policy Framework (Sacramento, CA)

The 2025 Blueprint is the Greater Sacramento region's long-range transportation and land use plan currently under draft, which describes the goals, policies, and strategies for the future of the region. This plan aims at fostering a more inclusive future with a focus on a robust economy, a healthy environment, and diverse mobility options for all residents.

The plan is centered around the Triple Bottom Line (TBL) framework. TBL is a policy framework that expands the traditional focus on financial performance to include social and environmental impacts, and serves as a foundation for policy decisions at the regional level. It is based on three key components, or the three "E's": Equity, Economy, and Environment.

- **Equity** ensures a just and inclusive region where investments are made for and with historically marginalized communities.
- **Economy** promotes a diversified regional economy where all individuals have access to resources that enable them to realize their full potential, while capitalizing on key economic clusters such as agriculture, health sciences, and innovative mobility.
- **Environment** focuses on creating a safe and resilient region where natural resources and air quality are sustainably managed to ensure long-term prosperity for all residents (SACOG, 2024).

It is important to note that while there is a dedicated equity category, the Economy and Environmental categories also incorporate tenets that directly contribute to equitable outcomes. Table 3-1 identifies these in bold text.

Table 3-1: SACOG's 2025 Blueprint Three E's Effects (SACOG, 2024)

Equity	Economy	Environment
Develop strategies to make housing more affordable by offering housing options in areas with good access to jobs, schools, parks, and lower levels of pollution.	Adopt a "fix-it-first" approach to maintain and improve the transportation system.	Promote transportation and land use strategies that reduce car emissions by making it easier to access daily needs without relying on personal vehicles.
Evaluate the frequency and severity of automobile crashes in different communities, identifying disparities based on income, race, ethnicity, and whether the area is rural or urban. Address these disparities by investing in safety improvements in	Focus on infrastructure investments that support key economic sectors (Food and Agriculture, Health and Life Sciences, and Advanced Mobility).	Invest in infrastructure that makes the region more resilient to climate change, ensuring vulnerable communities are protected from climate-related disasters.

communities that have historically been neglected.		
Work with transit service providers to ensure that underserved communities have access to essential destinations (hospitals, schools, and job centers).	Identify investments in infrastructure and programs that connect lower-income residents to jobs and opportunities.	Support transportation and development projects that reduce harmful emissions contributing to health issues.
Engage with representatives from Black, Indigenous, Asian, Pacific Islander, Hispanic/Latino, and other communities of color, as well as rural, urban, and underserved communities, to help shape these strategies.	Enhance the region's natural and built assets to improve competitiveness and attract a talented workforce.	Invest in infrastructure that supports natural resources, conservation efforts, and the economic viability of working lands, while protecting natural habitats and recreational areas.

3.2.1.1 SACOG'S MOBILITY ZONES PROGRAM (SACRAMENTO, CA)

As part of the 2025 Blueprint Triple Bottom Line policy framework, SACOG established the Mobility Zones Program which creates a new model to define how regional transportation projects are prioritized for state and federal investment in the SACOG region. The Program enables historically underserved community members to design the clean, shared, and active mobility they need, thus embedding transportation inclusivity and equity in the decision-making process.

Figure 3-1 shows the four goals that helped the Mobility Zone designation, which include access, quality of life, feasibility, and equity. The Mobility Zones program aims to use a mix of qualitative (community and stakeholder feedback) and quantitative (data) evaluation criteria to guide decision-making at each stage (Steer, 2024).

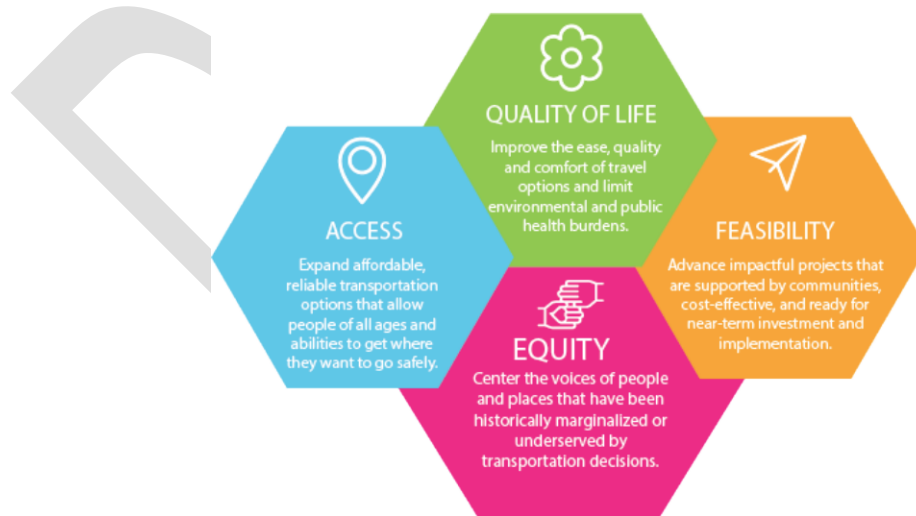


Figure 3-1: SACOG's Mobility Zones Program Goals (Steer, 2024)

The first phase of the program involves the definition of the Mobility Zones through the identification of equity priority communities (EPCs). The methodology for identifying EPCs is detailed in Section 5.1.2.MTC Equity Platform (2023).

3.2.1.2 MTC'S EQUITY PLATFORM (CONCORD, CA)

In January 2023, MTC adopted the *Equity Platform*, which is a commitment to meaningfully reverse disparities in transportation access and dismantle systemic exclusion. The goal is to advance equity through carefully considered investments and policies that can support historically underserved and systemically marginalized groups, including people with low incomes and communities of color. The *Equity Platform* supports flexible processes and offers a set of tools to utilize in the following ways:

- 1 **Strategic planning and investment:** Focus on frontline communities
- 2 **Community-driven design:** Tap the experience and expertise of local communities to illuminate all design phases
- 3 **Community engagement:** Invest resources and move at the speed of trust to ensure historically underrepresented communities can meaningfully influence decision-making
- 4 **Project delivery:** Complete promised projects that reflect community input
- 5 **Communications & marketing:** Set up regular, ongoing, varied and culturally specific communications to reach community members at their convenience
- 6 **Project evaluation:** Use evidence-based, data-driven research that values both lived experience and technical results

The *Equity Platform* identifies four key pillars :

- 1 **Listen & Learn :** MTC's public engagement program emphasizes listening to residents, advisory committees and local governments to identify challenges and deliver solutions.
- 2 **Define & Measure :** Using success metrics advances transparency and accountability, and new data will signal whether or not policies are succeeding.
- 3 **Focus & Deliver :** To advance equity, MTC works with partners across sectors such as health, social services, faith-based groups, and civic and community groups. MTC acknowledges that to solve the Bay Area's layered, multi-sector challenges, we must partner with experts in other fields.
- 4 **Train & Grow :** MTC's equity agenda requires "100% ownership throughout the agency," with ongoing training starting in two important areas:
 - a Methods to evaluate equity (including data collection, measurement and analysis)
 - b Ways to effectively communicate, build trusted relationships and partner with EPCs.

MTC has prioritized equity and accessibility, investing nearly \$300 million delivering projects that improve mobility for people with low incomes, seniors, and people with disabilities. Examples include transit and active transportation investments in EPCs, transit and toll discount programs for low-income users, senior micromobility solutions and community engagement partnerships and programs. These initiatives would not be possible without partnering with county transportation agencies, transit agencies, and human and social service providers to maximize the benefit of these programs. For more information on one of the local equity approaches undertaken by one of the county transportation agencies under MTC, see Section 3.3.2.

3.3 LOCAL-LEVEL APPROACHES

Key Takeaways

Aligning the development of a project-specific equity approach with other local or similar approaches ensures that the approach is internally consistent with other equity efforts within Yolo County, follows recognized best practices, incorporates lessons learned, and avoids demonstrated pitfalls.

- **YoloTD's Active Transportation Corridors Plan** centers objectives that can be organized into four overarching goals for a participatory planning process, including equity-centered planning, community engagement, data-driven methodologies, and integration with regional initiatives.
- **The San Mateo 101 Express Lanes Equity Study** similarly created goals and outcomes to guide pilot development, including executing a pilot program with a meaningful benefit; serving and being accountable to historically underserved communities; building in flexibility with a focus on the future; and supporting regional connectivity and transportation goals by focusing on replicability, encouraging mode shift, and improving safety.
- In an **interactive presentation and whiteboarding exercise**, CARTA members along with representatives from the Cities of Woodland and Davis identified several key themes for further exploration in the Yolo 80 Equity Framework, including Safety and Public Health, Community/Corridor Reinvestment, Regional Collaboration, User-Focused Pricing Strategies, Multimodal Accessibility, and Equitable Enforcement.

3.3.1 *Yolo Active Transportation Corridors Plan*

The Yolo Active Transportation Corridors Plan is a comprehensive initiative led by YoloTD, which is important to consider in the context of Yolo 80 as the other major effort being undertaken by the county that incorporates equity in the project planning process. This Plan is aimed at enhancing walking and biking infrastructure across Yolo County by developing a network of multi-use trails to improve mobility, particularly for equity priority communities.

The key objectives of the Plan are to:

- Improve safety by providing dedicated active transportation facilities
- Advance environmental sustainability and climate action by encouraging mode shift
- Enhance quality of life and equity by addressing transportation barriers facing isolate, low-income, and minority communities
- Promote state of good repair by reducing vehicle miles traveled (VMT) on existing roadways
- Boost economic competitiveness by increasing foot traffic to local businesses in incorporated areas and encouraging agritourism
- Advance regional vision for an interconnected trail network
- Design and engineer innovative trail technologies

3.3.1.1 **COMMUNITY ENGAGEMENT**

YoloTD emphasizes community involvement in the planning process. Residents are encouraged to participate through public meetings and interactive platforms to provide input on trail design and placement. This ensures that the Plan reflects community needs and preferences, particularly during the planning process.

3.3.1.2 IMPLEMENTATION STRATEGY

In addition to community outreach, the plan includes mapping equity priority areas, prioritizing disadvantaged areas for trail access, assessing the feasibility of electric bike/scooter charging stations, and developing conceptual design plans with cost estimates. Additionally, it aims to produce complete design and construction documents for priority trails. YoloTD has established equity-focused evaluation criteria to prioritize segments for implementation, as shown in Figure 3-2.

Table 1: List of Factors for YATC Intercommunity Connections Prioritization

Input Factor	Source / GIS Format	Range of Factor	Variable Score	Notes
Parallels a high-speed facility (posted speed)	County GIS /Staff	45+	100	
		30-35	50	
		0-25	0	
Bicycle/Pedestrian involved Fatal or serious injury collisions within corridor area (2018 – 2022)	UC Berkeley SafeTREC TIMS	2+ collisions	100	
		1 collision	50	
		0	0	
Schools, Libraries, Parks – within a community at each end of a path	CA Dept. of Education	6+ locations	100	Highest scores for connections between high factor and low factor values
		1-5	50	
		0	0	
Recreation Area/Open Space Area/Trailhead	Staff	yes	50	
		no	0	
Other destinations (community centers, grocery stores, social services, medical center) – within a community at each end of a path	Google and Staff	6+ locations	100	Highest scores for connections between high factor and low factor values
		1-5	50	
		0	0	
Population – persons living within catchment area of trail	Census	10,000+	100	
		2501-9,999	50	
		0-2500	0	
Transit Service – Fixed Route, Express Routes, or BeeLine service	YTD	One End	100	
		None	0	
Serves Disadvantaged Community Area	Caltrans EQI	Yes	50	
		No	0	
Connects to underserved housing outside of a CDP	Staff	Yes	100	
		No	0	
Total			0-700	

Figure 3-2: Yolo Active Transportation Corridors Plan Evaluation Criteria

3.3.1.3 REGIONAL ALIGNMENT

The Plan will advance the broader Parks and Trails Strategic Development Plan by SACOG. This regional plan envisions a dynamic, regional system of interconnected trails and parks across El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba counties. (YoloTD, 2025)

3.3.2 San Mateo 101 Express Lanes Equity Study (2021)

The San Mateo County Express Lanes Joint Powers Authority (SMCEL-JPA) developed a Pilot Equity Program in 2021 to help ensure equitable access to the US 101 Express Lanes and public transit services throughout San Mateo County and the San Francisco Bay Area.

The Pilot Equity Program was rooted in a Vision Statement and Desired Outcomes that were developed early in the planning process in consultation with community leaders, San Mateo County residents, and an Equity Study Advisory Committee, which consisted of planning and public works staff from cities along the 101 corridor, community organizations, and other key stakeholders. The early development of this approach served as a foundation for all subsequent steps, including alternatives development, technical evaluation, community outreach, and recommendations development.

3.3.2.1 VISION STATEMENT:

SMCEL-JPA's vision statement provides broad and strategic guidance for ongoing work:

"The Pilot Equity Program will be responsive to the transportation needs of historically underserved communities in San Mateo County and provide meaningful benefits to those communities. The Equity Study will prioritize program flexibility so that the Pilot Equity Program can be adaptive and evolve over time, in parallel with the phased implementation of the San Mateo 101 Express Lanes and in response to changing community needs"

3.3.2.2 DESIRED OUTCOMES:

The stated desired outcomes expand on the key themes expressed in the Vision, without going so far as to identify potential data sources or methodologies:

1. Develop an implementable Pilot Equity Program that is flexible and can adapt to changing needs and community feedback over time.
2. Identify equity strategies that are most beneficial to underserved communities who live near the lanes, as well as low-income travelers who are likely to utilize the Express Lanes.
3. Where possible, identify equity strategies that are replicable and could potentially be applied or expanded to other Express Lanes in the region.
4. Ensure communities who have had historically low involvement with planning decisions see their input broadly reflected in Equity Program design and implementation.
5. Encourage mode shift from single-occupancy vehicles to transit and other high-occupancy modes, especially within the Express Lanes.
6. Improve the safety and connectivity of the active transportation network in communities adjacent to the corridor.
7. Ensure the Pilot Equity Program supports the Express Lanes project benefits and goals, including improving mobility, travel time, and reliability. (San Mateo County Transportation Authority, 2021)

The Pilot Equity Program has continued through the implementation of a successful equity strategy, the Community Transportation Benefits Program. For more on this program, see Section 6.5.1.

3.4 EQUITY STUDY APPLICATIONS

The Project team drew from the Equity Approaches and Policies described above to conduct a Goals and Outcomes workshop with major Yolo 80 Stakeholders on Friday, March 21, 2025. The objectives of the workshop included:

- Engaging diverse stakeholders on the topic of equity for the Yolo 80 Managed Lanes;
- Educating attendees on peer agency equity approaches, frameworks, goals, and strategies;
- Documenting high-level impressions on potential Project goals, outcomes, and associated opportunities and challenges;
- Synthesizing discussion to develop draft Yolo 80 Equity Goals; and
- Informing subsequent data collection, literature review, map analysis, and engagement.

Attendees represented agencies and jurisdictions in and adjacent to Yolo County, including YoloTD, SACOG, Caltrans, and the Cities of Davis and Woodland.

Through a hybrid presentation and whiteboarding format, stakeholders used examples from the Literature Review as a basis to identify several key themes to consider for further development into Equity Goals and/or Desired Outcomes, including:

- **Safety & Public Health:** Support the safety and public health improvements to Yolo County communities by leveraging the congestion management capabilities of the Yolo 80 Managed Lanes
- **Community and Corridor Reinvestment:** Maximize opportunities to reinvest excess toll revenue into equitable initiatives while honoring funding commitments and working to achieve express lane project goals
- **Regional Collaboration:** Actively consult, cooperate with, and support our neighboring counties and regional partners in policy planning that supports equity strategies
- **User-Focused Pricing Strategies:** Develop equity strategies that reduce the cost differential of travel on the Yolo 80 Managed Lanes between corridor-adjacent users, shift/on-site commuters, and users who are less likely to require use of the corridor for essential trips
- **Multimodal Accessibility:** Commit to seeking opportunities to improve physical, operational, and technological infrastructure to increase equity priority community members' access to safer, more expansive transportation and pedestrian options
- **Equitable Enforcement:** Utilize effective enforcement strategies that support smooth express lanes operations while offering opportunities to learn for first-time violators who may be unaware of policies

These themes will serve as the foundation for major focus areas such as data analysis, continued stakeholder and public engagement, and the development and socialization of EEAs is undertaken over the course of Equity Framework development.

4 EQUITY FRAMEWORKS

An “**equity framework**” is distinct from an equity approach, particularly in the context of tolling policy and planning. A framework is a **structured, repeatable method** that translates the approach into **actionable steps**. A framework uses the following questions to do that:

- What decision-making criteria matter most when choosing or evaluating actions?
- What tools or processes will we use?
- What outcomes or application areas (e.g., pricing, outreach, access, toll revenue reinvestment) will we measure?

Overall, an equity framework can be considered a **practitioner’s toolkit to carry out YoloTD and CARTA’s equity goals in a consistent, measurable way**. So, while an approach might say “We aim to ensure historically underserved communities are not disproportionately burdened by tolling and have fair access to express lane benefits,” an equity framework might say “Following industry best practices, we will define equity priority communities using census and environmental data. We will measure toll access and reinvestment benefits using GIS and survey data. Equity performance will be monitored annually against specific performance measures.”

This literature review includes examples of frameworks with applicability to California tollway and congestion management projects. These frameworks were included specifically to ensure that goals development, analysis methodologies, and the exploratory equity actions that result from the Study are formulated from multiple, distinct professional and academic perspectives to reduce the possibility of blind spots. Two practitioner-focused frameworks were developed by TransForm, a California-based firm that focuses on equity in transportation, climate change, and housing projects. The first, a process and outcomes equity framework, highlights the need for considering equity in both the development of a project and in its ultimate outcomes on the communities affected. The second is a five-step roadmap that practitioners can use to integrate equity into the development of a tolling project. A study by David Ungemah in 2007 evaluates equity against five categories—geography, income, participation, opportunity, and modality—to encourage a holistic approach to incorporating equity into tolling projects. One especially academic example chosen for this literature review is the STEPS methodology, a framework designed at the University of California, Berkeley to examine the effects of congestion management strategies on equity using five different perspectives.

The following Key Takeaways from academic and practitioner frameworks provide the basis for a toolkit with specific actions needed to move forward with Yolo 80’s Analysis Framework.

Key Takeaways

Incorporating academic and practitioner frameworks into Yolo 80’s Equity Framework helps ensure that the framework is:

- **Holistic: Both TransForm and Ungemah’s equity framework** provide a holistic approach to equity in tolling projects by identifying processes, outcomes, and geographic data. These guiding frameworks help ensure that Yolo 80’s Equity Framework does not miss or underemphasize any key component of promoting equity in tolling.
- **Incorporating User Perspectives:** In contrast to TransForm and Ungemah’s frameworks, which present ideas from the perspective of the planner/policymaker, the University of California, Berkeley’s STEPS

methodology presents ideas from the user perspective. Taken together, the use these three frameworks allow for a level of complexity that incorporates perspectives concerning implementation, process, and user experience.

- **Structured:** TransForm’s five-step equity roadmap offers a standardized approach for applying its conceptual framework to road pricing equity studies. This Study can use TransForm’s roadmap as a basis model for evaluating equity strategies.

4.1 PRICING ROADS, ADVANCING EQUITY (TRANSFORM, 2019)

Pricing Roads, Advancing Equity serves as both a conceptual framework and a methodical guide for integrating equity into road pricing initiatives by proposing a dual approach to framing equity and a five-step equity roadmap. Both the equity lens and roadmap speak to the development of an Equity Framework, in addition to policy recommendations, and case studies which are not covered here.

Their dual approach to framing equity focuses on **process** and **outcome** equity:

- **Process equity** emphasizes the full participation of vulnerable communities in the planning and decision-making processes
- **Outcome equity** aims to ensure that road pricing strategies lead to tangible benefits in affordability, access to opportunity, and community health for disadvantaged populations

The five-step equity roadmap outlines a structured approach to integrating equity into road pricing initiatives:

- 1 **Identify** : Determine who is affected, what the impacts are, and where they occur
- 2 **Choose Equity Outcomes and Performance Indicators** : Define clear goals and metrics to assess equity impacts
- 3 **Determine Benefits and Burdens** : Analyze how different groups are advantaged and disadvantaged by the pricing strategy
- 4 **Devise Programs to Advance Equity** : Develop initiatives that mitigate negative impacts and advance positive outcomes for marginalized communities
- 5 **Provide Accountable Feedback and Evaluation** : Implement mechanisms for ongoing assessment and community feedback to ensure continuous improvement (TransForm, 2019)

4.2 THIS LAND IS YOUR LAND, THIS LAND IS MY LAND (UNGEMAH, 2007)

Ungemah’s work also serves as a conceptual framework and methodological guide by delineating specific equity dimensions and offering actionable recommendations. He identifies five critical equity dimensions related to toll and pricing projects:

- **Geographic Equity:** Distributing benefits and burdens logically across regions
- **Income Equity:** Minimizing negative effects on economically disadvantaged communities
- **Participation Equity:** Ensuring disadvantaged communities have a voice in decision-making proportional to the scale of impacts
- **Opportunity Equity:** Enabling better access to income-advancing opportunities

- **Modal Equity:** Balancing investments across transportation modes to avoid privileging single-occupancy vehicles over high-occupancy vehicles or transit

Addressing this equity lens holistically requires that planning processes include thorough geographic analysis, direct community engagement, toll system design that is flexible enough to enable discounts and exemptions, and reinvestment of toll revenue into community transportation improvements. (Ungemah, 2007)

Each of the dimensions laid out in Ungemah's lens can also be evaluated along the Process/Outcomes lens outlined by TransForm. For example, geographic equity considerations may be incorporated into both the planning process and the outcomes of a tolling equity strategy. Examining a tolling equity strategy using both frameworks helps ensure that any project-specific equity framework is holistic. Table 4-1 provides examples of different strategies that could be used to form a holistic framework.

Table 4-1: Example Holistic Equity Approach Matrix

	Process Equity	Outcomes Equity
Geographic Equity	Regional Tolling Equity Working Groups	Revenue Reinvestment in Impacted Areas
Income Equity	Low-Income Toll Advisory Committee	Low-Income Toll Discount Programs
Participation Equity	Multilingual and Community-Based Public Engagement	Equity Performance Monitoring Board
Opportunity Equity	Workforce Engagement	Essential Worker Toll Exemptions
Modal Equity	Integrated Transit & Tolling Planning	Toll Revenue for Bus Rapid Transit (BRT) Development

4.3 STEPS EQUITY FRAMEWORK (UNIVERSITY OF CALIFORNIA, BERKELEY)

The University of California, Berkeley's Social Equity Impacts of Congestion Management Strategies aims to understand the equity implications of congestion management strategies and provide insights into their potential benefits and drawbacks for different populations.

To examine how different strategies impact different equity dimensions, the study introduces the STEPS equity framework, which evaluates congestion management strategies against equity barriers in the following categories:

- **Spatial:** How the physical location of transportation infrastructure and services affects accessibility
- **Temporal:** How the timing and availability of transportation options affects individuals who may travel during off-peak times, such as shift workers, and may potentially limit their mobility

- **Economic:** How the direct or indirect costs of transportation strategies may create economic or travel barriers for different income groups
- **Physiological:** How an individual or community's physical abilities and health conditions influence transportation access
- **Social:** How social factors such as barriers, cultural differences, or lack of familiarity with technology, affect the use of transportation services

The study used these criteria to evaluate thirty congestion management strategies, organized under six broad groups:

- Pricing (e.g., congestion pricing, tolls)
- Parking and curb policies
- Operational strategies (e.g., traffic signal optimization)
- Infrastructure changes (e.g., road diets, transit-oriented development)
- Transportation services and strategies (e.g., shared mobility, telecommuting)
- Conventional taxation

The study found that the equity impacts of certain congestion management strategies are complex, often having conflicting effects on different populations. For example, while congestion pricing can improve air quality and transit reliability, it may also impose financial burdens on low-income commuters. It also recommends strategies like multiple income thresholds for means-based pricing programs to reduce financial burdens on low-income households, even though they use toll lanes less frequently than higher-income groups (University of California Institute of Transportation Studies, 2019).

Figure 4-1 demonstrates how the study utilized the methodology to examine a broad range of congestion management strategies. (University of California, Berkeley, 2017)

YOLO 80 MANAGED LANES

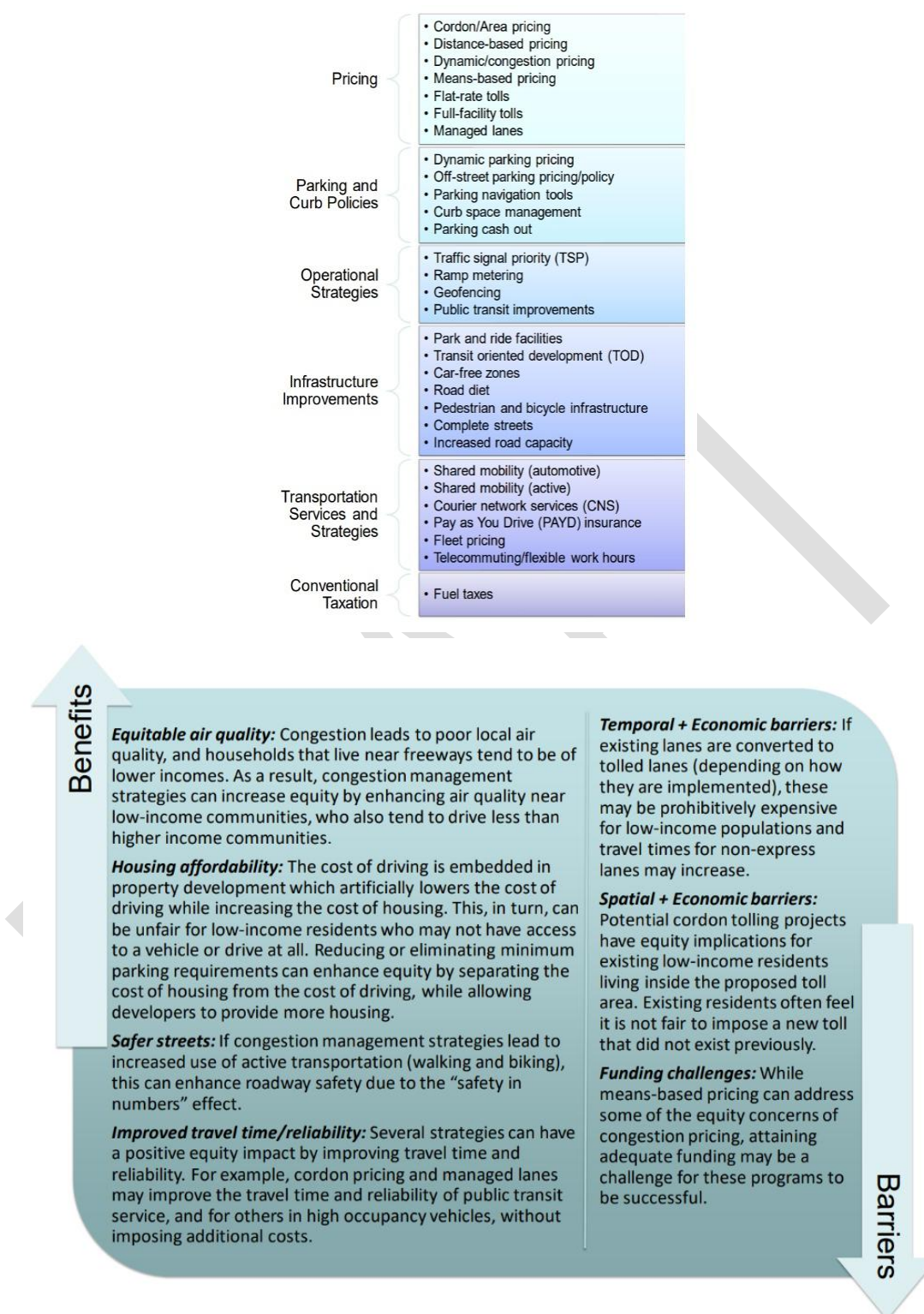


Figure 4-1: Inventory of Congestion Management Strategies and Benefits and Barriers of Congestion Management Strategies (University of California Institute of Transportation Studies, 2019)

4.4 EQUITY STUDY APPLICATIONS

Referencing these analytical approaches is critical to inform areas of focus for Project equity strategies because it provides structure and criteria to evaluate potential ideas and creates a process to identify whether the overall approach is holistic. Table 4-1 demonstrates how equity frameworks can be used to ensure that an overall project equity strategy is holistic. Following the Goals and Outcomes Workshop described in Section 3.4, Staff organized major takeaways using this matrix to identify blind spots in tolling equity considerations among major stakeholders. It was evident that:

- Participants focused much more on outcomes equity than process equity. Outcomes equity focuses on results of equity strategies, while process equity focuses on including equitable considerations in project development and implementation processes.
- Attendees focused more on geographic, income, opportunity, and modal equity than they did on participation equity. Participation equity is the concept that equity priority communities have a voice in decision-making and accountability. This may be explained by the fact that participation equity is highly coordinated with process equity, though participation equity can also be applied post-implementation through strategies like public accountability and oversight structures.
 - Throughout the workshop, there was a high focus on geographic equity. Geographic equity is the concept of distributing benefits and burdens logically across regions. This emphasis was expected since the purpose of the workshop was to include stakeholders from diverse geographical perspectives. However, it underscores the importance of the regional context in any equity planning undertaken by YoloTD.

These focuses and blind spots are critical to highlight as the Project moves forward with the equity plan. Among the Project's major stakeholders, a reduced focus on process equity and participation equity demonstrates a potential overfocus on outcomes. Proactively ensuring that community members and/or resources are actively engaged in the equity planning process prevents any potential toll equity strategies from being perceived as prescriptive. This increases public trust in the Project and the agencies supporting it and focuses potential strategies on those the public will most likely perceive as effective. Similarly, overly focusing on geographic equity may result in a plan that is too regionally focused at the expense of local priorities. Surfacing these considerations at the outset helps the equity plan development move forward in a holistic manner by ensuring that major focus areas are not categorically missed.

5 EQUITY ANALYSIS METHODOLOGIES

Data analysis methodologies are more detailed than equity frameworks, much in the same way that frameworks are more detailed than approaches. Methodologies are the **specific technical procedures and tools** used to implement the framework and answer concrete questions. They define:

- Data sources used
- Analytical units
- Statistical and GIS methods
- Thresholds and definitions
- Points of comparison e.g., communities and/or demographic groups to compare to evaluate impacts

Overall, frameworks identify **what the Project should do to address key equity questions and why**, while methodologies describe **how data is being used to identify or answer equity questions and evaluate methods of addressing them**. The following case studies provide examples of specific methodologies that can be used to inform methodologies relevant to this study.

Key Takeaways

Case studies provided the following best practices for data sources, analysis, and ongoing monitoring and evaluation:

- **GIS Analysis:** Studies such as those performed for Caltrans District 12's I-5 Managed Lanes Project Equity Study and SACOG's Mobility Zones create detailed qualitative stories about the needs of equity priority communities using available census and trip characteristic data. The methods to create these data stories assist the Project team in choosing how to analyze available data, where to focus further outreach and engagement, and where and how to prioritize investment.
- **Survey:** Georgia Department of Transportation's extensive survey brought forth the inequities that communities may experience as a result of the I-85 Express Lanes Extension, while also reinforcing that express lanes still provide value for users with low incomes. These survey methods can inform future engagement activities, from inspiring questions posed to CBOs in workshop settings to informing future survey development.
- **Monitoring and Evaluation:** Studies such as the Express Lanes START Preliminary Evaluation show how key performance indicators, from pilot enrollment rates to changes in the travel behaviors of participants, are critical to evaluate the effectiveness of potential programs from the perspective of both the administration of the program and the effectiveness of user outcomes.

5.1 GIS ANALYSIS

5.1.1 Caltrans District 12 (Orange County, CA)

Caltrans District 12 in its I-5 Managed Lanes Project Equity Study used geodemographic analysis as a key component to narrative building. It identified Equity Priority Communities as census tracts exhibiting higher concentrations of populations historically underserved or overburdened by transportation systems. Key indicators included:

- Households with low incomes
- Communities of color
- Primary mode of transportation to work
- Limited English proficiency
- Zero-vehicle households
- Rent-burdened households
- Exposure to auto-bicycle and auto-pedestrian crashes
- Proximity to emissions

Data sources included:

- US Census Bureau: American Community Survey 5-year estimates for demographic and socioeconomic data
- CalEnviroScreen 4.0: Environmental and health-related indicators
- Statewide Integrated Traffic Records System (SWITRS): Crash data

The analysis used GIS to identify patterns such as high transit reliance among low-income populations, limited car ownership, significant exposure to air quality risks, and several other community typologies which served to create narratives of equity needs. See Figure 5-1 for an example of this analysis. These insights, taken together with community input from two equity workshops, influenced recommendations to enhance transit access, make tolls more affordable, and reinvest revenues into community programs that address systemic inequities (Caltrans District 12, 2023).

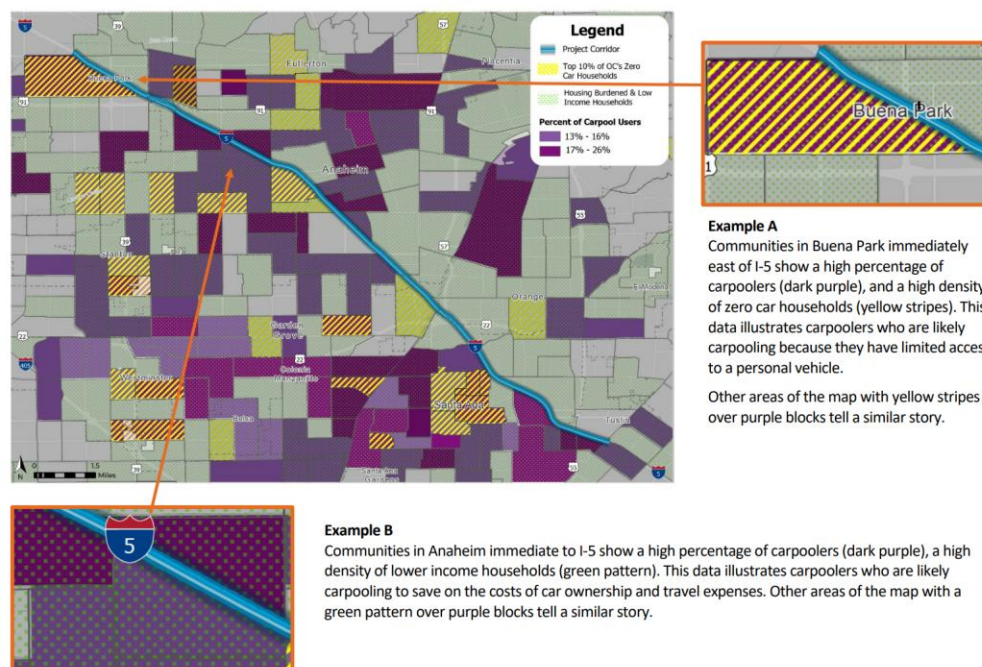


Figure 5-1: I-5 Managed Lanes Project Equity Study Example: Demographics of Carpoolers (Caltrans District 12, 2023)

5.1.2 Mobility Zones (November 2024 – Steer Memo) (Sacramento, CA)

As part of the Mobility Zones program, SACOG, in partnership with Civic Thread and Steer, developed a methodology for identifying EPCs. The EPCs serve as the foundation for identifying Mobility Zones, focusing on demographic characteristics and barriers to access and quality of life issues. The results were visualized and shared with the Community Committees and the Mobility Zones Task Force for approval. The methodology developed criteria for establishing Mobility Zone boundaries designed to:

- Address mobility gaps and needs through clean, active, and shared infrastructure projects from eight modal layers (High-Capacity Transit, Active Transportation, Micro Transit, Micromobility, Clean Car Share, Clean Truck & Freight, Clean Transit and Mobility Hubs)
- Be situated within disadvantaged communities or Department of Transportation (DOT)-designated areas of persistent poverty, and in areas with poor safety and health outcomes due to disparities in air quality, heat island effects, healthcare access, greenspace access, and environmental justice burdens
- Be in close proximity to housing and transit-supportive developments
- Ensure the availability of multimodal access and choice, and overall mobility
- Have the potential to support economic development and to support major regional initiatives, including pricing and tolling (SACOG, 2023)

The methodology uses ten criteria developed through research, data availability, and the project's Community Committee input. The data sources used for the evaluation include the American Community Survey 5-year data, the Center for Neighborhood Technology (CNT) Housing and Transportation (H+T) index, and CalEnviroScreen 4.0 for different geographies (census tracts and block groups). The criteria include:

- 1 Race and Ethnicity:** Percentage of non-white and/or Latino population.

- 2 **Low-Income:** Percentage of households with income below 200% of the Federal Poverty Level (FPL).
- 3 **Cost Burden:** Indexed value of housing and transportation cost burden.
- 4 **Pollution Burdens:** CalEnviroScreen percentile.
- 5 **Youth:** Percentage of population aged 17 and younger.
- 6 **Older Adults:** Percentage of population aged 65 and older.
- 7 **People with Disabilities:** Percentage of people with a disability.
- 8 **Linguistic Isolation:** Percentage of households with limited English proficiency.
- 9 **Lower Educational Attainment:** Percentage of adults with no high-school diploma.
- 10 **Tribal Areas:** Geographic guidance on Tribal Areas.

The identification of the EPCs followed a seven-step process:

Step 1 – Calculate Each Criterion: Compile data, calculate each criterion and summarize all criteria at the block group level geography.

Step 2 – Standardize Criteria: Standardization assigns a value of 100 to the highest scoring block group and 0 to the lowest. Block groups in each county are treated as distinct sets of data to which standardization is applied.

Step 3 – Assign Criteria Weights: Each county is assigned a total of 200 points to the criteria based on community input and public surveys.

EXAMPLE COUNTY WEIGHTS

Criteria	Weight
Race	40
Income	60
Cost Burden	28
Pollution Burdens	17
Youth	17
Older Adults	15
People with Disabilities	9
Linguistic Isolation	8
Educational Attainment	6

Diagram illustrating the assignment of weights to criteria. The table shows weights for various criteria. Brackets indicate that the top two criteria (Race and Income) are grouped together to total 100 points, and the remaining criteria (Cost Burden through Educational Attainment) are grouped together to total 100 points.

Figure 5-2: EPCs Criteria Weights Example

Step 4 – Score Block Groups: Composite scores for each block group are obtained from the sum of weighted criteria, normalized on a scale of 0-100.

Step 5 – Identify Home-Based EPCs: Top scoring block groups are selected to include 20% of the county's population.

Step 6 – Identify Destination-Based EPCs: Block groups with more than 4,000 daily trip destinations are selected based on Replica data.

Step 7 – Draft EPCs: Combine home-based and destination-based EPCs to form the final EPCs.

Ten Phase 1 Mobility Zones were selected across SACOG's six counties:

- Linda/Olivehurst (Yuba County)
- Brownsville (Yuba County)
- South Yuba City (Sutter County)

- North Auburn (Placer County)
- Woodland (Yolo County)
- Riverside/Bryte/Broderick (Yolo County)
- Georgetown/ Coloma/ Kelsey (El Dorado County)
- Florin (Sacramento County)
- Ben Ali/Swanston (Sacramento County)
- Rosemont/Western Rancho Cordova (Sacramento County) (SACOG, 2024)

5.2 SURVEY

5.2.1 *GDOT Programmatic Equity Program (Atlanta, GA)*

The Georgia Department of Transportation (GDOT), in collaboration with Georgia State University (GSU), conducted a comprehensive equity-focused research initiative from 2018-2022 which aimed to assess the impacts of the I-85 Express Lanes Extension on environmental justice (EJ) populations in Northeast Metro Atlanta. The primary goals were to:

- Determine whether the express lanes provided equitable commuting benefits across different demographic groups; and
- Identify any disproportionate burdens or benefits experiences by EJ populations due to the implementation of express lanes.

Researchers conducted four annual surveys over the 2018-2022 period, starting approximately one year before the express lanes opened in November 2018. Surveys targeted residents most likely to use the new express lanes for commuting and focused on those living near the corridor. The surveys collected data on commuting patterns, perceptions of express lanes, and demographic information with goals of answering the following questions:

- Are the benefits equitably distributed?
- Do the Express Lanes cause adverse impacts?
- If so, what is the best way to mitigate?

They also note that they are committed to an academically rigorous standard of research, with review and approval by the Institutional Review Board. To emphasize the importance of transparency with the public, they additionally committed to making survey results and related information publicly available on the State Road and Tollway Authority and GDOT websites.

Survey results demonstrated that there were no statistically significant differences by environmental justice target group status in either commute times, use of express lanes, or perceptions toward the express lanes, either across three open express lane facilities or across time for the annual survey. Additionally, opening the express lanes did not disadvantage target groups regarding commute times (Georgia Department of Transportation, 2023).

5.3 MONITORING AND EVALUATION

5.3.1 Express Lanes START Preliminary Evaluation Targets (2022) (Concord, CA)

The *Express Lanes START* Pilot offers a 50% toll discount to households earning at or below 200% of the FPL. Applicants needed to provide proof of income, identity, a Bay Area mailing address, and possess a FasTrak® account.

The *Express Lanes STARTSM: 12-Month Pilot Evaluation*, presented by MTC in October 2024, provides a comprehensive example of performance monitoring in action. This evaluation utilized key performance indicators (KPIs) to measure pilot program successes and challenges. Metrics included application and enrollment targets, express lane usage, customer satisfaction, and operational efficiency. While some goals, such as enrolling 13,500 households, were not achieved, several positive outcomes were documented:

- Existing FasTrak® customers increased express lane usage by 25%.
- New FasTrak® customers made at least one express lane trip per month.
- Pilot participants' racial and ethnic demographics aligned with I-880 Corridor residents.
- Customers rated the application process highly for ease of use.
- Operating costs were kept below \$500 per enrollee.

The evaluation also identified lessons, including the need to address barriers related to FasTrak® enrollment and to consider the unexpected benefit of participants' lower violation rates post-pilot. These insights informed recommendations for refining the Express Lanes START and related programs like Clipper START and future pilots on State Route 37 (Metropolitan Transportation Commission, 2024).

5.3.2 RiverLink Tolling Mitigation Plan (Louisville, KY & Southern Indiana)

RiverLink, the bi-state tolling system for the Louisville-Southern Indiana Ohio River Bridges Project (LSIORB) operated by the Indiana Department of Transportation (INDOT) and Kentucky Transportation Cabinet (KYTC) Joint Board, adopted its *Tolling Mitigation Plan* (TMP) in May 2016.

As part of the TMP, RiverLink established adjusted gross incomes less than \$40,000 as the low-income level for the EJ assessment, which encompasses 27 zip codes in ten counties. Currently, RiverLink assesses transponder usage by members of EJ communities annually, provides free transponders to users, exempts transit buses from tolls, provides capital funding for transit, and determines strategies and recommendations that serve to meet the TMP objectives. Recent measures include \$20 million of funding for transit capital purchases and transit marketing efforts focused on low income populations, formation of a traffic advisory group including members of disadvantaged communities, reduction of pre-fund account cost to \$20, installing wayfinding signage to non-tolled alternative routes and increasing accessibility to free transponders.

RiverLink quantitatively analyzed two direct toll relief strategies, including (i) a one-time transponder account credit program and (ii) an ongoing percentage toll rate discount program. Other toll relief strategies that were qualitatively assessed include area-based enrollment and an ongoing state tax credit program. The findings of the TMP are collectively presented in the following three studies:

- Administrative Cost Estimates of Implementing a Toll Mitigation Program for Low Income Customers (December 2014)
- Toll Discount Analysis (November 2014)

- Assessment of Economic Effects of Tolling and Strategies for Mitigating Effects of Tolling on Environmental Justice Populations (April 2015)

At the time, RiverLink determined that the two toll relief strategies, while potentially providing some mitigative effect for EJ drivers using the tolled facilities, would involve significant capital and operating costs and pose substantial technical, logistical and enforcement challenges. The modest benefit of these programs was projected to not adequately offset the anticipated costs and challenges and, therefore, the alternatives were deemed not practical. However, as part of the TMP, these direct toll relief strategies are evaluated on an annual basis and subject to consideration for implementation if it is determined that the quantified benefit would be effective. More details on these challenges are shown below.

5.3.2.1 FINANCIAL

For RiverLink's toll relief program in Kentucky and Indiana, administrative costs and revenue impacts vary significantly between program designs. A one-time transponder account credit has lower administrative costs but poses a higher risk of eligibility errors due to limited verification, potentially allowing ineligible users to receive discounts and reducing toll revenue. In contrast, an ongoing percentage toll discount requires more rigorous, systematic eligibility verification and customer support, leading to higher administrative and operational costs. However, this approach offers stronger controls, reducing the risk of revenue loss from misuse and ensuring program integrity. The total capital delivery and annual operating costs for both scenarios are presented in Table 5-1 below.

Table 5-1: RiverLink Toll Relief Program Cost Estimates

Scenario	Capital Cost Estimate	Annual O&M Estimate
One-Time Transponder Account Credit Program	\$1,710,000	\$490,000
Ongoing Percentage Toll Rate Discount Program	\$2,520,000	\$740,000

5.3.2.2 ADMINISTRATIVE

Income-eligibility programs lack standardization nationwide, with significant variation in policies and verification practices across jurisdictions, as noted in federal audits. This inconsistency poses administrative challenges for toll relief programs, which operates across both Kentucky and Indiana. Each state may have different eligibility criteria and income verification processes, requiring careful coordination to ensure a consistent and equitable program. These differences increase the complexity and administrative burden of implementing a joint toll relief initiative for the LSIORB.

5.3.2.3 LEGAL

Toll discount programs in other jurisdictions have been subject to litigation challenges where in some cases, the lawsuits have taken years to resolve. Implementing a toll discount program may involve litigation costs to defend the program, particularly due differences between Indiana and Kentucky statutes.

5.3.2.4 ENFORCEMENT

For RiverLink's ongoing toll discount program in Kentucky and Indiana, high volumes of toll disputes or violation challenges from income-eligible customers could significantly increase operational complexity and costs. Verifying eligibility across multiple agencies before issuing invoices or enforcement notices would require additional workflows and quality assurance, delaying collections and enforcement actions. These delays could reduce the

timely transfer of toll revenue to state trustees and impact overall program efficiency. While the approach aims to protect eligible users, it introduces administrative burdens that must be carefully managed.

5.3.2.5 DATA SECURITY

Implementing RiverLink's toll mitigation program in Kentucky and Indiana would require strict safeguards for handling sensitive income and personal data. Any data breach could lead to serious financial and reputational consequences. Program staff may need specialized training, and secure, standalone IT systems may be necessary, particularly if state tax credit data like FEITC is shared with the toll service provider. Ensuring compliance with IRS and other applicable data protection standards could require additional staff and increased investment in data security infrastructure.

The modest benefit of these programs was projected to not adequately offset the anticipated costs and challenges and, therefore, the alternatives were deemed not practical – particularly due to the complexities of serving users residing in two states. However, as part of the TMP, these direct toll relief strategies are evaluated on an annual basis and subject to consideration for implementation if it is determined that the quantified benefit would be effective.

5.4 EQUITY STUDY APPLICATIONS

GIS methodologies described in Section 5.1 have directly influenced the data analysis performed for neighborhoods in Yolo, Solano, and Sacramento counties as part of the equity task for this Project. The EPCs identified for Yolo 80, and the related narratives informed by their distinct demographic stories will form a basis of understanding for communities affected by the project, identify communities and tailored strategies for targeted outreach, and influence the strategies under consideration for the Project's EEAs. A detailed description of the mapping methodology and results for this project will be described in a separate memo.

Survey and Evaluation methodologies described in Sections 5.2 and 5.3 provide examples for strategies currently being considered for implementation as part of concurrent development of the Project's Engagement Framework and Equity Study Framework. They may also be used as a basis for EEAs to potentially be employed in the future.

6 STRATEGY TYPES

Peer agency case studies represent a roll-up of the concepts introduced in all previous sections because they **demonstrate how these concepts have been applied in real-world settings**. Case studies highlight barriers faced by agencies with similar constraints to inform Yolo 80's eventual Equity Framework, particularly the equity strategy menu described by the EEAs, and provide important proofs to decision-makers. It is important to acknowledge that most information on existing case studies has been made available from the projects themselves, which can raise questions of bias towards the favorable results of each strategy. However, the project team was able to find neutrality by focusing on each project's stated goal(s), the details of the strategies used to reach said goal(s), and where possible, how that strategy performed in service to that goal at a high level.

6.1 FINANCIAL ASSISTANCE PROGRAMS AND INCOME-BASED TOLLING

Key Takeaways

- Programs such as **MTC's Express Lanes START pilot** and **Treasure Island Mobility Management Agency's (TIMMA) Toll Program** demonstrate that income-based and discount programs are popular and effective from the user perspective, particularly when qualification for the program is easily understandable and inclusive. However, such programs may result in significant decreases in revenue which may need to be offset by other policy decisions.
- **Virginia Department of Transportation's (VDOT) Toll Relief Program** provides an example of a tiered program that provides distinct levels of discounts depending on different geographical and income brackets. It also provides an example of phased implementation – this public-private partnership with Elizabeth River Crossings (ERC) is expected to see significant increases in enrollment due to the program's expansion to a larger geographic area and an increased income ceiling for eligibility as of 2023.
- **Los Angeles County Metropolitan Transportation Authority's (LA Metro) Express Lanes Low-Income Assistance Plan** is an example of a non-toll discount-based assistance program which focuses on removing the additional economic burdens associated with purchasing and maintaining accounts for transponders. LA Metro embeds this strategy within a broader equity strategy focused on increasing access to cash loading, inclusive communication, and equitable violation policies.
- **TIMMA's Toll Program** demonstrates an example of a program that is highly focused on including financial assistance equity strategies, such as business and worker subsidies, income-based toll discounts, and exemptions, with a commitment to financial sustainability and reinvestment into transit initiatives.

6.1.1 MTC Express Lanes START (Concord, CA)

In April 2023, MTC's Bay Area Infrastructure Financing Authority (BAIFA) introduced the Express Lanes START Toll Discount Pilot as part of its Operations Equity Initiatives, aimed to help travelers of low-income households use the I-880 Express Lanes in Alameda County. The 18-month pilot program provided toll discounts to enrolled participants, which were applied directly to participants' FasTrak accounts. The discounts varied based on vehicle occupancy and type. Table 5 shows the toll discount structure of the START program compared to standard express lane toll rates.

Table 6-1: Express Lanes START Toll Discounts

I-880 Express Lanes Toll Rate	Driving Alone	2-Person Carpool (HOV2)	Eligible Clean Air Vehicle (CAV)	3-or-more-Person Carpool (HOV3+)
Standard	Full toll	50% off	50% off	No toll
Express Lanes START	50% off	75% off	75% off	No toll

Eligibility for the Express Lanes START program reflected that of the Clipper START program¹, targeting adults with household incomes at or below 200% of the FPL. The pilot program used a targeted outreach strategy, focusing efforts on areas with high densities of low-income populations, individuals with limited English proficiency, and Black/African American communities in East Oakland. Outreach initiatives included multilingual advertising in geo-targeted hub locations, supported by CBOs (Metropolitan Transportation Commission, 2024).

The 12-month evaluation of the pilot indicated that the toll discount improved access for the targeted groups to the I-880 Express Lanes. Participants reported positive experiences with registration and lane usage. The operational performance of the express lanes remained unaffected, and operational costs stayed within the expected range. However, the evaluation highlighted the complexities of means-based tolling and provided valuable insights for future toll discount programs. For instance, the pilot saw lower enrollment numbers than initially targeted. This could be attributed to several factors, including a limited willingness to pay a toll instead of using the free general-purpose lanes. Even with the discount, low-income users might be less inclined to pay the toll, or their perceived value of time might be lower than the toll cost. Additionally, the income eligibility threshold (set at or below the FPL) may not have attracted enough participants interested in paying for express lane access.

Another factor was the requirement for a FasTrak account to receive the discount, with most approved applicants already being FasTrak users. Non-enrollees might have lacked understanding of the FasTrak system or might have a fear of incurring unexpected charges. The START pilot evaluation offered several recommendations to address these obstacles for potential program extension. These included expanding the eligibility income threshold to broaden access to the toll discount and engaging in regional efforts to educate and encourage the use of FasTrak and toll facilities (Metropolitan Transportation Commission, 2024).

¹ Clipper START is a fare-discount pilot program for riders with lower incomes. The pilot program offers a 50% single-ride fare discount.

6.1.2 Virginia Department of Transportation (VDOT) Toll Relief Program (Hampton Roads, VA)

Elizabeth River Crossings (ERC), the private operator for the Elizabeth River Tunnels public-private partnership in the Hampton Roads region of Virginia, collaborated with VDOT to implement the VDOT *Toll Relief Program* which was launched in December 2016. The Toll Relief Program follows a two-tiered toll discount system depending on municipal residency and income level. All participants must have a Virginia E-ZPass account and drive a 2-axle passenger vehicle. The detailed requirements for each tier are as follows:

1 100% Discount for up to 14 trips per week

- a *Residency:* Portsmouth, Norfolk, Hampton, Newport News or Franklin
- b *Income Level:* Individual income less than \$50,000

2 50% Discount for up to 14 trips per week

- a *Residency:* Portsmouth, Norfolk, Hampton, Newport News, Franklin, Chesapeake, Gloucester County, Isle of Wight County, James City County, Poquoson, Suffolk, Virginia Beach, Williamsburg, York County, Surry County or Southampton County
- b *Income Level:* Individual income less than \$65,000

In November 2021, ERC reached an agreement with VDOT to increase annual funding of the *Toll Relief Program* from \$500,000 to \$3.2 million annually through 2037, with an annual increase of 3.5% to fund toll relief and manage back-office support. VDOT covers all other distribution costs of the program, which are estimated between \$60,000 and \$75,000 per year, including marketing distribution via free media and DriveERT, and mailing reminder postcards and e-mails to current users for re-enrollment.

As of 2023, approximately 11,580 users were enrolled, with that figure being expected to be significantly higher in future years given the recent eligibility expansion to the entire Hampton Roads Transportation Planning Organization, as compared to being restricted only to residents of Norfolk and Portsmouth jurisdictions previously, as well as raising the income threshold of \$50,000 in annual income to \$65,000.

6.1.3 Los Angeles County Metropolitan Transportation Authority (LA Metro) Express Lanes Low-Income Assistance Plan (Los Angeles, CA)

Los Angeles County Metropolitan Transportation Authority (LA Metro) is the state agency that plans, operates, and coordinates funding for transportation systems in Los Angeles County, including Los Angeles' express lanes. When authorizing Los Angeles's express lanes, the California state legislature required LA Metro to conduct a study of potential impacts on low-income users from dynamic tolling and to implement a low-income program to distribute the benefits of express lanes.

The study "Metro ExpressLanes Project: Low-Income Assessment," developed in 2010, recommended that LA Metro implement policies to credit low-income users for all transponder fees, lower minimum FasTrak account balances for cash accounts, ensure the broad availability of neighborhood-based locations to buy and recharge transponders, and provide toll credits to bus riders on express lanes corridors. Eligibility to the LA Metro's Low-Income Assistance Program requires (i) proof of Los Angeles County residency, (ii) proof of income below 200% of the FPL for either individuals or households which is verified by either check stub/ tax return or receipt of federal or state assistance from other government programs, such as public benefit, MediCal, Lifeline Los Angeles Unified School District Lunch Recipient and Electronic Benefit Transfer (EBT), and (iii) a FasTrak account. Enrollment in the Low-Income Assistance Program requires in-person visits to Metro ExpressLanes Service Centers on a rolling basis. Benefits as part of the Low-Income Assistance Program include the following:

- One-time \$25 transponder credit

- Waiver of \$1 monthly account maintenance fee

Other accessibility measures include:

- Expanding cash-loading of transponders from service centers or through any 7-Eleven storefront for \$1.99 which can be located by a system called PayNearMe
- Program documents published in English, Spanish, and Mandarin
- Conducting a signage educational plan explaining express lane jargon such as high occupancy vehicle (HOV) restrictions and discounts
- Reducing penalty for toll violation from \$25 to \$4

LA Metro's back-office support and customer service center operations vendor absorbs the cost of these programs. As of 2022, approximately 3% of LA Metro FasTrak accounts are enrolled in the Low-Income Assistance Program, corresponding to approximately 25,000 accounts.

6.1.4 Treasure Island Mobility Management Agency (TIMMA) Toll Program (San Francisco, CA)

TIMMA has proposed a Base Toll Policy to help manage congestion and fund transportation improvements on Treasure Island. This initiative is part of the broader Treasure Island Transportation Implementation Plan, which has a goal of having at least 50% of peak period trips made via transit and that the transportation system remains financially sustainable.

In addition to the Base Toll Policy, TIMMA has incorporated several equity-focused measures into its Affordability Program to mitigate potentially adverse effects of tolling on Treasure Island communities, including:

- **Resident Exemptions:** The first component of the Affordability Program, adopted in 2019, exempts current residents from paying the toll. Financial analysis at the time estimated that the toll exemption would require additional revenues of up to \$3 million per year over a 15- to 20-year program buildout period.
- **Transportation Access Improvements:** The second component, adopted in 2021, establishes a multi-operator transit pass design framework, and recommends that the pass be available at a discounted price for optional purchase by residents of below market-rate units and by eligible Treasure Island workers.
- **Business and Worker Subsidies:** The third component, also adopted in 2021, establishes an affordability program for existing businesses and their employees, particularly targeting non-profit organizations and food service establishments.
 - Employers received quarterly financial assistance based on the number of employees
 - Subsidies can be applied to FasTrak toll accounts or distributed as cash payments
 - Remaining funds may be used to assist with toll expenses for deliveries, vendors, visitors, and customers
 - The subsidy program will undergo assessment after 12 months to make necessary adjustments in collaboration with participating employers
- **Means-Based Discounts:** The Toll Policy includes provisions for income-based discounts, but specific discount rates are not detailed in available information.

Over a projected five-year period, the tolling and affordability initiatives are expected to generate approximately \$33.1 million in revenue, with an estimated \$17.7 million allocated to additional program operating costs. These

funds will support the expansion and maintenance of transit services, infrastructure improvements, and ongoing equity programs (Treasure Island Mobility Management Agency, 2021).

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6.2 INCENTIVES

Key Takeaways

- **LA Metro's Metro Express Lanes Transit Rewards Program** provides toll credits for frequent public transit usage, serving a dual purpose of providing an auto mode benefit for frequent transit users who are more likely to have low incomes and generally incentivizing more frequent transit usage to help alleviate congestion. Since YoloTD is primarily a public transportation services provider, this type of strategy integrates tolling while supporting its existing organizational purpose.

6.2.1 LA Metro's Metro ExpressLanes Transit Rewards Program (Los Angeles, CA)

LA Metro has deployed the LA Metro Transit Rewards program, an innovative initiative designed to incentivize regular transit use by offering toll credits for the I-10 and I-110 Metro ExpressLanes. All customers who complete 16 one-way trips during peak hours on eligible transit lines that operate on the I-10 El Monte Busway or I-110 Harbor Transitway can earn a \$5 toll credit on the I-10 and I-110 Metro ExpressLanes. Eligible transit lines include routes from LA Metro Bus, Los Angeles Department of Transportation (LADOT) Commuter Express, Foothill Transit, Gardena Transit, and Torrance Transit. To qualify, riders must register their Transit Access Pass (TAP) Card and link it to a Metro ExpressLanes FasTrak account. It is important to note that credits are non-transferable and expire after 90 days.

This program uniquely bridges public transit and toll road systems, encouraging commuters to opt for transit options that alleviate congestion, increase affordability, and reduce environmental impact. By rewarding consistent transit use, the Transit Rewards Program especially benefits low-income and transit-dependent riders who frequently commute along the I-10 and I-110 corridors—many of whom reside in Equity Focus Communities (EFCs). These toll credits can help reduce the financial burden for households that need occasional access to ExpressLanes while primarily relying on public transit. By aligning transportation incentives with equity goals, LA Metro ensures that the benefits of tolling are directed toward those who need them most, promoting inclusive mobility and access across the region. With increased transit use, LA Metro aims to promote sustainable commuting habits and enhance the overall efficiency of the transportation network. The Transit Rewards Program stands as a pioneering effort in integrating equitable transit incentives with toll infrastructure.

6.3 MOBILITY AND ACCESS

Key Takeaways

- **The Metropolitan Atlanta Rapid Transit Authority's Major Mobility Investment Program** seeks to encourage the improvement and incentivization to use bus transit networks around Atlanta by directly incorporating the implementation of express lanes with the planned improvement of transit services. This emphasizes the need for comprehensive planning methods to ensure that surface transportation system and transit improvements are not siloed and take advantage of synergies.
- **LA Metro's Mobility Wallet Program** utilizes express lane revenues to directly fund multimodal transportation options for Los Angeles residents with low incomes. Since these prepaid debits are

restricted to transportation uses only, participants have maximum flexibility for their transportation choices, empowering them to pursue the transportation choices that are right for their needs.

6.3.1 MARTA Express Lanes Transit Study (Atlanta, GA)

The Metropolitan Atlanta Rapid Transit Authority (MARTA) is currently conducting a study to improve connectivity in the Atlanta region through the I-285 Express Lanes project as part of GDOT's Major Mobility Investment Program (MMIP). This project involves the addition of two new, barrier-separated express lanes in both directions along the northern portion of I-285.

This initiative is being advanced in conjunction with MARTA's planning study to optimize transit connectivity along 33.5 miles between the H.E. Holmes MARTA station and the Indian Creek MARTA station (MARTA, 2025). The express lanes will be added alongside the existing general-purpose lanes, providing a dedicated space for faster and more reliable transit services. The project aims to develop a comprehensive plan and preliminary designs for sustainable transit services along the I-285 corridor. This includes utilizing the express lanes to serve communities and major employment centers, enhancing regional connectivity and improving the reliability of transit travel times. As of early 2025, the proposed I-285 Express Lanes Transit Study has assessed the existing conditions, refined the preliminary service plan, estimated service demand, and identified funding options. The official public comment is open through May 2025. Feedback will be key to maximizing the benefits of the express lanes, designing routes that connect the region and multiple transit operations, and providing more transit options to underserved areas and additional destinations.

6.3.2 LA Metro's Mobility Wallet (Los Angeles, CA)

The LA Metro, in partnership with the LADOT, manages the Mobility Wallet program as part of the Universal Basic Mobility (UBM) initiative. This program aims to address transportation barriers faced by low-income residents by providing financial subsidies for various transportation services. The Mobility Wallet program provides eligible participants with a prepaid debit card loaded with funds that can be used for a wide range of transportation services, including public transit, rideshare, micro-mobility options (such as e-scooters and bikes), taxis, and purchases at bike shops. The goal is to promote transportation equity, reduce emissions, and improve economic and health outcomes for participants (Metro, 2025).

Participants in the Mobility Wallet program receive up to \$1,800 over 12 months to spend on transportation services. The funds are distributed via physical or virtual prepaid cards. The program targets low-income residents who meet the eligibility criteria based on Metro's LIFE (Low Income Fare is Easy) program. Phase II of the program expanded the reach to 2,000 participants across Los Angeles County, including 1,000 new participants from the South LA pilot zone and an additional 1,000 from other areas in the county.

Phase I of the Mobility Wallet program, which ran from May 2023 to April 2024, provided 1,000 low-income residents with \$150 per month for transportation needs. Participants reported positive feedback, noting the program's flexibility and its impact on their ability to access work, school, medical appointments, and other essential services. Phase II, which began in Spring 2025, aims to build on this success by doubling the number of participants and expanding the geographic reach (LADOT, 2024).

The program has faced some technical challenges, such as delays in the distribution and activation of cards, but efforts are ongoing to resolve these issues and ensure smooth implementation. Overall, the Mobility Wallet program is seen as a significant step towards achieving transportation equity and improving the quality of life for low-income residents in Los Angeles County.

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6.4 COMMUNITY ENGAGEMENT AND PARTICIPATION

Key Takeaways

- **Central 70 Globeville and Elyria Swansea Toll Equity Program and Orange County's I-5 Project Equity Study** demonstrate how different levels of ongoing community engagement and accountability commitments can accomplish similar participatory planning goals. Both examples allowed community members to provide feedback on equity programs, eligibility requirements, and toll revenue investments as well as opportunities for staff to follow up with community members to report on progress. The extent to which each study did so demonstrates some flexibility in the time and resources committed.
- **TIMMA's Toll Program** takes community engagement one step further by demonstrating how community feedback can be incorporated into funding pursuits and grant processes. TIMMA demonstrates a direct throughline from developing learnings from engagement to funding and implementing equity strategies.

6.4.1 Central 70 Globeville and Elyria Swansea (GES) Toll Equity Program (Denver, CO)

The Central 70 Globeville and Elyria Swansea (GES) Toll Equity Program in Colorado was developed in response to the disproportionate impacts of the I-70 expansion on the GES neighborhoods, which are predominantly low income and minority communities. The Program took a community-centered approach to program planning which included the following examples of process equity:

- Established a steering committee comprised of GES residents, local stakeholders, and representatives from peer agencies.
- Delivered an empowering community engagement process that allowed advanced opportunity for feedback on equity program eligibility, program preferences, and community vote on how net revenue is allocated after year 1.
- Clearly validated input from the first public meeting by adjusting their approach to the second public meeting based on decisions the community wanted to be more involved in.
- Shortlisted three equity program concepts to share with the community with the option to combine different concepts, including the idea to partner with local transit agencies to subsidize transit passes.
- Developed inclusive eligibility criteria with users qualifying by having incomes lower than 100% of area median income, or individuals displaced by the I-70 project through eminent domain.
- Made a public commitment to invest a specific percentage (15%) of net toll revenue averaged over a ten-year period to fund benefits for eligible residents. The distribution of these funds between toll credits and transit passes was determined based on direct input from GES residents.
- Incorporated mechanisms for continuous community feedback, allowing for adjustments based on user experiences and suggestions. For example, in 2026 the income eligibility threshold was adjusted to better align with community needs, and vehicle registration requirements were modified to increase accessibility.
- Clearly estimated gross and net revenue and expenses over foreseeable years and visualized the data for layperson understanding (Colorado Department of Transportation, 2024).

6.4.2 I-5 Managed Lanes Project Equity Study (Orange County, CA)

The I-5 Managed Lanes Project Equity Study's outreach process is a good example of how workshops can be designed to prioritize transparency, accessibility, and inclusivity while addressing community concerns.

The study included two community workshops aimed at engaging stakeholders in discussions about equity goals, data analysis, and proposed Exploratory Equity Actions (EEAs):

- The first workshop introduced the project's business case, equity goals, and initial findings, while ensuring that the importance of transparency was demonstrated to attendees, particularly concerning revenue use. This session allowed participants to voice concerns and learn how equity considerations were being integrated into the project.
- The second workshop allowed project staff to present refined equity maps and detailed potential EEAs for discussion. Participants were given opportunities to prioritize proposed actions and provide additional feedback so they could see evidence of their input directly influencing project decisions. To reduce barriers to participation, these workshops employed strategies such as hosting sessions in accessible venues, creating child-friendly environments, and providing multilingual materials.

The feedback collected during these workshops shaped the EEAs and reinforced the project's early goal of engaging communities early in the planning process (Caltrans District 12, 2023).

6.4.3 TIMMA Toll Program (San Francisco, CA)

In addition to the lessons learned described in Section 6.1.4, the TIMMA Toll Program also offers valuable lessons in participatory planning methods. As part of a community planning process, TIMMA undertook a multi-year process in two phases:

- **Treasure Island Supplemental Transportation Study (2023):** TIMMA undertook this supplemental study using District 6 Neighborhood Transportation Improvement Program funds to identify supplemental transportation services to meet the needs of existing Treasure Island residents, in addition to those identified through the Base Toll Policy and Affordability Program described in Section 6.1.4. TIMMA partnered with non-profit organization One Treasure Island to conduct outreach that included a workgroup, needs assessment survey, and focus groups to provide feedback on potential transportation options. The work group was comprised of Treasure Island residents who met virtually eight times over the course of one year. Potential strategies were evaluated with the workgroup according to five project objectives: connectivity, safety, community, affordability, and action. Five priority actions were shortlisted from an initial proposed seventeen based on community input and technical evaluation:
 - **Community Ambassador Program** to welcome new residents and businesses and host community transportation trainings
 - **Improved Bus Shelters** to increase safety at and around bus stops
 - **Off-Island MicroTransit Service** with service between Treasure Island and San Francisco
 - **Expanded Muni Service** to provide one-seat rides to more destinations in San Francisco
 - **More Marketing and/or Communications** about existing and upcoming transportation services and programs (San Francisco County Transportation Authority, 2023)

- **Community Change Grant for Treasure Island Connects (2024):** TIMMA utilized the Treasure Island Supplemental Transportation Study to successfully apply for a \$20 million Community Change Grant from the U.S. Environmental Protection Agency. This funding is planned to operationalize many of the priority actions identified in the Study, including:
 - **Micro-transit pilot service** to San Francisco
 - **Free on-island shuttle**
 - **Transportation Resource Center** to be operated by One Treasure Island to provide information on transportation services on Yerba Buena and Treasure Islands
 - **New electric bus and enhanced Muni service** on the 25 line
 - **Electric ferry charging infrastructure**
 - **Bikeshare expansion** to Treasure Island (Treasure Island Mobility Management Agency, 2025)

6.5 PARTNERING WITH COMMUNITY-BASED ORGANIZATIONS

Key Takeaways

- **San Mateo County Express Lanes Joint Powers Authority's Community Transportation Benefits Program** demonstrates how CBO partnerships can reduce the administrative burden for potential equity strategies by effectively utilizing existing trusted communication pathways with local communities. It also demonstrates how CBO partnerships create an efficient feedback loop for continuous improvement and accountability.

6.5.1 SMCEL-JPA's Community Transportation Benefits Program (San Mateo County, CA)

SMCEL-JPA administers the *Community Transportation Benefits Program*, an initiative designed to alleviate transportation costs for income-qualified residents in San Mateo County by offering eligible participants a choice of \$200 credits for either transit fares or tolls. A cornerstone of the program's effectiveness is its strategic partnerships with CBOs that play a significant role in outreach, enrollment, and service delivery.

SMCEL-JPA's collaboration with CBOs helps the program achieve several key strategies:

- **Localized Enrollment and Support:** The program is administered in collaboration with San Mateo County's Core Services Network, which reduces administrative burden by enabling the use of existing qualification data from other services to streamline enrollment. Participants can enroll at any of the county's Core Service Agencies, such as Samaritan House, which are embedded within communities to provide culturally competent assistance.
- **Trusted Community Engagement:** CBOs facilitate awareness campaigns, disseminate information, and assist with the application process using established community trust.
- **Feedback and Program Adaptation:** Ongoing collaboration allows CBOs to provide continuous administrative and participant feedback. This ensures that the program is responsive to changing community transportation needs.

The program also includes partnerships with MTC and the Bay Area Toll Authority (BATA) to provide free FasTrak® transponders and Clipper Cards. Therefore, this type of program is only possible due to the participation and collaboration of MTC/BATA (San Mateo County Transportation Authority, 2023).

6.6 VIOLATIONS AND ENFORCEMENT

Key Takeaways

- **Both BATA and Illinois Tollway's** violation penalty strategies demonstrate the potentially deleterious effects that violation fees can have on customers with low incomes, particularly when new tolling systems are first implemented.
- **BATA's program** in particular demonstrates the importance of providing a variety of waiver options and payment plans to provide customer flexibility.
- **Illinois Tollway's I-PASS Assist Program** shows how policies can be adjusted over time as the customer base becomes more educated about the toll facility's operating rules. This prevents enforcement from becoming an ineffectual behavioral deterrent while allowing customers ample time to adjust to new systems.

6.6.1 Bay Area Waivers and Toll Payment Plan (San Francisco Bay Area, CA)

The Bay Area toll bridge and express lanes agencies have implemented two options to manage toll-related debts: a one-time waiver of violation penalties and a payment plan for low-income residents. Table 6-2 shows the Bay Area express lane waiver policy, intended to reduce the financial burden on individuals (residents and non-residents of the Bay Area) who have accrued penalties due to unpaid tolls. Toll agencies provide a one-time waiver for each vehicle for bridges and express lane tolls and for one violation per agency.

Table 6-2 Bay Area Express Lane Waiver Policy (FasTrak, 2025)

Bay Area Express Lanes	Waivers available for all drivers:	Waiver available for low-income drivers
I-580 I-680 Contra Costa I-680 Sunol I-880 SR-237 US-101 US-101/SR-85	One-time waiver of penalties for first violation Requires the payment of all outstanding tolls and Department of Motor Vehicles (DMV) fees prior to collections activity	One-time waiver of penalties for ALL open violations Requires income verification

In addition to the waiver policy, the Bay Area offers a Toll Payment Plan designed to help individuals with unpaid tolls and penalties from bridge and express lane violations. This plan is particularly aimed at low-income households, providing a structured approach to debt repayment. Applicants must meet specific income thresholds. The eligibility is determined by the following criteria: (1) have toll violations on Bay Area bridges and express lanes, (2) owe at least \$100 in tolls and fees (after waivers), (3) have an annual household income at or below 200% of the FPL, and (4)

make an initial payment of either 50% of the owed tolls or \$100, whichever is lower. The plan offers multiple payment methods including automatic payments, in-person payments, phone payments and mail payments.

The Waiver and Payment Plan provides key support for drivers struggling with toll-related debts and aims to alleviate financial stress and promote equitable access to transportation infrastructure. By November 30, the Bay Area Toll Payment Plan had successfully established payment plans for a total debt of \$1,249,000, with \$133,000 collected. The balances on these plans varied, with the highest being \$12,400 and the average balance amounting to \$1,146. Monthly payments ranged up to \$500, with an average payment of \$51. The completion rate for these plans was 9.5% (Bay Area Toll Authority, 2024).

The program evaluation highlighted issues such as applicants who began but did not finish their applications, and eligible individuals who did not enroll. To address these challenges, the program has partnered with organizations to distribute multilingual physical materials, aiming to increase awareness and support throughout the application process. These efforts are intended to enhance participation and ensure that more eligible individuals can benefit from the program.

6.6.2 Illinois Tollways I-PASS Assist Program (Downers Grove, IL)

The I-PASS Assist Program, run by the Illinois Tollway, helps income-eligible individuals (with household income less than 250% of the FPL) by offering discounted tolls and easier toll payments. It operates under the overarching goal of reducing financial and systemic barriers for drivers with low incomes as they navigate the state's tolling system. It accomplishes this by implementing several strategies to promote equity in toll violations and enforcement:

- **Reducing Financial Barriers:** Since 2021, participants get a 50% discount on tolls, no transponder deposit, and can start an account with just \$4 in prepaid tolls. Enrollees to the program also qualify for a \$20 incentive.
- **Amnesty and Fee Dismissal Initiatives:** Following the implementation of cashless tolling in 2020, the Tollway offered an extensive amnesty program over a two-year period which reduced outstanding \$20 and \$50 fines assessed prior to March 2020 to \$3 per toll. Customers received over \$130 million in relief, clearing debt for over 325,000 customers. While the amnesty initiative ended in 2022, lessons learned from the program carried forward to violation fee reductions to \$20 and the waiving of invoice fees for customers enrolled in I-PASS Assist.
- **Simplified Qualification and Enrollment:** Eligible households can apply online, with eligibility based on household income or participation in programs like Supplemental Nutrition Assistance Program (SNAP) or Medicaid. To qualify, household income must be below 250% of the FPL, which is under \$75,000 for a family of four (Illinois Tollway, 2025).

The program has grown significantly, with active accounts increasing from 2,500 in 2020 to over 40,000 in 2024 and has collectively waived over \$3.7 million in invoice fees (IBTTA, 2024). This growth is supported by the Illinois Tollway's targeted outreach efforts, which use State agency partnership and demographic data analysis to focus on high-poverty areas using digital campaigns for education and advertisement. The program's partnership with the Illinois Department of Revenue and the Illinois Department of Human Services also led to the collaborative implementation of the automated application process for I-PASS Assist (Illinois Tollway, 2024).

6.7 REVENUE REINVESTMENT STRATEGIES

Key Takeaways

- **California Streets and Highway Code Section 149.7 and US Code Title 23 Section 129** provide important information on requirements, restrictions, and general guidance on how toll facilities may be operated and how toll revenue may be used after debt obligations, contractual agreements, and the development, maintenance, repair, rehabilitation, improvement, reconstruction, administration and operation of the toll facility. It is critical to incorporate these references in any toll revenue planning.
- **Both LA Metro's Express Lanes Net Toll Revenue Reinvestment Grant Program and New York City's Central Business District Tolling Program** provide practical examples of how agencies distribute revenue to different priorities. While both entities determined this structure through legislation, LA Metro incorporates a grant application process, while New York's MTA distributes funds as part of their normal planning and budgeting processes. Both feature transit and accessibility improvements prominently.

6.7.1 Eligible Uses of Remaining Revenue

The following two State and Federal statutes provide guidance and restrictions on the types of expenses for which excess net toll revenues can be used.

6.7.1.1 CALIFORNIA STREETS AND HIGHWAY CODE SECTION 149.7 (CA SHC §149.7)

California Streets and Highway Code (CA SHC) §149.7 provides the legislative authority for Caltrans and local agencies to develop, finance, and operate toll facilities. "Remaining revenue" is defined as the excess net revenue after "eligible expenses" which include (a) debt obligations and contractual agreements, (b) the development, maintenance, repair, rehabilitation, improvement, reconstruction, administration, and operation of the toll facility, and (c) reserves for the purposes of (a) and (b). CA SHC §149.7 states that "all remaining revenue generated by the toll facility shall be used in the corridor from which the revenue was generated." The definition of "corridor" must be reasonably defined and adopted as part of an agency's Remaining Revenue Policy, which would also identify eligible expenditures in accordance with the Federal Highway Administration, Caltrans CTP 2050, SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) and Yolo Countywide Transportation Plan goals. Eligible expenditures would include transportation equity programs and initiatives. The Remaining Revenue Policy would inform the development of Expenditure Plans which would authorize the use of remaining revenue funds.

6.7.1.2 US CODE TITLE 23 SECTION 129 (23 USC §129)

23 United States Code (USC) §129 governs federal requirements related to tolling on federally funded highways. Under 23 USC §129 a public authority with jurisdiction over a toll facility shall ensure that all toll revenues received from operation of the toll facility are used only for (i) debt service with respect to the projects on or for which the tolls are authorized, including funding of reasonable reserves and debt service on refinancing; (ii) any costs necessary for the improvement and proper operation and maintenance of the toll facility, including reconstruction, resurfacing, restoration, and rehabilitation, and; (iii) if the public authority certifies annually that the tolled facility is being adequately maintained, any other purpose for which Federal funds may be obligated by a State under this title. If condition (iii) is met, remaining revenue may be used to fund projects that are eligible for assistance under US Code Title 23, which also include projects eligible for assistance under US Code Title 49 – Subtitle III – Chapter 53 ("49 USC Ch. 53"). These statutes identify broad types of eligible projects, in which transportation equity programs and

projects are eligible. Examples include transit investments such as transit capital projects, park-and-ride lots, mobility hubs, fare subsidies, accessibility improvements, active transportation connections and safety enhancements; and equity investments such as toll discounts for low-income users, equity-based community outreach and National Environmental Policy Act (NEPA)-related EJ mitigation measures; and more. Use of remaining revenue funds on equity-related programs and initiatives would be authorized by the adoption of an Expenditure Plan adhering to federal guidelines.

6.7.2 LA Metro's Express Lanes Net Toll Revenue Reinvestment Grant Program (Los Angeles, CA)

In 2007, the USDOT initiated the Urban Partnership Agreement (UPA) and Congestion Reduction Demonstration (CRD) programs. The Los Angeles CRD ExpressLanes Program on the I-10 and I-110 corridors, now known as LA Metro ExpressLanes, was one of the six sites funded by the USDOT through UPA/CRD program. The CRD program funded the (i) conversion of the existing HOV lanes to dynamically priced HOT lanes, (ii) transit enhancements and (iii) ridesharing alternatives.

In October 2013, LA Metro launched the ExpressLanes Net Toll Revenue Reinvestment Grant program. As defined by California statute, remaining revenue must be reinvested in the corridor in which it was generated, which is defined as a 3-mile radius on either side of the I-10 and I-110 corridors. Funds as part of the Net Toll Revenue Reinvestment Grant program are awarded on a competitive basis. As part of the requirements, eligible applicants include public agencies that provide transportation facilities or services within Los Angeles County and seek to fund projects or programs within the 3-mile radius from either corridor. This funding can be used on all project development phases, including planning, design, right-of-way, and construction, as well as operations, operational improvements, and transit vehicle purchases. Eligible projects are generally allocated in the following three categories:

- **Transit System Improvements (~40%):** includes transit operations to increase level of service, fare subsidies, bus purchases and station enhancements.
- **Active Transportation/System Connectivity (~40%):** includes first-mile/ last-mile connections to transit facilities, Complete Streets projects, bicycle infrastructure, pedestrian enhancements, rideshare/ vanpool, electric vehicle infrastructure, and bus station improvements.
- **Highway Improvements (~20%):** includes ITS improvements, deck rehab and maintenance, on-/off-ramp improvements, expanded freeway service patrol and landscaping.

As part of the Technical Reviewer scoring criteria per the 2023 Adopted Net Toll Revenue Reinvestment Grant guidelines, the two elements related to equity include:

- **Mobility Benefits to EFCs**
- **Partnership with CBOs**

In FY 2023, all 16 recommended projects demonstrated a significant positive impact to EFCs which include the increase of mobility options, access to regional trip generators, safer pedestrian routes, transit frequency and the implementation of equity program pricing for all three grant categories. In addition, 10 of the 16 recommended projects included at least one partnership with a CBO in the Active Transportation/System Connectivity category. The total amount of funding authorized through the Net Toll Revenue Reinvestment Grant Program in FY 2023 totaled \$65 million, in addition to set-asides for reserves, transit operation subsidies, and to Caltrans.



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6.8 EQUITY STUDY APPLICATIONS

The case studies identified in Section 6 will inform the menu of potential equity strategy options under review in the study for Yolo 80. This list will inform several intermediate deliverables including any potential stakeholder or public surveys, the development of presentation material to be reviewed and discussed during public and stakeholder outreach, and the identification potential agencies for follow-up fact finding. Furthermore, these case studies will ultimately contribute significantly to the EEAs under consideration as potential recommendations for further study. Lessons learned from these peer agencies will also influence the creation of potential evaluation criteria to help prioritize and categorize these EEAs, including estimation of potential impacts on implementation effort, operations and maintenance, and revenue.

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7 SUMMARY AND CONCLUSION

7.1 SUMMARY

The key takeaways from the sections above describe potential sources to pull from to create the Project's Equity Approaches and Policies, Equity Frameworks, Equity Analysis Methodologies, and Strategy Types. The Key Takeaways from all sources and the applications to the Project's Equity Study are summarized below:

Theme 1: Equity Approaches and Policies	
Key Takeaways	State, regional, and local equity approaches emphasize related desired goals and outcomes, with some key differences: - Approaches at all levels included themes of focusing on historically marginalized communities, increasing accessibility to different modal choices and opportunities, and meaningful stakeholder and public participation in planning. - State-level approaches also focused on the integrated operations of the express lane by addressing express lane affordability, toll revenue reinvestment, violations, and enforcement. These approaches often aligned with broader State goals, including climate and resilience, and integrated the use of specific equity data and analysis tools, as well as small business partnership. - In addition to reinforcing state goals like climate and resilience, regional-level approaches also emphasized public health and pollution exposure. Ensuring that both qualitative and quantitative data sources were used in equity analysis and decision-making. - Local-level approaches focused on meeting the needs of communities close to the corridor, expanding active transportation, and enhancing customer experience. These approaches also considered project value by emphasizing on project implementation, alignment with overall express lane goals, and how strategies can adapt to changing community needs over time.
Equity Study Applications	Staff drew from the Equity Approaches and Policies described above to conduct a Goals and Outcomes workshop with major Yolo 80 Stakeholders on Friday, March 21, 2025. The objectives of the workshop included: - Engaging diverse stakeholders on the topic of equity for the Yolo 80 Managed Lanes; - Educating attendees on peer agency equity approaches, frameworks, goals, and strategies; - Documenting high-level impressions on potential Project goals, outcomes, and associated opportunities and challenges; - Synthesizing discussion to develop draft Yolo 80 Equity Goals; and

- Informing subsequent data collection, literature review, map analysis, and engagement.

Attendees represented agencies and jurisdictions in and adjacent to Yolo County, including YoloTD, SACOG, Caltrans, and the Cities of Davis and Woodland.

Through a hybrid presentation and whiteboarding format, stakeholders used examples from the Literature Review as a basis to identify several key themes to consider for further development into Equity Goals/Desired Outcomes, including:

- **Safety & Public Health:** Support the safety and public health improvements to Yolo County communities by leveraging the congestion management capabilities of the Yolo 80 Managed Lanes
- **Community and Corridor Reinvestment:** Maximize opportunities to reinvest excess toll revenue into equitable initiatives while honoring funding commitments and working to achieve express lane project goals.
- **Regional Collaboration:** Actively consult, cooperate with, and support our neighboring counties and regional partners in policy planning that supports equity strategies
- **User-Focused Pricing Strategies:** Develop equity strategies that reduce the cost differential of travel on the Yolo 80 Managed Lanes between corridor-adjacent users, shift/on-site commuters, and users who are less likely to require use of the corridor for essential trips
- **Multimodal Accessibility:** Commit to seeking opportunities to improve physical, operational, and technological infrastructure to increase equity priority community members' access to safer, more expansive transportation and pedestrian options
- **Equitable Enforcement:** Utilize effective enforcement strategies that support smooth express lanes operations while offering opportunities to learn for first-time violators who may be unaware of policies

These themes will serve as the foundation for major areas of focus as data analysis, continued stakeholder and public engagement, and the development and socialization of EEAs is undertaken over the course of Equity Framework development.

Theme 2: Equity Frameworks

Key Takeaways

Incorporating academic and practitioner frameworks into Yolo 80's Equity Framework helps ensure that the framework is:

- **Holistic:** Both TransForm and Ungemah's equity framework provide a holistic approach to equity in tolling projects by identifying processes, outcomes, and geographic data. These guiding frameworks help ensure that Yolo 80's Equity Framework does not miss or underemphasize any key component of promoting equity in tolling.
- **Structured:** TransForm's five-step equity roadmap offers a standardized approach for applying its conceptual framework to road pricing equity studies. This Study can use TransForm's roadmap as a basis model for evaluating equity strategies.
- **Incorporating User Perspectives:** The University of California, Berkeley's STEPS methodology evaluates a robust set of criteria against a variety of interconnecting perspectives to illustrate how different congestion management strategies may affect a variety of populations. The use of Spatial, Temporal, Economic, Physiological, and Social perspectives allows for a level of complexity that may more accurately reflect user experiences.

Equity Study Applications

Referencing these analytical approaches is critical to inform areas of focus for Project equity strategies because they provide structure and criteria to evaluate ideas and create processes to identify whether an overall approach is holistic. Table 4-1 uses a matrix to demonstrate how equity frameworks can be used to ensure that a project equity strategy is holistic. Following the Goals and Outcomes Workshop described in Section 3.4. Staff organized major takeaways using this matrix to identify blind spots in tolling equity considerations among major stakeholders. It was evident that:

- Participants focused much more on outcomes equity than process equity. Outcomes equity focuses on results of equity strategies, while process equity focuses on including equitable considerations in project development and implementation processes.
- Attendees focused more on geographic, income, opportunity, and modal equity than they did on participation equity. Participation equity is the concept that equity priority communities have a voice in decision-making and accountability. This may be explained by the fact that participation equity is highly coordinated with process equity, though participation equity can also be applied post-implementation through strategies like public accountability and oversight structures.
 - Throughout the workshop, there was a high focus on geographic equity. Geographic equity is the concept of distributing benefits and burdens logically across regions. This emphasis was expected since the purpose of

the workshop was to include stakeholders from diverse geographical perspectives. However, it underscores the importance of the regional context in any equity planning undertaken by YoloTD.

These focuses and blind spots are critical to highlight as the Project moves forward with the equity plan. Among the Project's major stakeholders, a reduced focus on process equity and participation equity demonstrates a potential overfocus on outcomes. Proactively ensuring that community members and/or resources are actively engaged in the equity planning process prevents any potential toll equity strategies from being perceived as prescriptive. This increases public trust in the Project and the agencies supporting it and focuses potential strategies on those the public will most likely perceive as effective. Similarly, overly focusing on geographic equity may result in a plan that is too regionally focused at the expense of local priorities. Surfacing these considerations at the outset helps the equity plan development move forward in a holistic manner by ensuring that major focus areas are not categorically missed.

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Theme 3: Equity Analysis Methodologies**Key Takeaways**

Case studies provided the following best practices for data sources, analysis, and ongoing monitoring and evaluation:

- **GIS Analysis:** Studies such as those performed for Caltrans District 12's I-5 Managed Lanes Project Equity Study and SACOG's Mobility Zones are able to create detailed qualitative stories about the needs of equity priority communities using available census and trip characteristic data. These data stories assist the Project team in choosing where to focus further outreach and engagement as well as where and how to prioritize investment.
- **Survey:** Georgia Department of Transportation's extensive survey brought the inequities that communities may experience as a result of express lanes into relief, while also reinforcing that express lanes still provide value for low-income users.
- **Monitoring and Evaluation:** Studies such as the Express Lanes START Preliminary Evaluation show how key performance indicators, from pilot enrollment rates to changes in the travel behaviors of participants, are critical to evaluate the effectiveness of potential programs from the perspective of both the administration of the program and the effectiveness of user outcomes.

Equity Study Applications

GIS methodologies described in Section 5.1 have directly influenced the data analysis performed for neighborhoods in Yolo, Solano, and Sacramento counties as part of the equity task for this Project. The EPCs identified for Yolo 80, and the related narratives informed by their distinct demographic stories will form a basis of understanding for communities affected by the project, identify communities and tailored strategies for targeted outreach, and influence the strategies under consideration for the Project's EEAs. A detailed description of the mapping methodology and results for this project will be described in a separate memo.

Survey and Evaluation methodologies described in Sections 5.2 and 5.3 provide examples for strategies currently being considered for implementation as part of concurrent development of the Project's Engagement Framework and Equity Study Framework. They may also be used as a basis for EEAs to be potentially employed in the future.

Theme 4: Strategy Types**Key Takeaways**

Peer agency case studies represent a roll-up of the concepts introduced in all previous sections because they demonstrate how these concepts have been applied in real-world settings. Case studies highlight barriers faced by agencies with similar constraints to inform Yolo 80's eventual Equity Framework, particularly the equity strategy menu described by the EEAs, and provide important proofs to decision-makers. Case studies can be organized into the following categories:

- Financial Assistance Programs and Income-Based Tolling
- Incentives
- Mobility and Access
- Community Engagement and Participation
- Partnering with Community-Based Organizations
- Violations and Enforcement
- Revenue Reinvestment Strategies

Equity Study Applications

The case studies identified in Section 6 will inform the menu of potential equity strategy options under review in the study for Yolo 80. This list will inform several intermediate deliverables including any potential stakeholder or public surveys, the development of presentation material to be reviewed and discussed during public and stakeholder outreach, and the identification of potential agencies for follow-up fact finding. Furthermore, these case studies will ultimately contribute significantly to the EEAs under consideration as potential recommendations for further study. Lessons learned from these peer agencies will also influence the creation of potential evaluation criteria to help prioritize and categorize these EEAs, including estimation of potential impacts on implementation effort, operations and maintenance, and revenue.

As described in Sections 3.4 and 4.4, the Literature has already informed the Goals and Outcomes Workshop, which used research to form the basis for stakeholder discussions on the Project's Equity Approach and began to identify potential strategies of interest. The results from these two deliverables will continue to influence near-term deliverables including the Spatial Analysis and Equity Mapping Memorandum and Outreach Framework. YoloTD, CARTA board members, and CARTA staff have and will be consulted at a minimum of three points in the Equity task timeline. Cumulatively, these interim tasks will build the foundation of the EEAs which will be detailed in a final report.

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